



University of Fort Hare
Together in Excellence

**AN INVESTIGATION OF SKILLS, KNOWLEDGE AND FARMER SUPPORT
PROGRAMMES OF LAND REFORM BENEFICIARIES: A CASE STUDY OF FOREST
HILL FARMERS IN KENTON-ON-SEA IN THE NDLAMBE LOCAL MUNICIPALITY**

BY

TSHUMA MENGEZI C

**Submitted in fulfilment of the requirements for the degree of
DOCTOR OF PHILOSOPHY (PhD) IN AGRICULTURAL ECONOMICS**

**In the
Department of Agricultural Economics and Extension
Faculty of Science and Agriculture
University of Fort Hare,
Alice, South Africa**

SUPERVISOR: DR. N. MONDE

JANUARY 2013

DEDICATION

*To the most adorable baby ever, my son Luhle. May the Good Lord grant you wisdom,
strength and the ability to achieve all your heart's desires!*

DECLARATION

I hereby certify that this thesis is the result of my own original work and has not previously been submitted to another university for the purpose of a degree. Where use has been made of the work of others, such work has been duly acknowledged in the text.



Signed:

TSHUMA MENGEZI C

Date: 25/01/2013

ACKNOWLEDGEMENTS

First and foremost I wish to give praise and honour to the Almighty God for giving me the opportunity and capacity to realize my academic dream. My gratitude also extends to my family for their unwavering support and prayers. You also encouraged me to keep going on especially when I was about to give up. I wouldn't trade what you have done for me for anything in this world. I pray that God also blesses you abundantly and multiplies your days on this planet.

To my supervisor Dr Nomakhaya Monde, I would not have managed to come up with this document without your help and guidance. Thank you very much for your wisdom and desire to see me succeed not only academically but in everything else that I've done in life.

This document was produced with the help of many individuals such as Boyana, T, Sikwela, M, Tshabalala, T, Taruvinga, A, Musemwa, L and Ndhleve, S. I thank you so much for all your support and encouragement. I really value all your contributions. I also appreciate the assistance that I got from my colleagues at work, Ms Sefura Mongalo and Dr Maggie Kisaka-Lwayo. My heartfelt gratitude is also extended to Mr Trymore Chivinge and my data collection team, Messrs Hamlet Hlomendlini, Goodman Nonambane and Melusi Sibanda. I really appreciate all the time you sacrificed just to help me with my work. I wish you all the best in your own studies. To the late Masimbonge Qikana, may your soul rest in eternal peace. Working with you was a real pleasure.

I also wish to extend my appreciation to all the Marselle farmers that I interviewed. All the results contained in this document are based almost entirely on your responses. I really value your inputs and cooperation. To those whose names I did not mention, may God also richly reward you for availing yourselves when I needed you the most. This is my prayer for you and your families.

Thank you, Baie Dankie, Ngiyabonga, Enkosi, Ke a leboga, Ke a leboha, Ndi a livhuwa.

EXECUTIVE SUMMARY

The issue of land ownership in South Africa is something that started as far back as the first days of colonialism. During this period, land was forcibly taken away from its rightful black owners by white colonialists. Even though whites made up less than 20% of the nation's population, they took more than 80% of the agriculturally productive land and drove the original owners to the unproductive reserves where they were cramped and could not practice agriculture at all. Various acts such as the Black Land Act of 1913, Development Trust Act of 1936 and the Native Laws Amendment Act of 1937 were introduced which further frustrated the displaced black population thereby plunging it deeper and deeper into poverty. The main objective behind the introduction of these acts was to restrain the black population from earning livelihoods through agriculture thus forcing them to offer their labour to white farmers for low wages just to earn some form of livelihood.

Such unfair practices and distribution of land prompted the first democratically elected government of South Africa to embark on a drive to redistribute the nation's land equitably amongst its citizens to foster national reconciliation, stimulate economic growth and compensate those that were forced out or lost their land during the apartheid era. This initiative was called the Land Reform Programme (LRP) and was implemented with three prongs namely (i) land redistribution; (ii) restitution; and (iii) land tenure. Among the beneficiaries of the LRP were farmers from a community called Marselle in Kenton-on-sea. In addition to getting land for farming purposes, the Marselle farmers also obtained financial support from the government's Land Bank to help them kick-start their farming activities. However, in spite of such interventions, they have struggled to turn their activities into sustainable livelihood sources. One most likely cause for this is the lack of farming knowledge and skills needed to make them more efficient and productive. This study was thus geared towards evaluating the knowledge and skills gap in Marselle which, when addressed, could make the Marselle farmers more productive. Its focus was limited to the 32 livestock and 8 chicory farmers that are recognized members of their respective projects. Focus was limited only to these farmers since the next phase of this study will involve building their capacity based on the skills gaps identified through this study.

The findings showed that the two projects benefited at least 130 individuals belonging to the farming households, with 67.5% of these households headed by males. The age of these farmers was equally shared at 40% each between those above 65 years and those that only went as far as fourth grade. No one went to tertiary at all. At least 75% of the investigated farmers were unemployed and 42% of this population was pensioners. In terms of income though, 64.98% of it was from external sources.

The Masakhane Silime (Chicory) project was implemented to generate income and provide job opportunities for the locals but neither of these objectives had been met at the time the data for this study was collected due to various challenges like lack of funds and infrastructure to enhance productivity. Just like the chicory project, the livestock project had its own objectives, namely; to remove animals from the residential areas, provide the animals with a safe place, reduce road accidents and also to provide a livelihood source for local farmers. Due to overgrazing the pastures, lack of proper camps and other challenges, some effort still needs to be put to achieve these objectives. Even though the livestock project was formed with these objectives in mind, the farmers themselves reared livestock either for personal consumption, selling, ritual purposes, store of wealth or all these combined.

Regarding technical skills, livestock farmers were found to rely mostly on indigenous knowledge sources to attain farming knowledge. Only animal healthcare knowledge was popular to more than half the respondents. This was said to be due to the focus group meetings held on the farm every other Wednesday to share information with local extension officers. In spite of these information sharing events, livestock farmers identified training on how to feed; market; handle; and treat their livestock as key intervention knowledge areas. Attendance to these focus group meetings was limited to livestock farmers only.

Various socio-economic factors were also found to have some form of influence on the acquisition of livestock knowledge. Education was the most dominant factor, with a significant association with the farmers' feeding ($p=0.033$); animal healthcare ($P=0.038$); marketing ($p=0.009$); veld management ($p=0.036$); and cattle slaughtering ($p=0.027$) knowledge. Other variables most influential include the gender and age of the household head. The former was significant at 95% confidence level for farmers' feeding knowledge

($p=0.021$); animal healthcare ($p=0.039$); marketing ($p=0.043$); livestock housing and handling ($p=0.023$); veld management ($p=0.018$); and cattle slaughtering ($p=0.043$). The dominance of males in acquiring these skills could be explained by the fact that the majority of the livestock project members were males. The majority of the few female members became members by default after the passing on of their husbands but their participation in the project was done through other project members who looked after their animals on their behalf.

The number of farming years also had some positive and significant influence on other knowledge areas such as feeding ($p=0.021$) and livestock housing and handling ($p=0.013$). The logic supporting this association is that farmers tend to accumulate new and more skills the longer they stay in the same enterprise. In addition, most of the interviewed farmers were farm labourers prior to relocating to Marselle hence they acquired the necessary knowledge long before the project started.

Concerning the chicory project, its members also relied heavily on indigenous knowledge sources for farming knowledge. Soil preparation (24.1%); planting (20.7%); land care (24.1%); and mechanical weed control (48.3%) were the knowledge areas lacked by more than half the respondents. The farmers identified land preparation (75%); communication skills (25%); marketing (100%); financial management (62%); and harvesting (88%) as the key crucial intervention areas they needed prioritized.

As a study meant to inform the capacity building phase of the Land Bank project, this study identified the existing skills gaps in the two projects implemented in Forest Hill. When implementing the Capacity Building (CB) phase, various socio-economic factors will have to be considered. For example, the proposed intervention should not discriminate against anyone on the grounds of gender or physical abilities. The skills introduced should also be simple enough to be accepted and acquired even by the illiterate, especially when one considers the high illiteracy levels amongst the respondents. Efforts should also be made to create partnerships with the right organizations or groups of people so that they provide the required expertise and resources for the benefit of the farmers as and when required.

Key words: Knowledge and skills gap; Capacity building; Poverty alleviation; Land reform; Smallholder farming; Farmer Support Programmes; Rural Development

TABLE OF CONTENTS

DEDICATION	ii
DECLARATION	iii
ACKNOWLEDGEMENTS	iv
EXECUTIVE SUMMARY	v
TABLE OF CONTENTS	ix
LIST OF TABLES	xviii
LIST OF FIGURES	xx
LIST OF ACRONYMS	xxii
CHAPTER 1	1
INTRODUCTION	1
1.1 Background of the study	1
1.2 Problem statement	3
1.3 Objective of the study	6
1.4 Specific-objectives of the study	7
1.5 Research questions	7
1.6 Justification of the study	7
1.7 Outline of the study	8
CHAPTER 2	10
A REVIEW OF SMALL-SCALE FARMERS IN SOUTH AFRICA	10
2.1 Introduction	10
2.2 Definition of small scale farmers in the South African context	10
2.3 Socio-economic characteristics of small-scale farmers	12
2.3.1 Demographic characteristics	12
2.3.2 Smallholder farm landholding	13
2.3.3 Skills and training	14
2.4 The role of small-scale farmers in an economy	15

2.4.1 Poverty alleviation	15
2.4.2 Contribution towards rural income	17
2.4.3 Employment creation	18
2.4.4 Backward and forward linkages	18
2.4.5 Distribution of social capital	19
2.5 Constraints faced by small-scale farmers	19
2.5.1 Lack of adequate education.....	20
2.5.2 Lack of finance	20
2.5.3 Technological constraints	21
2.5.4 Lack of information	22
2.5.5 Institutional constraints	23
2.5.6 Infrastructural constraints	23
2.6 Synopsis.....	25
CHAPTER 3.....	26
A REVIEW OF THE GOVERNMENT’S ATTEMPTS TO ERADICATE POVERTY.....	26
3.1 Introduction	26
3.2 The Land Reform Programme (LRP).....	26
3.2.1 Land Redistribution	27
3.2.1.1 The Settlement and Land Acquisition Grant (SLAG)	28
3.2.1.2 Land Redistribution for Agricultural Development (LRAD) programme....	29
3.2.2 Land Tenure Reform	30
3.2.3 Land Restitution	30
3.2.4 Failures of the LRP	32
3.3 Government’s Farmer Support Programmes (FSPs)	36
3.3.1 Successes of the FSPs in South Africa	38
3.3.2 Failures of the FSPs in South Africa	38
3.4 Agricultural Broad-Based Economic Empowerment (Agri-BEE).....	41
3.5 Accelerated and Shared Growth Initiative for South Africa (ASGISA)	42

3.6 Synopsis.....	45
CHAPTER 4.....	47
A REVIEW OF RELEVANT CONCEPTS	47
4.1 Introduction	47
4.2 The Sustainable Livelihood (Sl) Concept.....	47
4.2.1 Livelihood Resources	50
4.2.2 Institutions And Organizations	50
4.2.3 Livelihood Outcomes	51
4.2.4 Livelihood Strategies: Portfolios And Pathways	51
4.2.4.1 On-farm livelihood strategies	52
4.2.4.2 Off-farm livelihood strategies	54
4.3 The Capacity Building (CB) Concept	56
4.3.1 Capacity building defined	58
4.3.1.1 Capacity Building in Agriculture.....	59
4.3.2 Capacity Building: A Framework for analysis.....	60
4.3.2.1 Physical Capital	61
4.3.2.2 Financial capital	61
4.3.2.3 Human Capital	62
4.3.2.3.1 Analytical.....	62
4.3.2.3.2 Technical.....	62
4.3.2.3.3 Economic	63
4.3.2.3.4 Leadership	63
4.4 Acquisition Of Knowledge, Skills and Competences Framework.....	64
4.4.1 Knowledge	64
4.4.2 Skills.....	64
4.4.3 Competence	65
4.5 Synopsis.....	68
CHAPTER 5.....	69

RESEARCH METHODOLOGY	69
5.1 Introduction	69
5.2 Description of the study area	69
5.2.1 Brief description of the livestock project.....	72
5.2.2 Brief description of the chicory project	73
5.3 Methods of data collection	75
5.3.1 The survey	75
5.3.2 Justification of the small respondent number	77
5.3.2.1 The research should investigate the properties of a single case	77
5.3.2.2 The research investigates a single phenomenon	78
5.3.2.3 The population size is usually very small	79
5.3.2.4 A case study relies on multiple sources of evidence	79
5.4 Weaknesses of the case study approach	80
5.5 Methodology.....	80
5.5.1 Application of the CB and knowledge and skills frameworks.....	80
5.5.1.1 Physical Capital	81
5.5.1.2 Human Capital	81
5.5.1.3 Analytical	81
5.5.1.4 Technical	81
5.5.1.5 Economic.....	82
5.5.1.6 Leadership.....	82
5.5.1.7 Financial capital	82
5.5.1.8 Institutions.....	83
5.5.2 Application of the acquisition of KSC framework.....	83
5.6 Data analysis and interpretation	84
5.6.1 Nonparametric tests	85
5.6.2 Parametric tests	85
5.6.2.1 Description of variables specified in the model.....	87

5.6.2.1.1 Gender of farmer	87
5.6.2.1.2 Age of farmer.....	88
5.6.2.1.3 Farmers' level of education.....	88
5.6.2.1.4 Household size.....	89
5.6.2.1.5 Farmer status (Part-time or full-time)	89
5.6.2.1.6 Loans	90
5.6.2.1.7 Number of years in farming	90
5.6.2.1.8 Marital status	90
5.6.2.1.9 Family labour.....	91
5.7 Synopsis.....	91
CHAPTER 6.....	93
DESCRIPTIVE RESULTS.....	93
6.1 Introduction	93
6.2 Demographic Results	93
6.2.1 Composition and size of farming households in Marseille	93
6.2.2 Household head gender distribution	94
6.2.3 Household head age distribution	96
6.2.4 Education levels of household heads	98
6.2.5 Employment status of household heads	99
6.3 Income and Expenditure Patterns.....	100
6.3.1 Sources of income for the farming households of Marseille.....	100
6.3.2 Expenditure patterns of the farming Marseille households	102
6.4 Agricultural Information.....	104
6.4.1 The Masakhane Silime Chicory Project	105
6.4.1.1 Objectives of the Masakhane Silime Project	105
6.4.1.2 Cropping practices used by the project members.....	106
6.4.1.3 Challenges faced by the chicory farmers	108
6.4.1.3.1 Bush encroachment and weeds	108

6.4.1.3.2 Unfavourable trading practices	108
6.4.1.3.3 Lack of farming implements	109
6.4.2 The Livestock Project	110
6.4.2.1 Conditions for joining the SFA.....	110
6.4.2.2 Objectives of the SFA	111
6.4.2.3 Number of cattle grazing on the farm	114
6.4.2.4 Number of small stock grazing on the farm	116
6.4.2.5 Reasons for rearing livestock identified by livestock farmers.....	117
6.4.2.6 Marketing of livestock in Marselle	119
6.4.2.6.1 Determinants of farmers' choice of markets.....	121
6.4.2.6.2 Price determination.....	123
6.4.2.7 Role Played by the Community Leaders	125
6.4.2.8 Information on Rangelands	127
6.4.2.8.1 Pasture conditions	128
6.4.2.8.2 Management of pastures by Marselle farmers	131
6.4.2.8.3 Water sources for livestock.....	132
6.5 Institutions	134
6.5.1 Proximity of financial institutions to Marselle.....	134
6.5.2 Aspirations of farmers to use local financial institutions	135
6.5.3 Other forms of capital	137
6.6 Synopsis.....	137
CHAPTER 7.....	140
ANALYSIS OF THE FARMERS' SKILLS, KNOWLEDGE AND TRAINING NEEDS ..	140
7.1 Introduction	140
7.2 Languages used by farmers	140
7.3 Farmer aspirations	141
7.4 Knowledge and skills possessed by the marselle farmers	145
7.4.1 Livestock farmers	145

7.4.1.1 Technical skills.....	145
7.4.1.2 Skills acquisition strategies for farmers	147
7.4.1.3 Knowledge possessed by farming household members.....	148
7.4.1.4 Training areas preferred by famers	149
7.4.1.4.1 Service providers preferred by farmers.....	151
7.4.1.5 Potential enterprises for consideration	152
7.4.1.6 Perceived Critical Success Factors (CSF).....	158
7.4.1.7 Management structure for the livestock project	159
7.4.1.8 Criteria for electing committee members as identified by farmers	160
7.4.1.9 Assistance given by government.....	160
7.5 Chicory farmers	162
7.5.1 Technical skills	162
7.5.2 Knowledge and skills acquisition strategies.....	163
7.5.3 Skills needed.....	164
7.5.4 Management structure for the chicory project.....	166
7.5.4.1 Role of the project steering committee	166
7.5.4.2 Selection criteria of project committee members	166
7.5.4.3 Opportunities for people with disabilities	167
7.5.5 Potentially profitable enterprises.....	167
7.6 Synopsis.....	168
CHAPTER 8.....	170
ECONOMETRIC RESULTS	170
8.1 Introduction	170
8.2 Socio-economic factors affecting the farmers' feeding skills	171
8.3 Socio-economic factors affecting the farmers' animal healthcare skills	173
8.4 Socio-economic factors affecting the farmers' livestock marketing.....	177
8.5 Socio-economic factors affecting the farmers' animal housing and handling.....	180
8.6 Socio-economic factors affecting the farmers' veld management knowledge	183

8.7 Socio-economic factors affecting the farmers' livestock slaughtering.....	186
8.8 Synopsis.....	188
CHAPTER 9.....	190
SUMMARY, CONCLUSSIONS AND RECOMMENDATIONS.....	190
9.1 Introduction	190
9.2: Summary.....	190
9.3: Identified areas of intervention.....	194
9.3.1: Livestock farmers	194
9.3.1.1: Technical skills.....	194
9.3.1.1.1: Livestock feeding.....	194
9.3.1.1.2: Animal healthcare.....	194
9.3.1.1.3: Marketing skills.....	195
9.3.1.1.4: Proper pasture management practices	195
9.3.1.2: Managerial knowledge and skills	196
9.3.1.2.1: Farm management skills training.....	196
9.3.1.2.2: Business plan development	196
9.3.1.2.3: Information accessing skills.....	196
9.3.1.3: Soft skills.....	197
9.3.1.3.1: Team building.....	197
9.3.1.3.2: Analytical skills	197
9.3.2: Chicory farmers	198
9.3.2.1: Technical skills.....	198
9.3.2.1.1: Marketing	198
9.3.2.1.2: Crop production.....	198
9.3.2.1.3: Weed control	198
9.3.2.1.4: Irrigation knowledge	199
9.3.2.2: Managerial knowledge and skills.....	199
9.3.2.2.1: Entrepreneurship.....	199

9.3.2.3: Soft skills.....	200
9.3.2.3.1: Communication	200
9.3.2.3.2: Common skills.....	200
9.4: General areas of intervention	200
9.4.1: Proper Infrastructure.....	200
9.4.1.1: Road infrastructure	200
9.4.1.2: Dam rehabilitation	201
9.4.1.3: Water pumping system	201
9.4.1.4: Housing infrastructure.....	201
9.4.2: Proper fencing of the farm	202
9.4.3: Farming implements	202
9.5: Socio-economic factors influencing knowledge and skills acquisition	202
BIBLIOGRAPHY	204
LIST OF APPENDICES	256
APPENDIX 1: QUESTIONNAIRE 1: SOCIO-ECONOMIC INFORMATION.....	256
APPENDIX 2: QUESTIONNAIRE 2: KNOWLEDGE AND SKILLS REVIEW.....	267

LIST OF TABLES

<i>Table 2.1: Number and size variation in landholding in South Africa</i>	<i>14</i>
<i>Table 5.1: Practical criterion for judging the existence of entrepreneurial behaviour.....</i>	<i>84</i>
<i>Table 5.2: Independent variables in the BLR model and their expected outcomes</i>	<i>87</i>
<i>Table 6.1: Composition and size of the farming households in Marselle.....</i>	<i>94</i>
<i>Table 6.2: Household head gender distribution in Marselle</i>	<i>95</i>
<i>Table 6.3: Employment status and occupation of household heads in the two projects .</i>	<i>99</i>
<i>Table 6.4: Sources of income and their contribution to household income in the two projects</i>	<i>101</i>
<i>Table 6.5: Farming households' expenditure patterns in Marselle in the two projects..</i>	<i>103</i>
<i>Table 6.6: Farming equipment owned by Marselle farmers in the two projects</i>	<i>104</i>
<i>Table 6.7: Number of animals owned by each SFA member</i>	<i>114</i>
<i>Table 6.8: Average number of small stock per farmer</i>	<i>116</i>
<i>Table 7.1: Languages used by the farmers</i>	<i>141</i>
<i>Table 7.2: Level of knowledge possessed by the SFA members.....</i>	<i>146</i>
<i>Table 7.3: Knowledge and skills acquisition strategies for livestock farmers.....</i>	<i>148</i>
<i>Table 7.4: Potential enterprises identified by the livestock farmers in Marselle</i>	<i>155</i>
<i>Table 7.5: Technical skills for chicory farmers</i>	<i>162</i>
<i>Table 7.6: Knowledge and skills acquisition strategies for chicory farmers</i>	<i>164</i>
<i>Table 8.1: Socio-economic characteristics of selected respondents (N=32)</i>	<i>170</i>
<i>Table 8.2: Estimates of determinants of farmers' feeding knowledge</i>	<i>171</i>
<i>Table 8.3: Estimates of determinants of farmers' animal healthcare knowledge</i>	<i>175</i>
<i>Table 8.4: Estimates of determinants of farmers' marketing knowledge</i>	<i>179</i>

<i>Table 8.5: Estimates of determinants of farmers' livestock housing and handling skills</i>	
.....	181
<i>Table 8.6: Estimates of determinants of farmers' veld management knowledge</i>	184
<i>Table 8.7: Estimates of determinants of farmers' cattle slaughtering knowledge</i>	187

LIST OF FIGURES

<i>Figure 4.1: Sustainable rural livelihoods: A framework for analysis</i>	<i>49</i>
<i>Figure 4.2: Capacity building framework for analysis.....</i>	<i>61</i>
<i>Figure 4.3: A typology of competence</i>	<i>67</i>
<i>Figure 5.1: A schematic representation of the study area.....</i>	<i>71</i>
<i>Figure 5.2: Some of the cattle grazing at the Forest Hill farm</i>	<i>73</i>
<i>Figure 5.3: Chicory plant at Forest Hill.....</i>	<i>75</i>
<i>Figure 6.1: Household head age distribution in Marselle</i>	<i>97</i>
<i>Figure 6.2: Distribution of farmers in Marselle and the EC Province according to age ...</i>	<i>97</i>
<i>Figure 6.3: Education levels of household heads in Marselle in the two projects</i>	<i>98</i>
<i>Figure 6.4: Objectives of the Masakhane Silime chicory project</i>	<i>106</i>
<i>Figure 6.5: Cropping practices used by the chicory farmers in Marselle</i>	<i>107</i>
<i>Figure 6.6: Farmer-stated conditions for joining the SFA in Marselle.....</i>	<i>111</i>
<i>Figure 6.7: Objectives of the Stock Farmers Association.....</i>	<i>112</i>
<i>Figure 6.8: SFA's objectives that have been met thus far</i>	<i>113</i>
<i>Figure 6.9: Farmers' reasons for rearing livestock.....</i>	<i>117</i>
<i>Figure 6.10: Livestock markets used by the Marselle farmers</i>	<i>120</i>
<i>Figure 6.11: Determinants of the markets used by Marselle farmers</i>	<i>122</i>
<i>Figure 6.12: Number of livestock farmers facing marketing problems.....</i>	<i>123</i>
<i>Figure 6.13: Price determination by the Marselle livestock farmers</i>	<i>124</i>
<i>Figure 6.14: Invitation of community leaders to farmers' meetings</i>	<i>126</i>
<i>Figure 6.15: Role played by community leaders in the SFA in Marselle.....</i>	<i>126</i>
<i>Figure 6.16: Condition of the fence surrounding the rangelands at Forest Hill Farm....</i>	<i>128</i>

<i>Figure 6.17: Perceived condition of pastures at the Forest Hill Farm.....</i>	<i>130</i>
<i>Figure 6.18: Factors affecting the condition of pastures at the Forest Hill farm.....</i>	<i>130</i>
<i>Figure 6.19: Penalties imposed on those misusing the rangelands</i>	<i>132</i>
<i>Figure 6.20: Water sources for the cattle kept at the Forest Hill Farm</i>	<i>133</i>
<i>Figure 6.21: Access to financial institutions by Marselle</i>	<i>135</i>
<i>Figure 6.22: Reasons for not wanting to borrowing from financial institutions.....</i>	<i>136</i>
<i>Figure 7.1: Farmer aspirations regarding their livestock</i>	<i>142</i>
<i>Figure 7.2: Aspirations of farmers' children regarding their expected inherited livestock</i>	<i>144</i>
<i>Figure 7.3: Number of farmers with trained family members.....</i>	<i>149</i>
<i>Figure 7.4: Knowledge intervention areas identified by farmers.....</i>	<i>150</i>
<i>Figure 7.5: Service providers preferred by Marselle farmers as trainers.....</i>	<i>152</i>
<i>Figure 7.6: Possible sources of income for livestock farmers</i>	<i>153</i>
<i>Figure 7.7: Farmers' perceived Critical Success Factors (CSFs).....</i>	<i>159</i>
<i>Figure 7.8: Interventions from the government</i>	<i>161</i>
<i>Figure 7.9: Areas of intervention identified by farmers.....</i>	<i>165</i>
<i>Figure 7.10: Enterprises identified by farmers as potentially profitable</i>	<i>168</i>

LIST OF ACRONYMNS

ANC – African National Congress

ARDC/AGRIVEN -

ASGISA - Accelerated and Shared Growth for South Africa

ASGISA-EC - Accelerated Shared Growth Initiative for South Africa in the Eastern Cape

BEE - Black Economic Empowerment

CB – Capacity Building

CSF - Critical Success Factors

DBSA - Development Bank of Southern Africa

DFID - Department for International Development

DLA - Department of Land Affairs

DoA - Department of Agriculture

DTI - Department of Trade and Industry

ECDA - Eastern Cape Department of Agriculture

EL - East London

FAO - Food and Agriculture Organization

FSP - Farmer Support Programmes

GHS - General Household Survey

HDI - Historically Disadvantaged Individuals

HIV - Human Immunodeficiency Virus

IKS - Indigenous Knowledge Sources/Systems

KSC - Knowledge, Skills and Competences

LARP - Land and Agrarian Reform Programme

LDC - Least Developed Countries

LFS - Labour Force Survey

LRAD - Land Redistribution for Agricultural Development

LRP - Land Reform Program

MDG - Millennium Development Goals

NAMC - National Agricultural Marketing Council

n.d – Undated

NGO - Non-Governmental Organization

OECD - Organization for Economic Co-operation and Development

PDL - Poverty Datum Line

PE - Port Elizabeth

R&D - Research and development
RDP - Reconstruction and Development Programme
SACP - South African Communist Party
SAHRC - South African Human Rights Commission
S.E. – Standard Error
SFA - Stock Farmers Association
SL - Sustainable Livelihood
SLAG - Settlement and Land Acquisition Grant
SPII - Studies in Poverty and Inequality Institute
SSA – Sub-Saharan Africa
TFT - Training for transformation
UEPB - Uganda Export Promotion Board
UN - United Nations
WHO - World Health Organization
WRC - Water Research Commission

CHAPTER 1

INTRODUCTION

1.1 Background of the study

According to Tupy (1999), the land problem in South Africa goes back to the early colonial times when native lands were expropriated from their rightful owners, often without compensation. Thus, the roots of relocations, marginalization and segregation of blacks by whites can be traced back to as early as 1658 when the Khoi were informed that they could no longer dwell to the west of the Salt and Liesbeck Rivers, and through the 1800's when the first reserves were proclaimed by the British and the Boer governments (Thwala, 2003). This ill-treatment of blacks by whites in South Africa deteriorated in the early 20th Century as the white-led government introduced several stiffer laws to enforce the segregation between the two races in the country. The first to be passed was the Native Land Act, also known as the Black Land Act, which was passed in 1913 to prevent the “encroachment” of blacks on white areas (Reader’s Digest, 1988). The Reader’s Digest (1988) further documented that this Act of 1913 created reserves for blacks and prohibited the sale of white territory to blacks and vice-versa. The worst side of the Act was that whites took over 80% of the land despite the fact that they made up less than 20% of the entire nation’s population.

Consequent to this Act of 1913, not only did whites take 80% of any land but they took the most agriculturally productive land in the country, leaving the black population to overcrowd the remnant less-productive 20% (Reader’s Digest, 1988). Debates surrounding this unpopular Native Land Act suggest that the Act was passed in order to limit contact between whites and blacks. On the other hand, blacks inferred that the motive behind the Act was to meet the white farmers’ demands for more agricultural land by forcing blacks to work as cheap labour.

During the first few years of trying to resettle the black majority on small pieces of land, the whites realized that overcrowding would be exacerbated by the large numbers of livestock owned by the black majority. Consequently, the Betterment Planning Programme was introduced under the Black Land Act of 1913 with the motive believed to be that of creating more residential space for blacks through cattle-culling, fencing of fields and grazing land and the allocation of collective

dwellings for black people in villages which were set away from farming areas (Muller, 1981).

In 1936, as noted by Rosset *et al.* (2006), the apartheid government worsened the already bad situation for blacks by introducing the Development Trust Act which was later followed by the Native Laws Amendment Act of 1937. The former made 'squatting' illegal whilst the latter banned the purchasing of land by blacks in urban areas. More laws that disadvantaged blacks were later introduced and these drove the black majority deeper and deeper into poverty by alienating them from their most resourceful asset, land. With very little livestock and no land for agriculture, it became inevitable for blacks to offer their labour cheaply to white farmers in an attempt to earn wages with which to make ends meet. According to Thwala (2003), the influx of cheap black labour on white farms that resulted was one of the major forces that drove whites to dispossess blacks from their rich ancestral land that they inhabited. Thus, through land grabbing, the need by white farmers to compete for labour (to work on the farms, mines and, later industry) declined as there was an abundant source of cheap labour offered by blacks desperate to put food on the table, even at the lowest wage.

Such imbalances prompted the first democratically elected government of South Africa to adopt tools like the Land Reform Program (LRP) which Von Blankenburg (1993) defined as the redistribution of land ownership titles or other interventions in land use rights. The purpose of this LRP was to redress the injustices of apartheid, foster national reconciliation and stability and also to underpin economic growth and, at the same time, improve household welfare and alleviate poverty (Sibanda, 2001). Most land transfers under the LRP were to resettlement schemes on low quality land and communal tenure arrangements which were so-designed in order to reach many beneficiaries quickly and at modest cost. For the Eastern Cape Province alone, Moyo (2005) estimated the total agricultural land to be 9.8 million hectares, and 2.9 million hectares of this is earmarked for land redistribution by 2014.

One of the major long-term outcomes expected by the African governments from their land reform programmes that Mushunje (2005) noted on land reform beneficiaries in Zimbabwe was that of new settlers becoming more productive than

their predecessors. Achieving this would also help address their nations' problems of high unemployment and poverty rates and the general deterioration of the quality of the people's lives (von Blankenburg, 1993). However, the majority of the resettled farmers in Africa have done worse than their predecessors. This has put more pressure on the food reserves and the urban sector which has to absorb the rural population migrating in search of 'greener pastures'.

1.2 Problem statement

Thirlwarl (1999) highlighted that agriculture has always been regarded as the logical way to move towards economic growth and poverty alleviation. With the imbalances in land ownership between blacks and whites in South Africa, there became a very serious and urgent need for the nation's democratically elected government to implement the land reform programme, as already illustrated. However, evidence from countries like Zimbabwe and Namibia highlights that redistribution of land alone is not enough. In fact, beyond redistribution, it is critical for governments to invest in research, extension services, seed and fertilizer delivery systems, marketing and transportation which, in the case of South Africa, are still focused disproportionately on large farms (Machingura, 2007). In accordance with Bernstein (2009), most LRP beneficiaries are the rural poor who have neither enough skill nor resources to work the land. Furthermore, the Land Reform policy must seek to achieve optimal land utilization and increased productivity if it is to deliver employment growth, improved income distribution and environmentally sustainable use of natural resources (Government of Zimbabwe, 1998). As a result, Mushunje (2005) recommended that land reform programmes should be based on the premise that small-scale farming offers more technical and allocative efficiency in productivity.

As such, the redistribution of acquired land must also go beyond the political and moral imperatives. Mushunje (2005) also established that it should include economic management and higher agricultural productivity among not only the newly settled, but also those remaining in the communal areas should be re-organized simultaneously with the resettlement programme. In South Africa's case, productivity levels amongst land reform beneficiaries have been very low, with field crop productivity regularly declining whereas the population that needs to be fed has been continuously growing as reported by Sherry (2008). One of the common factors for

low productivity amongst the new land owners was the lack of adequate support directed to beneficiaries of the land reform projects. This trend was also noted by Monde and Ainslie (2008) during their baseline study of the Marselle community where the investigated farmers struggled to earn a decent living and sustain their families.

In spite of such efforts made mainly by the South African government through the LRP, Farmer Support Programmes (FSPs) and other related instruments since independence in 1994, the degree of poverty in rural Eastern Cape has remained unacceptably high. The majority (about 80%) of households in rural areas still earn incomes that are far below the poverty line and belong to the ultra-poor poverty class (Fraser *et al.*, 2003; Monde *et al.*, 2005; Van Averbeké and Hebinck, 2007). Most households rely, typically, on external economic activities or sources of income, especially state grants. Local economic activities (of which agriculture is the most important) contribute less than 10% to household income (Monde *et al.*, 2005). A similar trait was found to characterize the Marselle community as the external economic sources contributed 82% to household income, with old age pensions (38%) and salaries and wages (29%) contributing the most during the situation analysis study conducted by Monde and Ainslie in 2008. Farming contributed 6.8% to household income. As a result, Monde (2003) and Fraser *et al.*'s (2003) conclusions that agriculture in the Eastern Cape Province is really making modest contribution towards total household incomes seem justified. Nonetheless, it is still very well acknowledged that this sector is certainly not disappearing as several rural households are still engaged in some farming activities (Machete, 2004). This provides a justification for the design of interventions and projects that could assist in reviving the agrarian sector by capacitating the rural economy.

It is clear from de Swart (2005) and IFAD (2010) that in South Africa, a poorly functioning rural economy that is characterized by very poor infrastructure, dysfunctional markets, poor agricultural support services, etc. tends to isolate rural households from the mainstream economy. In addition, small-scale farmers in rural areas have limited access to both human (knowledge and skills) and natural (land and water) capital. As a solution, the Government of Zimbabwe (1998) and Mushunje (2005) proposed planned interventions aimed at building the capacity of smallholder

farmers and strengthening the institutions that would enable rural communities to access land and other supporting resources. In addition, small-scale farmers need what Dlamini (2011) referred to as training for transformation (TFT), an approach that pays attention to transferring the skills needed to undertake various farming activities in existing and new enterprises and instilling the right attitudes, feelings and behaviour of farmers towards their agricultural projects. However, skills transfer should not be limited to agronomic practices only as efforts still have to be made to build the capacity of farmers in areas of management, leadership and marketing (i.e. institutional strengthening).

This study was an attempt to respond to national policy strategies such as Black Economic Empowerment (BEE), Agri-BEE and Accelerated and Shared Growth – South Africa (ASGISA). The main aim of the South Africa's policy of BEE is to unlock and realize the country's full economic potential. Black Economic Empowerment is thus an important policy instrument aimed at broadening the economic base of the country through a number of ways including human resource development (skills development). The vision of the Agri-BEE is capacity building in the Agri-food and fiber value chain as well as to unlock the full entrepreneurial skills and potential in the sector for vibrant agriculture. The ASGISA policy strategy also has education and skills development as one of the main objectives. In addition to responding to the national policy strategies, this study was also an attempt to contribute towards addressing the Millennium Development Goals (MDG) published by the United Nations (2005), especially goal number one, which focuses on eradicating extreme poverty and hunger by 2015.

As already stated, part of the government's strategy in order to alleviate poverty is to give its people productive land through the LRP so that they may produce their own food. To further enhance the new farmers' productivity, assistance has been given to them by way of Farmer Support Programmes (FSP) set up by the government. Through this research, the FSPs were evaluated to determine how effective they have been in enhancing rural agriculture thus far in the Marselle farming community. Thus, this study sought to establish and evaluate the role(s) played by FSPs to enhance rural farmers' productivity, particularly with regards to the aspect of knowledge and skills acquisition by the farmers.

Even though a number of communities have benefited from the LRP in the Eastern Cape (EC) province, the focus of this study was limited to the Marselle community that inherited the Forest Hill Farm. The farmers in this community have two projects, one for livestock production which operates under the name of Stock Farmers Association (SFA) and a chicory project operating as the Masakhane Silime Project. Members of these two projects were assisted financially by the Land Bank as part of the government's FSPs to enhance farm productivity. However, despite getting support, through a situation analysis survey conducted in 2008, they were noted to be struggling to become any more productive than they were prior to getting assistance. In response, a 2-phased intervention aimed at building the capacity of these beneficiaries was initiated with funding from Land Bank. The focus of this training would cover agronomic practices, business management, financial management, leadership strengthening, institutional arrangements, marketing and agribusiness. The training programme would be done in phases. Phase One (I) is covered through this study and its focus was on the identification of the knowledge and training needs (skills audit). This is because it is important to know the exact skills the beneficiaries have and do not have before training is done. The completion of this dissertation signals the end of the first phase and marks the beginning of Phase Two (II) which will be the actual training, i.e. the capacity building process, and will be undertaken by trainers and selected service providers and monitored by researchers.

1.3 Objective of the study

As already stated, this work was the first part of a two-phased study. The results of the current investigation will provide guidance on the specific areas that will need to be improved on during the second phase of the Land Bank's intervention, i.e. the capacity building phase. Thus, the findings of the current study will reveal the level of knowledge and skills land reform beneficiaries in Marselle have so that the capacity building phase focuses on closing the identified skills gaps by capacitating the farmers. Therefore, the main objective of this study was to evaluate the knowledge and skills needs of the Marselle farmers.

1.4 Specific-objectives of the study

The specific objectives of this study are to:

- i. Identify and describe the socio-economic characteristics, farming activities, and constraints of all project beneficiaries;
- ii. Identify and evaluate the knowledge and skills of the farmers for capacity building purposes,
- iii. Identify and evaluate the activities, actions, interventions, strategies and programs introduced through Farmer Support Programmes (FSPs) in order to support land reform beneficiaries grow agriculturally in Marselle; and;
- iv. Identify opportunities in creating enhanced access to knowledge and skills.

1.5 Research questions

The specific research questions to be answered are:

- ❖ What are the socio-economic characteristics, farming activities and constraints of all project beneficiaries?
- ❖ What are the specific activities, actions, interventions, strategies and programs that were introduced in order to support land reform beneficiaries to develop them agriculturally?
- ❖ What are the training needs (knowledge and skills shortage) of farmers under the LRP?
- ❖ What are the opportunities for creating enhanced farmer knowledge?

1.6 Justification of the study

Since South Africa's independence in 1994, rural development has been one of government's priorities because the majority of people residing in rural areas are the poorest. It is recognised that one of many possible ways to accelerate rural development and alleviate poverty in South Africa is through agricultural development (Thirlwal, 1999; Eicher, 1994). However, the small-scale farming sector still makes a modest contribution to livelihoods and food security. The South African government is committed in developing the small-scale farming sector through various structured programmes, including building the capacity of farmers, as in the Marselle Project. Furthermore, this study fits well into the current national policy strategies such as BEE and ASGISA whose main aim is to empower people with knowledge and skills that would enable them to become successful farmers. Such

knowledge will contribute to poverty alleviation and will lead to improvement to local economic development; presently little is understood.

1.7 Outline of the study

The write-up of the study consists of nine chapters which could be broken down as follows:

Chapter one is an introductory chapter that gives the background to the study, problems leading to this investigation, as well as the objectives of the study. As a planned study, this study had specific objectives that it sought to address. From a general point of view though, it is a developmental project earmarked to uplift the Marselle farming households. The first chapter also defends the implementation of this project by way of explaining its relevance particularly to national policy strategies.

Chapter two presents a review of literature on the smallholder farmers. Due to the different definitions used for the concept of smallholder farming, this second chapter starts by defining the smallholder farmers as used in the South African context. To further create a clearer understanding of the concept, a number of characteristics that distinguish these farmers from their commercial counterparts are also given. The role of small-scale farmers in the economy of a developing nation like South Africa is included in this chapter together with the various challenges the smallholder farmers have to overcome in their attempts to become efficient.

Chapter three focuses on the South African government's attempts to eradicate poverty. Some of the government's approaches that are reviewed are the Land Reform Programme (LRP), Accelerated and Shared Growth Initiative for South Africa (ASGISA) and the Farmer Support Programmes (FSPs). A review is also given on the relative successes and failures of these initiatives in South Africa.

Chapter four reviews the concepts critical to this investigation. These include food security; sustainable livelihoods; capacity building; and knowledge and skills acquisition concepts. For purposes of making data analysis easier, each of these concepts was discussed together with its respective framework of analysis as applied in similar and comparable studies.

Chapter five describes the methodologies used to collect, analyze and present the results. In this chapter the study site is described together with the background of the two projects which are the focus of this investigation, namely the Stock Farmers Association (SFA) specializing in cattle rearing and the Masakhane Silime Project which produces chicory.

Chapter six is the first of three chapters where the results are presented. In this first results chapter is a general discussion of two projects in terms of their socio-economic characteristics. This chapter also presents the background to each of the two projects by way of elaborating on their respective objectives, membership, just to mention but a few.

Chapter seven addresses the main objective of this study by presenting the information on the smallholder farmers' technical knowledge and skills. It highlights the skills that farmers have and those regarded as necessary but which they currently do not possess. With one of the outcomes of the second phase of this study, the capacity building phase, involving giving the trained farmers farming manuals, findings on the languages the farmers prefer these manuals to be written in are also presented.

Chapter eight focuses on the econometric analysis of the results. It presents and discusses the estimated parameters of factors that influence smallholder farmers' ability to acquire certain farming knowledge and skills.

Chapter nine is the final chapter where the study is summarized, conclusions are drawn and recommendations for more informed interventions are made. Since this study aimed at identifying the knowledge and skills gaps, a summary of critical areas that should be prioritized during the capacity building phase is presented in this chapter.

CHAPTER 2

A REVIEW OF SMALL-SCALE FARMERS IN SOUTH AFRICA

2.1 Introduction

Vojtech (2006) described the South African agricultural industry as very dualistic in structure because it consists of a well-developed commercial sector and a high number of smallholder farms. The former was defined by Sandrey and Vink (2008) as consisting of a few but very big, successful and profit-minded farmers who are relatively well advanced in terms of technology, most of which is imported. The smallholder farming sector, on the other hand, has considerably far much more variability across the country. This chapter pays particular attention to the smallholder farmers as the study is geared towards investigating the farmer support programmes given to these farmers. Thus, the chapter will start by defining the small-scale farmers in terms of such things as size, location, and objectives. This is followed by an in-depth review of the socio-economic characteristics of such farmers in South Africa but in comparison with those of other developing countries in Africa and the rest of the world.

2.2 Definition of small scale farmers in the South African context

When defining small-scale farming in South Africa, Kirsten and Van Zyl (1998) advanced that this concept of "small-scale farmers" is usually value-laden and creates wrong impressions and is often viewed in a negative light. In their view, the small-scale farming sector in South Africa has often equated to a backward, non-productive, non-commercial, subsistence agricultural sector that is found in parts of the former homeland areas. It is generally associated with blacks who lack the resources and skills needed to turn them into large-scale commercial farmers.

Some agricultural economists accepted this definition of small-scale farmers postulated by Kirsten and Van Zyl (1998) but with a bit of skepticism. As a matter of fact, they postulated that small-scale farmers should also be defined in terms of their agricultural activity in whatever form. Through this definition, this sector is made up of those farmers whose main goal is to produce food for their families on a daily basis. Under such circumstances, only the surplus is considered for sale in order to

supplement their income and diversify their diet. Prior to Kirsten and Van Zyl's (1998) definition, Ottara and Graham (1996) and Baydas and Graham (1996) carried out studies in the Northern and Kwa-Zulu Natal Provinces where they compared small-scale business enterprises and small-scale farmers. Their results indicated that farming played a small role in terms of income although a major proportion of small-scale farming households (and small business households) cultivated the land and produced crops. A similar state of affairs was also noted by Monde later on in 2003 in the Eastern Cape Province.

Another context through which a small-scale farmer could be defined is through the farm size cultivated. The general, but often wrong, perception is that small-scale farmers are those farmers who cultivate small pieces of land, usually one hectare or less. Whilst from a general perspective this might be true, such an approach is made invalid if one looks at it from the efficiency and productivity point of view. Bravo-Ureta and Pinheiro (1997) explained the importance of small farms and asserted that smallholder farms are multi-functional, more productive, and more efficient and contribute more to economic development than large farms. This means that there is a proven inverse relationship between farm size and its productivity. In other words, smaller farms are more productive and efficient but tend to lose their productivity as they grow in size.

Berry and Cline (1979) supported this conclusion by basing their reasoning on the fact that small farms generally use family labour which is personally committed to the success of the farm, unlike large farms that use relatively alienated hired labour which may not be as committed as the family labour. Furthermore, Carter (1994) noted that the land to labour ratio was higher for large than small-scale farms, which led to decreasing output per hectare with respect to farm size. In short, it is clear from Kirsten and Van Zyl's (1998) argument that size is not a good criterion for defining small farms.

Thus far, a number of possible definitions for small-scale farming have been highlighted even though none of them could be said to be all-inclusive and more relevant than the rest. As such, the bottom line drawn by Kirsten and Van Zyl (1998) was that a smallholder farm is a relative concept relative to the particular ecological

region and soil quality and also relative to the particular farming industry. In addition, Tomich *et al.* (1995) also emphasized that small-scale farms should not be regarded simply as smaller versions of large farms since systematic dissimilarities in output and input intensities resulted from farm-size effects and have important policy implications.

Nevertheless, despite the various definitions given for small-scale farmers, they are all characterized by;

- ❖ Family members providing most of the labor and management;
- ❖ Use of more labour (labour-intensive) and less capital in the production system;
- ❖ Family members being dependent on the farm for a significant portion, though not necessarily a majority, of their income, and;
- ❖ Production of small quantities of produce compared to that from a large farm.

2.3 Socio-economic characteristics of small-scale farmers

There are a number of socio-economic features or characteristics that define small scale farmers. Some of these are their demographic characteristics, land holdings, ownership of capital resources, and also their level of training and farming skills.

2.3.1 Demographic characteristics

In terms of demography, Feynes and Meyer (2003) viewed small-scale farmers as usually the aged (both male and female) and children. Aliber and Hart (2009) put the relative proportion of female to male rural black farmers at 3:2. Literature reviewed by Tshuma and Monde (2012) also suggested that male members of the rural households with formal education are rarely found in their homesteads participating fulltime in farming. Instead, they preferred seeking jobs in other sectors than staying at home on irrigated small-scale farms. Accordingly, the conclusion that could be drawn from this is that smallholder agriculture in South Africa is not only dominated by women, but by women who also do not have much formal education. The majority of the few men found in small-scale farming also received limited formal education. The Marselle situation analysis report validated this point as it identified that very few of the economically active workers in the formal sector were employed as

professionals due to their formal education whilst the rest were employed as domestic workers.

In absolute terms though, a Labour Force Survey (LFS) done by Stats South Africa (2007) between 2001 and 2007 revealed that younger people involved in subsistence farming outnumbered older people but their numbers tended to decline with age. The results of this survey were supported by Aliber and Hart (2009) who estimated that in South Africa, in general, there were twice as many 15 to 19 year olds involved in agriculture than there were 55 to 59 year olds. This is probably because the majority of older men prefer leaving their wives and children in rural farms to take-up formal jobs in urban centres as they grow older and start having more responsibilities. In Marselle alone, 34% of the total population was either below the age of 15 years or over 64 years, both less economically active during the 2008 situation analysis (Monde and Ainsle, 2008).

2.3.2 Smallholder farm landholding

Landholding amongst smallholder farmers is usually very small. In several countries in Asia, for example, Pookpakdi (1992) noted that the average size of landholdings has continued to fall over the years due to fragmentation of farms. According to Pookpakdi (1992), the average size of farms was seen to decline between 1970 and 1980 from 0.92 down to 0.88 ha in Bangladesh, from 2.28 to 1.82 ha in India, from 0.64 to 0.59 ha in Indonesia and from 3.6 to 2.6 ha in the Philippines. A similar state of affairs was noted in several other Asian countries by the same author. At the same time, the number of smallholdings increased significantly.

As for the South African situation, Vink and Van Rooyen (2009) revealed that in 2002, 1.8 million households had access to arable land but by 2006, only 1.4 million still had the land. On the other hand, commercial farms were also declining in numbers during the same period not because the sector was losing its viability in the market but because the farms were being consolidated into larger units of ownership and production (Vink and Van Rooyen, 2009). Table 2.1 illustrates the numbers and average size variations in landholding in South Africa;

Table 2.1: Number and size variation in landholding in South Africa

Size of land holding	Number (weighted)	Percentage
< 0.5ha	831 871	64.5
0.5ha – 1ha	235 454	18.3
1ha – 5ha	138 196	10.7
5-ha – 10ha	38 146	3.0
10ha – 20ha	11 940	0.9
> 20ha	34 546	2.7
Unknown	17 556	-
TOTAL	1 307 710	100

[Source: Vink and Van Rooyen, 2009]

Fraser *et al.* (2003) analyzed the land holding situation in the Eastern Cape Province. Their conclusions were that a number of small-scale farmers have access to arable land. However, due to their lack of requisite resources with which to work the land, most of them tend to resort to cultivating their home gardens in an attempt to provide some measure of food supplementation. The same authors further highlighted in their study that such farmers could not afford to buy inputs for one smallholder farm even if they were to pool financial resources amongst five households. Thus, smallholder farmers in possession of land only have access to small pieces of land, with a handful also having the means with which to appreciably produce from this land.

2.3.3 Skills and training

The Water Research Commission (WRC) (2007) observed that smallholder farmers had limited access to suitable training to enhance their farm operations. In addition, the WRC (2007) held the view that the little training that was available was focused almost exclusively on scaled-down versions of high-cost, high-risk commercial production practices, which are especially inappropriate to food-insecure households. The WRC (2007) further noted that such training was usually offered in institutions such as agricultural colleges which are rarely located favourably in relation to the rural areas where most smallholder farmers are found. Consequently, most rural farmers are left without access to training. Poverty and lack of basic education also play a role in determining the extent of participation in training programmes. The

situation for those that can afford to visit such training institutions is further exacerbated by the fact that training usually requires trainees to be away from their homes for periods of at least two weeks. According to WRC (2007), based on conclusions drawn from studying the general situation in the Limpopo Province, being away from the farm for such a period of time made attending training workshops practically unfavourable, especially so for women who are responsible to food insecure households.

2.4 The role of small-scale farmers in an economy

The characteristics of the small-scale farmer in the South African context have been discussed. We note again that this research is meant to inform capacity building projects that are to be conducted amongst the Forest Hill smallholder farmers in the future. Before an intervention into any project, the benefits likely to result from the success of such a project should be clearly understood and outlined. It is worthwhile to ponder the usefulness of investment on these smallholder farmers. Suppose they are taught appropriate new skills, what and how is the nation supposed to benefit from investing in such farmers? To get the answers to these crucial questions, it is of paramount importance to tease-out the roles played by the smallholder farmers in the agricultural industry and also to further justify the need to build the capacity of the Forest Hill and smallholder farmers in Africa and South Africa in particular. Amongst other things, smallholder farmers help in poverty alleviation, employment and rural income creation, and also in creating backward and forward linkages with other industries.

2.4.1 Poverty alleviation

Rao and Chotigeat (1981) argued that smallholder agriculture could contribute significantly to poverty alleviation by raising agricultural productivity and rural incomes. The point of small-scale farmers having the ability to raise agricultural productivity goes back to the inverse relationship between farm size and productivity debate briefly highlighted earlier. Development economists (e.g. Bharadwaj, 1974; Sobhan, 1993; Deininger, 1999; Ellis, 1993) have since acknowledged that the intensive application of labour inputs by small farms compared to bigger commercial ones makes small farms more efficient and more productive. As stated earlier, this is supported by the fact that the labour used in this small-scale sector is usually family

labour that is motivated by the need to get more output from their land. Furthermore, Netting (1993) and Moore *et al.* (1998) advanced that such labour is more dedicated to farming than hired labour whose performance or level of dedication may be influenced mostly by the wage rate offered.

In addition, Rosset (1999) observed that larger farms and land owners usually tend to leave much of their land idle, while small farmers tend to use their entire land parcels. This on its own shows that small farmers have higher land use intensity and thus implies that if they are allocated more land, then such land will be used more productively rather than left lying fallow as is usually the case with large farms. With more being produced by this sector at a low cost, poverty is likely to be alleviated in the rural economies. However, using the land intensively every year poses a threat of draining the soil of its nutrients, particularly if farmers use monoculture cropping practices (Altieri, 1995). To avoid this challenge of draining soil nutrients, Rosset, (1999) advised that smallholder farmers use the intercropping approach which allows them to continue with intensive crop production on their limited land and also to produce a variety of crops each season. Such an approach to farming has multiple benefits such as minimizing risks and also providing consumers with various options (Rosset, 1999).

In support of this statement, Feder (1985) explained that smallholder agriculture contributes to poverty alleviation through reducing food prices since such farms are ubiquitous in any nation. However, their huge numbers create excessive competition for markets which in turn could force price-wars whereby farmers lower their prices in an attempt to attract more customers and this benefits the buyers more than the farmers. In other words, there is a trade-off between the low prices charged by the smallholder farmers for their produce and the income they get in return in areas where there is an abundance of smallholder farmers producing the same crops. It is for this reason that ways to manage such trade-offs are investigated to make sure that both the consumers and farmers benefit collectively to eradicate poverty.

In the case of Marseille farmers, the main field crops and vegetables grown at the time of the baseline study were maize, sweet potatoes, potatoes, butternut, cabbage, spinach, carrot and beetroot (Monde and Ainsle, 2008). Even though some farmers

sold their produce, the situation analysis revealed that these crops and vegetables were grown mainly for home consumption. However, of the 16 households cultivating their plots in this community, only five households produced for home consumption only, with the rest selling the surplus mainly to the local people. Thus, the produce for these farmers was surplus of their own consumption. The other common market outlet was the roadside market whereby producers displayed their produce for motorists using the R72 road. The income obtained from the crop sales made it possible for the farming households to supplement their diet by outsourcing processed food from urban markets. Such evidence does support the point that small-scale farmers do play a role in alleviating poverty at the rural household level.

Another interesting point to note about the role played by this sector in alleviating poverty is the way food is moved from the rural to urban sectors. Most urban people tend to migrate to the urban areas for the sake of getting better paying jobs. However, such people always leave the majority of their family members at the rural farms and due to the expensive cost of living in urban areas, most of those who migrate rely on the agricultural produce sent by the relatives in the rural areas in order to sustainably lower their food budget. Such is popular in most African countries and South Africa is not an exception. Kurwijila and Henriksen (2010) also noted this pattern in Tanzania where the rapid expansion in urban centres, stimulated by the rural-urban drift of young people seeking employment in urban areas, has posed serious strains on the socio-economic services and food supplies that must be provided to meet the demand of the urban populations. As a result, this urban sector also depends on food supplies produced in the rural areas. The food must be supplied in adequate amounts, consistently and acceptable quality.

2.4.2 Contribution towards rural income

The dualistic agricultural sector in South Africa is dominated by smallholder farmers. The majority of these farmers lack proper resources with which to cultivate their land but they do make efforts to intensively produce every year, at least for own consumption (Rosset, 1999). This means that such farming households do not have to spend much of their income purchasing food especially when compared to non-farming households. Furthermore, through the marketing of surplus produce, farmers

earn incomes which make them better-off compared to if they do not farm at all (Feder, 1985).

2.4.3 Employment creation

In defining small-scale farmers, Berry and Cline (1979) acknowledged that such farmers are usually characterized by their heavy reliance on family labour. Debates have raged regarding such a definition as the likes of Van Zyl *et al.* (1996) investigated and concluded that small-scale farms are a better source of employment compared to large ones. In their explanation, they pointed out that the latter usually made more use of machinery in production compared to the poor, hence labour-intensive smallholder farmers. These small-scale farms have less wealth and/or access to credit markets that is why they use an input mix that relies much more on labour than capital, and thereby generating far more employment than their large counterparts. This view had earlier been advanced by Welsch (1978) who explained how the small farm sector is more labour intensive and served to combine available labour with other production factors.

However, it is worth mentioning that in some cases, some of these small-scale farmers do not hire any labour regardless of the demand. Instead, when the labour demand is very high as is usually the case during weeding or harvesting periods, such farmers resort to labour exchange or what is known as “ilima” both in isiZulu and isiXhosa (Tshuma and Monde, 2012). Overall, Vink and Van Rooyen (2009) put agriculture’s contribution to employment for a large proportion of the economically active South African labour force between 8 and 9%. Whilst some might view these figures as insignificant, they cannot be ignored nonetheless, particularly if one considers the growth in the sector that could be stimulated by training the smallholder farmers and giving them all the support they need to become efficient in their production.

2.4.4 Backward and forward linkages

According to Haggblade *et al.* (1989), the growth of small farms allows for the growth of business activities created through forward and backward linkages. In other words, such growth generates economic progression through production and consumption linkages. Van Zyl *et al.* (1996) shared the same view as Haggblade *et al.* (1989) by

also advancing that the demand for production inputs from other sectors could be stimulated if there are gains in output resulting from investments in any given sector of the economy. If this happens, then it creates what is known as backward linkages. Backward linkages also exist if the farming households use the income they obtain from selling their produce to purchase more farming inputs (which is investment) or even spend it on other items that are not necessarily agro-based at all (expenditure) such as household appliances (Estudillo and Otsuka, 1999). By doing so, they support the manufacturing sector through their agricultural income.

Dorosh and Haggblade (1993) further highlighted that the initial output gains also have an effect of raising incomes and consequently spurring consumer demand for other goods and services (forward linkages). This means that there are some non-farm sectors that rely on agricultural produce for their survival (Estudillo and Otsuka, 1999). In consequence, the agricultural sector, smallholder sector included, is expected to provide other sectors with raw materials in a vibrant economy.

2.4.5 Distribution of social capital

Small farms are also important in terms of land ownership. Decentralized land ownership produces more equitable economic opportunity for people in rural areas, as well as greater social capital (Haggblade *et al.*, 1989). This could provide a greater sense of personal responsibility and feeling of control over the nation's population in view of its historical context. Since most of the labour in small farms is provided by family members, Rosset (1999) perceived this as implying that the skills of farming are passed-on from one generation to another under family ownership structures. As the farmers' children grow, they acquire farming knowledge and skills through practice.

2.5 Constraints faced by small-scale farmers

Despite the above-mentioned benefits that emanate from the smallholder farming sector, the majority of these smallholder farmers are faced with a number of obstacles that hinder their productivity. In fact, there is evidence that some successful commercial farmers started as smallholders but grew through various forms of support to circumvent these barriers. Be that as it may, the majority of the

smallholder farmers are still faced with such constraints that include proper education, skills, capital and infrastructure.

2.5.1 Lack of adequate education

One of the characteristics of small-scale farmers is that most of them lack basic education (Murage, 2006). Dealing with such people tends to be a serious problem especially when it comes to changing their farming attitudes. There is also evidence from Ozowa (1996) that most of them, partly due to lack of education, are risk-averse hence prefer to continue using their old and less-productive ancient farming techniques than try the recently developed ones. Ozowa (1996) therefore concluded that such attitudes, fueled by a lack of basic education, contributed towards the low level of adoption of agricultural production technology in small-scale farmers.

In the opinion of Onuoha (2006), the more educated a farmer is, the more likely he or she is amenable to adopting new ideas. As such, most illiterate farmers may not be prepared to adapt to new perspectives but prefer sticking to their tried and tested, though outdated, methods of doing things (Taher, 2006; Karanja and Ndubi, 2008). Furthermore, formal management tasks that involve business plans and book-keeping appreciation need one to at least have basic education, something most rural farmers do not have. Tshikudu (2005) noticed the effects of farmer-illiteracy in the Limpopo Province when the previously high-producing citrus and banana orchards became dysfunctional after the withdrawal of ARDC/AGRIVEN, an organization that used to expose the farmers to new techniques and knowledge. In addition, Tshikudu (2005) discovered that the most productive farmers in the province were those that were educated.

2.5.2 Lack of finance

The majority of smallholder farmers cultivate small plots located at the back of their yards. Apart from this situational phenomenon being caused by a lack of physical resources such as tractors and other farm implements, their small plot sizes are caused by lack of proper arable fields. In communities such as Zanyokwe in the Eastern Cape Province of South Africa, Makara (2010) found that residents had made progress towards getting title deeds for their land but other farmers such as those in Marselle still cultivated municipal land as they lacked land of their own

(Monde and Ainsle, 2008). Without land as collateral, smallholder farmers in South Africa are finding it very difficult to access financial capital. Those that are employed in other sectors also struggle to finance their farms due to their low earning capacities (Tshikudu, 2005).

Failure to have access to financial capital in turn often leads to less production as farmers cannot afford to purchase inputs for production purposes. Furthermore, without enough capital, it is almost impossible for smallholder farmers to take advantage of favourable market conditions such as increased demand. According to Mbilinyi (1997), financial constraints also manifest themselves in the form of very high interest rates on borrowed loans as the financial institutions try to offset risk in the event that loans are not repaid. Therefore, even those with enough collateral to qualify for loans often find themselves struggling to repay the loans due to the high interest rates charged. In addition to these high rates, most financial institutions do not give farmers enough “grace period” to raise the money whilst using part of their earnings to keep their farm businesses running (Uganda Export Promotion Board (UEPB), 2004).

This, coupled with very high transaction costs has made smallholder farmers to struggle in their attempts to use their farms as the main source of their livelihoods. Delgado (1999) blamed high transaction costs on individual farmers transporting their produce and their poor bargaining power. This is because smallholder farmers usually buy inputs like seeds and fertilizers in small quantities, thus precluding themselves from enjoying economies of scale in their purchases (Moyo, 2010). Some of the transaction costs incurred by smallholder farmers identified by Jayne *et al.* (2007) and Moyo (2010) include search costs and emanate as farmers collect and analyze market information.

2.5.3 Technological constraints

On the technological side, Morton *et al.* (1999) cited inadequate provision of technical information, limited use of modern production and value-adding technologies, and business management services as major. The UEPB (2004) deduced that at times technology is available to the smallholder farmers but due to their limited skills and knowledge of improved agricultural technologies, the rate of their adoption of

technology has remained very slow. This usually results in high post-harvest losses, poor quality products and generally low production levels (UEPB, 2004).

Without technological improvements, farmers cannot progress much in specific areas such as productive farming systems, small farm management techniques, choice of breeds, crossbred and types of animals, effective control of diseases and, improved feed and fodder production. The inevitable result of this technological constraint will manifest in low farm and firm production and productivity of generally low quality produce. Lacking such vital knowledge on the effective control of diseases and other farming threats may lead to the farmers losing their animals and crops.

2.5.4 Lack of information

Literature from Ozowa (1996) suggests that one of the major constraints faced by smallholder farmers is their lack of very vital information. The vital information referred to includes information on product planning such as what crop variety to grow at a given season, with marketability of such a crop as an important deciding factor. Smallholder farmers also require information on current prices, forecast of market trends (to assist farmers in planning markets for their products) and sales timing (which assists farmers in ensuring that they do not cause a market glut and exploit seasonal shortages). Using empirical evidence, Ozowa (1996) further came to a conclusion that information on improved marketing practices such as improved harvesting methods and information on group marketing which enables small scale farmers to have organized and efficient sales through aggregation of marketable surplus and bulk transport of produce are crucial if smallholder farmers are to perform well in any economy. Having this information is complicated by asymmetry as information might be available in the media but due to low levels of literacy, farmers may mostly be unaware that it exists (Ozowa, 1996).

Sibale (2010) and Key and Runsten (1999) attributed this lack of access to vital information to the scattered and unorganized nature of smallholder agriculture and lack of communication tools in most developing countries. These factors leave most farmers ignorant of potential markets and having to rely on extension workers, where they exist, otherwise it is by word of mouth, which increases the chances of the information being distorted or made inaccurate (Sibale, 2010). As stated by UEPB

(2004), media such as radio, newspapers and commentaries for market information also do contribute in information dissemination but these channels come with a number of shortfalls. UEPB (2004) further pointed out that information from these sources is often inaccurate, not targeted, not updated regularly and usually has no practical indications on exports. At the end of the day, farmers who access this information do not benefit at all. Consequently, with agriculture being such a risky industry due to its heavy reliance on the volatile weather, smallholder farmers risk losing their produce and money especially if they mistime their growing periods or fail to forecast on the likelihood of natural disasters occurring, such as drought (Stringfellow *et al.* 1997).

2.5.5 Institutional constraints

Smallholder farmers usually experience some institutional constraints due to their small resource base (Gordon and Goodland, 2002). Very often these farmers are found very far away from institutions of agricultural development such as agricultural extension offices, veterinary dispensaries, fertilizer depots, seed and agro-chemical stores, rural credit agencies and banks. Economic institutions such as markets, marketing agencies and processing facilities are also not prevalent. This is because investors prefer putting their monies where there is visible development so that they could realize their returns as fast as possible. Thus, they do not want to take the responsibility of developing rural areas with their own money. The small quantities of output produced by smallholders is another disincentive for investors as farmers do not stand to benefit from economies of scale which will make it possible for them to repay the investors on time (Kherallah and Minot, 2001). Consistent with Adams and Fitchett (1992), lack of market facilities in rural areas where small farmers can sell and buy things at reasonable prices drove most profits to the middlemen who transport the farmers' produce to markets and inputs back to the farms. This not only reduces the farmers' net earnings but also keeps them away from producing more for the market.

2.5.6 Infrastructural constraints

Machete (2004) regards physical infrastructure as consisting of communication links, the electricity grid, storage facilities, transportation facilities and roads. In support of Machete (2004), Jari (2009) later suggested that all these different forms

of physical infrastructure are vital for the success of the smallholder farming sector just as much as they are to all the other sectors in any economy. As such, if these are not available or are in a bad state, then they force transaction costs faced by farmers to rise.

Adams and Fitchett (1992) also argued that the state of rural road infrastructure in South Africa has negatively impacted on the progress of smallholder farms. Montshwe (2006) further stated that most of these roads were in very poor condition and were impossible to use especially during the rainy season as they became very slippery when wet. With farmers not able to afford their own transport, they rely on hired transport which is very expensive due to the condition of the roads. Most transporters charge exorbitant prices to cover the maintenance costs of their fleet. This further eats into the farmers' savings, especially if they have to meet scheduled deliveries of their perishable produce to markets. Under such situations where farmers have neither the power nor time to negotiate, they are forced to part with much of their cash just to meet deadlines.

In terms of storage facilities, most of the farmers' agricultural produce is perishable and thus needs proper handling between harvesting and the market in order to fetch favourable returns. This further necessitates the availability of proper storage facilities to keep the quality of the produce, and ultimately pushes the final produce prices up. However, Tshuma and Monde (2012) realized through their study in Zanyokwe that some farmers still lack the required storage and marketing facilities. Consequently, they rely on the "farm gate sales" strategy whereby crops are harvested only when an interested buyer has come to the farm to buy and collect them. Despite this being a dominant selling strategy, Machingura (2005), however, argued that this was not the best strategy since the same farmers could receive much higher prices by selling their produce in urban centres. Unfortunately, smallholders rarely have access to such better urban markets as the lack adequate knowledge about their existence; high transaction costs in their attempts to find out more about these markets, followed by high transport costs for their produce are frequently limiting.

2.6 Synopsis

Notably, small-scale farms enhance rural income distribution through providing profitable gains for farmers. They reduce product prices for consumers as well as increase food transfers to those who are unable to engage in the agricultural production sector. Through forward and backward linkages, small-scale farms enhance desirable development of the rural economy.

Notwithstanding all these positive contributions from the sector, a number of challenges still have to be addressed if the sector is to become a major role player in the South African economy and that of any other developing country. Thus far, the constraints faced by the agricultural smallholder sector manifest in technological, institutional and infrastructural constraints. The farmers' lack of adequate education, finance and market information just make it worse. The extent of these constraints within South Africa varies from place to place. Nonetheless, most smallholders are failing to overcome the constraints in a way that would propel them into the commercial farming sector. As a result, such farmers will remain as peasant farmers unless appropriate interventions are made timeously to address most, if not all, of the constraining factors they face.

CHAPTER 3

A REVIEW OF THE GOVERNMENT'S ATTEMPTS TO ERADICATE POVERTY

3.1 Introduction

The South African government has, over the years, noticed and acknowledged the need to address the high poverty and unemployment rates in the country. One of the most acknowledged approaches in addressing these challenges is that of developing the rural areas first seeing as that is where the majority of the population is located and the citizens in these rural areas are also the one most affected by poverty. Based on this line of thought, it is of paramount importance that attention is given to them through supporting their agriculture sector. This chapter discusses some of the attempts made by the post 1994 South African government in reducing the poverty levels in the country. Some of the strategies adopted are the Land Reform Programme (LRP), Farmer Support Programme (FSP), Accelerated and Shared Growth Initiative for South Africa (ASGISA), and the Black Economic Empowerment (BEE) or Agri-BEE or Broad Based Black Economic Empowerment (BBBEE) specifically. Each of these will be discussed in detail but with particular bias towards the LRP and FSP together with their success rates.

3.2 The Land Reform Programme (LRP)

The Land Reform Programme (LRP) in South Africa started in 1994 as a World Bank recommendation to address the skewed distribution of land in the country (CPLO, 2010). Von Blankenburg (1993) defined the LRP as the redistribution of land ownership titles or other interventions in land use rights. With so many black people having lost their land unceremoniously and without any compensation during the apartheid era, making sure that such injustices were addressed became one of the priorities of the ANC-led government soon after it came into power in 1994. The biggest challenge was to reverse the effects of the Native Land Act of 1913 which restricted the area of land for lawful African occupation, stripped African cash tenants and sharecroppers of their land rights, and, consequently, replaced sharecropping and rent-tenant contracts with labour tenancy (Walker, 2003). As such, Sibanda (2001) perceived the LRP to have been adopted to address these injustices, thereby fostering national reconciliation and stability. Furthermore, it was hoped that its

implementation would facilitate a more rapid economic growth especially by improving household welfare and alleviating poverty (Sibanda, 2001).

The 1997 White Paper on the South African Land Reform from the Department of Land Affairs (DLA) (1997) gave the following as the main arguments for the adoption of this programme:

- To give more households access to sufficient food on a steady basis through their own production;
- To create opportunities for small-scale production thereby absorbing a sizeable number of the previously unemployed job-seeking population. Enhancing productivity in the small-scale agricultural sector was not necessarily aimed at creating job opportunities, *per se*, but to absorb the active job-seekers into a promising (farming) sector; and;
- Transferring title deeds to aspiring farmers was seen as an incentive for stimulating more investment in land improvement which in turn encouraged environmentally sustainable land use practices.

Using these arguments, the LRP was structured in such a way that it had three prongs, namely: (i) Land redistribution, (ii) Land Tenure, and (iii) Land Restitution.

3.2.1 Land Redistribution

In keeping with Lyne and Darroch (2003) and Moore (2004), land redistribution sought to redress the racial imbalances in rural land ownership as stated earlier. Oettle *et al.* (1998) further pointed out that the Land Redistribution prong of the LRP provided the poor citizens of the Republic with land for residential and productive purposes in order to improve their livelihoods. Lahiff (2007) surmised that the targeted population included those with the desire to use the land for agricultural production purposes like farm workers, labour tenants and emergent farmers. Part of the land was also needed for residential purposes, especially among the rural and urban poor. With regards to those who intended to produce on the land, Sibanda (2001) explained that this approach catered for those interested in group production, commonage schemes, on-farm settlement of farm workers and farm worker equity.

Despite the beneficiaries being the poor, this approach was implemented on a willing-buyer, willing-seller basis. In other words, those in possession of land should be willing to sell it to intended beneficiaries who in turn should be willing to pay a market price for it. In some way this approach would appear as the best way to transfer land ownership. However, Deininger and Binswanger (1992) have shown that most people in need of land in South Africa have often found it difficult to purchase it because its market value usually exceeds its productive value due to the input and product subsidies granted to white commercial farmers during the apartheid era. Thus, white commercial farmers were able to produce less but get more profit through government subsidies and the existence of those subsidies is responsible for pushing farmland prices up regardless of production levels. As a solution to facilitate land purchases by prospective but disadvantaged buyers, as documented in Lyne and Darroch (2003), the government adopted the World Bank's recommendations of using cash grants. The setting up and allocation of these grants in South Africa is guided by the Provision of Land and Assistance Act (Act 126 of 1993) which allows the accessing of grants through two programmes, (i) the Settlement and Land Acquisition Grant (SLAG) and (ii) Land Redistribution for Agricultural Development (LRAD) programme (Didiza, 2006).

3.2.1.1 The Settlement and Land Acquisition Grant (SLAG)

This was the first type of grant offered by the government to provide funds for land reform beneficiaries to either buy or improve their purchased land. In a presentation at the International Conference on Agrarian Reform and Rural Development held in Brazil in 2006, the then Minister of Agriculture, Ms. T. Didiza, mentioned that the initial grant given under SLAG was R15 000 but was later increased to R16 000 per household in 1998 (Didiza, 2006). However, those that wanted to purchase the entire farm were encouraged to come together and combine their individual grants, buy a farm and register it as a separate legal entity such as a community land trust or communal property association (Lyne and Darroch, 2003). According to Didiza (2006), Manenzhe (2007) and Lubambo (2011), SLAG was designed in such a way that it covered different types of projects such as group settlements, group and individual production, on- and off-farm settlements and farm worker equity schemes. By the end of year 2000, the Ministry of Agriculture and Land Affairs had approved at least 484 projects consisting of a total of 780 407 hectares of land transferred to

55 383 households for the SLAG system (Turner and Ibsen, 2000). Whilst this appears to be a big success, the reality is that from 1994 to 1997, less than 1.2% of the available land was transferred through the land redistribution and land tenure prongs of the reform programme. Nduru (2003) therefore argued that this was by far lower than the set target of distributing at least 25.5 million hectares or 30 percent of white-owned agricultural land to blacks by 2015.

According to Didiza (2006), the lengthy project cycles, excessive bureaucracy and reliance on outside consultants to formulate project plans without real participation by the beneficiaries themselves, over-centralization of the decision-making process, and low levels of complementary support services led to the suspension of the land redistribution programme after the 1999 elections to allow government to come up with a revised and better approach to speed up the entire process. A new grant system to succeed SLAG known as the Land Redistribution for Agricultural Development (LRAD) programme was introduced in August of 2001.

3.2.1.2 Land Redistribution for Agricultural Development (LRAD) programme

Unlike the SLAG system where only the poor were eligible for financial assistance, Lyne and Darroch (2003) documented how those beneficiaries with savings and who could raise bigger loans to finance their farms qualified for successively larger grants under the LRAD programme. Thus, the amount of money the applicants could inject into the farm determined the extent of the grant they were eligible for. One other distinct feature of this LRAD programme given by Bannister (2004) was that the land purchased was specifically for agricultural production and not human settlement purposes. Shabane (2002) stated that by the end of its first year, the programme had distributed approximately one million hectares of farmland in South Africa.

The basis for this system was to help alleviate poverty by creating an environment that would promote and encourage commercial agriculture (Lahiff, 2007). In order to make sure the LRAD system became a success, the government directed the processing and allocation of funds through legal financial institutions such as the state-owned Land Bank. According to Bannister (2004), the LRAD programme was designed to assist all types of farmers, from potential small-scale producers, through medium-scale farmers, to large-scale farmers.

3.2.2 Land Tenure Reform

As one of the LRP's three legs, Land Tenure was introduced to provide security to all South Africans under diverse forms of locally appropriate tenure (DLA, 1997). It is explained by Sibanda (2001) that the security given under this leg prevents random evictions of people from their land for various reasons, whether justified or not. Adams *et al.* (1999) highlighted the benefits of this approach, namely; having proper rights which also meant that the land owners had the essential security they needed to invest on the land without any fear of losing their investments through unplanned forced evictions.

The government of South Africa is the sole owner of the land in the former homelands. Lyne and Darroch (2004) provided evidence that this land was given to beneficiaries through traditional leaders, magistrates and the Department of Agriculture. However, the rise in crime levels and corruption has seen these governance systems become less predictable. Consequently, landowners have become very insecure as corrupt leaders could sell their land at any given time without as much of a reason or warning given. According to Cotula *et al.* (2004), this kind of insecurity prompted the passing of the Interim Protection of Informal Land Rights Act, Act 31 of 1996 to protect landholders from losing their land due to corrupt governance. Adams *et al.* (1999) summarized the rights given under this leg of the LRP but the most important were the rights to:

- Occupy a homestead, use land for annual and perennial crops, make permanent improvements, bury the dead, and have access to firewood fuel, poles, wild fruit, thatching grass, minerals, etc.;
- Transact, give, mortgage, lease, rent and bequeath areas of exclusive use; and
- Exclude others from the above-listed rights, at community and/or individual levels.

3.2.3 Land Restitution

In the opinion of Lahiff (2007), restitution was created under and guided by the Restitution of Land Rights Act (Act 22 of 1994). This Act facilitates the restitution claims and compensation through the Land Claims Court and Commission (Gwanya, 2003). Some of the responsibilities of the Commission include providing fair compensation and restoration particularly to the landless and rural poor, reducing the

skewed land distribution in South Africa, whilst also promoting reconciliation through the restitution process (DLA, 1997; Hall *et al.*, 2003). However, only those that could prove beyond any reasonable doubt that they were dispossessed of their land before the Native Land Act was promulgated on 13 June 1913 qualify for restitution (DLA, 1997). Under the restitution system, such people have a choice on how they want to be compensated. Their options include giving land to those that want their original land back or at least getting alternative pieces of land if their original land cannot be reacquired. Those that are no longer interested in the land anymore get financial compensation to the value of the original land at prevailing market prices.

Evidence from Lahiff (2007) and Turner and Ibsen (2000) shows that at least 63 455 individual (or family) and community claims had been lodged by 31st of December of 1998, both in urban and rural areas. By September 2000, at least 12 623 households had received a total of 268 306 hectares (Turner and Ibsen, 2000). Tilley (2007) pointed out that March 2005 saw a total number of 79 696 valid claims, of which 59 345 (74%) had been settled. By August 2006, only 8 107 claims were still waiting to be settled, of which 6 975 were classified as rural and 1 132 as urban (DLA 2006). Of all the claims submitted before the cut-off date, the CPLO (2010) revealed that more than 95% (79 696) of them had been settled by the end of 2009. This translates to more than 2.6 million hectares, which cost the state an estimated R16 billion.

When the LRP was first implemented, so much positive impact on livelihoods was expected from it. On paper it sounded easy enough as whites were in possession of very big pieces of fertile land across the country. Due to its optimism, the government even guaranteed meeting its ambitious target of transferring at least 25.5 million hectares or 30 percent of white-owned agricultural land to blacks by 2015. Reality, however, has proven to be a completely different case as only less than 7% of the land had been redistributed by 2011 (Lund, 2012; Death, 2011; CPLO, 2010). To make it worse, the majority of the resettled population has not been able to continue utilizing their newly acquired land in the same productive way as their predecessors as Mushunje (2005) had anticipated. As such, food production levels across the nation have continued to dwindle. This is contrary to earlier suppositions that smallholders should, in theory, be more productive due to their intensive land use and thus suggests that the arguments in favor of the inverse relationship between

farm size and productivity raised by the likes of Bharadwaj (1974), Sobhan (1993), Deininger (1999) and Ellis (1993) can only be considered as valid if the playing fields between the smallholder and commercial framers are even. This could be achieved if the smallholder farmers are given all the resources they need to produce effectively and efficiently just like their commercial counterparts and that is something yet to be factored into government's LRP. In other words, the beneficiaries of the LRP do not receive necessary post-settlement resources to help them kick-start their production, hence their dwindling productivity. A number of other factors can be singled-out as having contributed towards this failure of the agrarian reform in SA.

3.2.4 Failures of the LRP

As outlined above, only 6.9% of the total land earmarked for redistribution purposes had been transferred to 1.78 million beneficiaries by the end of 2009. This translates to approximately 5.67 million hectares only, 90% of which has not even been farmed productively (CPLO, 2010). The land redistribution leg alone has contributed just over 3.4 million hectares of land to this total from the period 1994 to 2009 (Commission for Gender Equality, 2009; Nemaangani, 2011). Based on these statistics, Bernstein *et al.* (2005) established that if the programme's targets are to be met, then the delivery of the three legs will have to be increased fivefold otherwise the 30% target will only be met in 54 years' time. This means that an additional 20.6 million hectares of commercial agricultural land has to be redistributed by the government at an average of 1.87 million hectares a year.

Aliber (2008) also recognized this slow pace of land reform despite the high demand for land in South Africa. Nonetheless, instead of trying to quicken the pace of this programme, the South African government realized that it was not going to meet its 2015 deadline, hence the National Department of Agriculture's Land and Agrarian Reform Programme (LARP) document subsequently recommended that the target be shifted from 2015 to 2025 (CPLO, 2010).

Furthermore, not only has the pace been very slow but also the land transferred is of extremely poor quality such that it is almost impossible for the beneficiaries to produce anything on it. Consequently, Lyne and Darroch (2003) claimed that such land was of generally lower value than that transferred through private means. In

some cases, land is available but due to ethnic differences, it is very difficult to agree on its equitable allocation. Bradstock (2005) gave an example of such a situation in Riemvasmaak in the Northern Cape Province where the two ethnic groups in the area failed to reach an agreement on a mutually acceptable land use allocation. According to Bradstock (2005), there was an element of considerable mistrust between the two ethnic groups as they believed that the option failed to protect their use and inheritance rights.

In the opinion of SAHRC (2004), the staff and financial constraints within government ministries responsible for land redistribution have also contributed towards the slow pace of the redistribution process. Since land redistribution is based on a “willing buyer-willing seller” principle, money is needed to assist aspiring farmers purchase arable land from the willing sellers. However, the government’s funds are also limited as the national budget has to be shared between different priorities such as addressing high unemployment, housing, crime levels and other equally worthy budget lines. The situation has been further exacerbated by the fact that most landholders tend to inflate their land prices in the hope of making huge profits since they know that the government will fund the land purchases for restitution claimants (CPLO, 2010). Didiza (2006) gave specific reference to Mpumalanga where land prices in the province ranged between R23 000 - R45 000 per hectare. Together with the Western Cape, the Mpumalanga Province also has had lots of land purchased by foreigners who happen to have more money than the South Africans intended for the reform programme. With the landholders being profit-minded, they always go for the highest offer regardless of the nationality of the prospective buyer. Consequently, this has distorted the land market and pushed up land prices further. The high market value of farmland in South Africa has been blamed on the long history of input and product subsidies granted to white commercial farmers (Deininger and Binswanger, 1992). These subsidies distorted land prices in such a way that land became more expensive than its production potential.

Other challenges that have affected the settling of financial claims by the government through the restitution leg include the non-disclosure by claimants, which potentially leads to the exclusion of the rightful descendants. In turn, this exclusion leads to family disputes. In addition, there have been a number of inadequate/conflicting

claimants' personal details which have delayed payment. Didiza (2006) further blames the delay on fraudulent claims/misrepresentation by some family members.

Just as was noted in Hungary by Tógyer (2012), one other argument that could be brought up in the South African case is that those in possession of arable land are not as willing to sell it as was hoped due to various reasons. One of the popular reasons is that such land belonged to the landholders' ancestors hence they felt it should be passed from generation to generation within the same family of inheritance. On the other hand, those willing to part with their land are actually not willing to do so at the prevailing market price. This unwillingness, especially by white farmers, to part with their land has increased tensions in the country. Through their research, Bernstein *et al.* (2005) managed to confirm these high tension levels through one senior land official who stated that a situation similar to Zimbabwe was not far off if the white land owners did not co-operate. This statement was based on the accusations that landowners were making the LRP impossible by demanding unreasonably high prices for their land.

In Bradstock's (2005) view, the amount given to beneficiaries as grants has also played a role in the failure of the LRP. After conducting studies in the Northern Cape, Bradstock (2005) concluded that the grants given to beneficiaries in the province to purchase land were not enough. As a result, aspiring farmers were forced to pool their financial resources with other farmers so that they could afford to buy their preferred farms. However, having so many people buying the same piece of land as a group creates problems especially if some members do not share the same objectives as the rest of the group. With conflicting ideas on how the land should be utilized, it is almost impossible to run these farms. As a result, Bradstock (2005) further concluded that some members of such groups view their contributions as an investment that is going to give them financial profits or enhance their employment chances instantaneously. When this turns out not to be the case, the members lose interest in the farm(s) and withdraw their contributions thereby paving way for the collapse of the deals.

Regarding the limitations of the LRP, Laker (2004) conceded that the main objective of giving poor blacks land with the hope of improving their lives has not been met at

all. Instead, there has been a serious depreciation of the productive capacity of the farms involved as a result of neglect, mismanagement and theft. All these factors are attributed to the downfall of this programme which was once deemed to be a great tool for reconciliation and poverty alleviation.

If poverty and food insecurity problems in South Africa are to be circumvented, those that receive land in the former homelands should do their best to produce as much food from it as possible, probably more than their predecessors (Mushunje, 2005). However, studies done by the Center for Development and Enterprise in Johannesburg, according to Tupy (2006), reveal that about 60 percent of all black South Africans preferred to live in towns and cities and work in the manufacturing and service sectors. If this is the case, then perhaps the LRP will not contribute massively towards poverty alleviation and food security as initially hoped. This has been the dilemma facing most African governments in their attempts to redistribute land. In South Africa, the land issue has also been overshadowed by more politically rewarding issues such as provision of housing, employment creation and infrastructure, as Sihlongonyane (2003) uncovered.

With many countries having implemented some land reform at some point in history, when done properly, these programmes can go a long way towards solving the land problems created by the European settlers in Africa. At the same time, other countries such as Zimbabwe have complicated matters by making the reform programme a “political football” that seems to have benefited mostly politicians at the expense of the poor citizens (Mutanda, 2012; Polgreen, 2012). For example, Cousins (2000) estimated that five percent (5%) of the land in Zimbabwe went to those with political ties, with another 15% going to civil servants or others with jobs in the urban economy. Furthermore, the criteria used overlooked people with agricultural background and those who were given the rich pieces of land could not cultivate them either due to their inexperience or lack of adequate resources. Namibia too has had more failures than success stories, especially due to the slow pace of the reform process.

Taking the experiences of these and other African nations that have adopted the LRP, Mushunje (2005) concurred with Oettle *et al.* (1998) that allocating people land

per se was not enough. Land beneficiaries should also receive post-settlement support to allow them to make proper use of their newly acquired land. Other forms of support identified by Kirsten *et al.* (1997) include providing beneficiaries with access to additional capital and appropriate support in extension, technical services, infrastructure development and marketing. Current forms of support such as the Farmer Support Programmes (FSP), though implemented in line with the LRP's objectives, have not been able to fulfill their targets of assisting the smallholder farmers with the right assistance and at the right time.

3.3 Government's Farmer Support Programmes (FSPs)

The Farmer Support Programme (FSP) in South Africa was introduced in 1986 to assist small-scale farmers or rural households with access to communal crop and grazing land in the so-called "homeland" areas (van Rooyen *et al.*, 1987; Singini and van Rooyen, 1995). Kirsten *et al.* (1997) documented that this agricultural intervention was the brain child of the Development Bank of Southern Africa (DBSA) and was earmarked to help ameliorate the constraints faced by farmers in these rural areas, especially since they did not have any form of institutional support network. In the opinion of Singini and van Rooyen (1995), FSPs were aimed at creating a shift away from investment in projects to a programme that could provide access to support services, resources and opportunities to a large number of smallholders and rural households in a broad-based manner.

Another motivation put forward by Vink and Kirsten (2000) for the introduction of this programme was to provide an alternative to the projects that dominated the agricultural sector in the 1970s that were very capital-intensive, expensive to operate, often incurred losses, and rarely involved spillovers to or linkages with the surrounding communities. As such, these poorly performing projects that Bromberger and Antonie (1993) referred to as "islands of prosperity amidst an ocean of poverty" created a justification for the creation of FSPs by the DBSA.

Van Rooyen *et al.* (1987) distinguished between the FSP's target groups and target areas. In defining the former, they distinguished between three (3) basic categories of smallholder farmers in less developed areas. The first category is that of fully commercial farmers who farm independently for their own account on a commercial

basis and can compete on an equal basis with commercial farmers elsewhere in Southern Africa. Thus, despite their small farms, these farmers produce more food than they need and they sell most of it in commercial markets. There is the second category which they described as consisting of emergent farmers. These lack the resources and access to the necessary support services to expand their base. Their wish is to become commercial and, given enough support, they will not hesitate to expand their production. The third group is that of subsistence farmers who produce only to feed their families and rarely have more than what their households need.

Kirsten *et al.* (1997) understood the FSPs to be based on the assumption that small farmers are rational, and that at least some of them would emerge as commercial farmers if they were afforded the opportunity. Since commercial farmers are already well-established, the economic role played by agriculture could be enhanced more if efforts were put towards supporting the emerging rather than the already established farmers. Van Rooyen *et al.* (1987) had earlier proposed this approach since such farmers would have the desire to grow into commercial farmers. Without ignoring the commercial and subsistence farmers, the focus of the FSPs was mainly on these emerging farmers to transform them into commercial farmers. In addition, Kirsten *et al.* (1997) and Van Rooyen (1995) showed that the FSPs consisted of six (6) vital elements that were designed to address these constraints for both crop and livestock activities. These are (i) the supply of inputs and capital to farmers, (ii) mechanization services, (iii) marketing services, (iv) extension services (mostly demonstration and research), (v) training and education, and (vi) policy formulation.

As suggested by Van Rooyen *et al.* (1987), part of the FSPs included facilitating the entry and participation of smallholder farmers from the homelands in input and product markets. This view was shared by Kirsten *et al.* (1997) who further explained that this was done through the formulation of institutional support and incentives for such black farmers as was the case for the commercial farmers so that they became efficient in their use of the limited resources. In the long run, such support was hoped to make it possible for smallholder farmers to graduate into the commercial farming sector as they would have acquired requisite entrepreneurial and management skills through the FSP.

3.3.1 Successes of the FSPs in South Africa

Evidence from Kirsten *et al.* (1997), van Zyl and Vink (1992) and others shows that several communities in South Africa have experienced improvements in their yields since the introduction of the FSPs. The Phokoane community in the region of Lebowa is one example of such a community where maize yields increased after the introduction of the FSP. According to Kirsten *et al.* (1997), maize production in the region improved between the 1989/90 and 1990/91 seasons, from 1828 tons to 2145 tons. This increase took place under the same environmental and climatic conditions as those that prevailed in previous seasons. The extension and training provided through the FSPs was attributed to have contributed a great deal towards this increase. More evidence of the impact of FSPs was provided by van Zyl and Vink (1992) who documented the positive effects of FSPs in the Mashamba and Khakhu areas of Venda District where the farmers in the two communities changed from being deficit to surplus producers.

Despite these few success stories just highlighted, it is critical to note that this support was not given to any area simply because there were farmers that had the desire to turn commercial. Instead, prior to the programme's implementation in South Africa, Mosher (1971) provided a few requirements that target areas had to have to qualify for such assistance. First, the area had to show that it was located where the resource base had plenty of agricultural potential. Where there was very little or no agricultural potential at all, assistance was not rendered (Mosher, 1971). In addition, if an identified area had enough potential, individual farmers within that area also had to demonstrate their demand for support services. Lastly, those areas already with the technical and infrastructural support were given first preference (Mosher, 1971). This meant that those farmers relocated into the former homelands where there was no proper infrastructure were put at a disadvantage as they did not qualify for the government's assistance. This became one of the major design shortfalls of the FSPs.

3.3.2 Failures of the FSPs in South Africa

A number of development economists have always blamed the failure of the FSPs on the inability of the service providers to carry out their contracted tasks. However, Machingura (2007) had a different notion and argued that the failures of this

programme were partly a result of the failure of smallholder farmers to acquire information about the existence of such programmes. In further support of this point of view, Machingura (2007) cited Doni (1997) who argued that most smallholder farmers in South Africa failed due to their lack of adequate information regarding the programme. As a result, these farmers opted not to partake of the programme. Therefore, if this programme and any other development initiative(s) for that matter are to succeed in meeting the set objectives, there should be ways or systems in place to make sure that the targeted population has all the relevant information pertaining to the project timeously at their disposal. In consequence, Machingura (2007) emphasized the importance of proper dissemination of information prior to implementation and during development initiatives. One of the reasons that could explain the high failure rate by the farmers to access information is that the majority of them do not have basic education. As such, in some cases the information might be available but farmers fail to understand and make use of it as they are not educated to the right level.

Hayward and Botha (1995) had earlier advanced the same views as Machingura (2007) regarding information that was relayed to the farmers by the extension officers under the FSP. Their studies revealed that FSPs failed to equip farmers with better farming skills not because their numbers were inadequate compared to that of the farmers that needed training but due primarily to the fact that the extension methods and skills given to the beneficiaries were out-dated. This made it very difficult for farmers to benefit using such skills under the constantly changing conditions. This was further exacerbated by the lack of cooperation between the Departments of Agriculture and Agricultural Corporations (Hayward and Botha, 1995).

Machingura (2007) further supported van Zyl *et al.* (1995) by highlighting the poor infrastructure that characterized most rural areas as another reason for the failure of the FSPs. Most information centres are found in towns, far from the remotely located target population and poor road networks linking these centres to farmers discouraged extension workers from visiting such farmers regularly. According to Oettle and Koelle (2003), extension officers are very crucial to the success of smallholder farmers as their role determined the sustainability of development initiatives in the long run. If extension officers cannot access their targeted farmers, it

therefore seems very unfair to expect smallholder farmers to thrive on their own under the prevailing conditions.

One of the reasons for the establishment of FSPs was to assist smallholder farmers get access to credit facilities. However, the view of Yesuf and Bluffstone (2008) is that most of the targeted rural farmers are not comfortable with applying for bank loans probably due to the uncertain nature of the agricultural industry as a result of crop diseases, flooding, frost, illness of household members, war, and/or crime, all of which can have major effects on rural livelihoods. The possibility of incurring losses due to such unpredictable risks tends to influence farm households to base their investment and production decisions, in part, on the perceived risk of failure (Yesuf and Bluffstone, 2008). As such, smallholder farmers might be aware of the existence of financial institutions at their disposal but deliberately choose not to use them due to their fear of succumbing to such risks. The farmers' lack of education and information asymmetry could be blamed for this kind of uncertainty amongst farmers in the view of Nyagumbo and Rurinda (2011).

At the same time, some farmers choose not to borrow either because the marginal expected revenue might not seem large enough to justify borrowing money to purchase additional inputs or the cost of borrowing is unjustifiably high (Doni, 1997). Machingura (2007) further established that some of those that borrowed were of the perception that the loans were in fact government grants which did not have to be repaid. Consequently, such farmers defaulted on their repayments. In some cases, as established by Hayward and Botha (1995), extension officers actually encouraged farmers to employ more resources if they wanted to get more from their land. However, in most cases, this strategy did not pay off as input levels were unnecessarily too high compared to the harvests. As a result, more farmers were pushed deeper into debt.

Due to these and other constraining factors, a number of communities in rural South Africa are yet to benefit from these FSPs. The situation became worse after 1993 when the DBSA's priorities changed in favour of building the capacity of local government at the expense of FSPs. Those who benefited from the LRP have found it almost impossible to survive on their newly acquired pieces of land with the current

support structures in place. Poverty levels in the country have continued to peak as the target for meeting the MDG draws closer by the day. Consequently, the Thabo Mbeki-led government conceded failure to halve poverty by 2015 through the agricultural setup and introduced additional programmes that included the Agri-BEE and ASGISA.

3.4 Agricultural Broad-Based Economic Empowerment (Agri-BEE)

According to the DoA (2004), the Agri-BEE or BBBEE legislation was passed by parliament in 2003 and promulgated in 2004. Its vision is to pursue broad-based black economic empowerment in support of a united and prosperous agricultural sector. The DoA (2004) revealed that the agricultural sector would be improved by eliminating the racial discrimination that emerged through the apartheid era and also to facilitate the mainstreaming of the black population.

Through the policy, the government sought to increase the extent to which communities, workers, cooperatives and other collective enterprises own and manage existing and new agricultural enterprises thereby increasing their access to economic activities, infrastructure and skills training. The framework was further designed to promote equitable access and participation of historically disadvantaged individuals (HDIs) in the entire agriculture value chain. To create such an environment favouring the HDIs, the government tasked itself with providing access to agricultural land, ensuring human resource development, increasing enterprise ownership and equity, and access to agricultural support services (DoA, 2004). Thus, this approach was in line with the already existing programmes, namely the LRP and FSP.

Concerning the development of human resources, Xingwana (2006) stated that the government undertook to promote agriculture as a career. Furthermore, it would lead and coordinate a programme in collaboration with education authorities, farmer organizations and the private sector to review curricula to enhance technical, entrepreneurial and management skills for black entrants into the agricultural sector by 2006. In line with this policy framework, Van Rooyen *et al.* (2010) and Kariuki (2004) suggested that the agribusiness sector should not only engage in so-called 'projects' since projects have, per definition, a finite lifespan. Instead, all black

farmers should be provided with long-term cost-effective services such as the provision of inputs, finance, advice, mentorship, output markets and storage facilities (Van Rooyen *et al.*, 2010).

Most financial institutions regard land as the best collateral when giving loans to aspiring farmers. However, the greater part of new farmers tends to find it difficult to repay these loans whilst properly financing their operations smoothly during their first few years in the farming business (Ayanda and Ogunsekan, 2012). To deal with this problem, it was proposed under the BEE policy framework that land costs be externalized or structured as a non-cost carrying asset at least until sufficient income is generated (Van Rooyen *et al.*, 2010). For this, the Land Bank would be tasked with the responsibility of acquiring land for land reform purposes. According to Van Rooyen *et al.* (2010), in support of Lahiff (2000), beneficiaries of this land reform process could then buy or rent land from the Land Bank after acquiring proper farming skills and expertise through appropriate development support programmes.

3.5 Accelerated and Shared Growth Initiative for South Africa (ASGISA)

ASGISA is a government initiative that was launched a year after the Agri-BEE by the then President of the Republic of South Africa, Mr. Thabo Mbeki, in July 2005. It was implemented to fulfill the government's mandate of halving the nation's poverty by year 2014, 10 years after the policy was first set out in 2004, and 20 years after South Africa's first democratic elections in 1994. Its main aim was to guide and improve on the country's remarkable economic recovery since the removal of the crippling policies of apartheid. Even though it was a government intervention, ASGISA was neither a new economic nor industrial policy. Instead, Mlambo-Ngcuka (2006) clarified that it consisted of a limited set of interventions that were intended to serve as catalysts to Accelerated and Shared Growth Development for South Africa (ASGISA).

Through ASGISA, a number of binding constraints that needed to be addressed to meet the government's 2014 mandate and increase economic growth were highlighted. According to Mlambo-Ngcuka (2006), these include the volatility and level of the currency, cost, efficiency and capacity of the national logistics system, and the shortage of suitably skilled labour emanating from the cost effects on labour

of apartheid spatial patterns. There are also barriers to entry, limits to competition and limited new investment opportunities, regulatory environment shortfalls and the burden on small and medium businesses and deficiencies in state organization, capacity and leadership.

Mlambo-Ngcuka (2006) put the government's response to these constraints into six categories, namely; macroeconomic issues, infrastructure programmes, sector investment strategies (or industrial strategies), skills and education initiatives, second economy interventions, and public administration issues. Small businesses, including enterprises in smallholder farming, would be assisted through new partnership between Khula and Business Partners in which loans to small businesses are offered. Women entrepreneurs' funding was also provided for through the planned collaboration between the Department of Trade and Industry (DTI), Eskom, Umsobomvu and the Women's Development Bank.

With regards to women, Mlambo-Ngcuka (2006) stated that the government would further work closely with them to ensure their significant participation in agriculture and creative industries. Furthermore, focus would be on training them, improving their access to basic services, increasing their participation in public works programme and fast-tracking them into the second economy. The unemployed youth graduates would be registered with the Umsobomvu Youth Fund which would mentor 5000 volunteers for various jobs.

Case study: ASGISA projects in the Eastern Cape Province

This section is based on a newspaper article written by Simpiwe Piliso and published through the Times Live Newspaper in April 2010. According to the article, ASGISA seems to have paid dividends in terms of improving agricultural production in the Eastern Cape Province. By way of operation, the Accelerated Shared Growth Initiative for South Africa in the Eastern Cape (ASGISA-EC) is said to obtain arable land for crop production purposes through paying lease fees to farmers. The method of payment used is like sharecropping as owners of the land get 500kg of maize each season (Piliso, 2010). Through funds from ASGISA-EC, inputs such as seeds, fertilizers and machinery are then purchased for use on these leased farms. By 2010, over R100 million had been used to purchase inputs for purposes of agricultural production in the province. Piliso (2010) reported that once these inputs are made available, ASGISA-EC then helps the tenant families farm the land. After

giving the landowners their share of the produce, the remaining maize is then sold by ASGISA-EC to contracted companies, with the money gained reinvested into the business the following year.

ASGISA-EC has resulted in a number of improvements in terms of enhancing rural farm incomes. For example, Piliso (2010) gave reference to the communities in Ongeluksnek, Butterworth, Qumbu and Mount Frere who have harvested thousands of tons of maize with the help of the ASGISA-EC. According to Piliso (2010), two impoverished communities near Butterworth were expected to have a bumper harvest of more than 6000 tons during the 2009/10 season. The most successful pilot project reported thus far has been the one implemented in the Ongeluksnek community of Matatiele which has produced a significant harvest from the 770 ha planted in 2011.

This project is being undertaken in line with the LRP discussed earlier and seeks to help emerging farmers grow into commercial farmers. Therefore, the impact of the project has not been limited to crop production only. As a matter of fact, a number of farmers in the Eastern Cape have received livestock under the ASGISA-EC project. Piliso (2010) pointed out that as part of the project in the province, 86 emerging farmers were selected in the community of Elliot. These farmers were then given a herd of 30 beef heifers and a bull as part of a R17-million pilot project called Sakhisizwe Livestock Beef Programme. Payment for the animals is expected after a grace period of five years, which is long enough considering that each of these cows may calve once every year (Piliso, 2010).

In keeping with Piliso (2010), ASGISA-EC has a number of plantations in eleven local municipalities stretching from Butterworth to Matatiele. In all these municipalities, over 4 370 ha of land that used to lie fallow in the former Transkei region has been leased. Proper fencing has been done to keep animals away and to facilitate crop production (Piliso, 2010). Through this intervention in the province, four pilot projects have produced more than 17 560 tons of maize and cultivated soya beans, canola, sunflowers, sugar cane, flowers, sugar beet and fruit in Transkei on an area exceeding 50 000 ha. Piliso (2010) further highlighted that 1295 heifers and 43 bulls have been made available to 86 black-owned farms, with each farm given 30 beef heifers. Since this is a joint programme with the government's LRP, 503 of the 1295 cows were given to the 43 beneficiaries of the Land Restitution Act. As testimony that the project was doing well and the benefits are visible, more than R100-million was set aside to expand the project into the OR Tambo, Chris Hani, Ukhahlamba, Amathole and Alfred Nzo municipal districts (Piliso, 2010).

[Source: *Times Live Newspaper*, 2010]

In spite of these interventions by government, the majority of smallholder farmers in South Africa still find themselves struggling to get arable land, produce efficiently and use agriculture as their main livelihood strategy (Machingura, 2007; Mudhara, 2010). The struggles faced by the rural population together with the need to alleviate poverty and unemployment have been the subject of discussion for many in South Africa of late. With development economists still advocating the diverting of resources towards smallholder agriculture, there seems to be hope that someday all these challenges might be eliminated and poverty levels drastically reduced in rural South Africa.

3.6 Synopsis

The government's interventions through the LRP, FSP, ASGISA and Agri-BEE were meant to make the rural poor earn a better livelihood through farming. If the targeted beneficiaries could be supported enough to make sure that they produced enough food for themselves, then a number of problems such as the high household food insecurity levels and unemployment rates would probably be drastically reduced. However, the success of these interventions is highly dependent on the targeted beneficiaries having arable land on which to practice their farming, something which most South Africans do not have. With the Land Reform Programme (LRP) having been introduced years prior to the interventions just discussed, one cannot help but wonder why so many citizens still do not have the necessary natural capital (land) vital for the success of these interventions. The answer to this question can only be arrived at by reviewing the LRP, especially in terms of its success and failure stories so that the approaches used in the success stories could be replicated in other areas whilst corrective measures are taken to improve in those areas where the programme has failed to meet its objectives.

This chapter has discussed some of the interventions made by the South African government in its attempt to reduce the injustices caused by the past policies and also to enhance the contribution of the smallholder agricultural sector in the economy. ASGISA is one of government's latest interventions introduced in 2005. Its introduction was a result of the ever-increasing country-wide poverty rates. This approach was aligned to address the United Nations' Millennium Development Goal of halving poverty by year 2014. Thus far, ASGISA's success has been limited due to a number of constraints, mainly the volatility and level of the South African currency,

and the cost, efficiency and capacity of the national logistics system. The existence of these binding factors has made the fruits of this programme to be enjoyed by only a handful of South Africa's citizens.

Agri-BEE was another one of government's interventions. This was meant to enhance the productivity of the agricultural sector by addressing all the discriminatory policies set by the apartheid government to frustrate the non-white community of South Africa. The Agri-BEE policy framework was drafted with good intentions but its application has not been without problems. Its success in agriculture is mostly based on the beneficiaries having arable land, something which the majority of them do not have. Thus, this framework alone is not enough hence it has to be applied in conjunction with other approaches such as the FSPs in order to meet the desired goals. However, the current FSPs have not been effective enough to assist needy farmers. Consequently, their impact has also been limited in most communities, especially those in the deepest parts of the former homelands. Despite these interventions, rural dwellers still survive mostly on external sources of livelihood instead of agriculture. The need for the farmers to be provided with some form of training to make them more productive is apparent. Such training can be rendered through capacity building.

CHAPTER 4

A REVIEW OF RELEVANT CONCEPTS

4.1 Introduction

Besides the already discussed food security, farmer support and land reform concepts, this study made use of three more concepts, viz, the sustainable livelihood (SL); the capacity building (CB); and the acquisition of knowledge, skills and competences (KSC) concepts. These played a major role in providing the guidelines on the kind of data to be collected and analyzed through identifying the relevant variables such as the different forms of capital, critical institutions, expected livelihood outcomes, etc. The rationale for reviewing the sustainable livelihood (SL) concept was based on the fact that the interventions introduced in Marselle were meant to enhance the livelihoods of participating project members. As such, understanding how they (farmers) coped prior to and after the implementation of the initiatives would make it possible to determine changes, if any, in the farmers' lives in general as being brought about by these projects. If the changes are not as expected, then the causes (such as lack of capital, skills, farmer illiteracy, etc.) behind these deviations from the expected outcomes would be assessed. Usually, such deviations are due to lack of capacity in different aspects on the part of the farmers, hence the need to build their capacity as a solution. This is the reason for the relevance of reviewing the capacity building concept and its framework. At the same time, prior to embarking on a skills transfer drive, one has to carry out a comprehensive skills audit to identify the existing skills gaps so that relevant interventions are designed. Such an audit was done with the guidance provided by the acquisition of knowledge, skills and competences framework.

4.2 The Sustainable Livelihood (SL) Concept

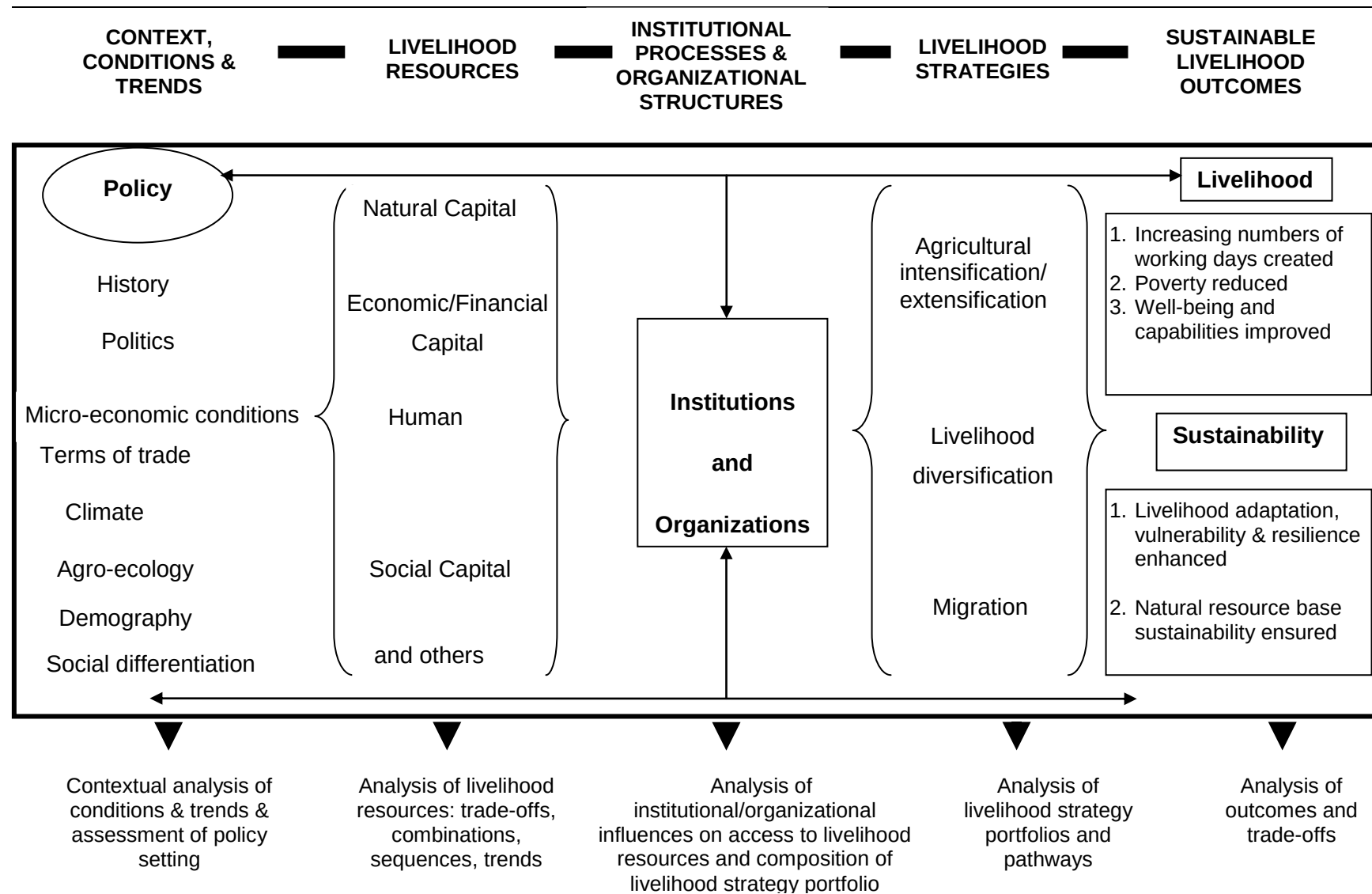
Livelihood strategies are one way of understanding or describing smallholder farmers. However, for this to happen, a clear definition of the concept of "livelihood" should be given. Adugna (2008) concurred with Ellis (2000) that the meaning of "livelihood" can often appear elusive, either due to the vagueness or different definitions being encountered in different sources. Prior to this point of view by Adugna (2008) and Ellis (2000), Chambers and Conway (1992) had provided the most encompassing, hence commonly adopted definition of livelihood in which a

livelihood was said to comprise the capabilities¹, assets (including both material and social assets) and activities required for a means of living. This definition was later simplified by the DFID (2000) by describing a livelihood as a combination of resources that are used together with the activities undertaken in order to live. Only when a livelihood can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets, both now and in the future, while not undermining the natural resource base that it thrives on, can it be termed sustainable (Chambers and Conway, 1992).

Scoones (1998) came up with a comprehensive framework for analyzing the sustainability of these livelihoods that integrated all these different aspects of the term livelihood. According to Scoones (1998), this framework seeks to answer the key question in any analysis of sustainable livelihoods. This question is; *“given a particular context (of policy setting, politics, history, agro-ecology and socio-economic conditions), what combination of livelihood resources results in the ability to follow what combination of livelihood strategies and with what outcomes?”* The availability of different livelihood strategies creates the need for institutional processes (both formal and informal) to help mediate the ability of farmers to adopt such strategies and achieve the desired outcomes successfully. Scoones’ (1998) SL framework is shown schematically in Figure 4.1.

¹ This refers to what people can do or be with their entitlements (Sen, 1984).

Figure 4.1: Sustainable rural livelihoods: A framework for analysis



The relevance of reviewing the livelihood concept is that the FSP and initiatives introduced in Marselle are some of the strategies hoped to enhance the livelihoods of the farmers. As such, it is appropriate to understand the different possible livelihood strategies/pathways that exist in general, their expected outcomes, the resources these livelihoods use, the context under which they exist and also the institutions governing them before investigating what is actually happening in Marselle. The initiatives introduced, thus, should use the different types of capital given in the framework under the guidance of relevant institutions in order to achieve positive outcomes such as better incomes and poverty reduction.

4.2.1 Livelihood Resources

Livelihoods rely on a number of resources defined collectively as capital. As shown in Figure 4.1, these capital resources can be further broken down into the following:

- **Natural capital** – this includes natural resource stocks like soil, water, air, genetic resources etc. from which resource flows and services useful for livelihoods are derived.
- **Financial capital** – includes the capital base like cash, credit/debt, savings, and other economic assets, including basic infrastructure and production equipment and technologies) which are essential for the pursuit of any livelihood strategy.
- **Human capital** – this is about the skills, knowledge, ability to labour, good health and physical capability important for the successful pursuit of different livelihood strategies.
- **Social capital** – encompasses the social resources such as networks, social claims, social relations, affiliations and associations upon which people draw when pursuing different livelihood strategies requiring coordinated actions.

According to Scoones (1998), most rural livelihoods are, to some extent, dependent on the natural resource base. As such, Conway (1985) and Holling (1993) shared the same view as Scoones (1998) that a sustainable livelihood should avoid depleting stocks on these natural resources to a level which results in an effectively permanent decline in the rate at which the natural resource base yields useful products or services for livelihoods.

4.2.2 Institutions And Organizations

With so many different but equally vital elements in the framework, Scoones (1998) recognized the need for organizations or institutions to mediate these elements so that they

all work towards achieving a common goal of a sustainable livelihood. These institutions can either be formal or informal, and Giddens (1979) regarded them as regularized practices (or patterns of behaviour) structured by rules and norms of society which have persistent and widespread use. As stated by Davies (1997), these have the ability to link stakeholders with access to capital of different kinds to the means of exercising power and so define the gateways through which they pass on the route to positive or negative livelihood adaptation. Understanding how such social norms work could go a long way towards making the livelihoods sustainable by making sure that the resources available are not depleted unnecessarily through inefficient use.

4.2.3 Livelihood Outcomes

In terms of livelihood outcomes, Scoones (1998) posited that a good strategy should be able to create gainful employment for a defined portion of the year. In addition to this, Sen (1975) further noted that not only should a livelihood yield employment but it should also create three important aspects, namely: (i) an income (ii) production (i.e. provide a consumable output) and (iii) recognition (where the people involved feel engaged in something worthwhile). As another important outcome, Norton and Foster (2001) posited that a livelihood strategy qualifies as sustainable if it can reduce poverty whilst enhancing the well-being and capabilities of the users at the same time. Davies (1996) had earlier emphasized that the same livelihood should also be supple enough to cope with and withstand any stresses and shocks throughout the year. If it fails to do so and cope in the face of temporary adjustments only or fails to adapt to longer-term shifts in livelihood strategies, then it becomes inevitably vulnerable and is unlikely to achieve sustainability (Scoones, 1998).

4.2.4 Livelihood Strategies: Portfolios And Pathways

Scoones (1998) used his framework to identify three different pathways that could be taken to obtain a livelihood, viz; (i) migration; (ii) agricultural intensification/extensification; and (iii) livelihood diversification. Migration as a pathway means moving away from one location to another, either temporarily or permanently to seek a better livelihood (Yaro, 2010; Scoones, 1998). The agricultural intensification and/or extensification pathway is on-farm and refers to a situation whereby one gains more agricultural output per unit area through more capital investment or increases in labour inputs and putting more land under cultivation, respectively (Scoones, 1998).

Scoones (1998) described livelihood diversification as widening the income earning portfolio to cover more types of shocks or stress jointly. That means individual households adopt and

rely on a number of different livelihood strategies for survival, be they agricultural or non-agricultural. Reardon *et al.* (2006) defined this approach as pluri-activity. Thus, at times households may use both farm and non-farm pathways for survival and this is usually due to the existence of the “pull” or “push” factors (Reardon *et al.* 1998). In the case of farmers, the former includes better returns in the non-farm sector relative to the farm sector. The latter, on the other hand, may emanate from an inadequate farm output (either because of short term reasons, e.g. drought, or long term reasons, e.g. land constraints), an absence of or incomplete crop insurance and consumption credit market, risks of farming, inducing households to diversify, an absence or failure of farm input markets or input credit markets which means households would have to pay for inputs with their own cash resources (Meijerink and Roza, 2007; Reardon *et al.*, 1998).

Therefore, since these livelihood diversification strategies include combining agricultural income with income obtained from other non-agricultural activities, they are classified either as (i) on-farm or (ii) off-farm strategies.

4.2.4.1 On-farm livelihood strategies

Whilst Scoones (1998) proposed diversifying livelihood sources by pursuing both agricultural and non-agricultural pathways, Ellis (2000) considered agriculture, especially smallholder agriculture, as the most important livelihood strategy between the two for rural households. This is in spite of mounting evidence that the sector is losing its importance in this regard (Fraser *et al.*, 2003; Van Averbek and Hebinck, 2007). In the opinion of Shen *et al.* (2008), the type of smallholder agriculture referred to includes cash crop production, garden production for home consumption and local markets, and customary exchange. Van Averbek and Mohamed (2006) provided evidence that most South African smallholder farmers do not even wish their children to follow in their footsteps and become farmers. This is because the sector contributes very little towards household income since rural farmers only have very small pieces of land to cultivate (Van Averbek and Mohamed, 2006). As such, they cannot get much return from these small pieces of land, hence their shift to non-farm livelihood strategies such as wage employment and social grants. This trend affects both dry land farmers and irrigators.

Furthermore, Van Averbek and Mohamed (2006) observed that the same smallholder farmers also tend to use their arable land with the focus being on raising enough money to send their children to school just to acquire formal education so that they may enhance their chances of getting formal wage employment. However, this should by no means be taken as

evidence that these smallholder farmers do not value their plots. In fact, despite their observed behaviour, Van Averbeké and Mohamed (2006) deduced that for most black smallholder farmers, including irrigators, their plots represent an important livelihood asset that could be put to more productive use in times of need. Drawing from studies conducted by FAO (2004) in various developing countries, rural households maintain their plots of land as security and often manage them extensively since the non-farm employment sector is neither sufficiently profitable nor certain. For example, they usually cultivate them in times of severe hardships to supplement their food. In addition to this, Fraser *et al.* (2003) provided evidence through their studies on farmers in the Eastern Cape that those that still cultivate large pieces of their land regularly have resorted to diversifying their crops to reduce risks caused by climatic conditions.

Turning to the role played by livestock in contributing towards agricultural income, a number of households in South Africa still own livestock such as cattle, sheep and goats. In the past, the majority of African families reared livestock as a sign of social status. However, Shackleton *et al.* (2001) acknowledged that this is no longer the case as households are now more eager to keep livestock for the multiple benefits they provide than for the purposes of representing the wealth of a family. Scoones (1998) gave milk, meat and many other non-marketed outputs as well as providing local transport of goods as some of the reasons people now keep animals.

In support of this view by Shackleton *et al.* (2001), findings from a study done by Dowie *et al.* (2006) in the Thorndale communal area of the Limpopo Province revealed that there were still some communal farmers with good numbers of livestock such as cattle, sheep and goats. Some of these animals were regularly sold to raise money to pay children's school fees, purchase household items, capital for trading and housing projects, and less often slaughtered for ceremonies/celebrations. Overall, even though some agricultural economists are convinced that the importance of smallholder farming income is dwindling, livestock and crop production still play a vital role in some households with no other livelihood strategies off-farm.

Some economists, however, dispute this assertion that the role of agriculture in providing income is declining. Instead, they maintain that in most communities, the agricultural sector's contribution has either remained the same or increased slightly especially in countries that have adopted land redistribution programs. However, the agricultural sector's contribution seems to have declined only in proportion to that of other sectors. Thus, the rate of its

contribution has been overtaken by other non-farm activities or pathways such as social grants and wage employment. In fact, several authors (e.g. Irz *et al.*, 2001; DFID, 2005; Delgado *et al.*, 1998; Schultz, 1964) acknowledged that the growth of many non-agricultural sectors is a direct result of the agricultural sector's multiplier effect. This acknowledgement is consistent with several studies cited by Irz *et al.* (2001) in a number of agro-based African countries that include Kenya, Sierra Leone, Burkina Faso, Senegal, Zambia, etc. where the sector has had positive spillover effects that have led to the growth of other non-agricultural sectors. With this kind of evidence, it becomes impossible not to acknowledge the farming sector's greater potential role in household incomes in South Africa.

4.2.4.2 Off-farm livelihood strategies

In spite of the arguments about the relevance of on-farm activities on rural household income, Eicher (1994) suggested that most rural families now depend highly on off-farm activities for their livelihoods. The activities referred to include legal claims such as old age pensions, disability and child grants, and salaries and wages (Eicher, 1994; Van Averbek and Mohamed, 2006; NPDALE, 1999; World Vision, 2004; Shah *et al.*, 1992). There is also evidence from Bradstock (2005) that most rural people found in new farms are the old and those in poor health who only produce enough to feed themselves. Even though the majority of rural households are highly dependent on off-farm livelihood sources, some of them combine the benefits from these sources with those from on-farm sources as proposed in Scoones' (1998) SL framework and also noted by Reardon *et al.* (2006) as pluri-activity. This is typical mostly of communities where the young and able-bodied are found.

Chambers (1983) termed this strategy of pursuing a variety of income sources to achieve better livelihoods the "hedgehog strategy". A good example of families using this pluri-activity or hedgehog strategy was documented in the Impendle and Swayimana communities by Ortmann and King (2007) whereby women dominated the agricultural sector whilst their spouses were involved in non-agricultural activities such as brick-making and car repairs. Furthermore, World Vision (2004) gave another example of the Enable Village in the Sekororo area in Limpopo Province where the community relied mostly on external income sources in spite of the existence of an accessible and functional irrigation scheme. Most farmers chose to work in the mines, factories and other professional sectors at the expense of their arable, irrigated land.

Drawing from the situation analysis study conducted by Monde and Ainsle's (2008) in Marselle, their findings showed that the situation in that community was not different from

that described for Enable Village by World Vision (2004) as external sources of income such as old age pensions and off-farm salaries and wages contributed considerably more than farming to household income. Monde and Ainsle's (2008) conclusions divulged then, that external income sources added at least 80% to household income, with livestock and crop production bringing in 6.8%. The remaining income was from local economic activities such as local trading in non-farm goods. As part of this research, it was of interest to investigate if this is still the case in spite of the initiatives introduced.

Apart from the already mentioned non-agricultural livelihood strategies, Chambers (1983) further pointed out that some rural households survive by either borrowing food directly or money from friends and relatives to purchase food. In cases where money is available, very cheap or less preferred food is opted for in order to afford as much as possible whilst saving money at the same time. Even though this method does help in terms of affording families adequate food in terms of quantity, it usually does so at the expense of proper nutrition as families consume the same less nutritious food time and time again. In the case of those who prefer wage employment, the majority (about 80%) of them in the Eastern Cape Province may still be earning far below the poverty datum line, and categorized as ultra-poor (Fraser *et al.*, 2003; Monde *et al.*, 2005; Van Averbeke and Hebinck, 2007).

As a result of such heavy reliance on off-farm income sources, Ellis (1999) concluded that having the ability to diversify income generation sources is beneficial for rural households which are at or below the poverty datum line and can actually make the difference between minimally viable livelihoods and destitution. However, as helpful as the diversification strategy seems, it has a number of implications. Having "better alternatives" means that agriculture is no longer viewed by many as important enough to justify putting more effort in for the sake of maximizing returns. In this regard, Kuiper *et al.* (2007) concluded that this inevitably resulted in less agricultural investment behaviour such as buying of farming inputs like fertilizers and treated seed. The second implication was that those households which still opt for farming despite having off-farm income alternatives would only do so to produce food crops for personal consumption and not high value crops that could be marketed (Kuiper *et al.*, 2007).

Bradstock (2005) blamed agriculture's peripheral role as a livelihood strategy in rural areas on apartheid policies by arguing that these policies made it impossible for blacks to farm outside the homelands. As for the situation in towns, the land given to them was too small for any meaningful agricultural activities to be performed (Werner and Odendaal, 2010). The

township plots only suited subsistence agriculture, hence discouraged any farmers aspiring to turn commercial. This legacy of the apartheid era still affects the smallholder farmers of today.

If the different types of interventions (such as the LRP and FSP) discussed earlier were all to be successful, then smallholder agriculture would play a vital livelihood role in the lives of the rural poor. Based on this line of thought, McCatty (2004) suggested that it might even help ease the population pressure in towns caused by migration and also lower the ever-increasing unemployment rate in the country. However, having land through the LRP, financial support through FSPs and other forms of support is not enough if smallholder farmers are not taught how best to use these resources in their farms to enhance their productivity (Mushunje, 2005). This is usually a reality when referring to the black people who inherited land previously owned by rich white farmers.

The Mail and Guardian Newspaper (2010) once published an article on the progress made by the LRP beneficiaries since its implementation. In this article, the then Minister of Rural Development and Land Reform, Mr. Gugile Nkwinti was quoted as saying that those who received land under the LRP had failed to produce “effectively and optimally on the land” due to their lack of capacity. This challenge had earlier been noted by Mushunje (2005) who also identified the lack of capacity as the biggest stumbling block in Zimbabwe after the controversial LRP. As a solution, over and above just getting land, beneficiaries of these interventions should also undergo capacity building exercises so that their knowledge and skill match the support given to them (Psacharopoulos, 1985; Mushunje, 2005).

4.3 The Capacity Building (CB) Concept

Rola-Rubzen and Gabunada (2003) conceded that building the capacity of individuals has emerged as a major focus for development institutions over the last few years. The same point of view had earlier been raised by ADB (1991) and later by World Vision (2004) who both recognized and acknowledged that human resource development plays as much of a role in poverty alleviation as technological developments, infrastructure and good economic policies. In addition, Rola-Rubzen and Gabunada (2003) further advocated for human development, especially in poor countries, because in most cases the poor own very little resources and often rely on their own labour as their main source of income. With such limited resources and expertise, equipping them with the necessary education and the right skills, Rola-Rubzen and Gabunada (2003) explained that local communities tend to partake in economic opportunities that enabled them to move out of the vicious circle of poverty.

Furthermore, Psacharopoulos (1985) noted that educating and training farmers not only enhances their opportunities in the developing economies but also their capacity to earn more.

In the South African context, the government, through its LRP, acquires land from the white commercial farmers who were able to mechanize their operations. The technology white farmers used was sophisticated and up-to-date, hence the reason why productivity in their farms was high. Giving such land together with the sophisticated machinery to the poor black people was always going to be a problem. Consequently, Bradstock (2005) argued that the possibility of the targeted LRP beneficiaries being able to sustainably inherit such up-to-date packages previously owned by white commercial farmers for their crop and animal production was highly unlikely. As a recommendation, Bradstock (2005) proposed that these farmers receive intense technical training and support if they are to unlock and enjoy the full potential of their new farms.

If the ADB's (1991) conclusions that poverty could be alleviated through building the capacity of rural farmers are anything to go by, then efforts should be made to develop the human capacity in Marselle and all the other poor communities in South Africa and the rest of the world. Such investments in human capital would actually go a long way towards meeting the first World Bank's MDG of eradicating extreme poverty and hunger by year 2015. Addressing the problem of extreme poverty has a direct impact also on the fourth MDG goal of reducing the mortality of children under the age of five years by at least two thirds by year 2015.

According to Kang'ethe (2004), the high levels of poverty are usually exacerbated by the low prices of farm products, insufficient access to credit, lack of basic infrastructure, lack of institutional support and the high costs of agricultural inputs. Other constraints include the lack of transfer of agricultural research, extension and poor access to markets (Salami *et al.*, 2010). All these different challenges create the basis for the need for capacity building in smallholder farmers in order to strengthen the sector's role as a major livelihood option in rural South Africa.

Different organizations, structures or groups of people implement the CB concept in different ways. However, despite all the various interventions, Brown *et al.* (2001) concluded that all these interventions have a common characteristic of being linked to performance suggesting that a need for capacity building is often identified when performance is inadequate or

falters. Consequently, without any measurable performance there cannot be any need to build the capacity of individuals at all. More often than not, the performance of various individuals is measured against the number of set targets or objectives being met and also the time taken and means used to actually attain them (Landrum and Baker, 2004). Since this study focuses on farmers, their performance is appraised through comparing the resources they used with the actual output obtained at the end of each planting season, together with the changes in their lives in general. If farmers do not meet the expected yields or still struggle to make use of the initiatives introduced, then this will indicate the need for capacity building.

4.3.1 Capacity building defined

There are a number of ways to define CB but in order to understand and simplify the entire concept, Brown *et al.* (2001) first explained the meaning of the term capacity in the concept of CB. In their definition, capacity was regarded as being both a process and an outcome (dynamic and multidimensional) that exists for the purpose of performing a certain action or enabling performance. Goodman *et al.* (1998) considered it as the ability to carry out stated objectives. Philbin's (1996) view of the concept was deeper as it considered CB to be a process of developing and strengthening the skills, instincts, abilities, processes and resources that organizations and communities need to survive, adapt and thrive in the fast-changing world.

This study defined and used CB in general terms as a process or activity that improves the ability of a person or entity to carry out stated objectives (Brown *et al.*, 2001). What is crucial to note is that in carrying out all or any of these activities in agriculture, the idea should always be to enhance the farmers' ability to define and realize their goals and become even more effective in their farming business. This is the reason Linnell (2003) linked CB to leadership development, advocacy skills, training/speaking abilities, technical skills, organizing skills, and other areas of personal and professional development.

Due to the ever-changing nature of the world, Lusthaus *et al.* (1995) recommended that regarding CB as a continual process of improvement within an individual, organization, or institution with the objective of maintaining or improving the existing conditions be made a priority. Furthermore, Taschereau (1998) advocated that the CB process be an internal process which could be enhanced or accelerated when an outside group/entity (e.g. donors or their cooperating agencies) assists the individual, organization, or institution to improve its functions or abilities, especially in terms of specific skills. The assisting group should not

farm for the targeted farmers but focus on passing knowledge to them on how best to farm so that this knowledge may continue being used long after the external help is withdrawn (Taschereau, 1998). Therefore, the idea should be to train farmers to be independent by using the latest appropriate technology available and make them more productive so that they live better lives and escape poverty.

4.3.1.1 Capacity Building in Agriculture

The CB definitions given above show that the CB concept can be used in any type or form of organization, be it health, financial firm, university, etc. The same concept can also be used in agriculture, especially in conjunction with agrarian reform programmes to enhance the productivity of target farmers. Actually, FAO (2009) documented that global experience has shown land and agrarian reform programmes to be very complex and that they demand a high degree of capacity among the agents that implement them. In countries like South Africa where Land Reform programmes have been adopted, various stakeholders such as the government and NGOs have a responsibility to capacitate the targeted reform beneficiaries.

Kotellos *et al.* (1998) concurred with Lusthaus *et al.* (1995) that external assistance to build capacity can be executed in a number of planned interventions that include, but are not limited to, technical assistance, training courses, and financial packages. Furthermore, CB is something that is always ongoing internally. This study focuses on the external interventions that are usually more discrete and planned.

There are two broad domains of capacity which are critical in providing support to land and agrarian reform (FAO, 2009). These domains are the capacity to administer land and the capacity to support the establishment of new farmers. The former includes, among other things, land surveying, titling and registration and land-use planning, land valuation and land taxation. As for the latter, it encompasses a wide range of support services that are needed to enhance the competitiveness and viability of the new farms that are being established. FAO (2009) summarized these support services as:

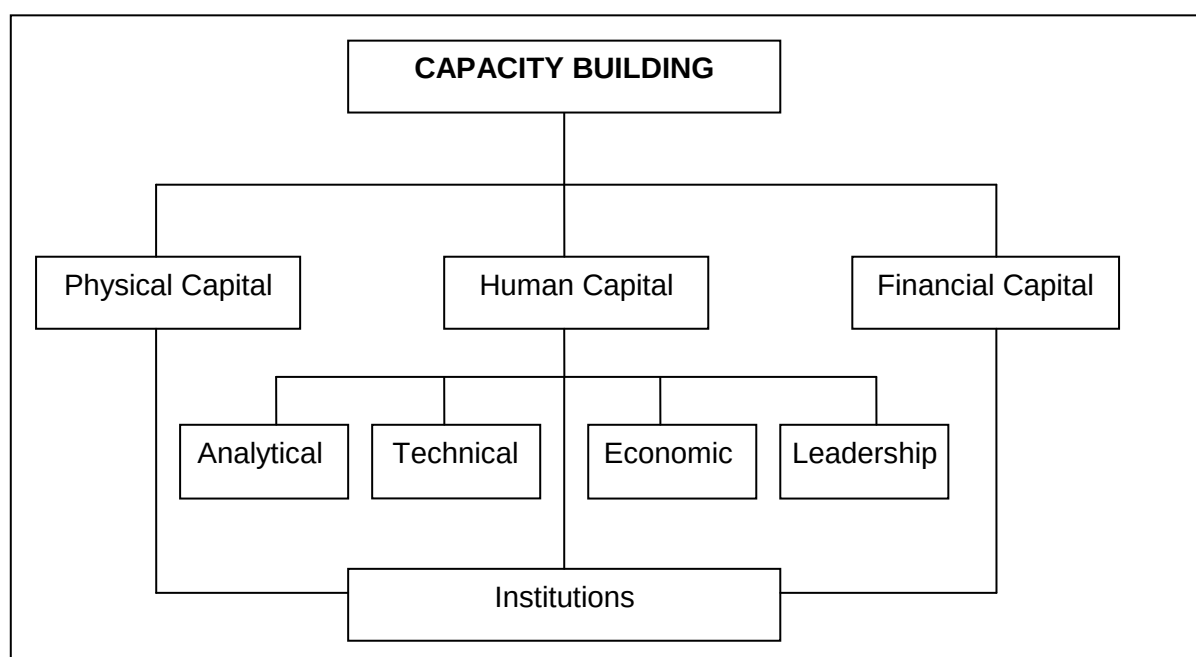
- i. Institutional innovation in rural financial markets, particularly in market-assisted land reforms;
- ii. Facilitating access to credit, technology, financial and farm management skills and marketing information, and;
- iii. Facilitating linkages with the private sector.

The government is responsible for formulating policy to support rural agriculture but this alone is never enough as policy should be complemented by technical expertise or experience. As such, Greenberg (2009) added that the private sector, though not responsible for formulating policy, has a role to play as it has more expertise and experience. At the same time, this expertise from the private sector is usually eroded by the desire to make quick and easy money at the expense of local communities. This is the sad side of capitalism that dominates South Africa and the rest of the world. Nonetheless, Greenberg (2009) proposed that such drawbacks could be overcome if the two sectors (government and private) work together to achieve a common goal. This way, the two sectors could draw on the strengths of each of these to form coalitions that can draw on government resources and strategic possibilities, adapt the technical knowledge of the private sector while injecting it with a collective philosophy, using and transferring technical know-how as a tool (Greenberg, 2009). The end-result would be the realization of a transformative agenda that can draw on the rootedness, responsiveness, collective culture and activist spirit of NGOs (Greenberg, 2009). It was on these grounds that FAO (2009) proposed the facilitation of the linkages between government, rural farmers and the private sector for the agrarian revolution to be a success in South Africa.

4.3.2 Capacity Building: A Framework for analysis

The framework adopted in this study was formulated by Rola-Rubzen and Gabunada (2003). In this framework, distinction is made between three different forms of capital, namely: (i) Physical, (ii) Human and (iii) Financial capital. Rola-Rubzen and Gabunada (2003) further categorized human capital into analytical, economic and technical skills enhancement. Summarized, the framework is shown in Figure 4.2.

Figure 4.2: Capacity building framework for analysis



[Source: Rola-Rubzen and Gabunada, 2003]

4.3.2.1 Physical Capital

According to Romer (1994), physical capital consists of man-made tangible assets such as buildings, machinery, fencing, dams, road network and equipment that are used to actually convert raw materials into usable products for consumer purchase.

4.3.2.2 Financial capital

Financial capital is very crucial for the success of any business. If it is not adequate, then farmers always find it very difficult, if at all possible, to purchase the inputs necessary for the smooth-running of their farms. The targeted farmers should therefore be taught different ways of raising extra income such as pooling their resources together or forming cooperatives or farmer associations. Before any source of capital is adopted, farmers should identify and list both advantages and disadvantages of the source. In situations where farmers are involved in more than a single enterprise, Rola-Rubzen *et al.* (2002) advised that a SWOT analysis be done in order to identify and rank these activities in terms of the amount of money required by each and their likely returns.

Every good project has its own coffers and these funds can be used to purchase inputs in bulk (hence at discounted prices), finance the hiring of transport to bring in inputs and deliver output to the market and even pay extension officers to visit the farm to offer advice.

Capacity in this instance would be built around training the project members how to manage their finances. In other words, training will be around the issues of simple accounting in order to enhance their knowledge and skills on book- and record-keeping. Physical capital (infrastructure) such as the fencing of the camps and servicing of the water pump can also be attended to using the money from these coffers.

4.3.2.3 Human Capital

Human capital was defined by Becker (1998) as the skills, education, health, and training of individuals. These are regarded as capital because they are a fundamental part of humans that is long-lasting, in the way a machine, plant, or factory lasts. To enhance the human aspect of capital amongst the target population, Rola-Rubzen and Gabunada (2003) categorized skills enhancement into four focus areas. These focus areas are (i) analytical, (ii) economic, (iii) technical and (iv) leadership skills.

4.3.2.3.1 Analytical

CB should enhance the farmers' ability to critically analyze their farming systems. As suggested by Rola-Rubzen and Gabunada (2003), this should be done by devising analytical tools to encourage farmers to assess their current situation as well as various options for improvement in their livelihood system. One of these analytical tools suggested by Rola-Rubzen *et al.* (2002) was to ask the farmer respondents to identify their perceived critical success factors (CSF) for improving their enterprises. That is, they should identify those things they think would enhance the productivity of their activities. Espinosa *et al.* (2002) further suggested the introduction of several other thinking tools such as having a marketing timeline for the farm produce, goal setting and profit indicator tools. In Espinosa *et al.*'s (2002) view, having these thinking tools would contribute to the identification and exploration of various opportunities that could make a positive impact on improving farm households' agricultural production.

4.3.2.3.2 Technical

This part of CB deals with the technical aspects of production and marketing. Issues addressed include the carrying capacity of the farm, the dipping of the animals, proper vaccination, proper agronomic practices and the harvesting and marketing of agricultural products. If the person responsible for building the farmers' capacity has limited knowledge about any of these aspects, Rola-Rubzen and Gabunada (2003) proposed a thorough service provider such as an extension agent be used.

4.3.2.3.3 Economic

This part of the framework concentrates on improving the profitability of the farm enterprises. To improve the economic skills of the farmers, Rola-Rubzen and Gabunada (2003) advised that the trainers develop tools aimed at enabling farmers to analyze profit from various opportunities, as well as assess and implement opportunities that will have real impact or improvement on profit. This means that farmers should understand the principles and methods of evaluating their profit. In cases where farmers have a single main activity, it is of paramount importance to identify and pursue other income-generating opportunities to boost the well-being of their households even more.

Therefore, the major role of CB in this case is to make farmers able to identify indicators of well-being in relation to the need for increasing household income from several income-generating opportunities, including livestock and crop production (Rola-Rubzen and Gabunada, 2003). After the completion of the CB process, farmers should have the appreciation of the other drivers of profit and also have the ability to identify parameters they could change (e.g., increasing productivity, increasing output price, or decreasing input costs or combinations of the above) to increase profit.

4.3.2.3.4 Leadership

Leadership was defined by Kauzya (2005) as the engine that is needed to drive local governance and service delivery. Without it, corporate governance arrangements cannot operate effectively and ultimately public service delivery suffers. The same author further argued that for decentralized governance to spring up and thrive, it requires a strong leadership that not only enjoys the trust of the people, but also trusts in the power of the people.

Rola-Rubzen and Gabunada (2003) were of the opinion that building the leadership skills of farmers would enhance the long-term sustainability of any project's impacts, hence its inclusion in the framework. As a process, CB will only last for as long as is necessary for the target farmers to grasp the new skills being taught. Once the training period is complete, then it would be the farmers' responsibility to sustain the project on their own, using the knowledge and skills obtained through this training programme. Strong leadership would be a must in order to carry the project through, long after the withdrawal of the trainers. As part of CB, a good leadership structure within the farming community should be established and facilitated to enable smallholder farmer participants to develop their capacity to continuously

assess and analyze their farming systems, improve their decision making skills and enhance their livestock and crop management.

The inclusion of such human capital assets automatically creates a need to also investigate how these human capital assets are acquired. It is also critical to highlight that the acquisition of certain skills on its own does not necessarily mean one becomes efficient in using that particular new skill. In fact, after skills acquisition one should also be competent enough to use it in the most effective manner. The following section discusses the relationship between the other important part of human assets – knowledge, skills and competence.

4.4 Acquisition Of Knowledge, Skills and Competences Framework

Farmers are usually business-minded people who, in practice, run their businesses without necessarily having well defined business skills (McElwee, 2008). This line of thought emanated from literature from Defra (2007) who had earlier come to a conclusion that one of the key issues that hinder the farmers' decision to diversify, or indeed threatens the success of any diversified agricultural project is a lack of a relevant business skill. Be that as it may, having a skill alone is not enough for one to be regarded as competent and effective. In fact, they should also acquire knowledge over and above having these skills. This section discusses the acquisition of knowledge, skills and competences.

4.4.1 Knowledge

According to Reynolds and Turcsányi-Szabó (2010), knowledge is the body of facts, principles, theories and practices that is related to a field of work or study and emanates from the absorption of information through learning. Reynolds and Turcsányi-Szabó (2010) further expanded that it is something that is more constructed socially and, unlike intelligence, it could also be gained through the experience of performing certain tasks repeatedly. With regards to farming, especially in the smallholder sector, studies have shown that most farmers cultivate the land they inherited from their parents and grandparents whom they used to farm with as they were growing up (Kabwe, 2010; Nguthi, 2007). Thus, most of the farming knowledge that the current smallholders have was obtained through indigenous means and not from formal academic institutions.

4.4.2 Skills

A skilled person was characterized by Reynolds and Turcsányi-Szabó (2010) and Wickham (2006) as one with the ability to apply knowledge and use know-how to complete tasks and

solve problems. Thus, this application of skills and knowledge is evaluated through the accuracy and rate at which one performs certain tasks without deviating from the set standards. Just like knowledge, Reynolds and Turcsányi-Szabó (2010) advanced that skills are also acquired through practice and performed with very little effort. However, to acquire skills one needs to acquire knowledge first. Furthermore, skills make use of methods, materials, tools and instruments.

Regarding entrepreneurial agriculture, Smit (2004) and McElwee (2006) observed that the ever-changing agricultural environment necessitated the need for farmers to keep renewing their farming skills in order to stay abreast with the rest of the world. In fact, Lazear (2005) warned that farmers should not necessarily be content with being experts in any single skill but, instead, they should become jacks-of-all-trades. This means that their success is subject to them having a balanced skills mix in a variety of areas in order to put together the many components required to create a successful business. According to Wagner (2003; 2006), such an approach is critical in stimulating entrepreneurship.

Literature further reveals that the need for these entrepreneurial skills has also emerged in the rural farming sector in most countries. For example, Morgan *et al.* (2010) concluded that skilled farmers should be able to create and evaluate business strategies, network and utilize contacts, and recognize and realize opportunities. This had previously been suggested by McElwee (2008) who pointed out that in order to develop and improve farm businesses, farmers should learn to network, be innovative, take risks, work in teams and monitor their farm businesses. In spite of having all these various skills, however, a good farmer should also be competent in using them, hence the need to discuss the issue of competence as well.

4.4.3 Competence

Ennis (2008) and Bloom (1956) viewed competence as one's capability to apply or use knowledge, skills, abilities, behaviours and personal characteristics to successfully perform critical work tasks, specific functions, or operate in a given role or position. According to Dubois (1993) and Lucia and Lepsinger (1999), important personal characteristics that help to define competency and are necessary to perform the job at hand may be mental, intellectual or cognitive, social or interactive, emotional or attitudinal, and physical or psychomotor attributes. Ennis (2008) further highlighted that competences not only exist for individual efforts but also for other functions that involve more than one individual. They

involve the collective learning of how to coordinate diverse production skills and integrate multiple streams of technologies (Prahalad and Hamel, 1990).

Furthermore, competence is positively correlated with the pace with which individuals learn new skills or acquire new knowledge to keep up with the technological advances. From this basis, Dubois (1993) and Lucia and Lepsinger (1999) maintained that any competence framework must be robust, dynamic, fluid, and flexible to change with technological, economic, and other changes. Over and above this, it should be re-evaluated and refined, along with the selection and other human resource tools developed (Egodigwe, 2006). Accordingly, a good competence model should clearly describe the tasks an individual worker is expected to perform consistently to achieve or exceed the set strategic goals of the organization (Le Deist and Winterton, 2005; Teodorescu, 2006). In addition, a competent person should not only increase their knowledge, but also demonstrate their understanding of how that knowledge can be applied, their skill in applying it, and the underpinning professionalism to apply it safely and appropriately. The National Food Service Management Institute (2004) categorized a typical competent worker (farmer in this case) as one with the ability to handle resources, information, interpersonal communication, systems, and technology. Broken down, these core areas are as follows;

Information – a competent farmer should have the ability to:

- i. Acquire and evaluate information;
- ii. Organize, process and maintain information, and;
- iii. Interpret and communicate information

Interpersonal - a competent farmer should have the ability to:

- i. participate as a member of a team;
- ii. Teach others;
- iii. Exercise leadership;
- iv. Negotiate to arrive at a decision, and;
- v. Work with cultural diversity.

Systems – a competent farmer should have the ability to;

- i. Understand production systems;
- ii. Monitor and correct performance, and;
- iii. Improve and designs systems.

Technology - a competent farmer should have the ability to:

- i. Select appropriate technology;
- ii. Apply technology to task, and;
- iii. Maintain technology.

With all this in mind, Defra (2007) further reasoned that being competent in one's skills is key both to successful start-up of diversified businesses and ongoing profitability. This is because being competent can assist in the planning and management of the mainstream agricultural enterprise so that skills acquisition provides a double benefit. In short, a good business-minded farmer should put together their knowledge and skills and be able to exhibit knowledge of advances and developments in farming; comprehend and effectively employ appropriate farming methodologies; critically analyse and synthesise new and complex information from diverse sources; formulate and apply solutions to farming problems; exercise critical judgement and thinking to create new ways of understanding; have a broad awareness and knowledge of key relevant funding sources and stakeholders; and appreciate basic principles of farm and time management. Having all these abilities would render one very competent when it comes to farming.

Through a literature synthesis, Le Deist and Winterton (2005) developed a typology of competence consisting of four categories that could also be adopted in agriculture when contemplating transferring skills to smallholder farmers. According to Le Deist and Winterton (2005), these four competence categories are: (i) cognitive competence (which covers knowledge and understanding); (ii) functional competencies (which focuses on skills); (iii) social competence (which captures issues around behavioural and attitudinal competencies); and (iv) meta-competence (which is concerned with facilitating the acquisition of the other substantive competencies). For simplicity purposes, Le Deist and Winterton (2005) schematically put these four competence categories as shown in Figure 4.3.

Figure 4.3: A typology of competence

	<i>Occupational</i>	<i>Personal</i>
CONCEPTUAL	Cognitive Competence	Meta-Competence
OPERATIONAL	Functional Competence	Social Competence

[Source: Le Deist and Winterton, 2005]

4.5 Synopsis

Due to the similarities in some of the variables between the SL and CB frameworks, most of them were discussed concurrently. Whilst both frameworks deal with demography and the different forms of capital resources, the SL framework goes beyond capital than the CB framework which is entirely centered on it. As such, the latter was used to assess the capital situation in Marseille whereas the former would be more helpful in assessing other relevant variables such as the institutions governing the use of these forms of capital, the different livelihood pathways that could be explored and the possible outcomes to be expected from these pathways.

Since the overall aim of this study was to inform the second and final stage (capacity building) of Land Bank's intervention programme in Marseille, it was necessary to conduct a comprehensive assessment of the skills the Marseille farmers possess and those they desire to be trained on. As outlined in this chapter, such a skills audit in this study was done through the acquisition of knowledge, skills and competences framework which explained how an audit of this nature should be conducted and what sort of knowledge, skills and competency areas should be investigated. In other words, using these frameworks in this research was aimed to create a better understanding of the current situation in Marseille and also help identify the specific priority areas that need attention through CB.

CHAPTER 5

RESEARCH METHODOLOGY

5.1 Introduction

Methodology refers to the techniques or methods used to collect all the relevant data needed for a study. This chapter begins with a detailed description of the study area (Marselle) in terms of its biophysical and socio-economic characteristics. Following the study area description is a section that explains in detail the methods used to collect, analyze and interpret data that was collected. The chapter also discusses the econometric model adopted for purposes of analyzing the collected data and validates the selected variables through literature.

5.2 Description of the study area

The Marselle community is found in a quaint seaside location situated between the Kariega and Bushman's Rivers, along the Sunshine Coast in Eastern Cape, South Africa called Kenton-on-Sea (usually referred to as Kenton). It is located in the Ndlambe Local Municipality of the Cacadu District Municipality and is approximately halfway between the industrial centres of East London (EL) and Port Elizabeth (PE), on the R72 Road. The population in the area is about 1000 people, but is a popular holiday resort hence the population temporarily triples over the period of the December summer holidays (SA Explorer, 2011). The area has many pristine beaches and green rolling hills and a nature reserve along the shore ensures that no housing developments can spoil the views of the coast.

The rivers in the area are safe for boating, canoeing and all river water sports. The Kariega and Bushman's Rivers are navigable for 15 and 30 kilometres, respectively. Upriver one can view and listen to a host of indigenous bird life from the colourful sunbird to the soaring fish eagle. Wildlife can be spotted along some parts of the banks of the rivers. The Addo National Elephant Park and Shamwari Game Reserve are also nearby for those who wish to see the "Big 5". There are excellent golfing amenities nearby, and tennis, squash and bowls are also available.

In terms of rainfall, the region receives an average of 471 mm per year, most (53 mm) of which falls in the month of October. The least (30 mm) amount of rainfall is in winter, particularly in July of every year (SA Explorer, 2011). This is the time during which the area

normally has its lowest temperatures of 9°C on average during the night and a mid-day average of just 20°C. Temperatures are highest during the first two months of the year where they average around 26.4°C. The most common form of rain is in the form of showers even though thunderstorms and flash floods should also be expected especially during summer.

Regarding the type of vegetation, Mucina and Rutherford (2007) stated that the biology in the area is very diverse since it is positioned in an area where the Fynbos, Grassland, Thicket and Karoo, four of the South Africa's major biomes converge. Parkin *et al.* (2006) and Shackleton *et al.* (2007) further described the vegetation as being made up of shrubby (Fynbos) grassland on the hilltops and dense woody thicket in the valleys. The vegetation is natural and its sustainability depends on the way its users protect and make use of them. According to CES (2012), only 6.73% of the entire region has a cultivated land use and another 1.3% is improved grasslands. There is also a sweet veld dominated by Acacia Karoo as the most common browse. Figure 5.1 illustrates the location of the study site.

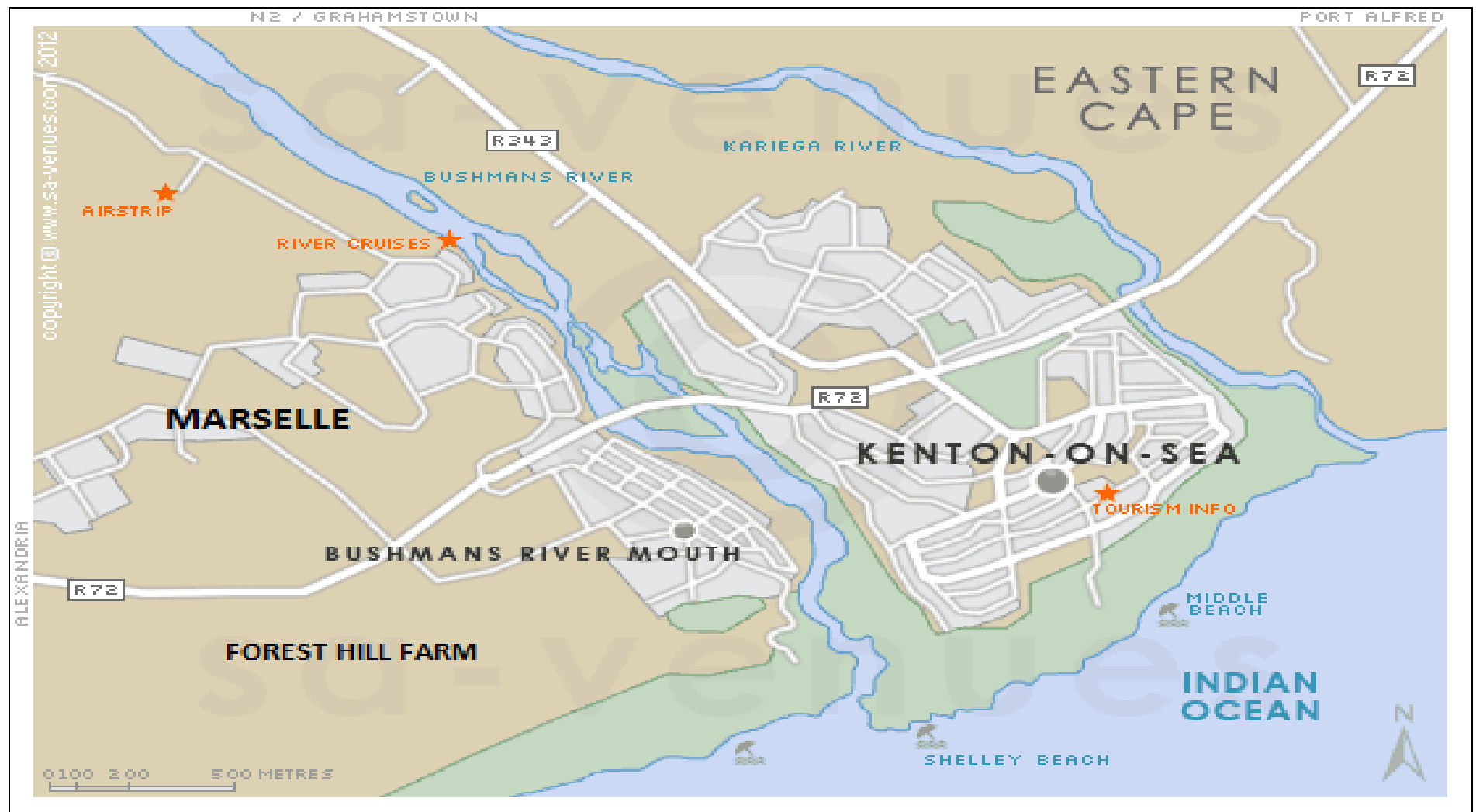


Figure 5.1: A schematic representation of the study area

Zooming in on the Forest Hill farm itself, the beneficiaries of this farm are farming households from the Marselle settlement. The majority of people from this community were previously employed as farm labourers in the Alexandria, Kenton and Port Alfred areas. They left the farms where they used to work and live due to changes in farm ownership. Some of those that were employed as farm workers were retrenched while others left on their own accord to later settle in Marselle (Monde and Ainsle, 2008). However, one of the biggest challenges outside farming that they soon realized upon being settled in Marselle was earning a living due to their limited skills. This prompted them to resort to cultivating the little land that they had in order to produce enough food to feed their households.

According to the baseline study conducted in the community by Monde and Ainsle (2008), undertaking farming proved to be difficult though as there was no land for productive purposes even though some households owned cattle which they brought from the farms. Access to land was limited to residential sites. With time, those with cattle decided to come together and form the Stock Farmers Association (SFA) and began negotiations with the Ndlambe Local Municipality for them to be given land for productive purposes (Monde and Ainsle, 2008). The land, Forest Hill farm, was granted to them through a lease agreement between the users and the Municipality. This farm, which was previously owned by a white farmer, is one of those farms that were earmarked for the Land Reform Programme. As said by Monde and Ainsle (2008), the farm is one of the LRAD projects of the Department of Land Affairs. The farm was handed over to the Ndlambe Municipality for redistribution to deserving communities. In terms of size, the farm is 620 ha of which about 200 ha is suitable for crop production. During the situation analysis period, the main enterprises identified were cattle (indigenous) and chicory production. Visits undertaken prior to this study also showed that these two are still the major enterprises even now.

5.2.1 Brief description of the livestock project

The Stock Farmers Association (SFA) consists of livestock farmers from the Marselle community. They were the original beneficiaries of the Forest Hill farm from the municipality. Referring to the situation analysis report compiled by Monde and Ainsle in 2008, there were about 48 farmers grazing their livestock on the farm but with only 32 farmers being official members of the SFA in 2007. Even though the farm is owned collectively by the farmers through the SFA, this project is an individual project where each farmer is responsible for his/her own livestock even though resources are shared. This means that there is no collective action whatsoever when it comes to the buying of feed or marketing animals (Monde and Ainsle, 2008). The only thing they have in common is the rangeland they use to

graze the cattle. Marketing is done at any time of the year whenever the producer decides to sell his/her cattle, or when he/she is approached by a buyer. People hardly sell their animals to formal markets (speculators or stockvels) as they prefer to deal mostly with local communities due to the history that has shown that the returns from the latter are higher than those from the former.

At the beginning of 2008, there were 300 cattle with an average of seven but ranging from one to 38 cattle per farming household (Monde and Ainsle, 2008). The types of cattle kept by farmers are mixed breeds, and are mainly kept for meat than for milk purposes (see Figure 5.2 for some of the cattle kept on the farm). The findings of the situation analysis also showed that when the project started, an attempt was made to improve the quality of these cattle through the introduction of a Bonsmara bull to breed with the cows. However, the bull died after a year or two and since then no attempt was made to bring another bull. The project members showed interest in Nguni cattle but had no idea how to acquire them.

Due to lack of proper infrastructure like fencing, the rangeland is used in the same way as that of the communal land tenure system. There are neither camps nor cultivated pastures for the animals. Livestock rely on natural veld to attain nutrients required for their maintenance and productive requirements. However, the condition of the rangeland to support livestock was discovered during the situation analysis to be under threat from the deterioration of the pasture, which was a consequence of overgrazing and overstocking (Monde and Ainsle, 2008).



Figure 5.2: Some of the cattle grazing at the Forest Hill farm

5.2.2 Brief description of the chicory project

As was the case with the livestock project, the chicory project's description is also based on the findings of the baseline study conducted by Monde and Ainsle (2008). Unlike the livestock project which is individualistic, the chicory project is more of a group project whereby all members contribute equally towards the project. The project operates under the name Masakhane Silime and started with ten (10) members but the number had dropped to eight at the start of this particular study. Members of this project are both male and female residents of the Marselle community and operate on a 10 ha piece of the 620 ha Forest Hill farm but at times it goes as high as 25 ha (refer to Figure 5.3 for a photographic representation of the planted chicory). As stated in the baseline study report, the respondents said the main reason for this low land use intensity was limited access to financial capital. In an attempt to boost productivity and purchase the relevant inputs, the project members borrowed funds from Land Bank which they later tried to repay using the proceeds that were realized from their sales but could not manage to pay it off completely.

Production of chicory on the farm is through rain-fed conditions with no irrigation to supplement as becomes necessary during dry weather spells. Membership is open to any local resident of Marselle but only upon payment of a R100 joining fee. Prior crop production knowledge is not required as responsibilities are shared equally amongst members and even though the main enterprise for these farmers is chicory, some are also engaged in the production of food crops and vegetables, usually in their backyard gardens for home consumption.

Due to the small membership, the project hires temporary labour to assist with activities such as ploughing, cultivating and weeding which apparently are very expensive in the Marselle community. Weeding is done at different stages as proper growth of the crop requires that the field is kept clean all the times. About 10 to 12 local people are employed every year for a period of about three months for weeding, and each person was being paid R40/day in 2012. In terms of output quantity, the farmers produce at least 9.5 tons of chicory on a good year solely for selling purposes. The prices that they charge are determined by their only market, Chicory SA in Alexandria; thus, there is a case of monopsony.



Figure 5.3: Chicory plant at Forest Hill

5.3 Methods of data collection

5.3.1 The survey

Since one of the objectives of this study involves the evaluation of the effectiveness of interventions introduced to support land reform beneficiaries grow agriculturally, there was a need to have baseline information to compare the situation before and after the interventions. However, the baseline information provided by Monde and Ainsle (2008) was deemed as not comprehensive enough. For this reason, Felloni (2006) suggested making the baseline data more comprehensive through the following alternative methods:

- i. Reconstructing baseline data *ex post*: recall method
- ii. Using key informants and triangulation (mostly qualitative)
- iii. Reconstructing a baseline “scenario” with secondary data

The investigation sought information on demography, livelihoods, expenditure patterns, and ownership of assets. A standardized semi-structured questionnaire containing both closed and open-ended questions was used as the data collection instrument, with the unit of analysis being farming households. This questionnaire was standardized because each respondent was exposed to the same questions and the same system of coding responses. In keeping with Siniscalco and Auriat (2005), this approach ensures that differences in

responses to questions can be interpreted as reflecting differences among respondents rather than differences in the processes that produced the answers.

Closed-ended questions made part of the questionnaire because they are more specific (hence more likely to communicate similar meanings), take less time to administer especially in large-scale surveys and their response are also easy to analyze (Barribeau *et al.*, 2004). However, this approach has certain disadvantages such as requiring the researcher to spend considerable time generating a list of responses. Gates and McDaniel (1997) advised that if the list of responses is too long, respondents may become confused or disinterested. An effort was therefore put to minimize the negative effects of this type of questions in the study by making use of focus group interviews to solicit some of the data.

Questionnaire-based interviews were carried out with the heads of households but in cases where they were absent at the time of the interview, data was obtained from other senior members of the household. Such interviews were aimed at identifying and describing the socio-economic characteristics, farming activities, constraints, etc. of the project beneficiaries thereby responding to specific objectives one and two which were mostly demographic and specific to individual farmers.

Due to the small number of members in both projects, all (40) of them were interviewed, *i.e.* 32 SFA and 8 Masakhane Silime project members. On the issue of focus group meetings, only key project members were used. In the case of the livestock project, those that joined the project from its first day were preferred whereas the chicory committee members were engaged. The motivation for using this focus group approach was to get a deeper understanding of the existing knowledge and skills gaps since these gaps affect everyone within the same community equally. Riise and Reyntjens (1998) advised that in addition to yielding the required data, focus group discussions are able to create awareness amongst the target population at the same time that data is collected, created further justification for adopting this approach. In addition, the approach could also be one way of getting the most critical information fast and cheap, especially since the majority of challenges faced by communities are common to most rural farmers. As also recommended by Heary (2000), this approach was chosen as it allowed detailed probing on both the cognitive and emotional responses of participants while observing the underlying group dynamic.

The topics covered during these interviews include the background of the farming community, governance and institutional arrangements, performance of the main

enterprises, support systems and problems faced by farmers on the farm. Thus, this part of the study was geared towards addressing objectives three and four.

5.3.2 Justification of the small respondent number

This study was a case study of the type categorized by Gerring (2004) and Bromley (1990) as an intensive study of a single unit with an aim to explain features of a larger class of similar phenomena or across a larger set of units. Thus, it was based entirely on a single example of a broader phenomenon as recommended by Lieberman (1992, 1994) and Njolstad (1990). Work by Gerring (2004) further informed that using the case study approach should be done with the understanding that the method is used to define, and not analyse cases or model causal relations. The same sentiments were earlier raised by Yin (2003) who argued that the case study approach is justifiable in research because of its ability to create an understanding of "complex social phenomena" by allowing investigators to retain the holistic and meaningful characteristics of real-life events. Yin (1981; 2003) and Rowley (2002) further suggested that case studies become more relevant in a situation where the "how" or "why" questions need to be addressed and the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real-life context.

As a case study, this study was based on responses from only 40 farming respondents. This was not a sample but the total population of all farmers in the community that benefited from the land reform programme and the subsequent Land Bank funding. There are various other smallholder farmers in the vicinity of Kenton producing products identical to those of the Marselle farmers but what set the latter apart was that not only did they benefit from the Land Reform Programme but were also recipients of Land Bank funding. Therefore, this study drew its conclusions from a homogenous population of all Marselle farmers in preparation for future development interventions to be funded by the same sponsor, Land Bank.

In determining the suitability of the study as a case study, the criteria postulated by various authors were consulted. The criteria suggest that work that qualifies as a case study should at least have some of the following characteristics:

5.3.2.1 The research should investigate the properties of a single case

Campbell and Stanley (1963) and Eckstein (1992) accepted the case study approach as applicable for research that aims to investigate the properties of a single case. In this study what was investigated are those farmers that were once sponsored by Land Bank after

receiving agricultural land so that they may farm and survive on their agricultural income more than other non-agricultural sources of income. Thus, even though there are other communities within the province that are beneficiaries of the government's land reform programme, none received any form of support from Land Bank. As a result, the performance of the targeted community could not be considered similar to such other communities as none of them received the same support. Furthermore, this study is part of a bigger plan from Land Bank as its results will inform the capacity building intervention, specifically for the benefit of the same farmers once sponsored by Land Bank. Therefore, regardless of the number of beneficiaries (and respondents) involved, focus had to be entirely on members of the SFA and the Masakhane Silime projects in Marselle.

5.3.2.2 The research investigates a single phenomenon

When one seeks to investigate a single phenomenon, Gerring (2004) and Benbasat *et al.*, (1987) proposed adopting the case study approach. As stated earlier, this study is the first of a 2-phased project targeted at the Marselle farmers that received land and funding from the government and Land Bank, respectively. The baseline study to determine the socio-economic status of the individual beneficiaries prior to receiving funding was done in 2008 and reported in Monde and Ainsle (2008). This baseline study, together with numerous subsequent visits to the farm revealed that the farmers are yet to progress agriculturally in spite of the support they received. The shortage of skills and farming knowledge was identified, among other things, as the biggest cause for this underperformance. This research was thus aimed at investigating the skills that the farmers have *vis-à-vis* those they need. The study was hence carried out to identify a single phenomenon in the form of the knowledge and skills gap within the farming households in the Marselle community that would be addressed in the next and final phase of this 2-phased project i.e. the capacity building phase.

With the focus being on a specific phenomenon, the knowledge and skills gap in this research, Rowley (2002) recommended the case study approach as the most appropriate since it is able to give insights that might otherwise not be achieved with other approaches. This view was shared by Cavaye (1996) who had earlier argued that focus should be on the in-depth assessment of the phenomenon in question without any explicit control or manipulation of variables. In addition, Rowley (2002) advocated the use of a case study particularly in the preliminary, exploratory stage of a research project, as a basis for the development of more elaborate tools that are necessary in surveys. This consequently qualifies the case study approach in this research since this study will provide a basis for the

capacity building project. Guba and Lincoln (1981) regarded research of this nature where one seeks to investigate a particular phenomenon as an evaluative type of case study.

5.3.2.3 The population size is usually very small

Evidence put forward by Osborne and Costello (2004) suggests that when doing research, larger samples are better than smaller ones, *ceteris paribus*, as they tend to reduce the probability of errors, whilst maximizing the accuracy of population estimates and increasing the generalizability of the results. Be that as it may, Yin (1994) proved that smaller population sizes in case studies are also acceptable due to the in-depth nature of the study based on a specific phenomenon. In fact, Zucker (2009) advanced that what matters more than the number of respondents in the case study approach is that it involves in-depth interviews with participants and key informants to obtain the correct information about the issues being investigated. In this particular study, the results are based on the information obtained from the 32 livestock and 8 chicory farmer respondents who are also part of the Land Bank-sponsored projects. Bias, however, is towards the SFA that rears livestock because their project has been in existence for much longer, it consists of more members and they were the original recipients of the farm from the municipality. Both projects are being undertaken on the farm that is being leased for purposes of agricultural production from the municipality. The chicory project with only 8 members is a secondary project that relies on the SFA for land for their own cropping activities.

5.3.2.4 A case study relies on multiple sources of evidence

To counter the shortfall of relying on a few respondents, Yin (1994) suggested that a case study be based on several sources of data to investigate a single phenomenon especially when the boundaries between phenomenon and context are not clearly evident. In other words, the explanations to the “how” and “why” questions sought to be answered through a case study research could make more sense when compared with results of similar studies obtained from literature. Put differently, with the population in a case study being small, Yin (1994) proposed using other data sources to explain and validate the findings of such studies. For this particular study, the findings were compared with those of similar smallholder farmers across the nation of South Africa and other developing nations in general that were obtained through secondary sources. The “how” part was addressed through reviewing possible ways of intervention with the help of the SWOT analysis and success stories obtained from literature. The skills audit revealed answers to the question “why” the respondent farmers were performing the way they were.

5.4 Weaknesses of the case study approach

In spite of the merits that come with the ability of the case study approach to produce results even in situations where the population size is small, researchers such as Rowley (2002) and Yin (1994) acknowledged that this approach lacks the necessary rigour and objectivity when compared with other social research methods. Furthermore, Stake (1998) also criticised the case study approach for its failure to produce conclusions that are generalizable to a larger population. In this context, however, the approach is susceptible to the same reliability and validity pitfalls of all qualitative research (Foster, 2002). In situations where the population size is very small, collecting insufficient information could lead to inappropriate results.

In this study, all these issues were acknowledged and necessary measures taken to get as much appropriate results as possible. For example, in data analysis, the findings were compared with those of similar smallholder farmers obtained through literature. In doing so, it should be noted that the eligibility of beneficiaries under the LRP is not based on demographic characteristics of farmers such as gender, age, educational qualifications, just to mention but a few. For that reason, the comparison of this study's results in terms of such socio-economic characteristics was not necessarily done against other beneficiaries of the programme but smallholder farmers in general since their demographic characteristics were comparable.

5.5 Methodology

The Land Bank project was divided into two phases that have already been mentioned and this study will provide invaluable information necessary to respond to the main objective of this study, which is to build the capacity of small-scale farmers with knowledge and skills that would enable them to become more successful. With the findings of the survey, then it would be easier to come up with strategies to build the capacity of the farmers. To carry out a proper skills audit for the purpose of building the capacity of the respondent farmers, a CB framework of analysis was used to identify the variables for evaluation in this study. This CB framework was applied as explained below.

5.5.1 Application of the CB and knowledge and skills framework

The CB framework that was used distinguishes between three different types of capital, namely: Physical, (ii) Human and (iii) Financial capital. As suggested by Rola-Rubzen and Gabunada (2003), human capital was further subdivided into analytical, economic and technical skills enhancement. This study viewed these different forms of capital as follows:

5.5.1.1 Physical Capital

Physical capital investigated includes infrastructure such as fencing, farmhouse, dams and road network. Monde and Ainslie (2008) established during their situation analysis of Forest Hill Farm that the farm has a main dam which supplies the smaller dams with water through an electric pump. This dam is the drinking point for the farmers' livestock. Another form of physical capital identified by Monde and Ainslie (2008) and reassessed in this study was the condition of the farmhouse. The availability and condition of other forms of physical capital such as the road network, arable land, fencing of the camps, farming equipment and even the crops and animals farmed were assessed. For the farmers to be successful, these different types of physical capital should not only be available but also be adequate at all times.

5.5.1.2 Human Capital

Rola-Rubzen and Gabunada (2003) subdivided human capital into four focus areas: analytical, economic, technical and leadership skills. Their assessment in this study is described here.

5.5.1.3 Analytical

Capacity building should enhance the farmers' ability to critically analyze their farming systems. For this study, this was done by encouraging farmers to assess their current situation as well as various options for improvement in their livelihood system. The farmers were asked to identify the CSFs in the form of opportunities they thought would enhance their income. These opportunities were based on the current enterprises so that the kind of assistance given could then be tailored to suit.

5.5.1.4 Technical

Issues addressed under technical skills include the carrying capacity of the farm, the dipping of the animals, proper vaccination, proper agronomic practices and the harvesting and marketing of agricultural products. Thus, during the investigation, the carrying capacity of the farm was identified and the figure was then compared with the actual number of animals currently grazing on the farm. The intention was to create guidelines as to whether the camps were being over-grazed or not. If they were, then possible solutions to this problem would be suggested.

Information was also sought on the types of crop and animal infections prevalent in the community. There is overwhelming evidence from Joubert (2000), Marufu (2008) and Bekure

and de Leeuw (1991) that some farmers in developing countries lose their livestock to diseases due to lack of proper knowledge of vaccination or prevention. It was hoped that having an understanding of these infections would make it possible for farmers to be appropriately trained during the second phase of this project on how to deal with these problems.

5.5.1.5 Economic

This part of the framework concentrated on improving the profitability of the main farm enterprises. Forest Hill farm is solely used for chicory and livestock production. These are the major sources of agricultural income for farming households. However, there are some opportunities for pursuing other minor enterprises to supplement the agricultural income for these farmers. Thus, information was collected on the other agricultural activities that could be promoted to enhance the farmers' incomes. The importance of each of these additional activities was then rated in terms of their profitability as perceived by the farmers. The respondent-farmers assisted by identifying the indicators of their well-being in relation to the need for increasing household income from several income-generating opportunities, including livestock and crop production. The final outcome of this part of the study was to create the farmers' appreciation of the other drivers of profit and also give them the ability to identify the parameters they could change (e.g. increasing productivity, increasing output price, or decreasing input costs or combinations of the above) in order to increase profits.

5.5.1.6 Leadership

Capacity Building is a process and as such, the trainers would be expected to leave the area as soon as the training period is over. This part of the study therefore investigated the available leadership structures in the Marselle community which could have been set up by the government (e.g. chiefs) or the community members. Their role in this case would be to make sure that the knowledge and skills obtained through the training given is used. They are also responsible for getting information from the trainers so that they relay it to the farmers and vice versa. As such, the structure of the hierarchy in Marselle, together with its effectiveness was assessed. Questions asked here were along the lines of local leaders' knowledge, skills, values, character and attitudes.

5.5.1.7 Financial capital

Part of the CB programme is to teach farmers different ways of raising extra income, e.g. pooling their resources together or forming a cooperatives or farmer associations. Before any source of capital is adopted, farmers should be made aware of each option's

advantages and disadvantages. This part of the study was combined with that of identifying the CSFs as the same enterprises identified by the farmers were also rated in terms of their likelihood to raise the farmers' incomes. However, in addition to this, the farmers were asked to explain the different ways they thought could enhance the performance and ultimate profitability of these identified enterprises.

5.5.1.8 Institutions

The availability and adequacy of the different types of capital discussed above can be facilitated if there are proper institutions in place. Regarding financial capital, data was sought on the availability of financial institutions put in place to assist the farmers in terms of loans. Variables used to carry out this evaluation include:

- i. the criteria for selecting farmers that qualify for loans;
- ii. the repayment methods and period of loans;
- iii. amount of loans given per person;
- iv. location of these financial institutions;
- v. type of collateral required;
- vi. type of financial assistance given (grants, subsidies or loans), and; constraints faced in accessing services from these institutions.

Attention was also given to all institutions that have assisted the farmers in the past in terms of infrastructure such as fencing of the camps, transport, road network, and other aspects related to farm activities. Pertaining to the human capital, it was evaluated through the KSC framework as explained in the following section.

5.5.2 Application of the acquisition of KSC framework

This framework has some similarities with the CB framework in the sense that it also assesses the human side of capital. The CB framework had other forms of capital which are also relevant for this study but it does not get deep into the knowledge and skills aspect unlike this framework. In applying this knowledge, skills and competences framework, the criterion postulated by Mulder *et al.* (2007) and Lans *et al.* (2010) for judging the entrepreneurial competencies amongst small business owners was adopted to complement the CB framework. This was combined with that for judging the existence of entrepreneurial behaviour postulated by Chell (2008). Using this approach, this study investigated the KSCs based on the three competence categories shown in Table 5.1.

Table 5.1: KSCs investigated in this study

CATEGORIES OF KSC TO BE INVESTIGATED		
Technical KSC	Managerial KSC	Soft skills
Crop production	Farm / project management	Communication
Maintenance of infrastructure	Networking	Conflict resolution
Soil preparation	Financial management	Learning orientation
Livestock slaughtering	Business plan development	Strategic / critical thinking
Weed control	Vision	Problem analysis
Irrigation techniques	Accountability	Problem solving
Water and land management	Ability to read and write	Team building
Livestock feeding	Accessing information	Positive attitude
Livestock housing and handling	Time management	Desire to learn
Animal health care	Meeting management	Motivational skills
Market orientation	Negotiating	Analytical skills
Value adding and packaging	Entrepreneurship	
Veld management		

5.6 Data analysis and interpretation

The data collected was both qualitative and quantitative in nature hence it required the use of relevant analysis techniques. The quantitative analysis focused on measuring specific profiles of community characteristics whereas the qualitative analysis was used to describe some of the community dynamics. To make the latter type of data easy to analyze, codes were developed by means of identifying themes within the interview notes, documents, or field observations that relate to the research questions stated above. As posited by Taylor-Powell and Renner (2003), coding should involve identifying such themes or patterns like ideas, concepts, behaviours, interactions, incidents, terminology or phrases used. With the themes having been identified, then the next step would be to attach significance to these themes and patterns observed by assigning and placing abbreviated codes of a few letters, words and symbols next to the ideas and themes found. In Taylor-Powell and Renner's (2003) view, this helps to organize the data into categories. Coding also has the advantage of making analysis much easier as suggested by Bless and Higson-Smith (2000).

5.6.1 Nonparametric tests

Regarding data analysis, nonparametric test methods were applied because of a number of advantages that they have, such as being designed for small numbers of data, including counts, classifications and ratings (Lehmkuhl, 1996). Another merit of this nonparametric test approach was put forward by Siegel (1956) who argued it is also relatively robust and can be used effectively for determining relationships and the significance of differences. Thus, they suited well the small population of Marselle and were easier to understand and explain in addition to being performed quickly and easily without automated devices.

As proposed by McCollough (1974), the first of these methods used were the descriptive statistics method which involved tabulating, depicting and describing collections of data. Such data may be either quantitative, like measures of length (variables that are characterized by an underlying continuum) or representative of qualitative variables, such as gender, vocational status or personality type. Descriptive statistics were used as the means to describe, summarize and reduce to manageable form the properties of an otherwise unwieldy mass of data. Siegel (1956) advanced that descriptive statistics which are customarily used to characterize data that are analyzed using nonparametric tests include the mode, frequency, mean, median and percentile rank. In this study though, the frequencies and mean dominated but where revealing the nature and extent of association between two variables is necessary, the nonparametric method measures of association (i.e. correlation) suggested by Thorndike (1976) was adopted.

5.6.2 Parametric tests

The binary logistic regression (BLR) model was used to investigate the effect of the socio-economic factors on the identified knowledge and skills that may influence the investigated smallholder farmers of Marselle to enhance their productivity. The dependent variable was dichotomized with a value of 1 if a farmer possessed the skill in question and 0 if not. The dependent variables assessed include;

- (i) Livestock housing and handling skills;
- (ii) Feeding skills;
- (iii) Animal healthcare skills;
- (iv) Livestock slaughtering skills;
- (v) Veld condition management practices; and
- (vi) Livestock marketing skills.

This model was used only for analyzing the skills possessed by livestock farmers as the population size was much higher, hence more likely to yield credible results than that of chicory farmers.

Nine predictor variables, based on the farmers' socio-economic characteristics were regressed against the binary dependent variables of farming skills. The underlying assumption for this investigation was that farmers need these particular skills to enhance their productivity which in turn would enhance their household income and thus ameliorate the challenge of household food insecurity.

According to this theory, households were inferred to have the motivation to acquire such skills as having them yielded higher utility than not doing so. The binary logistic regression model used was adopted from Gujarati (1992). It was used to determine the extent certain socio-economic factors influence the skills level and consequently the farmers' productivity. As per Gujarati (1992), the binary logistic equation is as follows:

$$\ln \left\{ \frac{P\left(Y=\frac{1}{x}\right)}{\left(1-P\left(Y=\frac{1}{x}\right)\right)} \right\} = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots \beta_n X_n \dots \dots \dots 1$$

Where; P = the predicted probability of having a particular farming skill;

1 – P = the predicted probability of not having a skill;

α = the constant of the equation,

β = the coefficient of predictor variables,

X = the predictor variables.

By fitting the variables into the model, the model could be presented as:

$$\ln \left\{ \frac{P\left(Y=\frac{1}{x}\right)}{\left(1-P\left(Y=\frac{1}{x}\right)\right)} \right\} = \alpha + \beta_1 \text{AGE} + \beta_2 \text{EDUCATION} + \beta_3 \text{GENDER} + \beta_4 \text{MARITALSTAT} +$$

$$\beta_5 \text{OCCUPATION} + \beta_6 \text{HHSIZE} + \beta_7 \text{LOAN} + \beta_8 \text{YRSFARMING} +$$

$$\beta_9 \text{FAMLABOUR}$$

5.6.2.1 Description of variables specified in the model

Findings from studies such as those done by Mushunje *et al.* (2011) and Saleem (2010) which used a similar model were used to estimate the *a priori* influence of various socio-economic parameters on the skills level and, consequently, the farmers' productivity. These variables as used in Equation 1 are presented and explained in Table 5.2 together with their expected signs.

Table 5.2: Independent variables used in the BLR model and their expected outcomes

VARIABLE NAME	VARIABLE DESCRIPTION (1=YES; 2=NO)	EXPECTED OUTCOME*
AGE	Older farmers are more skilled and knowledgeable than younger ones.	+
EDUCATION	Education enhances the farmers' skills level.	+
GENDER	Male farmers are more agriculturally skilled in livestock production than female farmers.	+
MARITALSTAT	Farmer's marital status has an influence on skills acquisition.	+/-
OCCUPATION	Full-time farmers have more skills and knowledge than part-time farmers.	+
HHSIZE	Bigger households have better farming skills than smaller ones.	+
LOAN	Borrowing has a positive effect on the farmer skills acquisition.	+
YRSFARMING	Farmers that have been in farming longer have more knowledge and skills.	+
FAMLABOUR	Availability of family labour enhances the farmers' knowledge.	+/-

[* For expected outcomes: + denotes a positive outcome; - denotes a negative outcome]

5.6.2.1.1 Gender of farmer

On the issue of gender in farming, the general notion that was presented by Janelid (1975) is that males dominate compared to females who are perceived as "economically inactive" and only participated in farming by providing a supportive role. McGuire and Popkin (1990) advanced that what gives males the perceived edge over women was that women are often time-constrained by unpaid household duties. These duties include, among other things,

looking after kids and collecting firewood and water. Women were also presumed, based on evidence from FAO (2011), to have lower levels education, health and nutrition, all of which tend to affect their labour productivity in agriculture and other sectors. It is on these grounds that the relationship between skills acquisition would be expected to be positive in favour of males. In reality though, Jiggins *et al.* (1997) argued that households are a more intricate and dynamic social entity with compositional and goal attributes that could be changed over time as family members and dependents of varying age groups and sexes engaged in various activities to meet the specific responsibilities assigned to each.

5.6.2.1.2 Age of farmer

According to Hofferth (2003), the stability of an economy of a farming household is positively correlated to the age of the household head's age. This means that as the household head grows older, so does their knowledge and skills levels. Sikwela (2008) explained this relationship by stating that older farmers usually have relatively richer experiences of their social and physical environments as well as greater experience of farming activities which they acquire over time. The same conclusions were reached by Makhura (2001) who viewed the importance of a farmer's age as critical especially in the case of household heads as they are the principal decision makers in their respective households based on inferences of societal norms. Thus, the expected relationship between a farmer's age and their level of knowledge and skills is expected to be positive. Age was captured in terms of the number of years since it is a continuous variable.

5.6.2.1.3 Farmers' level of education

The education level of farming household heads could lead to awareness of existing skills relevant for agricultural production. Shultz (1975) posited that with education, farmers could easily adjust to disequilibria and adopt new skills and other latest innovations than the less educated. Education could also make it possible for farmers to understand vital market information, determine proper stocking and grazing rates, diagnose and treat animal diseases in time (Nkhori, 2004; Simela, 2012; King and Bembridge, 1988). Due to such an influence, the expected relationship between education and skills levels was therefore positive, with educated farmers taking the value of 1 and those that are not educated being assigned the value of 2. The category with the value of 1 extended to those with primary education but did not go beyond. The group captured under value 2 went beyond primary level.

5.6.2.1.4 Household size

Household size in this study was measured by the number of family members residing in a single homestead, sharing resources and activities whether they were related or not. When it comes to the issue of farming knowledge and skills, Chimonyo *et al.* (1999) and Mapiye *et al.* (2009) viewed bigger households as having an advantage over smaller ones due to the abundance of extra members that can share their farming experiences and knowledge. This is usually the case in setups where farmers rely mostly on indigenous sources for their skills and knowledge rather than formal institutions. As such, as households grow in size, this line of thought suggests that the knowledge and skills of members of such households would also increase, thereby giving a positive anticipated relationship.

One other point worth noting about the effect of increasing household size is that since food requirements increase with the number of persons in the household and also because land and finance to purchase agricultural inputs are very limited, increasing family size, according to Brown (2004), has a tendency to exert more pressure on consumption than the labour it contributed to production. Thus, a negative correlation between household size and food security is to be expected as food requirements increase in relation to the number of persons in a household (Paddy, 2003). For purposes of this study though, only the effect of the household size on the knowledge and skills was considered, hence a positive association was anticipated. Household size is a continuous variable and in this study it was measured by the number of individuals in a household.

5.6.2.1.5 Farmer status (Part-time or full-time)

When it comes to food security, Devereux (1993) and Maxwell and Frankenburger (1992) regarded part-time farmers that diversify their livelihood sources with off-farm activities as standing a better chance of surviving drought spells. On the other hand, farming knowledge is usually obtained through a hands-on approach hence those farmers that spend much time on their farms such as full-time farmers are likely to have better skills than those operating on a part-time basis (McNeal, 2012). Dummy variables were used with the value 1 being assigned to households whose heads are full-time farmers and 2 for those farming on a part-time basis. The anticipated relationship between these two variables was positive and in favour of full-time farmers.

5.6.2.1.6 Loans

Smallholder farmers struggle to overcome numerous challenges like high transaction costs which hinder them from participating in the markets. At the same time, funds are needed to improve the conditions of their infrastructure in the form of proper camps, maintaining pastures and purchasing medicines for their livestock (Nyagumbo and Rurinda, 2011; Chin, 1994; Bicudo *et al.* 2002; Shiimi, 2010). All these are crucial for the success of livestock farmers but literature indicates that the majority of such farmers do not have their own capital to overcome these challenges. Financial institutions thus could play a pivotal role in providing affordable loans to farmers to make them more competitive. Farmers with access to such loans are therefore in a better position to enhance their knowledge, skills and consequently, productivity, hence the expected positive association. Farmers that have used loans before were given the dummy value of 1 and those that have not the value of 2.

5.6.2.1.7 Number of years in farming

Hanf and Muller (1997) advanced that a good agricultural entrepreneur should possess the ability to recognize challenges and work around them to achieve the set objectives. Dogan and Demirci (2012) later concurred with this point of view but postulated that the number of years farmers spend observing others and also implementing the things they learn from them should not be ignored. Thus, over time farmers are expected to attain more knowledge and skills hence the positive anticipated relationship between these two variables, number of years and farming knowledge. This variable is continuous.

5.6.2.1.8 Marital status

Smallholder farmers have been known to diversify their agricultural enterprises to include both livestock and crop production (Grandin *et al.*, 1991). In communities in East Africa, for example, men and women share responsibilities to provide income to their households. Men are usually the decision-makers and concentrate mostly on looking after the bigger livestock whereas women carry out household chores, look after children and raise smaller ruminants (Kandiyoti, 1990; Martins 1990; Waters-Bayer, 1988). This kind of division of labour releases pressure on household heads to do well in livestock production.

However, this theory could be disputable as farmers could always get help from other family members, extension officers and fellow farmers regardless of their marital status. Only widowed women have been found to encounter problems obtaining resources that could enhance their knowledge and productivity as the property they have is rarely accepted as collateral as it is usually registered in their late husbands' names (Chawatama *et al.*, 2005).

Taking these arguments into perspective, the influence of marriage is expected to go either way but the dummy value for the married was given as 1 and those not married as 2.

5.6.2.1.9 Family labour

The difference between this variable and household size is that the former was used to focus on the physical ability of family members to assist household heads in farming activities whereas the latter, on the other hand, was taken to refer to just the physical number of family members in a household. Thus, family labour excludes the economically inactive, namely the very young, disabled and the very old. The expectation therefore was positive, indicating that as the population of the active population within a household grows, so does the knowledge the household head is likely to get through working with them

5.7 Synopsis

This chapter started with a brief description of Forest Hill Farm as the study area. It was described in terms of the physical location, size, population, major enterprises and setting. This was followed by a description of the methods that are to be used to collect data. Thus, the data collection instrument to be used together with the justification for choosing such an instrument over others is explained in detail. The researcher-administered questionnaire was opted for in this study as a data collection tool and was dominated by closed-ended questions even though open-ended questions were also used where it was deemed necessary. In order to gather more detailed information within a short space of time, focus group meetings were held with key informants.

The study was guided by the CB framework of analysis and afforded instantaneous triangulation *in situ*. The CB application in this study was discussed together with the variables that were used to evaluate the FSPs available and accessible to the Forest Hill farmers. Guided by the CB framework, the criteria for assessing farmers' competence and skills levels were also discussed. This framework was adopted to be complemented by the KSC framework, particularly to evaluate the human capital in Marselle. Through this chapter, the type of data collected was discussed in accordance with the four specific objectives set for this study.

The chapter concluded by discussing the data analysis techniques used in the study. Preference was given to nonparametric techniques due to a number of advantages that these techniques offered for the data types in this study. Nevertheless, for purposes of assessing the socio-economic variables most likely to affect the acquisition of farming

knowledge and skills by livestock farmers, this study employed the binary logistic regression econometric model. The different dependent and independent variables analyzed through this model were also discussed in this chapter together with their anticipated direction of association.

CHAPTER 6

DESCRIPTIVE RESULTS

6.1 Introduction

The findings of this study were presented in different categories. These categories included the results on demographic characteristics of the target population, results on the livestock project and lastly the results on the chicory project. However, the order of presentation of the results was guided by the main objectives for this study. This chapter, thus, addresses the first two objectives of the study, namely: to identify and describe the (i) activities, actions, interventions, strategies and programs introduced to support land reform beneficiaries grow agriculturally, and; (ii) socio-economic characteristics and farming activities of all project beneficiaries. In the analysis of data, common variables such as demographic distribution of households and income and expenditure patterns were combined and presented collectively to represent both the 32 farmers from the livestock project (SFA) and the other eight from the Masakhane Silime chicory project. This was because in spite of the two projects producing different kinds of products, these variables of interest were the same, more especially since some households partake of the two projects.

6.2 Demographic Results

In the opinion of Guzman and Santos (2001), a linear relationship is to be expected between socio-economic and institutional factors in an entrepreneur's environment and the success and economic development of the enterprise. Moloi (2008) furthered this by proposing that with smallholder farmers seemingly likely to hold the key to breaking the poverty cycle in rural South Africa and other developing nations, socio-economic factors such as education level, age of household head and household size had to be taken into consideration as they all had an effect on the farmers' total income which is an objective that overrides all other farming objectives.

6.2.1 Composition and size of farming households in Marselle

The results of this study indicated that the families of interviewed farmers contributed a total of 130 people to the total Marselle population (Table 6.1). In other words, the Forest Hill Farm directly fed 130 individuals through the livestock and chicory production projects. Of this total farming population, 25 (or 19.2%) of them were children under the age of fifteen and ranged from one (1) child to a maximum of six (6) per household. The active population was between the ages of 15-62 years and had eighty (or 61.6%) of the 130 farming

households' members. The mean for the active population is three (3) and ranged from one (1) person to a maximum of five (5) people per household. There were twenty five people over the age of 62 years, with a range of 1-2 people per household. Expressed in terms of the Adult Equivalent (AE), the total population of people directly involved in farming in Marselle was 72, with a mean of 2 people and ranging from 1 to 2 people per household.

Table 6.1: Composition and size of the farming households in Marselle

Demographic variable	Frequency	Proportion (%)	Mean	Range
Number of children under 15years	25	19.2	1	1-6
Number of active population (15-62years)	80	61.6	3	1-5
Number of adults (over 62years of age)	25	19.2	1	1-2
Total number in population	130	100	4	1-6
Adult equivalent (AE)	72	---	2	1-2

When analyzing the average size of the Eastern Cape households, Provide (2009), as cited in Kisaka-Lwayo (2012), stated that the average household size in the province was 5.25 while that for the rest of South Africa was estimated at 4.83. Stats South Africa's (2007) community survey of Eastern Cape households from 2001 to 2007 found that over this 7-year period, the average household size remained stable at provincial level being 4.2 in 2001 and 4.1 in 2007. This trend was noted in 22 municipalities within the province but Blue Crane Route, Great Kei, Inkwanca, Sakhisizwe and Gariep municipalities recorded declines.

As for the Ndlambe Local Municipality where the Marselle community is located, the same 2007 community survey by Stats South Africa showed that on average, the municipality had at least 3.1 individuals per household. This means that the municipality had a smaller average household size compared to the national average and that of the province as a whole. The same conclusions could be drawn in Marselle as shown in Table 6.1.

6.2.2 Household head gender distribution

With Marselle having benefited from the LRP, it was necessary to investigate if a gender bias existed in LRP beneficiaries. Results from the data collected shows that the households in Marselle were also dominated by male heads as shown in Table 6.2. Almost 68% of the heads were males, with 32% being females. Such a dominance of males in farming was also acknowledged by the likes of Lubambo (2011) and Moagi and Oladele (2012) who suggested this bias in land reform beneficiaries existed even at national level. For example,

the Commission for Gender Equality (2009) reported that in the Eastern Cape Province, the period from 2005 to 2010, some 1 676 women in the female national total of 18 284 individuals received land under the redistribution and tenure reform programme. During the same period, the total number of beneficiaries was 50 877 which means women constituted about 36% of the total beneficiaries of land reform during the review period, with males making up the remaining 64%. Be that as it may, this should not be taken to imply that all land beneficiaries are heads of their households. In fact, the Commission for Gender Equality (2009) carried out a study of all the nation's provinces to determine the distribution of female-headed households under the land reform programme. The conclusions were that both Kwa-Zulu Natal (KZN) and North West Provinces led with at least 21% of households headed by females, followed by Mpumalanga and Limpopo Provinces at 13% each and the Eastern Cape at 11%.

Table 6.2: Household head gender distribution in Marselle

GENDER DISTRIBUTION		
VARIABLE	FREQUENCY	PERCENTAGE (%)
Male household heads	27	67.5
Female household heads	13	32.5
TOTAL	40	100
MARITAL STATUS		
Married	21	52.5
Divorced	3	7.5
Single	1	2.5
Widowed	15	37.5
TOTAL	40	100

Apart from males dominating as household heads, another feature worth noting is that almost 98% of the household heads in the Marselle community had been married at least once in their lifetime. However, due to factors like death of spouses and divorce, only 52.5% were still married. Fifteen of the forty (40) respondents (or 37.5%) said they were once married but their spouses had since passed on. Three respondents (7.5%) said they had divorced their spouses whilst 2.5% was yet to get married.

6.2.3 Household head age distribution

Age is an important factor to consider when studying activities in smallholder agriculture (Moloi, 2008). There have been several debates over the years about the issue of whether farmers become much wiser, hence more productive with age or not. In the opinion of Makhura (2001), the age of the household head as the principal decision maker in the family is crucial for the success of the farm as a business enterprise for the reason that it determines whether the household benefits from the experience of an older person, or has to base its decisions on the risk-taking attitude of a younger farmer. However, Makhura's (2001) belief that a farmer's success was enhanced by wisdom gained with age was challenged by Ngqangweni and Delgado (2003) who argued that younger farmers were usually more educated and wiser although they were more likely to abandon farming and relocate to urban centres to seek formal employment opportunities. Due to these and other reasons, it was important to investigate the age of the household heads of Marselle to determine how many of them still have the ability to benefit from capacity building.

The youngest farming household head in Marselle at the time of collecting data was 35 years of age and the oldest was 87 years of age. The former was the only head below the age of forty whereas the latter was one of only two over the age of eighty. For analysis purposes, the household heads' ages were categorized into four as follows: (i) those below the age of forty; (ii) between forty and fifty five; (iii) between fifty six and sixty five, and; (iv) older than sixty five (Figure 6.1). As illustrated in Figure 6.1, the Marselle farming community had 40% of households headed by people over the age of 65 years. This means pensioners made the bigger part of the farming community. This was followed by those between the ages of 55-65 years as these headed at least 35% of the households.

As also illustrated in Figure 6.1, the number of people participating in agriculture, be it crop or animal production, was concentrated in the older age group. A number of respondents attributed this to the fact that young people prefer formal jobs with regular salaries at the expense of agriculture. The same sentiments were shared by Ngqangweni and Delgado (2003) who, after investigating the Limpopo farmers, believed that as the youth got older and weaker, they tended to return home from the big cities and started practicing agriculture for livelihood purposes. There are some farmers interviewed though who said they started farming even when they were still in their youth stage due to various reasons such as failure to get salaried jobs, lack of skills and education required in other sectors, the desire to continue with family farming legacies, etc. At least 22% of the household heads were

between the age of 40 and 55 years whereas only 2.5% of household heads were younger than 40 years.

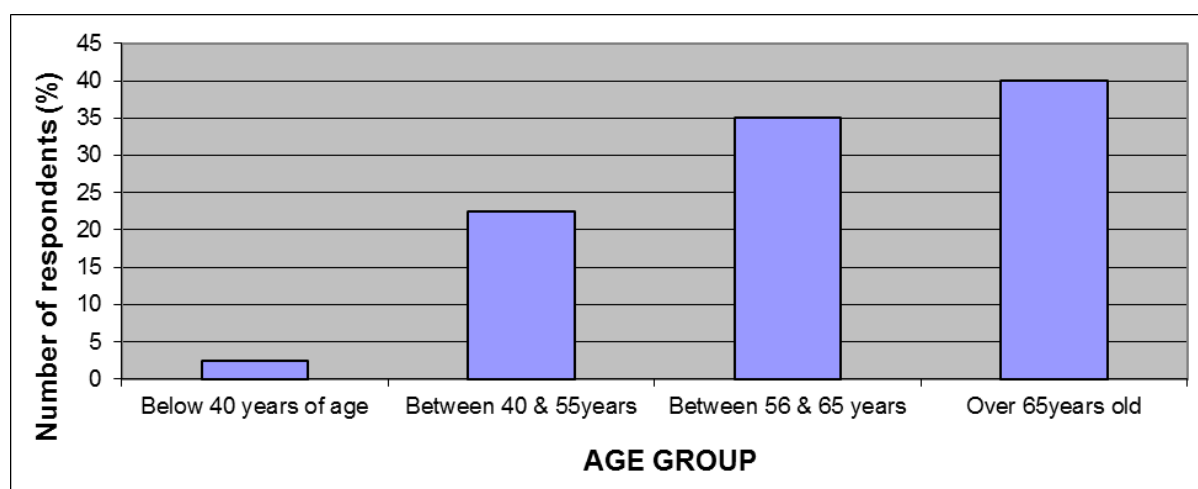


Figure 6.1: Household head age distribution in Marselle

When comparing the results in Figure 6.1 to the rest of the province, the two sets of results seem to concur. This is because the data from Provide (2009) showed that the average age distribution of farmers in the Eastern Cape Province as a whole tends to decrease gradually until ages 35-39 after which it increases again. The province and the Marselle community also seem to share the same pattern in terms of the number of aged farmers as they are both dominated by farmers over the age of 60 years (Figure 6.2). The same trend was found by Perret (2002) who established that at least half the household heads in the Transkei region of the Eastern Cape Province were older than 59 years. Another similarity noted was that both Marselle and the province had a third of households headed by females.

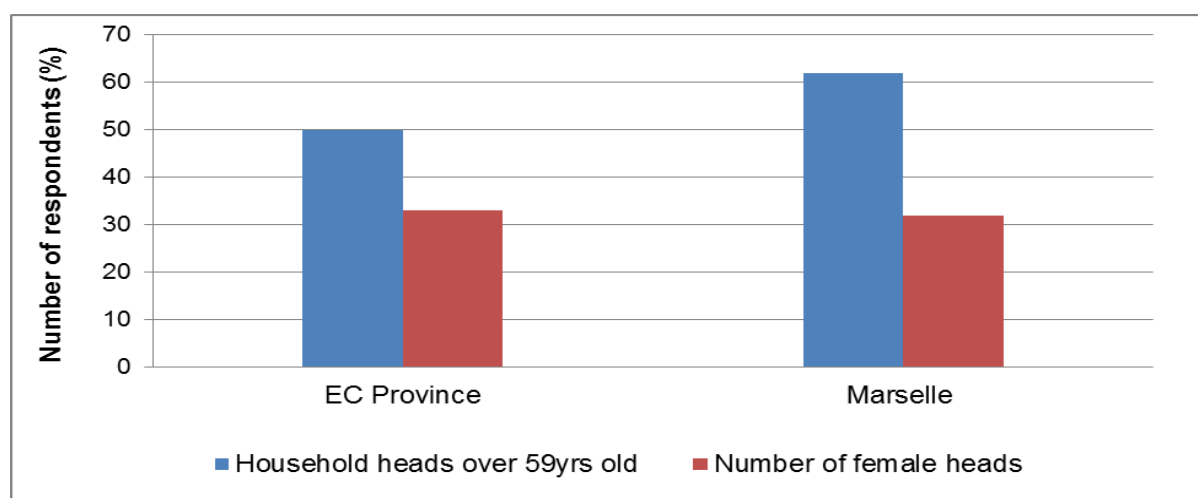


Figure 6.2: Distribution of farmers in Marselle and the EC Province according to age

6.2.4 Education levels of household heads

This study also assessed the education levels of farmers as the intended targets of this capacity building initiative. The basis for this was to determine if they had enough basic education for them to be included in the CB process with ease. Furthermore, understanding the education levels of the targeted respondents before formulating suitable CB strategies would go a long way towards making sure the best strategies are adopted and in the best possible way. Examples of aspects of modern agriculture require that the targeted farmers have some form of basic education including carrying out book-keeping and other value-addition activities like processing of output.

To understand the education levels of Marselle farmers, respondents were categorized into five different classes, namely those with: (i) no basic education at all, (ii) Lower Primary education (Grade 1-4); (iii) Junior secondary education (Grade 5-7); (iv) Senior Secondary education (8-12); and (v) tertiary education. This information is presented in Figure 6.3 and shows that most farmers belong in the category of those who did not go beyond the fourth grade. From this group, fourteen (35%) never went to school and the remaining sixteen (40%) only went as far as fourth grade. Six farmers (15%) passed their junior secondary whilst another four (10%) have matric certificates. However, of all the farmers interviewed, none of them went beyond the matric level for tertiary education.

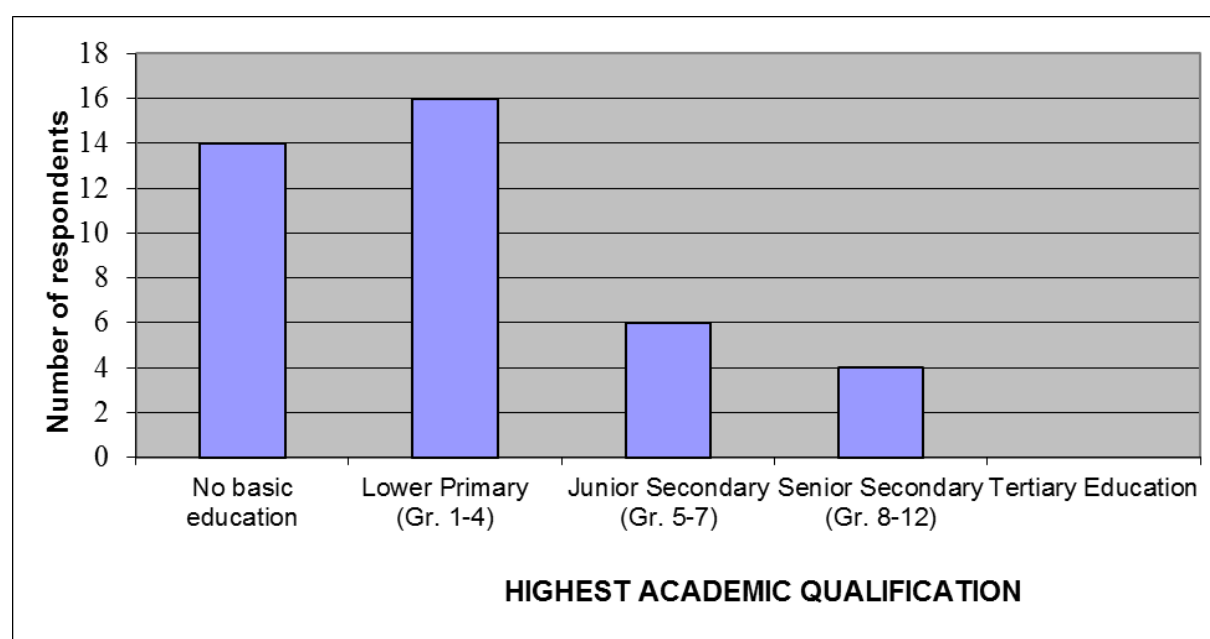


Figure 6.3: Education levels of household heads in Marselle in the two projects

The findings illustrated in Figure 6.3 characterize most farmers in the Eastern Cape Province. For example, Provide (2009) gave proof that at least 91% of the current farmers in the province did attend high school but dropped out before completing their studies. As such, their highest qualifications were below matric level. This is a challenge to the smallholder sector whose limited resources requires higher production efficiency in an attempt to get the most from the limited resources available to them. Also in line with these findings, Myburgh (1994) highlighted that education levels in the rural areas of the province are very low due to the service facilities that do not meet the existing demands.

6.2.5 Employment status of household heads

Table 6.3 shows that 75% of farmers in Marselle were not employed even on a part-time basis for a formal wage or salary. At the same time, 22.5% of the respondents were employed on a full-time basis whilst one individual worked part-time. The full time jobs mentioned by the former include domestic work and taxi/truck driving. At least two respondents worked full-time as domestic workers in Kenton and another three were taxi/truck drivers. Due to the close proximity of these work places, all respondents employed on a full time basis spent all their nights in Marselle with their families and travelled to work every morning. The 75% of respondents not in salaried employment at all fall into two categories: those that were full-time farmers and those that were pensioners. The former group consisted of 32.5% of the respondents whereas the latter made up the remaining 42.5% of the 75% not in salaried employment. It is also important to mention that all the pensioners were currently involved in farming on a full time basis.

Table 6.3: Employment status and occupation of household heads in the two projects

EMPLOYMENT STATUS OF RESPONDENT FARMERS			
EMPLOYMENT STATUS		FREQUENCY	PERCENTAGE
Employed farmers	Full-Time	9	22.5
	Part-time	1	2.5
	TOTAL	10	25.0
Unemployed farmers	Full-time farmers	13	32.5
	Pensioners	17	42.5
	TOTAL	30	75.0
TOTAL		40	100

OCCUPATION OF EMPLOYED RESPONDENT FARMERS		
Carpenter	1	2.5
Domestic worker	2	5.0
Truck/Taxi driver	4	10.0
Farm Worker	3	7.5
TOTAL	10	25.0

6.3 Income and Expenditure Patterns

6.3.1 Sources of income for the farming households of Marselle

As illustrated in Table 6.4, the biggest contributors of income for the farming households in Marselle were external sources such as social grants and salaries. These contributed close to 65% of the total income that the families got at the end of every month. Of these different external income sources, the most important were the old age grants which contributed an average of R1 046.25 per household each month. This is equivalent to at least 35% of the households' average total monthly income. These findings are consistent with the data provided by the Cacadu IDP (2007) which showed that more than half the households in various communities under Kenton-on-sea, including Marselle, are heavily dependent on government social grants, with an estimated 7 000 beneficiaries claiming either an old age pension (1 689), disability grant (1 544), foster care grant (181) or a child grant (3 927).

Wages and salaries were worth at least 19% of the total monthly income in the Marselle farming households. In a study of the household food security issues in the central Eastern Cape, Monde (2003) concluded that salaries earned in the civil service of the homelands and in newly developed industrial centres in the Eastern Cape, such as Dimbaza, Fort Jackson (in Ciskei) and Butterworth (in Transkei), became a major source of rural household income during the 1970-1994 homeland period. However, this pattern changed after 1994 to a situation whereby state transfers like old age pensions substantially increased their relative contribution to the income of rural households in the province. These findings thus suggest that the same scenario exists in Marselle as 35% of households heavily relied on old age pension grants in spite of them being involved in agriculture and others being employed elsewhere.

Table 6.4: Sources of income and their contribution to household income in the two projects

Income source	Average (R/HH/Month)	Range (R/HH/Month)	Proportion (%)
EXTERNAL SOURCES			
Wages and salaries	574.38	252.87 – 690.56	19.30
Old age pensions	1046.25	573.75 – 591.76	35.16
Child grant	140.63	54.68 – 164.98	4.73
Remittances	104.68	46.87 – 132.54	3.52
Disability grant	67.50	3.90 – 67.50	2.27
Total external	1933.44		64.98
INTERNAL SOURCES			
Trade ²	232.03	98.65 – 250.00	7.80
Agriculture			
Livestock	672.53	236.95 – 743.63	22.60
Crops	138.02	78.13 – 162.72	4.64
Total Agric. Income	810.55		27.24
TOTAL INTERNAL	1042.58		35.02
GRAND TOTAL	2976.02		100

One other livelihood source identified by Kirsten and Moldenhauer (2006) also investigated in this study was that of remittances which, according to World Bank (1990), play a vital role in poor countries. In the opinion of Perret *et al.* (2000), this was very common in the rural households of former homelands which get remittance incomes from their migrant relatives working in the mines and commercial farms. However, findings in Marselle showed that this source of income was not that important as it contributed 3.5% of the total household income (Table 6.4). This was explained partly Islam and Buckley (2009) who found that the Eastern Cape Province of late had been offering low wages in commercial farms which have consequently left workers with almost no extra income to send to their rural families.

² Trade in this case includes hawking, Shebeens, Taxi Businesses and Dress-making

As for the internal income sources, they come in two forms, i.e. trade and agriculture. The former includes shebeens, spaza shops, hawking, selling of home-carved sculptures, etc. On the other hand, agricultural income is divided into income from crop and animal production. Traded goods provided Marselle households with an average of around R232 per month whereas crops brought in close to R140 per month on average. Combined, both trade and agriculture made 35% of the average total income, with livestock production alone providing almost 23% of this total. Most farmers reared and sold cattle which fetch high individual prices compared to any type of crop found in Marselle. This agrees with the observations of Coetzee *et al.* (2005) who concluded that the livestock enterprise was one of the best tools of improving household food security and addressing poverty alleviation in communal farming areas of South Africa.

Given the households' pursuit of other sources of income and food besides their farm produce and formal sector jobs in order to enhance their livelihood status, one can conclude that households in this study area adopted Chambers' (1983) "*hedgehog strategy*" or Reardon *et al.*'s (2006) "*pluri-activity*" approach whereby a variety of livelihood sources are pursued concurrently to complement livelihood sustenance. Such behaviour was predicted by Scoones (1998) in his Sustainable Livelihood Framework since households employ livelihood diversification strategies, both agricultural and otherwise. To justify this behaviour, Coetzee (2003) posited that diversifying the sources of livelihoods and income actually helped farming households in managing risk.

The information related to income sources, their contribution to household income and household expenditure was combined for both livestock and crop farmers in Marselle as some of these farmers came from the same households with those in the other enterprise. For example, there were some chicory farmers whose husbands were involved in the livestock project.

6.3.2 Expenditure patterns of the farming Marselle households

In a study of expenditure patterns among rural households in Sub-Saharan Africa, Devereux (2001) concluded that low income households tended to spend more money on food than on any other expenditure category. This was because their main objective in life was survival more than luxury. The World Resources Institute (2007) and Devereux (2001) further concurred that the share of such households' budget devoted to food tended to decline as household income improved. This is in accordance with Engel's law which states that

successive increases in income will result in a subsequent decline in food consumption as a proportion of income (Hymans and Shapiro, 1976 and Aliber, 2009).

As shown in Table 6.5, the expenditure patterns of the farming households in Marselle exhibit the conclusions drawn in Devereux (2001) and World Resource Institute (2007); a better part of the total income (48.5%) in the Marselle community was spent purchasing food, with each household spending an average of R471.25 per month on food alone. The second highest allocation of income requiring a minimum of R132.72 every month was for the installments for property such as furniture. Subscriptions fees, medical expenses, clothing, transport and postage, all took up less than 6% of household income every month. The least allocation for household income, with a 0.5% allocation, was for the hiring of labour. This is probably because both projects in the community did not hire much labour, especially the SFA which hired none at all. The chicory project relied on its members to look after the crop whilst those in livestock were each responsible for tendong their animals.

Table 6.5: Farming households' expenditure patterns in Marselle in the two projects

ITEM	EXPENDITURE (R/HH/Month)	PROPORTION
Food	471.25	48.5
Electricity	70.94	7.3
Clothing	19.79	2.0
Furniture	132.72	13.7
Medical expenses	25.94	2.7
Educational expenses	40.99	4.2
Transport	44.44	4.6
Agriculture inputs	11.20	1.2
Maintenance of residence	8.46	0.9
Hiring of labour	5.20	0.5
Telephone and postage	57.66	5.9
Subscription/membership fees	51.53	5.3
Church contributions	32.50	3.3
TOTAL	972.62	100

6.4 Agricultural Information

Referring to Table 6.6, livestock farmers in Marselle did not own most of the agricultural equipment stated. The logical explanation for this is that the livestock enterprise does not require such equipment as hand hoes, forks, disc ploughs and even cultivators. The few that owned some of this equipment said they bought it during the days when they were still involved in crop production especially in their farms. However, with time, they ceased producing crops and concentrated on rearing livestock only, with a few moving to cultivating backyard gardens and not fields. On the other hand, the table further reveals that only a few chicory producers also owned different types of agricultural equipment. All the members in this project argued that a single tractor and three disc ploughs were enough to work the 10ha of land they cultivate. The reason they gave for not having spades, forks and wheelbarrows was that they did not need them. Similar inferences were also drawn by Fraser *et al.* (2003) who uncovered that a number of smallholder farmers who are beneficiaries of the LRP do not cultivate their entire land due to lack of farming implements.

Table 6.6: Farming equipment owned by Marselle farmers in the two projects

Equipment used	LIVESTOCK FARMERS		CHICORY FARMERS	
	Frequency (N=32)	Proportion (%)	Frequency (N=8)	Proportion (%)
Tractor	1	3.13	1	12.5
Disc plough	0	0.00	3	37.5
Cultivator	0	0.00	1	12.5
Hand hoes	3	9.38	3	37.5
Spades	1	3.13	0	0.00
Forks	0	0.00	0	0.00
Wheel barrow	1	3.13	0	0.00

With the rural households in developing countries like South Africa known to be poor, family labour is the most preferred option for smallholder farmers (Mushunje, 2005; Kimenyi, 2002). However, even though mechanization in the sector is almost non-existent, certain small, hand-operated tools such as ploughs, discs and spades still play a very crucial role in working the land in the case of crop farmers. These are not that efficient but are at least affordable when compared to automated machinery commonly used by commercial farmers. In some cases, this lack of technological resources forces some farmers who have access to

agricultural land not to fully utilize it. As for the Marselle farmers, none of the interviewed livestock farmers had any fields under cultivation. This was not only during the time the data was collected but the farmers stated that they did not cultivate fields at all. As such, the majority of them did not own any agricultural equipment such as hand hoes, wheel burrows, tractors, etc. On the other hand, the chicory producers concentrated on chicory production so much that they did not rear any cattle. However, they did own small stock but not many of them had lots of these different forms of agricultural equipment either. A comparison of the number of each of the agricultural tools owned by members from each of the two projects is given in Table 6.6.

6.4.1 The Masakhane Silime Chicory Project

South Africa is the world's second largest producer of chicory after France (Eastern Cape Business, 2007). All roasted chicory produced in South Africa is cultivated within a 200 km radius of the town of Alexandria in the Ndlambe Local Municipality. Chicory South Africa, located in Alexandria, is the only processor of chicory in South Africa and its processing plant has been operational for over 50 years. Marselle is located less than 30 km from the Alexandria plant and chicory is produced by the farmers in this community under rain-fed conditions through the Masakhane Silime Project. The project started with six members but at the time of this investigation the number had gone up to eight.

6.4.1.1 Objectives of the Masakhane Silime Project

The respondents identified job creation and income generation as the main objectives behind the formation of the Masakhane Silime Project. Of these two, 88% of the project members regarded income generation as the main objective. As shown in Figure 6.4 below, 12% held the notion that job creation also played a role in justifying the formation of the project. Their motivation for having such an objective was the high unemployment rate in the Marselle community which was blamed for the high poverty levels. As such, farmers thought initiating a project of this nature would help deal with this challenge, or at least minimize its effects.

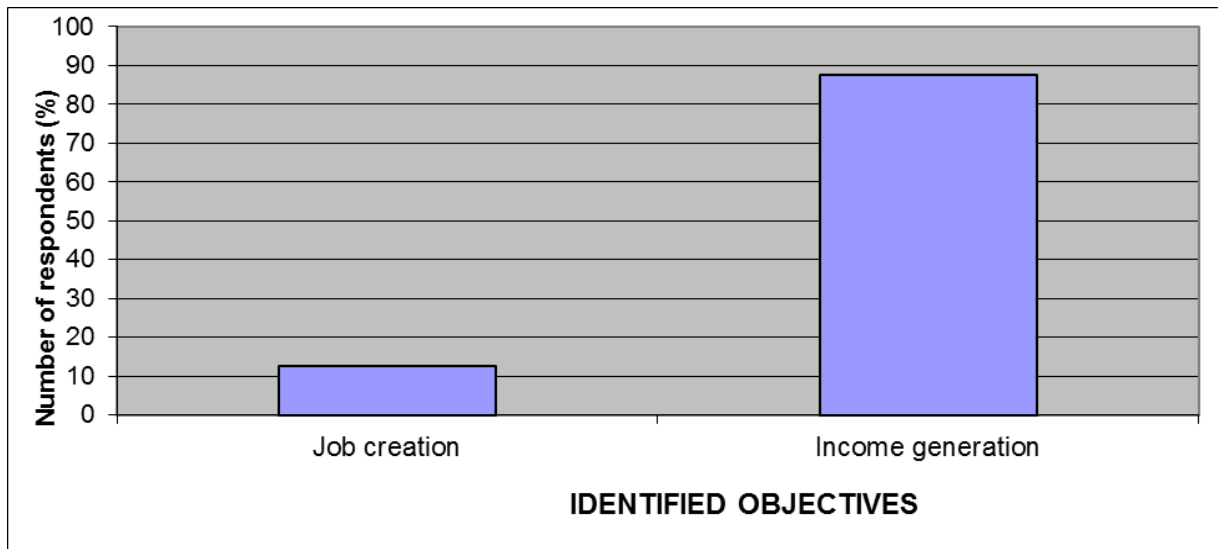


Figure 6.4: Objectives of the Masakhane Silime chicory project

6.4.1.2 Cropping practices used by the project members

Traditionally, African farmers practiced mixed farming which involves the production of both crops and animals (Wenhold *et al.*, 2007). For either form of farming between these two, livestock and crop production, various practices can be used. As such, this study also tried to probe the different cropping practices used by the project members in their production of chicory. The practices investigated included the cropping plan approach, use of herbicides and pesticides and manure application techniques. Of these different practices, the Masakhane Silime chicory project members only used herbicides and pesticides in their production of chicory. This was according to 43% of the respondents (Figure 6.5).

Conclusions drawn by Muza *et al.* (1998) and Chikoye *et al.* (2002) that some smallholder farmers such as those in the Masakhane Silime project, wish to get rid of weeds in their farms using chemicals but their attempts are thwarted by their limited finance and the narrow range of technologies available to them could also explain such a low number of farmers preferring to use such chemicals. As a result, the majority (57%) of chicory project members in Marselle preferred manual weeding but was constrained by the unavailable and unaffordable labour. Similar inferences were arrived at by Joubert (2000), Mashingaidze (2009), Steyn (1988) and Mkeni (2007) that resource constraints usually force smallholder farmers to rely mostly on hoeing and hand weeding than herbicides. As a solution, Steyn (1988) thus recommended that since the benefits of using such chemicals had been noted in the commercial sector, their use and the economics involved should be explored as a possible option for assisting the smallholder agriculture sector as well.

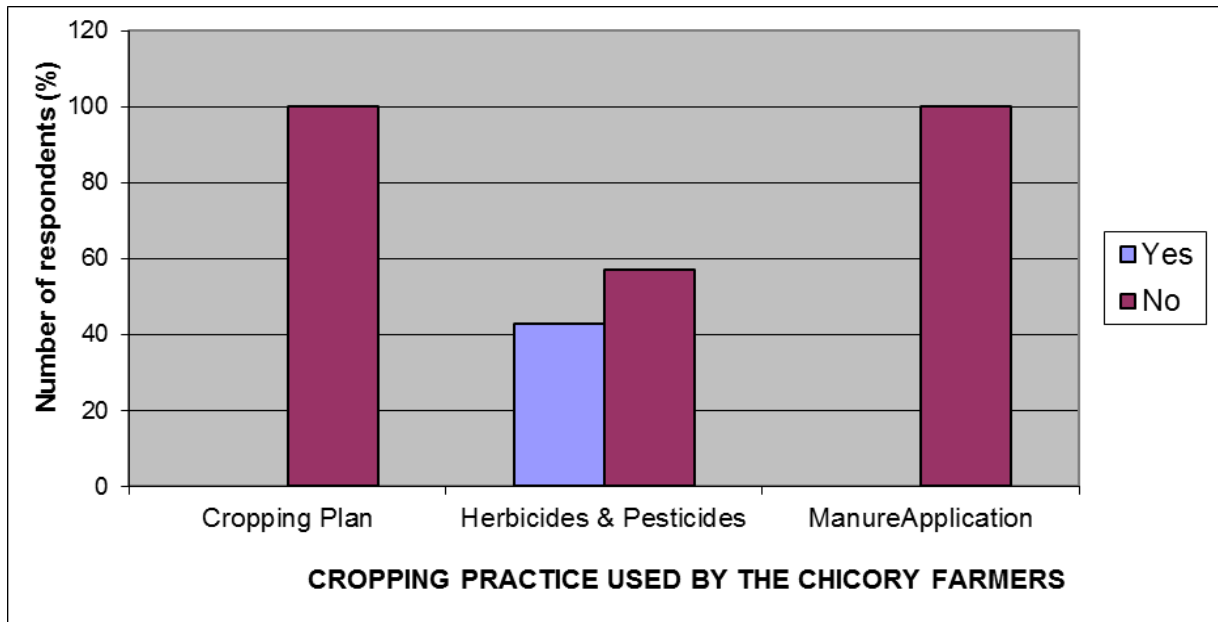


Figure 6.5: Cropping practices used by the chicory farmers in Marselle

According to Figure 6.5, all project members said they used manure to enhance the quality of their produce. The explanation the farmers gave for choosing manure at the expense of other alternatives such as chemical fertilizers was that livestock was abundant in the community. The cheapest source of manure that they depended on the most was that of cattle that were already in the farm, belonging to the SFA members. In addition, some of the farmers kept small ruminants in their homes which provided them with adequate manure. These findings are in line with those from Dijkman *et al.* (2000) and Simalenga *et al.* (2000) who also acknowledged the extensive use of animal manure by smallholder farmers in rural communities.

All project members also indicated that they made use of the cropping plan. This is because they had a single buyer of their chicory (Chicory South Africa) hence it was compulsory for them to stick to the schedule provided by the buyer. To explain further, the respondents said their contractual arrangement with the buyer was that their output was expected to be ready for collection during particular times during which the Chicory South Africa's warehouse was also open. The use of strict cropping plans had earlier been noted by FAO (1986) amongst smallholder farmers, especially those that had obtained loans from credit institutions due to contractual arrangements as was the case in Marselle.

6.4.1.3 Challenges faced by the chicory farmers

Even though the project only has two objectives, neither of them has been met thus far. This is due to a number of various challenges that the members have failed to resolve. The two most dominant of these factors emanated from the prevalence of weeds and unfavourable trading practices from the side of Chicory South Africa.

6.4.1.3.1 Bush encroachment and weeds

The first challenge concerns the issue of labour to manage the weeds. The respondents mentioned that the area where they cultivated their chicory was very prone to the weeds problem, which, according to Joubert (2000) is very typical of the Eastern Cape Province. The chicory plants need to be regularly and carefully weeded but due to the size (10 ha) of the land under cultivation at a time, the 8 project members have continuously failed to manage this problem. Muthamia *et al.* (2001) and Joubert (2000) recommended using chemicals to deal with the weed problem in areas where labour was limited but by reason of having limited funds, the project members in Marselle said they could neither afford to purchase these chemicals nor hire extra helpers to assist with weeding. Consequently, the weeds dominated the crops as was also documented by Mazvimavi *et al.* (2010) and Giller *et al.* (2009) after conducting studies in Zimbabwe and most sub-Saharan countries' smallholder farming sector, respectively. As a result, the final quality of the chicory has always dropped very low and hardly meets the standards required by the sole buyer, Chicory South Africa, with whom they have a contract.

6.4.1.3.2 Unfavourable trading practices

The second reason given by the respondents for their failure to meet their objectives emanates from the perceived low prices set by Chicory South Africa for the chicory. Chicory in South Africa is grown exclusively in the coastal areas around Alexandra, where Chicory South Africa has established a drying plant. All dried chicory is consumed within South Africa and is sold to coffee manufacturers nationwide. This drying plant is the only plant in the province hence all producers of the crop in the province solely rely on it as their only market for their output. The project members practiced contract farming through having a legally binding contract with Chicory South Africa as their sole market. Having such a relationship could have both advantages and disadvantages. However, the Marselle farmers argued that they relied solely on the information from the buyer (Chicory South Africa) for advice and other services such as inspection and treatment of chicory whenever there was a need. In addition, the prices they got for their produce were always low, hence yielded far less what they invested. This was further exacerbated by the high amount of tax that they paid for

delivering their produce to South Africa Chicory. In other words, when all the production costs and taxes were added together, the overall costs exceeded the revenue gained at the end of this season. This meant that the farmers were always operating at a loss. Similar conclusions were made by Bijman (2008) that some arrangements in contract farming often result in unequal relations between monopolistic contractors and farmers, with farmers bearing high risks and contract terms for farmers declining over time in the process of 'agribusiness normalization'.

Secondly, the farmers also stated that there were times when Chicory South Africa did not honour the conditions of the contract. For example, during the collection of the first set of data in August 2010, they said Chicory South Africa only collected part of their output. During a recent visit to the farm in August of 2012, the farmers further said that harvesting had not yet been done, four months after the crop became ready to be harvested. They said the only explanation they were given by Chicory South Africa for not having come to harvest and collect the crop was that their warehouse in Alexandra had already closed for the season. The farmers themselves do not have their own transport to deliver their output to the market whenever it was ready. Consequently, they always had to wait for the Chicory South Africa trucks to be sent to collect the output only when it suited Chicory South Africa. As a result, all that had been planted was still on the ground and with the heavy rains that had already fallen they said they feared they were going to lose their entire output to spoilage. Efforts were made to get an explanation from Chicory South Africa but at the time of writing this report, no feedback had been received.

6.4.1.3.3 Lack of farming implements

The information on the implements owned by Marselle farmers is presented in Table 6.6. These implements were said to be inadequate for the kind of work that they do hence bigger implements such as boom sprayers are needed. The respondents mentioned that the government, through the local municipality, assisted them with a new tractor but without a disc. Furthermore, the responsibility to maintain and service this tractor was left with the project members so whenever it required new tyres or service, the money came from the project's coffers. This would be expected of the farmers but the concern was that despite the chicory project paying for the maintenance of the tractor, the municipality also allowed other none project members to make use of the tractor for no financial compensation. These other users only spent on the fuel they used but without contributing towards servicing the tractor or at least paying a rental fee through which cost recovery by the project members could be made. At the time of collecting data, the project had financed the purchasing of four new

tyres and a battery for the tractor but the tractor was no longer moving due to a mechanical breakdown.

Whenever the tractor was not faulty, the unavailability of discs meant that farmers had to rely on those that owned their own to lend them. In addition, the tractor played a vital role in transporting the farmers and other inputs to the farm since the roads were not accessible by smaller vehicles. However, in as much as they said they appreciated the tractor donation from the government, they highlighted that the tractor did not come with a trailer of its own. As a result, the work that it could do as a source of transport was limited as a few people could be carried at a time, seated next to the driver. With all the project members being women, this resulted in injuries occurring on transit to the farm.

6.4.2 The Livestock Project

Before the livestock project in Forest Hill started, Marselle farmers already had their own animals that they kept in their backyards within the community. Due to various reasons such as the high incidences of road accidents caused by livestock roaming about and crossing major roads, they then decided to come together to form what became known as the Stock Farmers Association (SFA). Through this association they were then able to acquire the 620ha Forest Hill Farm from the Ndlambe Local Municipality through a lease agreement for production purposes. The following section discusses the conditions for joining the project, its objectives and other issues related to the project such as livestock marketing channels and price determination.

6.4.2.1 Conditions for joining the SFA

When asked to explain the criteria used to choose the people eligible to join the project, the respondents gave two different answers. Thirteen percent (13%) of the respondents said one not only had to reside in Marselle but also own livestock to be allowed to join. However, satisfying this condition did not give farmers automatic membership. Instead, aspiring members were also expected to pay a R100 joining fee in order to become full members. This was the same amount charged even during the situation analysis period in 2008. This condition was mentioned by 62% of the respondents interviewed. There were some respondents (25%) who did not know the conditions for joining as most of them had inherited their membership from their late fathers that had joined the project before passing-on. This information on the conditions for joining the SFA is given in Figure 6.6.

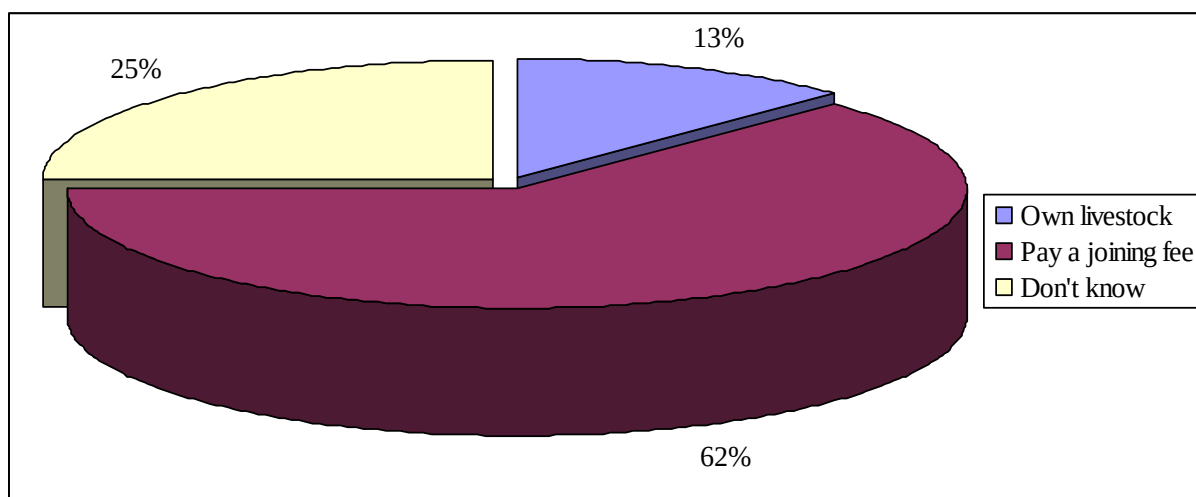


Figure 6.6: Farmer-stated conditions for joining the SFA in Marselle

6.4.2.2 Objectives of the SFA

This study further sought to investigate the main objectives of the association which motivated the Municipality to lease them the farm. Four objectives were identified by the respondents and these are shown in Figure 6.7. According to the figure, the SFA was formed basically for four main reasons, viz.: (i) to remove animals from the residential areas, (ii) provide the animals with a safe place, (iii) reduce road accidents, and (iv) to encourage farmers to use the farm as a source of livelihood through rearing cattle for marketing purposes. From these four different objectives given by the respondents, rearing of livestock for selling purposes was the most popular amongst the respondents, with 34.4% rating it first. The second most common objective (28%) was to provide a safe place for cattle from stock theft. This objective emanated from a number of farmers that had lost numerous animals to stock theft as the animals were always roaming about the residential area with no one to guard them. By keeping their animals in an enclosed farm, it was hoped the stock theft problem would be averted. This was proven by the CSIF (2011) as one of the best ways to prevent cattle rustling. In contrast though, Huffman (2012) advised that livestock be kept closer to residential areas to minimize theft. Forest Hill farm, however, is more than 2km from the residential area and is isolated.

Furthermore, prior to the formation of the SFA, cattle used to roam about the residential area and at times going as far as the R72 road from East London to Port Elizabeth. The respondents argued that this usually led to regular road accidents and securing the animals at Forest Hill was deemed the most sensible thing to deal with this problem. Another 25% of the respondents viewed the project as being geared towards enclosing the animals to reduce incidences of road accidents. Due to the high number of accidents caused by stray

livestock along the R72 road, villagers from a community (called Ncera) closer to Marselle went to the extent of joining hands with the local police to fence their area to stop stray livestock-related accidents that had claimed numerous lives (Sangotsha, 2011).

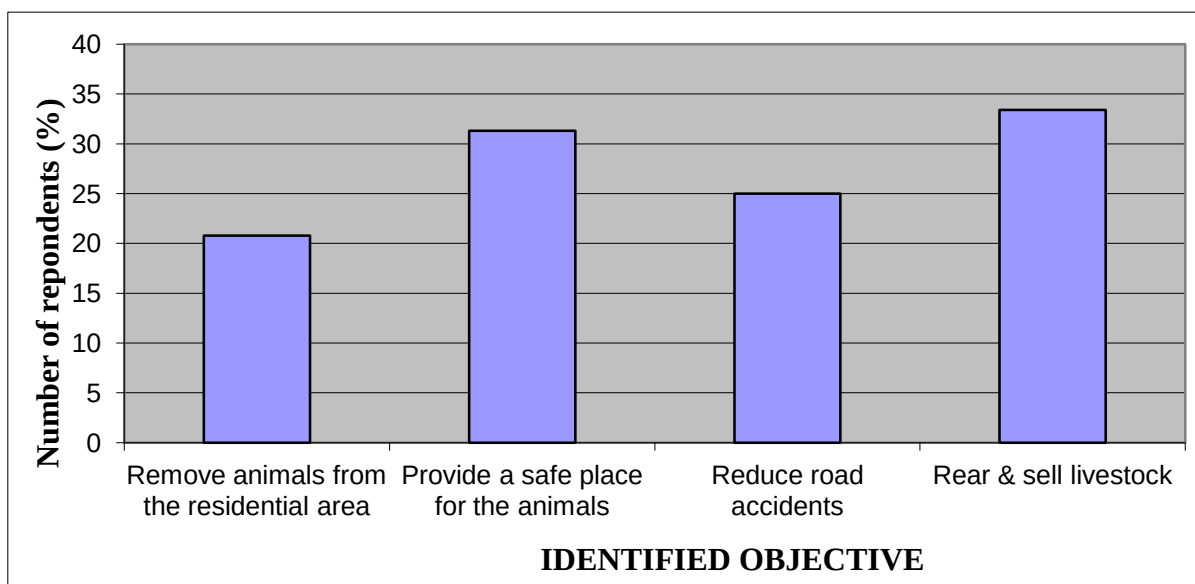


Figure 6.7: Objectives of the Stock Farmers Association

Whilst the SFA has tried its level best to meet all its set objectives, a lot still has to be done if all of them are to be met fully. The objectives that have been met thus far are presented in Figure 6.8. Having residents keeping their animals in the residential areas posed the biggest problem for the project members. The respondents mentioned that despite their animals being safer from road accidents since they were enclosed, the fact that there were some animals still found in the residential areas meant that incidences of road accidents were just reduced but not entirely eliminated. This was according to 51% of the respondents as shown in Figure 6.8.

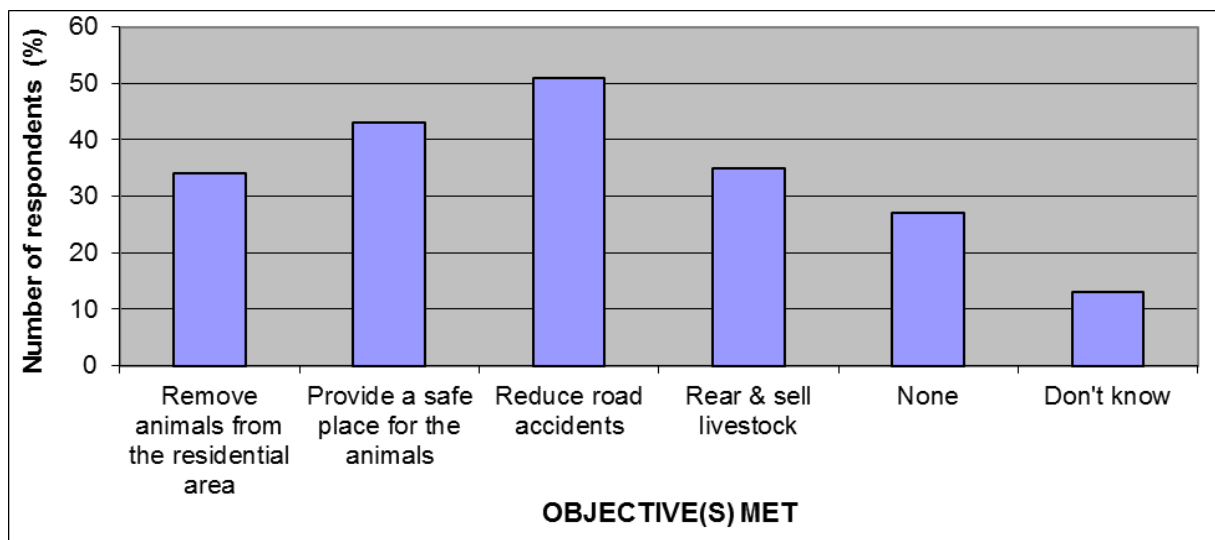


Figure 6.8: SFA's objectives that have been met thus far

With the majority of cattle now enclosed, the Marselle community had become much cleaner than before. However, 34% of the respondents highlighted that the Forest Hill Farm was previously used for cattle only. As such, other types of livestock, especially small ruminants such as goats, sheep and pigs could still be found in the residential areas. Thus, not all animals were put on the farm after the SFA was formed. It is the animals remaining on the streets of Marselle that were blamed for most of the dirt found within the community. The trend of keeping small ruminants in residential areas as discovered in Marselle seems not to be an isolated case as Tembely (1998) also documented that this was popular especially in the smallholder sector in developing countries where farmers are landless.

Regarding the objective of providing a safe place for the farmers' cattle, 44% of the farmers mentioned that stock theft was not a thing of the past, despite the cattle being fenced. They said that the distant location of the farm makes it very difficult for them to check on their animals on a regular basis. Furthermore, the farm is not completely secure as strangers could be found on the farm. Attempts have been made to hire a security guard to guard the cattle but problems emanated on who was supposed to remunerate him for his service. The project currently does not have any sources of income that could be used for such purposes as remunerating security guards. This is mostly because the project is an individual project whereby each member is responsible only for his or her animals and no one else's. Due to these reasons already mentioned and some that were not given by the respondents, some of the farmers (28%) believe that the SFA has failed to meet any of its set objectives.

6.4.2.3 Number of cattle grazing on the farm

Concerning the total number of animals grazing on the farm, none of the respondents seemed sure about how many they were in total. Nonetheless, each individual was able to give the number of their individual animals as presented in Table 6.7. On average, half the livestock farmers (50%) had between six (6) and ten (10) animals each. This was followed by 25% that had at between one (1) and four (4) each. On average, nearly 16% of the farmers owned between 16-20 animals each but only one household had a herd of 20 animals, with another household having 19 and another 17 animals. In total, the information given by the respondents suggests that the farm had a maximum of 193 cattle, with an average of six (6) animals per household.

Table 6.7: Number of animals owned by each SFA member

Range	Frequency	Proportion (%)	Total per range
Between 1 – 5	8	25	18
Between 6 – 10	16	50	79
Between 11 – 15	3	9.4	24
Between 16 - 20	5	15.6	72
TOTAL	32	100	193

Whilst this information in Table 6.7 was given by the respondents, it is questionable simply because by merely looking at the number of animals which were grazing at the time data was collected, the farm seemed to exceed its carrying capacity. Monde and Ainsle (2008) put the farm's carrying capacity at 350 large stock, based on the veld condition assessment. Studies conducted on the Eastern Cape farmers by Claude (2010) confirmed that farmers at times deliberately gave wrong numbers about their livestock for various reasons otherwise each individual farmer is always fully aware of the number of animals they possess and those belonging to their neighbours due to the need to determine their social status. As for the Marselle farmers, a few possible reasons obtained from some of the concerned farmers could explain the low numbers given by the respondents.

The first one is that whilst it was agreed within the SFA that the farm be used to keep only those animals belonging to members, a number of member farmers also kept animals on the farm on behalf of non-members staying either in the community of Marselle or in other neighbouring communities. This is usually motivated by financial compensation that the SFA

members stand to gain from cattle owners who are non-members. Such “illegal animals” are put without any consultation with project members. This had become a serious cause for concern for some project members as extra animals resulted in the pastures on the farm being over-grazed thereby making them unable to sustain the livestock for the entire year. Rohde *et al.* (2006) conceded that such practices are actually common and emanate partly from weakened traditional local institutions controlling land tenure. In these circumstances where there are weak local institutions, Abule *et al.* (2005) observed that farmers usually take no measures to eradicate the bush encroachment and other related problems besides just discussing them among themselves. This is the case in Marselle.

The second reason is that all farmers using the farm were aware that the current number of animals kept on the farm exceeded its carrying capacity. This conclusion is based on the answers given by the respondents on their thoughts on the pastures being able to sustain the animals the entire year. The majority of them responded by saying that overgrazing was the biggest contributor to pastures not sustaining the animals beyond the rainy season. This suggests that farmers were aware that the pastures were being over-grazed but most chose to give the research team collecting data for this study wrong livestock numbers as they feared that one of the recommendations for this study could be for them to cull some of their animals.

The third reason had also caused tension amongst the Marselle community. There are some people who were not members of the SFA but kept their animals on the farm illegally. In other words, unlike the first challenge of project members keeping livestock on behalf of non-members, there were some non-members that just put their animals on the farm without the knowledge of any project members. Even during the baseline study done by Monde and Ainsle (2008), the numbers of such animals were not investigated as their owners were not known. All these three reasons made the actual number of animals in the farm to be more than the one given by the respondents. Such a practice of overstocking is, nevertheless, synonymous with the conclusions of Aliber and Hart (2009) and Dickhoefer *et al.* (2008) that despite most parts of the former homelands being found in the eastern part of South Africa where rainfall is much higher which enhances veld grazing, current stocking practices in these areas usually exceed the carrying capacities of the land. The same sentiments were echoed by Feynes and Meyer (2003) and Musemwa *et al.* (2008) who blamed the deterioration of the quality of farm lands on overgrazing.

6.4.2.4 Number of small stock grazing on the farm

Some respondents indicated that they reared other forms of livestock such as goats, pigs and sheep. A summary of the livestock types and numbers reared in Marselle is given in Table 6.8. Pigs seem to be the second choice of animals after cattle, with 27 pigs being reared by two respondents. Three farmers also indicated that they kept goats as part of their livestock. Despite the existence of such animals in Marselle, 81.4%, 96.9% and 93.8% of the respondents did not have any goats, sheep or pigs, respectively. All the goats found in the community were either sold or used for ritual purposes and pigs were all for selling purposes with none consumed by the farmers' households. As for the pigs in a province where, according to Wenhold *et al.* (2007), there may not be taboos against consuming pork meat, the majority of farmers (93.8%) preferred not to keep pigs at all. Such a low number of pig numbers in the community is consistent with the findings of Bembridge (1984), Steyn (1988) and De Lange (1991) that, on average, rural households in the province keep very few, if any, pigs at a time.

Table 6.8: Average number of small stock per farmer

Type of animal	Number owned	Frequency	Percentage
Goats	0	26	81.4
	5	1	3.1
	7	2	6.2
	10	3	9.3
TOTAL	49	32	100
Sheep	0	31	96.9
	15	1	3.1
TOTAL	15	24	100
Pigs	0	30	93.8
	11	1	3.1
	16	1	3.1
TOTAL	27	32	100

The study did not collect any information on the number of indigenous chickens owned by each household even though there was evidence that almost every household had them. One of the reasons for not considering these indigenous chickens was based on the work done by Tadelles *et al.* (2000) who discovered that such chickens are actually considered to

be of low productivity in terms of poor growth rates, few eggs produced, high mortalities, high susceptibility to diseases and long brooding periods. Consequently, only a few numbers are kept by each household almost entirely for consumption purposes. Nevertheless, Bembridge (1984), Steyn (1988), De Lange (1991) and ARDRI (2001) stated that there are between 47% and 97% rural households in the Eastern Cape that keep an average of 5 to 13 chickens each. These scavenge during the day before being caged at night for security reasons (Wenhold *et al.*, 2007).

When comparing the average livestock numbers, it is evident that the Marselle community epitomizes an African community where cattle dominated other animals in the farming households. In addition, the distribution pattern of cattle in the community was consistent with the conclusions of Bembridge (1979), Tapson and Rose (1984), Düvel and Afful (1997) and Ntshona and Turner (2002) which argued that most African communities have a large majority of households with a few animals and a small group that owns many.

6.4.2.5 Reasons for rearing livestock identified by livestock farmers

Even though the SFA was formed with its own objectives, the farmers themselves had other personal reasons for rearing livestock other than collective, community reasons such as removing them from the residential areas, providing them with a safe place, reducing road accidents and also to use them as a livelihood source. These personal reasons were grouped into six as shown in Figure 6.9 and these include consumption, ritual purposes, store of wealth, selling and consumption.

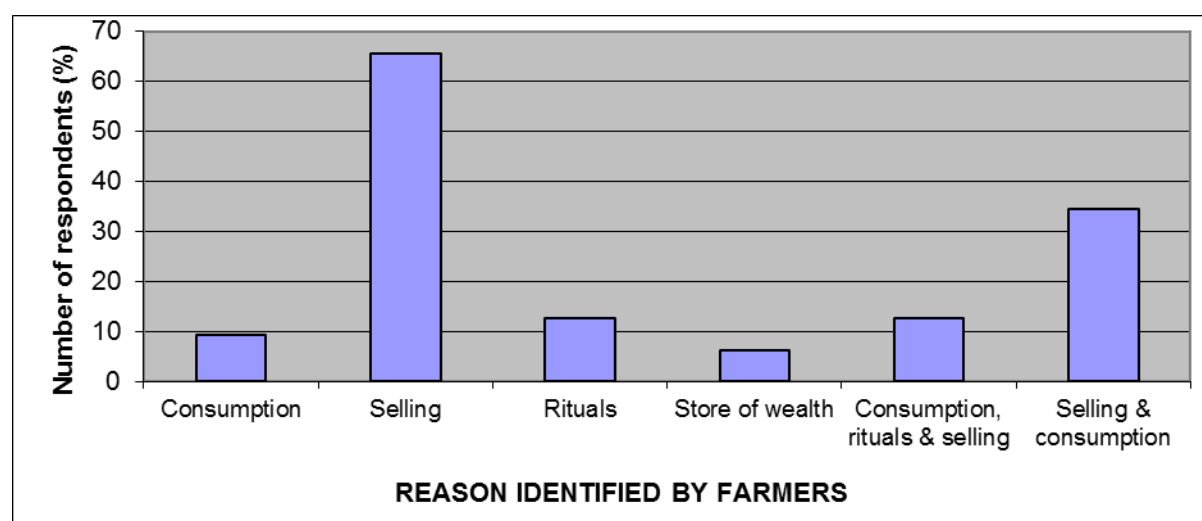


Figure 6.9: Farmers' reasons for rearing livestock

Referring to Figure 6.9, the most popular driving force given by 65% of the farmers behind the rearing of livestock was for selling purposes. These respondents considered animals as their major source of income, hence treated their livestock enterprises as profit-making businesses. However, unlike in other communities which Chimonyo *et al.* (1999), Dovie *et al.* (2006) and Simela *et al.* (2006) documented as earning income from slaughtering their cattle and selling meat, hides and horns for income, the Marselle farmers sold live animals.

The second most popular reason identified by 34% of the farmers was that of using livestock for both supplementing their household food and raising money needed for other things such as purchasing processed foods, paying their children's school fees and purchasing property. In other words, instead of using their cattle to meet a single specific need, they viewed them as a means of addressing various needs at any given time. Another group of farmers (12.5%) also used their cattle for multiple benefits like consumption, selling and rituals. In fact, literature from Düvel and Afful (1997) and Kepe (2002) agrees with these findings as it suggests that some smallholder farmers in African countries keep livestock for multiple reasons such as utilitarian, investment, religious, cultural and social reasons in rural communities.

Consumption alone was the main reason given by at least eight percent (8%) of the respondents. These farmers said they used their animals as insurance against sudden drought periods. From a nutrition point of view, however, Tapson and Rose (1984) argued that the need for a regular supply of fresh milk is one of the critical determinants of the high number of cows (at the expense of oxen or other livestock) that African households keep. Thus, whenever households did not have enough cash to buy adequate food, they turned to slaughtering their animals to sustain them for the duration of the "drought" spell.

One other thing worth noting from Figure 6.9 is that there were some farmers (6.3%) that considered their animals as a form of saving their wealth. These farmers argued that they were not comfortable keeping part, and in some cases all, their money in established financial institutions such as banks. This is because they said banks gave them very low interest rates and also deducted part of their money for bank charges. Furthermore, they pointed out that unlike the money stored in banks, the value of their animals appreciated as they grew older and bigger. This is not a trend exclusive to the Marselle community only as it has also been noted in the rest of the African continent by the likes of Kormawa *et al.* (2004), Nwafor (2004) and Mandleni and Anim (2010). Dovie *et al.* (2006) and Simela *et al.* (2006) also shared this mindset of Marselle farmers by arguing that cattle have an advantage of

being an inflation-free form of banking for the resource-poor that can, at the same time, be sold to meet family financial needs which may include school fees, medical bills and household expenses.

There are also some farmers (12.5%) who made use of their livestock for ritual purposes. The most preferred animals for this purpose were goats and cattle mostly because of the noise they make when being slaughtered. In keeping with Wenhold *et al.* (2007), the noise made by animals when being slaughtered is interpreted as a way of calling on the ancestors in most African traditions. In fact, in the Eastern Cape Province, goats are kept almost entirely for ritual purposes and are rarely eaten due to issues around the taste of their meat (Mafu and Masika, 2002).

Nevertheless, the reasons for keeping livestock might vary between individual farmers in the same community and the decision on which animals to keep can also be influenced by local conditions and evolve over time. This is according to Düveland and Afful (1997), Kepe (2002) and Musemwa *et al.* (2008).

6.4.2.6 Marketing of livestock in Marselle

When one looks at the South African case of smallholder farmers, there are two marketing channels, namely, the informal (also known as the traditional) and formal channels that livestock farmers can use to market their livestock. The former is defined by Mbogoh (1992) as that system in which the government does not substantially intervene, either directly through trading or indirectly through regulation. As per Chikazunga *et al.* (2004) and Musemwa *et al.* (2007), this market would include people who buy animals for purposes such as slaughtering either for consumption or for social functions like funerals, weddings, customary and/or religious celebrations. The latter, on the other hand, involves selling directly to established outlets such as butcheries, auctions and abattoirs (Musemwa *et al.*, 2007).

Using these definitions, the informal cattle marketing channel is favoured by the Marselle farmers and their major clients were people from within the Marselle community as shown in Figure 6.10. Put in terms of numbers, 56% of farmers indicated that they relied mostly on their neighbours from within the community of Marselle to provide them with a market for their livestock (Figure 6.10). This group of respondents said they preferred this channel to minimize transaction costs associated with seeking information on formal markets and transporting livestock to those markets which they said were in distant towns of Port

Elizabeth and Port Alfred. The dominance of the informal markets in similar rural communities had also been noted earlier by Musemwa *et al.* (2007) and Nkosi and Kirsten (1993) who advanced that despite such a dominance by these informal channels in the smallholder livestock sector in South Africa, farmers did not benefit much from them as they usually had low purchasing power which resulted in them getting relatively low prices for their animals.

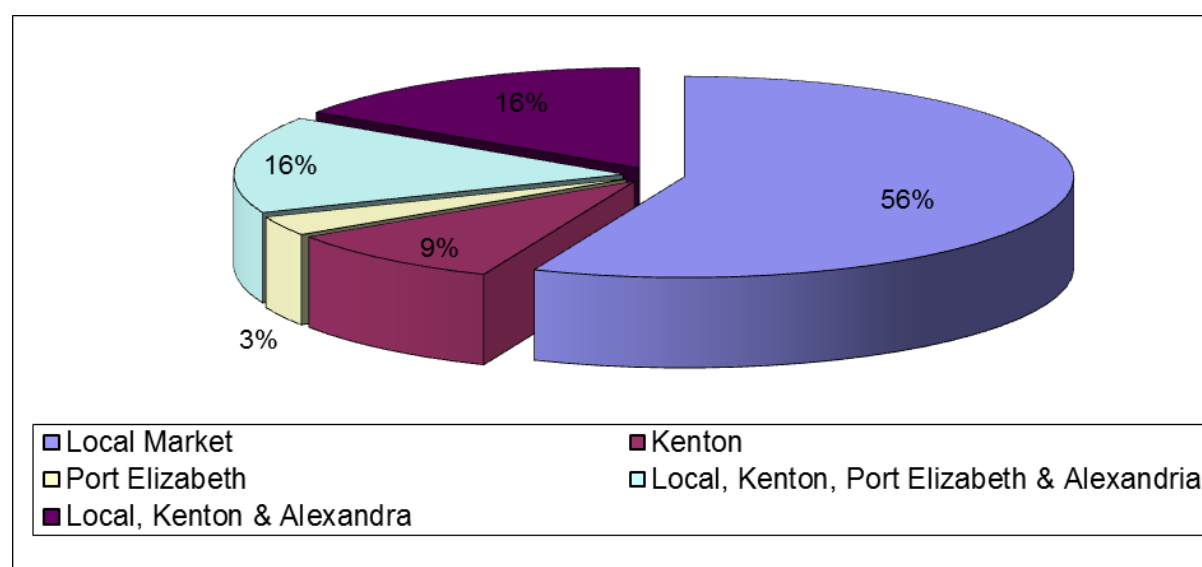


Figure 6.10: Livestock markets used by the Marselle farmers

Farmers who kept small stock such as pigs, goats and sheep tended to sell them in local and generally informal markets. However, the only difference between small stock farmers and cattle farmers was that the latter could go as far as Port Elizabeth, which is more than 130km from the farm in search of markets for their animals. In contrast, the furthest market for the former was less than 30km from Marselle, in Alexandria.

An equal number of respondents (16%) made use of a combination of markets in the Marselle community, Kenton, Alexandria and Port Elizabeth. On the other hand, 3% of the farmers made use of only the Port Elizabeth market, with the remaining 9% relying solely on the Kenton town market. In short, the farmers preferred informal than formal marketing channels despite the advantages of the latter outweighing those of the former. In fact, Magingxa (2006) reasoned that market access could be one of the most critical factors that influence small scale farmers' potential for success. Jooste and Van Rooyen (1996) supported this idea and further argued that the transition of the small-scale livestock sector towards commercial production will in the long run be determined by access to markets.

6.4.2.6.1 Determinants of farmers' choice of markets

In choosing their markets, the respondents said they considered factors like the reliability of these markets, transport costs and the ease with which the market could be accessed. To understand the most important of these market-determining factors, the respondents were asked to rate them in order of the importance that they perceived them to be. Their feedback suggested that accessibility was the most common factor they considered when choosing markets, with 66% of them rating it as the most important (see *Figure 6.11*). The second most common determinant identified by 22% of the respondents was transport cost. This was not surprising as smallholder farmers in general, despite being poor, are usually very profit-minded, hence they try by all means to choose the market that seemed most likely to bring them the highest returns whilst costing them the least to deliver their animals to such a market. This also explains why the Port Elizabeth market was used only by 3% of cattle farmers and none of the small-stock farmers because of its distant location from the farm.

Another important thing to note is that the livestock project is an individual project with each farmer taking responsibility for their animals. As such, the members had no collective action even in transporting their animals to the markets (i.e., for those that used the formal marketing channels). This is in spite of evidence from Gyau and Takoutsing (2012) and Fischer and Qaim (2011) that this kind of cooperation could have helped them “spread their fixed costs”³ thereby making it cheaper for each farmer to access and take advantage of even distant markets like Port Elizabeth and East London. As considered by twelve percent (12%) of farmers, reliability of the markets was rated as the third most important market determinant. This is shown in *Figure 6.11*.

³ Spreading fixed costs means reducing the cost per unit of output by increasing the quantity of output transported at once (Hill and Jones, 2009).

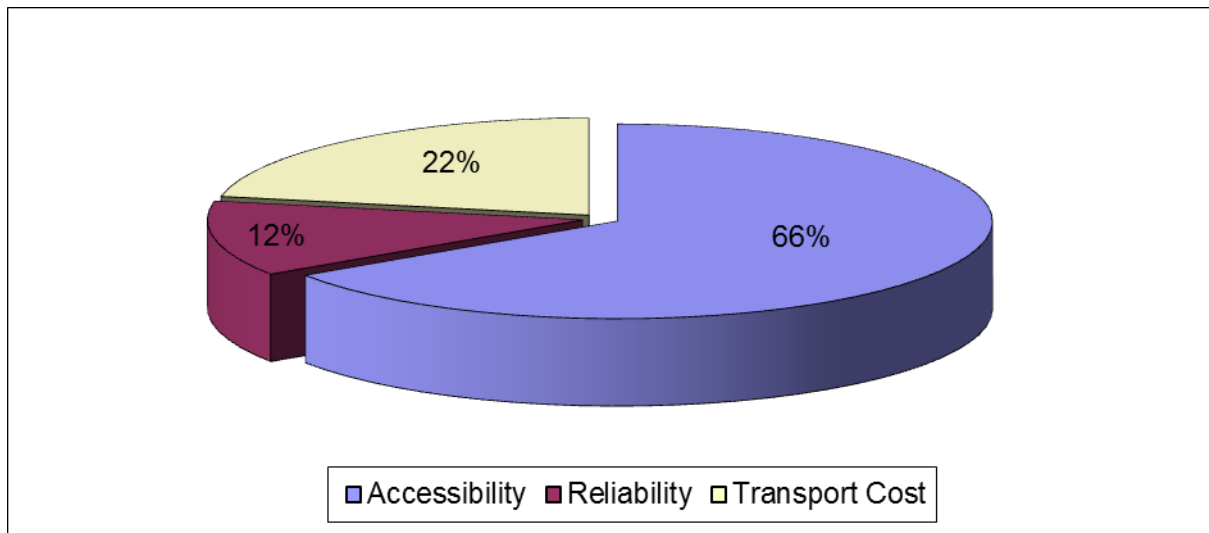


Figure 6.11: Determinants of the markets used by Marselle farmers

Since the majority (56%) of respondents used local markets which 66% identified as easily accessible, the farmers mentioned that they did not have any serious problems when selling their animals. The majority of local buyers were those that the farmers knew very well because they also stayed in the same community of Marselle, hence trusted them. In addition, this made it very easy for farmers to negotiate the prices and better payment conditions. The farmers further stated that their local buyers usually needed the animals for ceremonies such as funerals or imigidi.⁴

In the opinion of Fafchamps (2004) though, selling to neighbours highly depends on trust and social relationships between the farmer and neighbours who in this case are the market. In consequence, it benefits the farmer in that it reduces the need for contracts or the chances of cheating. As good as this may sound, Jari and Fraser (2009) opposed this marketing approach by arguing that it can result in livestock prices being stifled in an attempt to maintain social relations or due to the allegiance aspect. Hirshleifer *et al.* (2005) added that at times local buyers have a tendency to hide their true enthusiasm and aptitude to pay when dealing with local farmers. Furthermore, unlike established formal markets, local buyers are known not to offer any special prices for high quality meat at all (Obare *et al.*, 2006). These reasons could explain why Marselle farmers always got low prices for their livestock when selling to neighbours than they could get in formal markets such as those in Port Elizabeth.

⁴ This is a name given for traditional Xhosa ceremonies held to mark or celebrate the coming of age of young boys

Those who used other nearby markets (except Port Elizabeth) said their buyers came to the farm to view, pay and collect the animals themselves. This means that farmers did not have to incur any transport cost. Nonetheless, this group of farmers encountered a serious problem of low prices offered for the animals. This problem, however, was mentioned by 6.6% of all the respondents (Figure 6.12). Stiglitz (1997) and Coe *et al.* (2008) blamed this on the information asymmetry which makes markets to be imperfectly competitive thereby prompting opportunistic behaviour whereby the well-informed players take advantage of the less informed for their own benefit. The remaining 93.4% as shown through Figure 6.12 said they did not encounter any problems when marketing their animals.

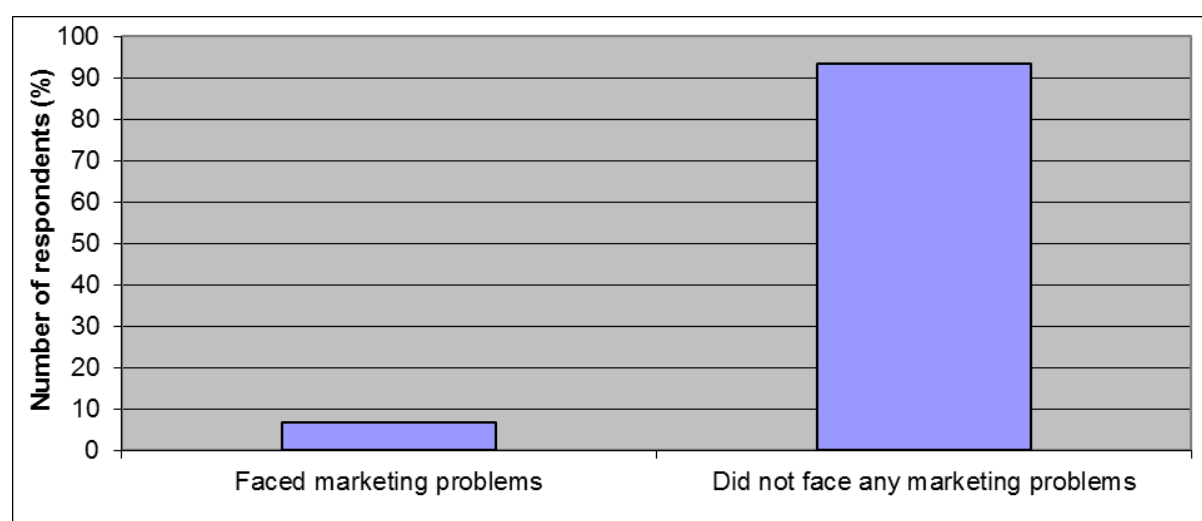


Figure 6.12: Number of livestock farmers facing marketing problems

6.4.2.6.2 Price determination

Information obtained from the respondents showed that not all farmers set their own prices. In fact, there were some that depended on the prices set by other farmers operating either locally or in other markets. Brooks (2006) argued that by letting other farmers detect prices, smallholder farmers can save time and money searching for information from formal markets which, in the case of Marselle, are far from the farm. This is common in developing countries and in the case of Marselle, such price-taking respondents made up 46.9% of the respondent population.

As shown in Figure 6.13, close to thirteen percent (13%) of the respondents allowed market forces to set prices for them. Nevertheless, if they thought the prevailing prices were too low, then they responded by withdrawing their participation in the market until they were favourable enough. On the other hand, others said they often first tried to negotiate for

higher prices before withdrawing from the market, possibly because they had immediate bills to meet. According to Röling (2010) and Okello (2010), such price-taking is a common characteristic of most smallholder farmers in developing countries and is usually caused by the farmers' lack of bargaining power.

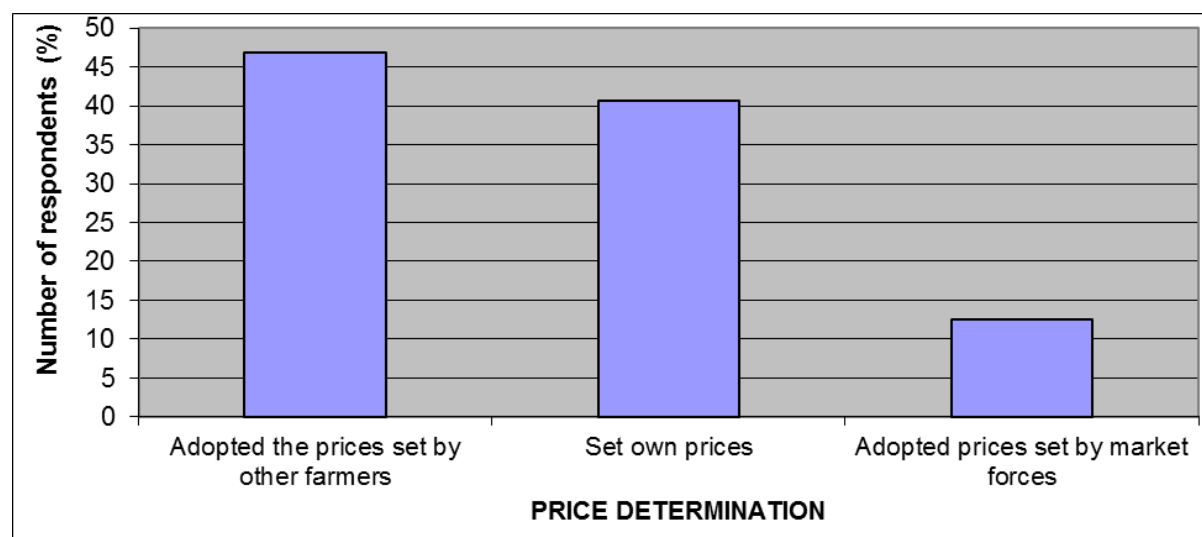


Figure 6.13: Price determination by the Marselle livestock farmers

Further probing revealed that close to 41% of farmers opted to set their own prices without being influenced by others. However, such farmers stressed that despite their prices at times being different from those offered in other markets, they were always open to negotiations, depending on the number of animals wanted, the payment method and period and a number of other factors. Their justification of this approach was that it allowed them to take advantage of those situations where interested buyers were willing to pay more than the price that would have otherwise been set by the market forces.

Still on the issue of marketing, none of the farmers seemed to be taking advantage of value addition activities such as slaughtering their animals before selling, packaging or even grading the meat. Such activities could have enhanced the value of the farmers' products and consequently their returns per animal. Cowan (2002) added that such activities could also have benefitted farmers through new and higher wage employment and new markets for their commodities. Nevertheless, the findings of this study support those of AATF (2010) which led to the conclusion that not participating in value-adding farming activities is a common trend among most farmers in Sub-Saharan Africa (SSA). Thus, AATF (2010) and Mhazo (2012) found out and concluded that the majority of farmers in SSA lack the appropriate processing, storage and value-addition technologies which cost them losses of

about 25-35% of the total output. The only thing done by some cattle farmers in Marselle to keep their beasts healthy was to dip them to eradicate the problem of ticks. This was done by 71.9% of members in the project as shown in Table 6.9.

Table 6.9: Cattle dipping by the Marselle livestock farmers

CATTLE DIPPING	FREQUENCY	PROPORTION (%)
Yes	23	71.9
No	9	28.1
TOTAL	32	100

6.4.2.7 Role Played by the Community Leaders

As mentioned by Rola-Rubzen and Gabunada (2003) in their capacity building framework, there is a crucial role that community leaders are able to play in community development projects. This is because community development is a social process by which people can become more competent to live with and gain some control over local conditions and the changing world (Ajayi, 1995). Additionally, Ajayi and Otuya (2006) postulated that if any community development venture is to be sustainable, then it should be implemented by all stakeholders participating willingly, sharing their ideas, visions and responsibilities equally and democratically without anyone being made to participate under duress. In further advocating good leadership in community development projects, Ozor and Nwankwo (2008) insisted that having good leaders creates an automatic incentive that makes people to participate voluntarily to achieve the set objectives. These authors also argued that the success of community projects depends on the implementers getting the buy-in from the local leaders to help influence and motivate their people to participate. The contexts of the Marselle projects are no exceptions to these suggestions.

In investigating the contribution of local leaders in the Marselle projects, this study started by seeking information on the local leaders' participation in the farmers' meetings. Livestock farmers said dates for their meetings were very irregular as impromptu meetings were held only when there were some pressing issues that needed to be addressed urgently. In the absence of such issues, project members met informally every other Wednesday to dip their cattle. These cattle-dipping informal gatherings were also used to address any less serious matters that needed the attention of the farmers. The respondents did not, however, seem to agree on whether community leaders were invited to their formal meetings or not - half (50%) of them said they were invited but 47% disagreed. As shown in Figure 6.14, the

remaining 3% did not know if they were invited or not. They said at times they just saw the community leaders in some but not all of the meetings. As a result, they were not sure whether they were invited or not.

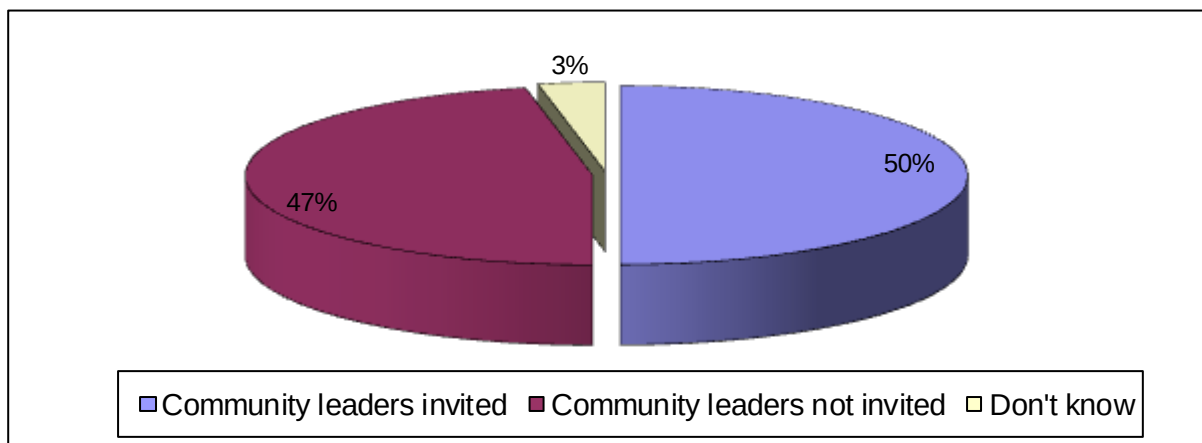


Figure 6.14: Invitation of community leaders to farmers' meetings

Since some of the project members said community leaders were invited to their meetings, it was important to find out if these leaders played any significant role towards helping farmers with their farming business. The information obtained from the respondents is shown in Figure 6.15 and shows that whilst community leaders were invited to meetings, 50% of the farmers held the view that they did not assist them in any way.

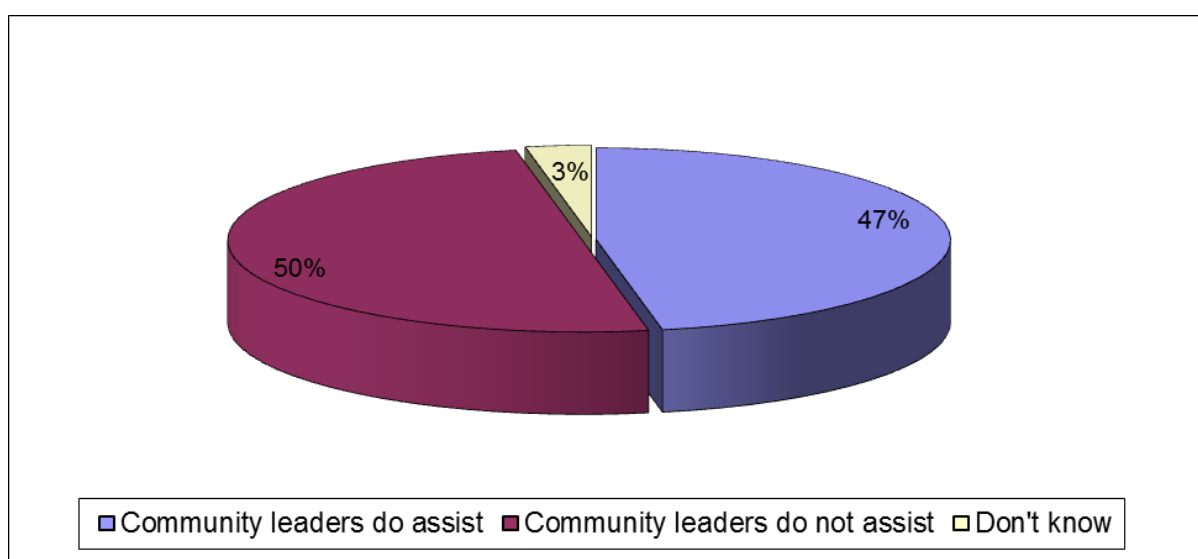


Figure 6.15: Role played by community leaders in the SFA in Marseille

Figure 6.15 further shows that 3% of the respondents did not know if the project members received any form of help from their community leaders. At the same time, there were some respondents (47%) that acknowledged the role played by community leaders in their farming business. The kind of assistance they said they received includes representing the farmers' interests and those of other people residing in Marselle in government meetings. This means that farmers used them as a channel through which they could relay their aspirations, needs or suggestions to government for intervention. Two examples were given to support this point. The first one is that since the Forest Hill Farm was being used under a lease agreement between the farmers and Municipality, the former always relied on the latter to negotiate for the lease agreement to be renewed each time it expired. The second example is that whenever the animals on the farm had no water, it was the community leaders that negotiated with the municipality on behalf of the farmers to have water delivered to the farm through water tanks. In the Dedza District of Zimbabwe, for example, Mwanza and Mapemba (2000) appreciated the role of community leaders in the smallholder livestock sector and documented that they were used as a link between farmers and stakeholders and also as a channel for disseminating information.

6.4.2.8 Information on Rangelands

Rangelands are essentially large tracts of native vegetation used to support livestock production (Birch, 2000). The existence of rising conflicts in terms of natural resource management have fuelled the constant stress between what rangelands can provide and the multiple purposes that humans wish to use them for (Birch, 2000). There tends to be so much expectation from the rangelands particularly from poor communities regarding rangeland sustainability, uses and the effects on rangeland residents and users and this prompted an investigation into the way rangelands were being managed in Marselle. Data was obtained from Marselle farmers on the rangelands within their Forest Hill Farm and the piece of information requested was on the condition of the fence surrounding the rangelands. Respondents were given three possible responses with which to rate the condition of the fence, namely, that the rangelands were: (i) not fenced at all; (ii) poorly fenced and (iii) well fenced. The information obtained is illustrated graphically in Figure 6.16.

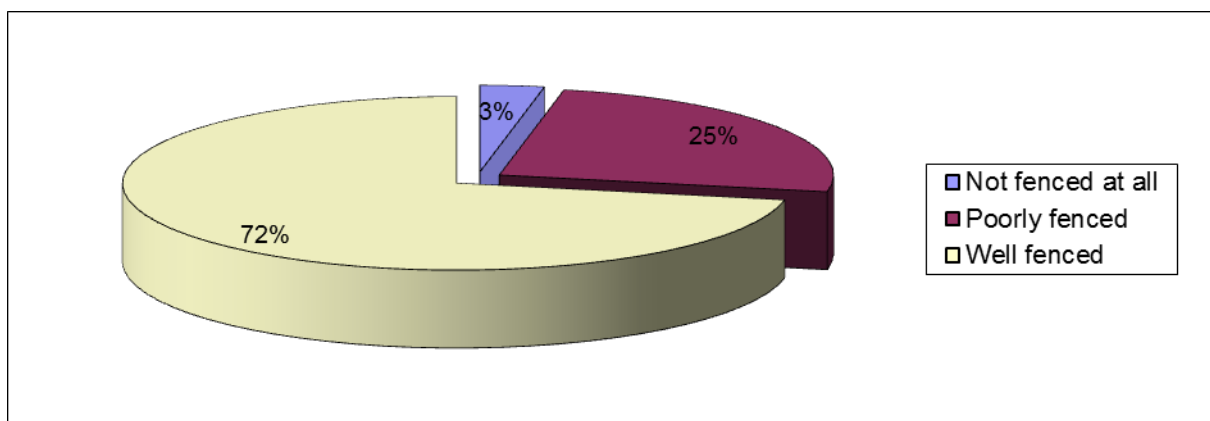


Figure 6.16: Condition of the fence surrounding the rangelands at Forest Hill Farm

Figure 6.16 illustrates that the greater part of respondents (72%) rated their rangelands as well-fenced. Thus, despite humans having easy access and perhaps stealing cattle, they surmised that the condition of the fence itself did not allow cattle to escape from the farm. Be that as it may, some farmers asserted that its condition was not good at all. As a matter of fact, three percent (3%) said the rangelands were not fenced at all. When asked to explain why they said the rangelands were not fenced at all they responded by stating that they based their conclusion on the fact that there were plenty of gaps on the fence and security was so poor that livestock was regularly stolen at night from the farm. Another group of respondents (25%) rated the condition of fencing as very poor. Their argument was that whilst the farm had a fence covering all its external perimeters, the interior was not partitioned into smaller camps for rotational grazing purposes. Apparently, farmers were given new fence by the government but it was not enough to even cover the external perimeters. Comparable to these findings, Gerrits (2000) and Kabirizi *et al.* (2004) noted that most communal farmers in developing nations like Kenya, Uganda, South Africa and Zimbabwe faced similar fencing challenges which they blamed on lack of capital for procuring their own fencing material instead of relying on donations.

6.4.2.8.1 Pasture conditions

In semi-arid areas such as Southern Africa where natural vegetation cannot be used directly for human consumption, Dickhoefer *et al.* (2008) recommended that livestock grazing be prioritized. According to O'Farrell *et al.* (2007), farmers should recognize that natural vegetation provides a diverse and varied diet for livestock and is rich in a variety of nutrients and chemicals. On the negative side though, the same authors warned that overgrazing could lead to a reduction in pasture productivity and consequently threaten people's long-term food security. The same sentiments were echoed by Musemwa *et al.* (2008) who noted

a decline in cattle productivity, particularly in the communal areas of South Africa, partly as a result of lack of feed resources.

With so many members of the livestock project in Marselle relying on their animals for livelihood purposes, it is crucial that their cattle are well fed and do not succumb to droughts. This study revealed that, on average, pastures in the farm were generally good. This was according to at least 46.9% of the respondents. At least thirty one percent (31.3%) more of the farmers said pastures were actually very good. However, in accordance with findings from Lemaire *et al.* (2005), the farmers also expressed their concern over the fact that when compared to the past few years, the quality of their pastures had declined. In the Eastern Cape Province, Retzer (2006) blamed this deterioration of pasture condition on the prevalence of droughts prompted by lower rainfall levels whereas the likes of Gemedo-Dalle *et al.* (2006) and Solomon *et al.* (2007) believed it was mostly due to gradual increases in human population pressure, livestock numbers, bush encroachment and expansion of farming.

As shown in Figure 6.17, close to 22% thought their pastures were inadequate to sustain the cattle throughout the year. They said instead of having palatable grass, grazing areas had become dominated by bush and shrubs which Ward *et al.* (2000) and Reed and Dougill (2002) regarded as a common problem within the province's communal areas. Based on the research done by Reed and Dougill (2002), other communities specializing in small ruminants such as goats were noted to be benefiting from bush encroachment through bringing bushes that are preferred by goats. In Marselle though, farmers had a different opinion as they only reared cattle in the Forest Hill Farm and goats had no access to the farm as they were kept in backyards for security reasons. Thus, the farm was used specifically for cattle, hence any deterioration in the pastures only affected cattle and not any other type of livestock.

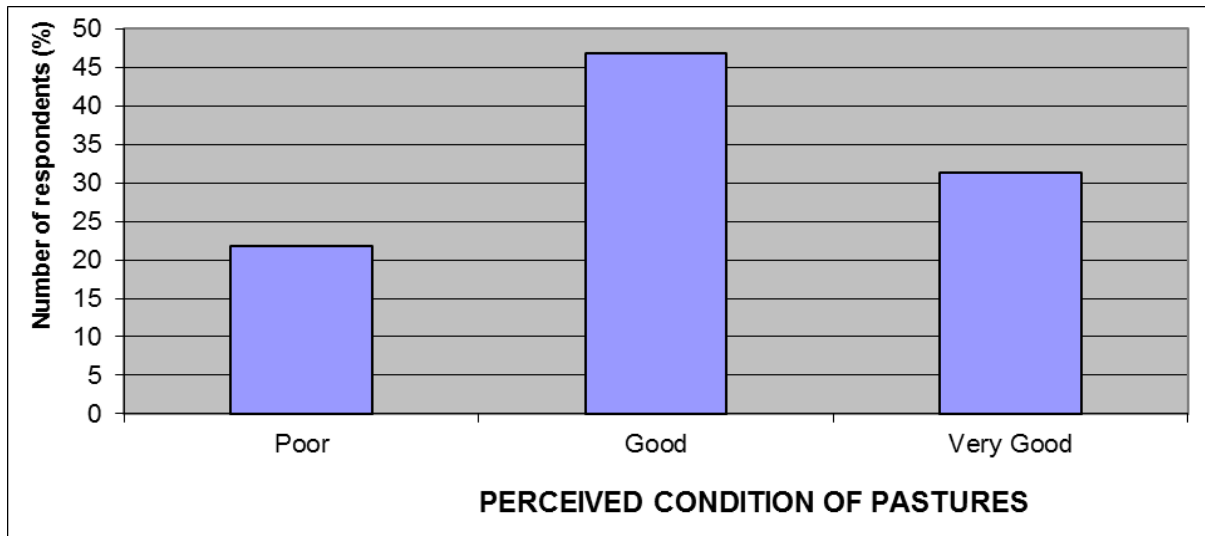


Figure 6.17: Perceived condition of pastures at the Forest Hill Farm

Farmers were then asked to explain what made them to rate pasture conditions the way they did and as shown through Figure 6.17. Their responses are presented in Figure 6.18 and show that 53% of those that rated the them as either good or very good attributed their perception to the farm having adequate, though not necessarily good, rains that had been falling consistently over the past years. Good pasture management by farmers was given by 47% as the other reason for the good condition of pastures in the farm.

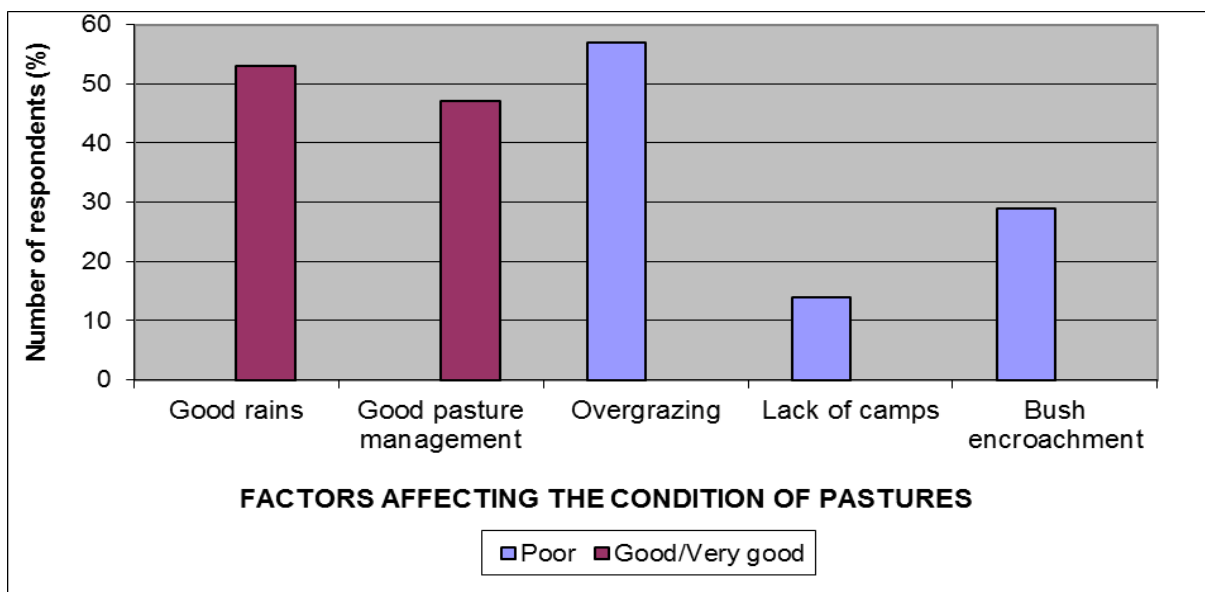


Figure 6.18: Factors affecting the condition of pastures at the Forest Hill farm

It is worth noting that there were certain farmers that perceived pastures as being inadequate throughout the year. This could be because there were some farmers that were new in the project and also some that had been there for a while longer. As such, the former had not experienced as many seasons as the latter, hence the differences in opinion. Nevertheless, explanations were requested from those farmers that felt the pastures could not sustain the livestock throughout each year so that corrective measures could be incorporated into the next phase of the project, if necessary. The explanations are presented in Figure 6.18 and indicate that three factors were given for the poor condition of the Forest Hill pastures. The most serious of these factors identified by 57% of farmers was overgrazing. This group of farmers asserted that the number of livestock kept on the farm far exceeded the farm's carrying capacity. This information further supported the point raised earlier-on about farmers deliberately giving incorrect numbers of their animals because they feared they might be asked to cull them since they were already overgrazing the farm.

Whilst 43% of farmers mentioned good pasture management as the main reason for the good condition of pastures, another 29% thought otherwise. In fact, the 29% argued that farmers were actually not putting enough effort to manage their rangeland and this had gradually led to serious bush encroachment which in turn compromised the quality of the pastures. The issue of absence of camps or grazing units was raised by 14% of farmers who argued that there was only one fence which covered only the border of the farm and no smaller grazing units inside. Ward *et al.* (2000) and Arnalds and Backarson (2003) provided evidence that having such smaller units is crucial in a farm as big as Forest Hill in the sense that grazing the animals in the same camp at all times did not allow for proper recovery of vegetation. Rotating the animals between different camps eases the need for supplemental feeding and reduces pasture waste whilst also improving pasture monthly distribution and pasture yield; animal waste distribution and use and the botanical composition of pastures (Henning *et al.*, 2000).

6.4.2.8.2 Management of pastures by Marselle farmers

There is evidence that natural vegetation, just like any other type of resource, needs to be managed well if the expected benefits are to be obtained for an extended period of time. However, O'Farrell *et al.* (2007) observed that the arid and semi-arid areas still face substantial ambiguity about the best practice for the management of livestock and rangelands. As stated earlier, Rohde *et al.* (2006) maintained that weakened traditional local institutions controlling land tenure should also be blamed for such problems. This point of view by Rodhe *et al.* (2006) appears to be applicable in the case of Marselle as farmers had

a committee responsible for managing the use of both the arable and grazing land but the same committee did not impose any penalties on those who did not use them in a proper and sustainable way. In other words, the committee members knew the individuals keeping animals for non-project members in the farm but chose not to take any form of action against them. As Figure 6.19 shows, this was an opinion shared by 91% of the respondents. These respondents said overgrazing was a concern every project member was aware of and the issue of animals belonging to non-project members being grazed in the farm was also public knowledge. Maintaining peace and good relations between project members was given as the main reason for the committee not to punish offenders. The remaining 9% said the committee imposed penalties to reckless users of the rangelands even though they said they were not sure what the penalties were.

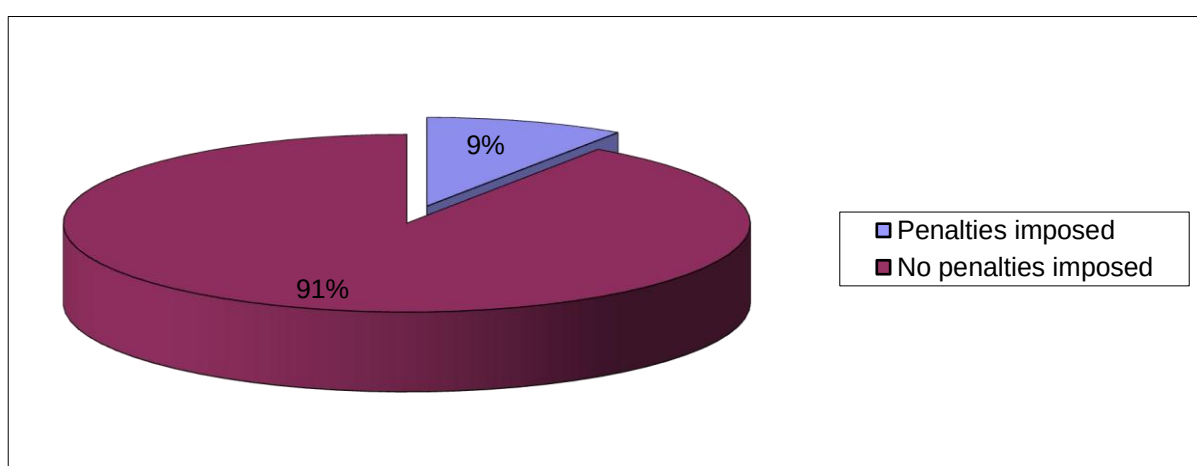


Figure 6.19: Penalties imposed on those misusing the rangelands

6.4.2.8.3 Water sources for livestock

On the subject of water for animals kept on the farm, the baseline study revealed that the farm had four different sources at their disposal, even though they were not all used at the same time. This study confirmed this as still the case and these water sources are shown in Figure 6.20 and include dams, borehole, solar water pumps and a water tank. The respondents revealed that livestock had access to more than a single dam for half (50%) the quantity of water they used. However, due to the fact that South Africa only receives 497mm of rainfall per year, with only 8.5% being able to find its way to the rivers and the rest is lost as run-off and through evaporation (Oosthuizen, 2002), these dams could not provide the necessary water quantity whenever rainfall was not enough. This problem was said to be usually worst in the winter seasons thereby forcing the animals to go for days without water unless an alternative arrangement is made.

In addition, this study also confirmed that the dams whose water holding capacity had been reduced by the accumulation of silt prior to the 2008 baseline study had not yet been attended to. As a result, this further limited the amount of water available to livestock on the farm, a problem most severe during winter and drought seasons. Under such circumstances, the solar water pump, as mentioned by 19% of the respondents, was used as an alternative source to pump water into the small dams. This water pump was a donation from the local government. This approach of using water pumps by smallholder farmers in rain fed areas was also acknowledged by Evans *et al.* (2012) who advised that using such pumps to achieve higher yields and income required overcoming several challenges such as poor operation practices and maintenance. As a sign of the importance of such pumps in providing supplementary water to boost smallholder productivity, the Ghanaian government collaborated with NGOs to initiate and manage communal projects to reach millions of farming households that had the zeal to farm but lacked adequate water (Evans *et al.*, 2012).

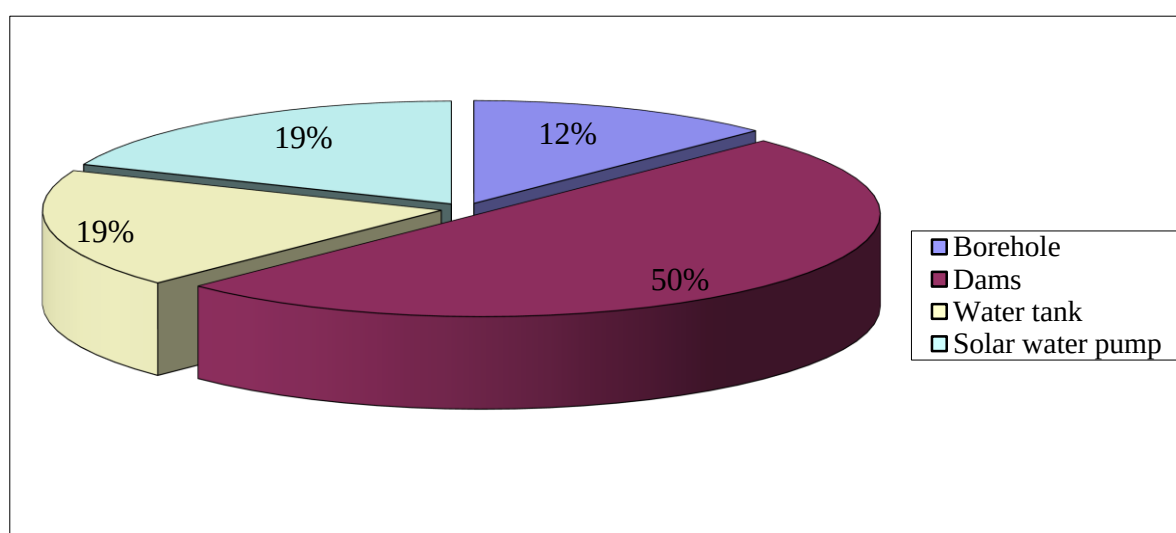


Figure 6.20: Water sources for the cattle kept at the Forest Hill Farm

If the pumped water was still not enough for the cattle, then the local municipality delivered more water through trucks. This was mentioned by 19% of the respondents (Figure 6.20). At least 12% of respondents indicated that project members also made use of a borehole located within the farm. In spite of the availability of these different water sources, water shortage remains one of the biggest problems facing Marselle farmers. Other problems identified include stock theft and animal diseases. Even though this study concluded that the study area made less use of a borehole than other water sources, Odhiambo and Magandini (2008) uncovered that this was the opposite with some rain-fed communities such as those in the Limpopo province which actually relied more on boreholes. A similar state of affairs

was also noted by Burgess (2006) in Botswana where boreholes were said to be in unfenced communal lands to allow livestock access to drinking water.

6.5 Institutions

The issue of having proper financial institutions is very critical for a community that has ongoing projects for a number of reasons. In fact, Vink and Kirsten (2003) uncovered that land reform beneficiaries and other small-scale farmers were left struggling to survive for almost two decades now due to the major decline in the overall state services available to them. In a study conducted by Hall (2004) on nine LRAD projects in the Eastern Cape Province, the findings revealed that none of the beneficiaries had received any support from the private sector and most had not had any contact with the Department of Land Affairs since obtaining their land. Furthermore, there were no recipients of any form of extension service (Hall, 2004). There is also evidence from Hall (2004), Wegerif (2004) and Bradstock (2005) that, despite getting productive land, the lack of proper institutions has left the majority of beneficiaries with the burden of accessing services such as credit, training, extension advice, transport and ploughing services, veterinary services, and access to input and produce markets. Based on such evidence, this study also sought to find out if this burden of service provision was also affecting the Marselle farmers or not.

6.5.1 Proximity of financial institutions to Marselle

The subject of financial institutions was generalized such that data collected was presented collectively for both livestock and chicory projects. This is because financial institutions set up in South Africa to assist smallholder farmers are part of the FSPs and usually do not discriminate between beneficiaries based on the type of farming enterprise that interested farmers are involved in. This is to say that a government institution in a town should help both livestock and crop farmers equally, provided they met that institution's requirements. In Marselle, apparently the majority (90%) of farmers stated that there were no financial institutions close to their community (Figure 6.21).

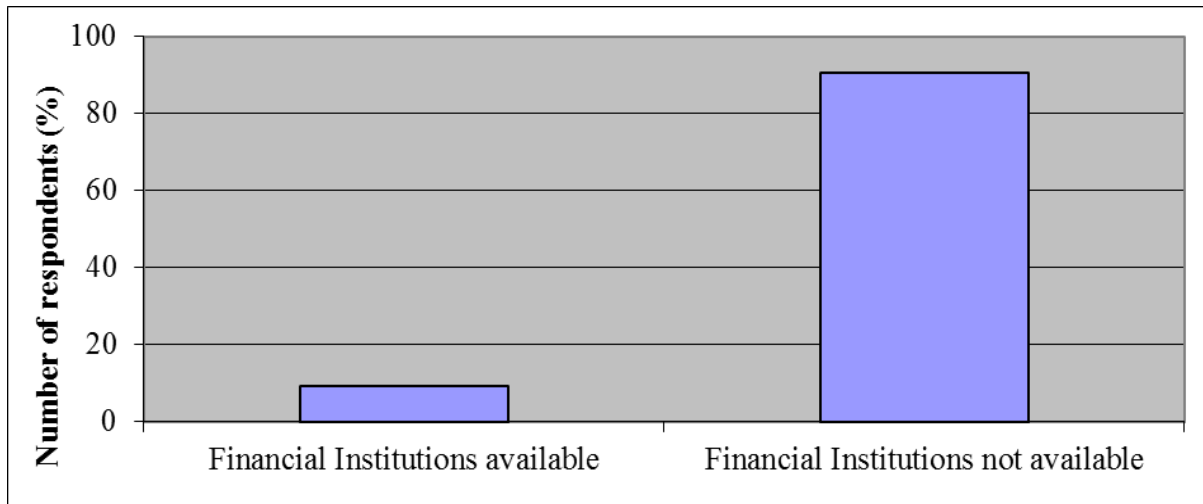


Figure 6.21: Access to financial institutions by Marselle

In line with these findings presented in Figure 6.21, Wynne and Lyne (2003) and Kalinda *et al.* (1998) had earlier shared the view that the unavailability of credit-offering institutions and high transaction costs are some of the biggest barriers to the growth of smallholder agricultural enterprises. Kalinda *et al.* (1998) also emphasized that having access to credit was critical in smallholder agriculture as it allowed farmers to procure inputs of good quality and at the right time.

The remaining 10% of Marselle farmers mentioned towns like Kenton, Alexandria and Port Alfred as having financial institutions such as banks. These farmers said such institutions assisted them by way of loans and not grants or subsidies. On the issue of the criteria for accessing the loans, repayment methods, tenure period of loans, and the amount of loans given per person, the respondents said they were not aware of how the financial institutions handled these issues. What could also be deduced from the farmers' responses is that lack of information pertaining to the existence and operation of government institutions is a serious stumbling block. In other words, institutions might be available and offering affordable services which the farmers were not aware of. This challenge was also identified by Musemwa *et al.* (2010) and Chisasa and Makina (2012) as causing most FSPs as being ineffective in assisting smallholder farmers.

6.5.2 Aspirations of farmers to use local financial institutions

The farmers were also asked if they wished to borrow money to enhance their agricultural productivity. Close to 37.5% of them said they would whilst the remaining 62.5% were against the idea. The explanations given for the latter response are shown in Figure 6.22

and include the lack of convenient and willing financial institutions, fear of being in debt, lack of repayment means, lack of collateral and the lack of need to borrow. Whilst some respondents gave a single explanation, some gave more than one.

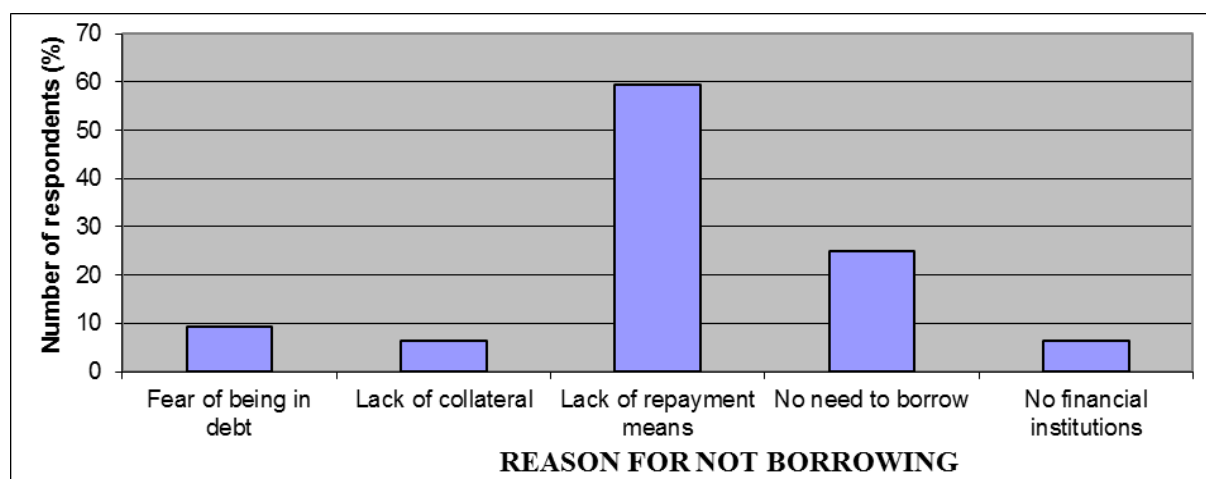


Figure 6.22: Reasons for not wanting to borrowing from financial institutions

Of these reasons presented in Figure 6.22, the one that stood out the most was the lack of repayment means. The same conclusion was drawn by Lyne (1996), Wynne and Lyne (2003) and Atkinson's (2006) who explained that this was usually due to the farmers' lack of property rights, collateral and high transaction costs which made it difficult to repay the loans. As a result, as much as some farmers in Marselle and other smallholding communities needed loans to boost their productivity, they chose not to borrow as they did not have any means with which to pay them back. This was the reason given by 59% of farmers as shown in Figure 6.22. Consequently, such farmers chose to use their own personal savings to invest in their farming projects than borrow.

There were two groups of respondents with 6.3% each that did not borrow because they were either not aware of the existence of local institutions or lacked collateral required by such institutions. The latter group said the type of collateral the institutions required was determined by the amount of loans given but was mostly in the form of physical assets such as furniture.

There were also some farmers (25%) who deliberately chose not to borrow because they saw no need to do so whereas others (9%) were just discouraged by the thought of being in debt. The same risk-averse behaviour was noted by Spio whose study of the Northern Province farmers in 2006 uncovered that farmers in that region actually had access to

financial institutions but deliberately chose not to borrow due to factors like their perceived inability to repay the loans, fear of incurring debts, high interest rates and anticipation of their applications being rejected due to lack of collateral. Another study conducted by Ani *et al.* (2009) concluded that financial institutions are typically biased against smallholders, particularly female farmers, but in contrast to these findings, the Marselle farmers said from the little knowledge they had about the institutions in their neighbouring towns, there was no gender discrimination of beneficiaries.

6.5.3 Other forms of capital

Apart from financial institutions, the CB framework proposed that other forms of institutions be investigated. Human capital-based institutions were also assessed in terms of their availability and the services they offer. The information obtained from the farmers suggests that no training institutions existed nearby. There were no agricultural colleges and research institutions that the Marselle farmers could access. This means that if the farmers intended getting any kind of training, they had to get it from institutions in other communities.

6.6 Synopsis

This chapter has tried to address the first two objectives of this study, which are to: identify and describe the socio-economic characteristics, farming activities, constraints, etc. of all project beneficiaries; and identify and evaluate the activities, actions, interventions, strategies and programs introduced through FSPs to support land reform beneficiaries grow agriculturally in Marselle.

Starting with the demographics, what the study found out was that farming households were dominated by individuals within the active population range of between 15-62 years. These made up at least 61% of the entire farming household population. In the same households, at least 67% of the heads were males out of whom only 25% went as far as high school in terms of education. There were also 75% of household heads not employed at all, be it permanently or even on a temporary basis.

On the production side, the Marselle residents were still involved in two farming activities identified during the baseline survey, *viz.*, cattle and chicory production. These agricultural activities were aimed at providing a source of livelihood for the residents. However, judging by the results discussed above, it appears these activities had not done well in as far as meeting their set objectives is concerned. This is because the old age grants were still providing most income for the households per month. This was in spite of the farming

households being dominated by able-bodied individuals (between 16 - 62 years of age). On average, each household had at least three (3) active people, two (2) more than the average number of those in the pension-earning group. One would have expected farming income or at least wage employment to dominate but this was not the case.

When it comes to the issue of livestock production, the main objectives behind the formation of the Stock Farmers Association included removing livestock from the community, keeping the animals in a safer place where they could be reared properly and sold for money and minimizing road accidents by keeping the animals off the roads as was one of the project aims at inception. This study has revealed that some challenges had been met in the process of trying to achieve these objectives. One other factor that was hindering the proper rearing and feeding of livestock on the farm was that the land was overstocked mostly due to some project members keeping animals for non-members on the farm. This had escalated the overgrazing of the pastures which in turn led to the animals not getting enough feed for proper growth. This was exacerbated by the shortage of camps to protect the pastures so that they could recover properly after being grazed. The government tried to intervene by providing the project members with fencing material to secure the animals. Be that as it may, the fencing material that was donated was not enough to surround the entire farm and create camps within the farm. As a result, the farm still had no camps at the time of the study.

The animals got their water from four dams located within the farm. During the winter season these dams tended to dry up and not retain enough water for the animals. The accumulation of soil had significantly reduced the water holding capacity of the dams such that even when it rained, not enough water could be retained to last until the following rainy season. As a temporary solution, the municipality used to assist with water-delivery through its tanker even though such deliveries were not consistent.

The chicory project was conceived as a community project which had a single market, Chicory South Africa, which is based in the town of Alexandra. The project made use of a portion of the Forest Hill Farm alongside the SFA livestock project.

The cattle project members relied on the local community for a market for their animals while the chicory producers depend on Chicory SA in Alexandra. The chicory has to be processed first before it can be consumed. Whilst cattle farmers did not highlight many marketing problems, low prices and high tax rates were some of the constraints faced by their chicory counterparts. Consequently, these high taxes combined with the low prices led to the project

members not benefiting from their efforts as they often ended up paying more to produce than what they get in revenues. As such, the project had met none of its set objectives at the time of this study.

This chapter has addressed the first two sub-objectives of the study, namely; to identify and describe the (i) activities, actions, interventions, strategies and programs introduced to support land reform beneficiaries grow agriculturally and (iii) socio-economic characteristics and farming activities of all project beneficiaries.

CHAPTER 7

ANALYSIS OF THE FARMERS' SKILLS, KNOWLEDGE AND TRAINING NEEDS

7.1 Introduction

As already mentioned, the main objective of this study was to determine the skills gap faced by the Marselle farmers in preparation for the capacity building phase. In preparation for farmers training, Bembridge (1984) proposed that trainers or service providers should consider the difference between previous training and the training required for optimum performance; the performance; and capability of an individual. In addition, the training should be based on the exact needs of targeted beneficiaries and not the training that the service provider can provide. In this study, the training needs or skills gaps were identified through the application of capacity building and acquisition of knowledge, skills and competence frameworks discussed earlier. This chapter therefore presents findings mainly on the training needs analysis of the farmers by comparing the skills the farmers have against those they do not have albeit perceived very crucial for their success.

7.2 Languages used by farmers

As stated earlier, the long term goal of this study was to provide a basis for training farmers with the right skills necessary to make them more productive in their respective enterprises. However, Howe (1985) and Terreffe (1992) accepted that there are difficulties in distinguishing between the training and education of farmers for purposes of developing a curriculum for training. Ely (1985) attempted to make a distinction between these two terms that are usually used interchangeably by arguing that whilst the two are acquired in schools, the result of training is more instantaneous than that of education, which tends to be less measurable. The same author also posited that education is usually general and theoretical, while training tends to be more specific and practical. The same ideas were shared by Youdeowei and Kwarteng (1995) who regarded training as being short term, narrowly focused and specific, generally intended to meet explicit needs and has immediate application. On the other hand, education takes much longer to acquire and is usually aimed at preparing people for the more distant future (Youdeowei and Kwarteng, 1995). Be that as it may, both education and training are important in community development and training initiatives.

The previous chapter discussed the education status of the household heads. This section will focus on the importance of proper communication between the trainers and trainees,

particularly since training programmes tend to be short (Samson, 2007). As part of the training process, farmers will be given training manuals for them to refer to after the completion of the training whenever there is a need. In order to achieve this, these manuals have to be written in a language that the intended users, Marselle farmers in this case, would understand. Therefore, this study investigated the languages used by the Marselle farmers in terms of their ability to speak, write and even read information presented in particular languages.

As Table 7.1 shows, there are five different languages used by farmers in Marselle. What is clear from the table is the fact that all farmers speak Xhosa as their first language. However, at least 20% of them just spoke the language but could write it whereas close to 14% also could not read the language. The second most spoken language identified by 58.6% respondents is English. This is followed by Afrikaans spoken by 51.7% of farmers, then Sotho (25%) and lastly Zulu (3.3%). No one could read Sotho but only 3.4% of the respondents could write it.

Table 7.1: Languages used by the farmers

LANGUAGE	PROPORTION OF FARMERS WITH ABILITY (%)					
	SPEAK		WRITE		READ	
	YES	NO	YES	NO	YES	NO
Xhosa	100.0	0.0	79.3	20.7	86.2	13.8
English	58.6	41.4	51.7	48.3	31.0	69.0
Sotho	25.0	75.0	3.4	96.6	0.0	100.0
Zulu	3.3	96.6	3.4	96.6	28.1	71.9
Afrikaans	51.7	48.3	37.9	62.1	37.9	62.1

7.3 Farmer aspirations

Prior to investing resources in capacitating farmers, it is important that the farmers' aspirations are understood in order to identify those that are interested in remaining in agriculture and those that prefer other livelihood sources. Having this information will help those interested in training the farmers, Land Bank in this case, to focus only on those that are keen to learn more and make agriculture their major livelihood strategy.

As Figure 7.1 shows, five (5) different responses were given by the respondents regarding their projected aspirations in five years' time. Of these five responses, the most dominant and identified by 66% of farmers was that of growing their cattle enterprises into commercially viable businesses (Figure 7.1). These farmers still believed that rearing cattle was the best way to go hence they would only focus on cattle farming and nothing else. At the same time, at least 19% of them believed bringing in new enterprises such as sheep rearing was most likely able to make them better and more competitive farmers by 2017.

Another 6% of farmers plan to have their own farms by 2017 (see Figure 7.1). These farmers said they had already identified farms about 10km from Grahamstown towards PE (along the N2 road) that are for sale. The same farmers said their plans to acquire these farms were already underway as they had written and submitted their business plans to the municipality. The remaining 3% of farmers had wishes to influence all livestock farmers in the Marselle community to take their livestock out of the residential areas and keep them in the farm.

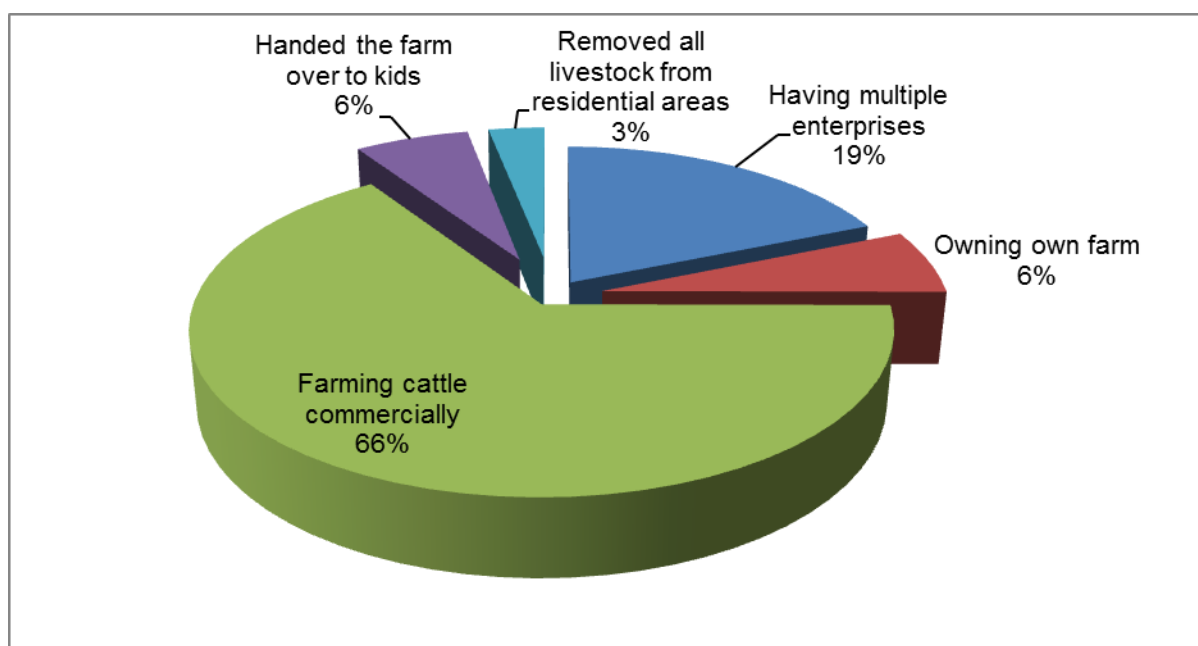


Figure 7.1: Farmer aspirations regarding their livestock

Due to their old age, 6% of farmers wished to give their livestock to their children as inheritance. The same farmers also mentioned that their decision was partly driven by their desire to influence their children to remain in farming instead of migrating to other towns in search of wage employment. These findings, however, are against inferences drawn by Van Averbek and Mohamed (2006) who, after reviewing smallholder farmers in South Africa in general, came to the conclusion that the majority of smallholder farmers did not wish their

children to become farmers. Instead, they tried by all means to provide them with formal education opportunities so that they enhanced their chances of getting formal wage or salaried employment elsewhere since agricultural incomes were generally lower. In addition, other empirical studies have shown that the youth do not usually have any aspirations to remain in agriculture for the duration of their lives (Aliber and Hart, 2009). This was partly due to the low income fetched from the agricultural sector particularly when compared to other sectors. Bennell (2007) also stated that some of the youth regarded agricultural work as “dirty work” hence they preferred to migrate either nationally or internationally in search of better opportunities. The same author, together with Deshingkar (2004), further viewed such temporary migration as something that would continue into the future as it was one of the livelihood coping strategies used by the poor in the rural areas.

For purposes of investing in sustainable enterprises, this study went a step further to investigate the feelings and desires of the farmers’ children earmarked to inherit the livestock from their parents. Thus, instead of basing the future of the livestock project on the farmers’ desires to simply hand over their livestock to their children, it was equally critical to investigate the desires of the children in line to inherit this livestock strategy to understand what their thoughts were regarding their likely participation in the project. It is worth noting that this information was sought even from the children whose parents had not indicated giving their livestock to them in the near future. Furthermore, this part of the study was not limited to the desires for the next five years *per se*, but aspirations for the future in general. The idea to take such an approach was to get a comprehensive picture of the attitudes and desires of the youth in Marselle regarding livestock farming for livelihood purposes. In addition, since everyone interviewed for this part of the study was within the active population, those interested in remaining in the project were going to be included in the planned training (CB) phase. Out of all the active population in the farming households, discussions were held with 38 of the older children in the households and their responses are shown in Figure 7.2 below;

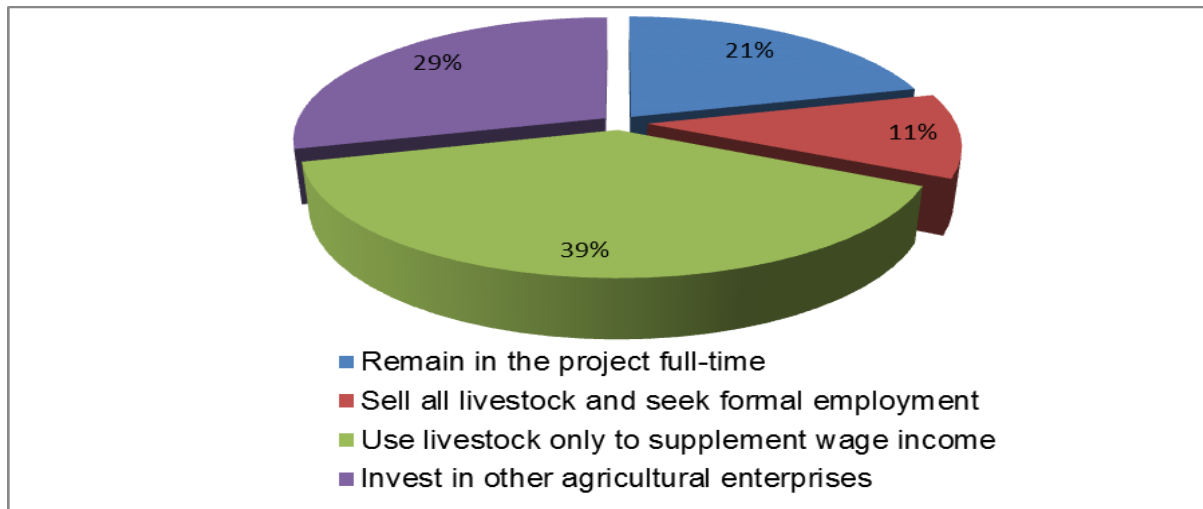


Figure 7.2: Aspirations of farmers' children regarding their expected inherited livestock

As Figure 7.2 illustrates, at least 39% of the respondents indicated that they wished to use livestock as a source of supplementing their household income. These respondents said they appreciated the potential of the livestock project but preferred to only use it to supplement a guaranteed monthly salary. Similar deductions were drawn by Tesfaye (2010) whose studies uncovered that the youth tended to diversify their livestock income with wages and other non-farm enterprises trading in household and consumer goods compared to older farmers who depended mostly on farm income (livestock and crop income). Furthermore, the respondents stated that if they were to focus on livestock production immensely, then it would only be on condition that they had at least one household member earning a salary. However, contradicting evidence was found in other developing nations of Nigeria and Ethiopia by Oseni and Winters (2009) and Beyene (2008), respectively.

At least 29% of the respondents acknowledged the role of farming in household income generation but said should they inherit their parents' cattle, they would sell them and use the money obtained to start other farming enterprises which they viewed as being more profitable. This group of respondents said they preferred small ruminants such as sheep and pigs that they could raise in their backyards and not on the farm. In other words, this desire was based on safety reasons but in addition, the respondents said numbers of these small ruminants multiplied at a faster rate than those of cattle. This is the case especially with pigs that give birth to multiple piglets after a shorter gestation period. This point of view is supported by Pollot and Wilson (2009) and Chauhan and Moorti (1999) who further mentioned that small ruminants require low capital investments; are very easy to raise and

manage; require low, hence affordable feed than cattle; have better markets and can do well on different flora whilst also tolerating more diseases.

Only 21% of the respondents mentioned that they would continue their family legacy of rearing livestock in the farm if they inherited them. In other words, what could be deduced from this is that over and above using cattle for income-generation purposes, these respondents were more concerned about continuing with the family tradition of having cattle even if they did not rely on them for income. The remaining 11% were focused on getting formal wage employment, particularly in bigger cities such as Cape Town. This group of respondents said they preferred bright city lights at the expense of the life they were currently leading, which was characterized by high poverty levels. As such, they viewed having cattle that they could sell to raise the needed relocation funds as a gateway to these bigger towns

7.4 Knowledge and skills possessed by the Marselle farmers

7.4.1 Livestock farmers

7.4.1.1 Technical skills

Perret (2002) and Cwati (2004) regarded the Eastern Cape Province as very infamous for being one of South Africa's poorest provinces with very high unemployment and poverty rates. However, despite all this, the province is considered as the "livestock province" of the country as it is home to 1.7million (21%) of the nation's cattle (ECDC, 2011; Marufu, 2008). At the same time, Olwoch *et al.* (2008) warned that African farmers lose at least 1.1 million cattle to tick-borne diseases which in turn cause economic losses estimated at \$160 million annually.

In as much as the advocates of stimulating economic growth through reviving smallholder farming would like to see this become a reality, tick-borne diseases and other challenges need to be attended to first before any expected growth can begin. The first step is to equip smallholder farmers with various sets of skills around issues of handling livestock, feeding and managing natural pastures, caring for the sick and even marketing them properly in profitable markets. Table 7.2 shows how much of these skills the members of the SFA have.

Table 7.2: Level of knowledge possessed by the SFA members

FARMING KNOWLEDGE	LEVEL OF KNOWLEDGE			
	None (%)	Little (%)	Average (%)	Adequate (%)
Housing and handling	53.1	31.3	12.5	3.1
Feeding	56.3	31.3	12.5	0.0
Animal health care	43.8	50	3.1	3.1
Slaughtering	71.9	18.8	6.2	3.1
Veld condition management practices	78.1	18.8	3.1	0.0
Cultivated Pastures	81.3	15.6	3.1	0.0
Marketing	81.3	12.5	3.1	3.1

As Table 7.2 shows, none of the farmers in Marselle were content with the level of knowledge they had. Work published by FAO in 2002 suggested that because smallholder farmers lacked resources yet heavily relying on their animals for their livelihoods, the application of proper animal healthcare should be quick, realistic and according to the farmer's needs. The same source proposed local staff be trained in veterinary science and many other facets of livestock production that are familiar with local farming systems, cultural customs and disease situations to assist smallholder farmers care for their livestock. However, the situation in Marselle is that close to half (43.8%) of livestock farmers did not have any healthcare knowledge at all. At the same time, half of those with this knowledge regarded their knowledge as very little and not effective.

Concerning the issue of livestock marketing, most smallholder farmers in the Eastern Cape have demonstrated their preference for informal marketing channels even though conclusions from Nkosi and Kirsten (1993) and Musemwa *et al.* (2007) suggested that these channels gave farmers low returns for their produce. In spite of these deductions, Table 7.2 shows that 81.3% of the same farmers in Marselle did not have appreciable marketing knowledge hence their motivation to rely on informal markets. The same number of farmers (81.3%) also lacked proper cultivated pasture management knowledge which could explain the deteriorating pasture conditions on the farm. Looking at the subject of cultivated pastures, none of the farmers rated their knowledge as adequate whereas 15.6% said their current knowledge was too little. Furthermore, only 3.1% of the farmers said they had adequate knowledge in cattle marketing, slaughtering, animal healthcare and housing and handling of livestock.

7.4.1.2 Skills acquisition strategies for farmers

The livestock farmers also were asked to explain where they got the skills and farming knowledge they said they had. Their responses are presented in Table 7.3 and show that they relied mostly on indigenous knowledge sources for affordable skills and farming knowledge. Knowledge in livestock feeding, slaughtering and veld condition management practices was purely transferred from one generation to the other in farming households and none of the farmers underwent any formal training. Some farmers explained that regarding feeding their livestock, they relied on the natural pastures in the farm and never supplemented cattle feed with concentrated feed or cultivated hay. On the other hand though, McDowell (2012) and Delve (2000) postulated that African households are highly reliant on crop residues from their own small plantings or from crop farms to supplement grazing for their livestock particularly during the dry season. This was found not to be the case in Marselle as all farmers left their livestock to survive on the natural pastures.

It was highlighted in the previous chapter that the Marselle livestock farmers made use of their neighbours for markets more than other formal markets in Port Elizabeth, Port Alfred and Kenton. Table 7.3 reveals that all the slaughtering knowledge the farmers had was also purely indigenous because they only sold live animals and it was the buyers' responsibility to slaughter. As such, they saw no need to seek formal training on livestock slaughtering as; (i) there was no demand for slaughtered livestock in their preferred informal market; (ii) they were content with the knowledge they obtained from their friends and relatives; and (iii) livestock slaughtering was done in the community with the help of neighbours hence they saw no need for each farmer to be an expert in this field. The farmers also said the demand for their livestock locally usually peaked between June and December due to the traditional Xhosa ceremonies held to celebrate the graduation of circumcised boys to manhood. Men attending these ceremonies assisted with slaughtering the purchased livestock.

At least 33% of farmers with animal healthcare knowledge (56.2%) obtained it through formal training even though they said it was not enough. This little knowledge they had was used together with the indigenous knowledge they shared amongst each other as farmers. Olwoch *et al.* (2008), as highlighted earlier, and also by Kaewthamasorn and Wongsamee (2006) and Rajput *et al.* (2006) argued that most communal farmers lost their livestock to diseases and parasites. With the Marselle farmers having limited knowledge on animal healthcare, the respondents said they relied on the help they got from local extension officers that attended focus group meetings organized at the farm by the project members

every other Wednesday of each month. During these meetings, local extension officers shared with the farmers any latest relevant news regarding, for example, how to protect their livestock from new infections and how to treat those already infected. These meetings were not the same as formal trainings as the topics discussed were usually determined by the farmers themselves, with no formal assessments of performance at the end of every meeting.

Indigenous knowledge also dominated in feeding, slaughtering and veld condition management practices as all farmers with this knowledge said they had not received any formal training for it. A very high number of farmers (83.3%) also relied on indigenous knowledge for marketing and looking after their cultivated pastures, with another 92% using this knowledge for housing and handling of their livestock.

Table 7.3: Knowledge and skills acquisition strategies for livestock farmers

FARMING KNOWLEDGE	Farmers with knowledge (%)	KNOWLEDGE ACQUISITION STRATEGY	
		Formal training (%)	Indigenous knowledge (%)
Housing and handling	46.9	7.7	92.3
Feeding	43.7	0.0	100.0
Animal health care	56.2	33.2	66.8
Slaughtering	28.1	0.0	100.0
Veld condition management practices	21.9	0.0	100.0
Cultivated Pastures	8.7	16.7	83.3
Marketing	8.7	16.7	83.3

7.4.1.3 Knowledge possessed by farming household members

It is well documented (e.g. Mushunje, 2005; Machingura, 2007) that the majority of smallholder farmers in developing countries such as those in the Sub-Saharan Africa rely almost entirely on family labour for farming activities. The same views were arrived at by Mole (2000) and Manona (2005) after studying Eastern Cape farmers. Such findings necessitated an investigation into the farming knowledge and skills possessed by family members of the project members. The idea was to find out how many farming households in Marselle had members other than the farmers themselves that possessed some form of farming knowledge and skills that they could use for the benefit of their respective family

farming businesses. If there were any such people, especially the youth, then the ultimate objective would be to include them for capacity building to secure their future contribution to the productivity of the farm. The responses given by the farmers, as presented in Figure 7.3, show that the majority of farmers (84%) did not have any individuals within their households with any form of farming knowledge and skills. The knowledge possessed by the remaining 16% was obtained at various colleges and includes livestock production and pasture management. In addition, contrary to the arguments put forward by the above-mentioned scholars, the respondents also indicated that they did not get much help from their family members, skilled or not. Thus, these findings support the view by Van Averbek and Mohamed (2006) and Aliber and Hart (2009) that most people in the least developed countries (LDCs), particularly the youth, are slowly shunning away from agriculture in favour of formal wage employment even if they have farming knowledge.

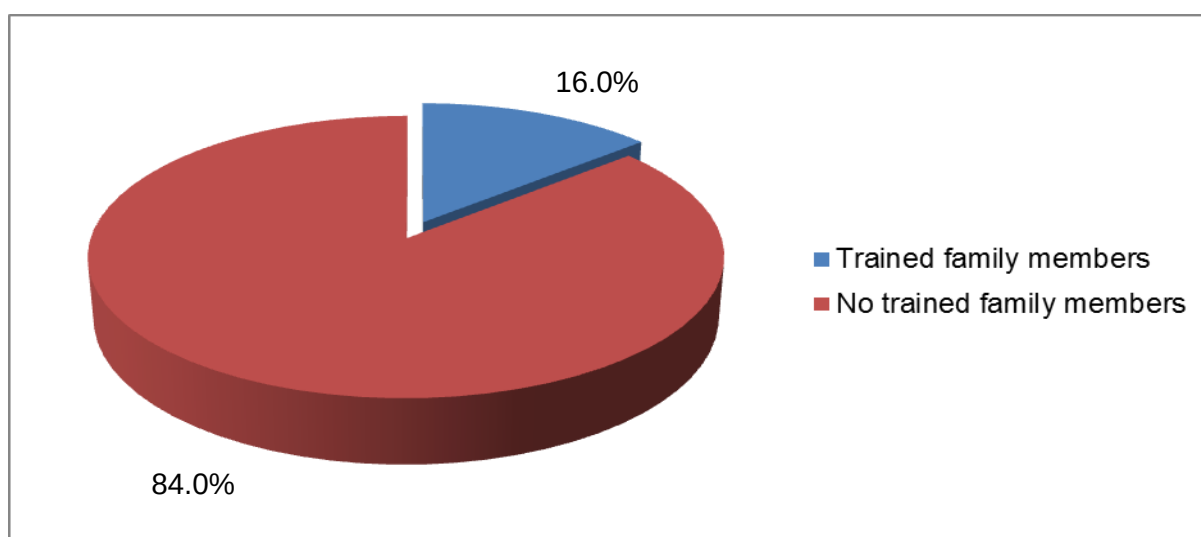


Figure 7.3: Number of farmers with trained family members

7.4.1.4 Training areas preferred by famers

When intending to capacitate individuals, it is very crucial that the skills they get are those that they need the most in their day to day running of their farming enterprises. Thus, targeted beneficiaries should first be consulted on which skills they need the most so that the trainings become relevant in addition to keeping the subject farmers motivated during training (Aslin, 2002). Whilst this is the starting point in CB, Attanandana *et al.* (2005) urged that intervening agents should assist in identifying the famers' needs for the training to be comprehensive enough. Therefore, in as much as the farmers' needs in this research were identified with the help of the research team, the farmers themselves played a big part in identifying their most critical needs.

The respondents identified at least eight knowledge areas they needed training in. These were; training on how to feed (58.3%); market (54.2%); handle (62.3%); and treat their livestock whenever they got sick (87.5%) (refer to Figure 7.4). Some, although a few, had interest in crop production techniques such as fertilizer application (8.3%) and chemical weed control (8.3%) particularly for use in their backyard vegetable gardens and fields since they practiced mixed farming. In their CB framework, Rola-Rubzen *et al.* (2002) and Victoria (2004) proposed that farm management practices should involve proper book-keeping, financial management, strategic planning, networking, technology adoption, family relationship and human resources management. With farmers intending to expand their farm businesses to serve bigger markets, at least 70.8% of respondent farmers had interest in acquiring these farm management skills (Figure 7.4). Even though some agricultural experts regard marketing as part of farm management practices, this study regarded it as a stand-alone practice in order to distinguish between those that kept livestock for business purposes and those that kept them for other purposes such as store of wealth. As Figure 7.4 shows, more than 54% of farmers felt that they needed livestock marketing skills which could mean that they regarded their livestock as a potential livelihood source.

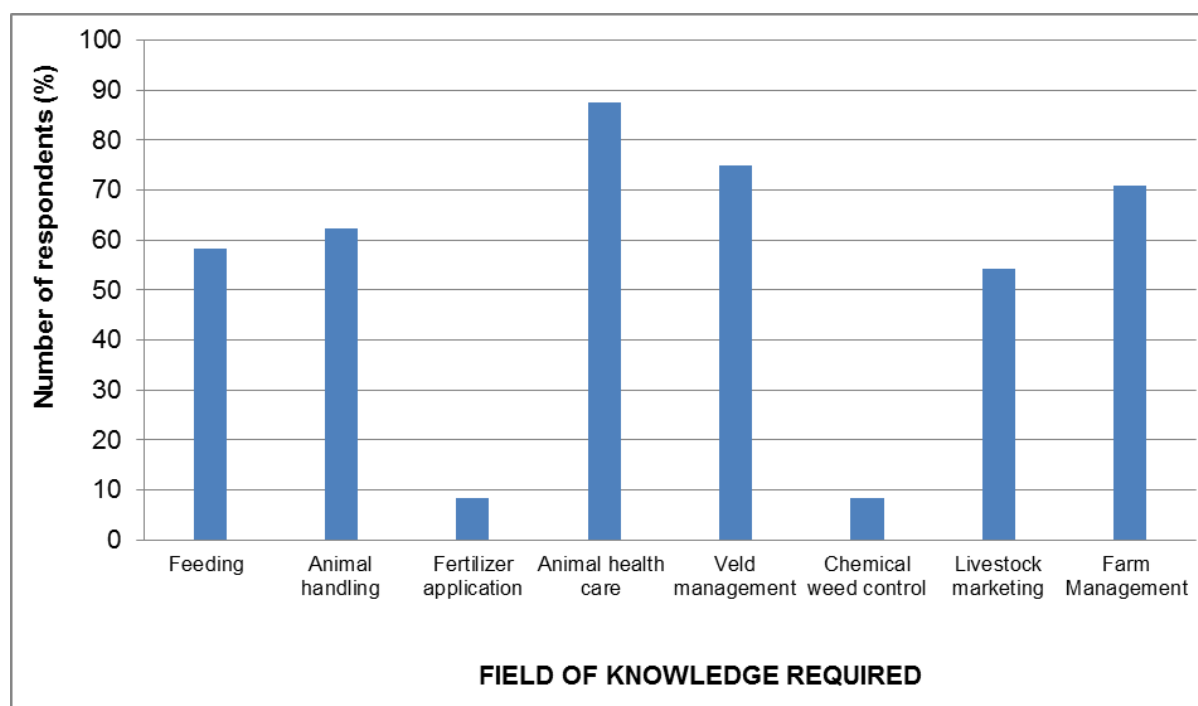


Figure 7.4: Knowledge intervention areas identified by farmers

For purposes of this research, knowledge on animal feed was taken to mean that farmers wanted to know what kind of feed to give their livestock, where to source it, how often to give

supplements and in what quantities. Animal handling training needs would involve having knowledge on how to do artificial insemination, care for the calves, castrate them in order to enhance their growth rate and size since the farmers wanted to expand their businesses and produce as many calves as possible. It was stated earlier that the Eastern Cape Province has a prevalence of various livestock diseases such as tick-borne ailments, therefore the farmers expressed their desire to be trained on how to care for their sick animals and also prevent the healthy from getting infected through dipping and properly vaccinating them. Such skills were suggested by Rola-Rubzen *et al.* (2002) in their capacity building framework to potentially make the difference between losses and profits especially considering that smallholder farmers rarely insure their livestock.

7.4.1.4.1 Service providers preferred by farmers

Assuming that the prime interest of the farmers was in undergoing training to enhance their farming knowledge, they were then tasked with identifying their own service providers that they preferred working with during training. The purpose behind this approach was to try and create a list of all the training organizations that the farmers felt comfortable working with to make it easier for them to assimilate as much knowledge as they possibly could within a short period of time. Four (4) possible service providers were identified by the farmers (see Figure 7.5) and out of these four, extension officers from the local Department of Agriculture emerged as the most preferred service providers, with close to 71% of farmers favouring them. Some of the reasons the farmers gave for their preference of local extension officers emanated from the fact that the local extension agents are people they already knew and had been working with for a while through focus group meetings held at the farm regularly.

There is also evidence from Mkize (2003) that some extension officers in the Eastern Cape struggle to communicate with local farmers as they do not speak the Xhosa language at all. Since those serving Marselle were from the same municipality, they have a deep understanding of the farmers' needs and other things such as tradition and language, hence their preference. This made local extension officers to be preferred more than academic institutions (8.4%) and NGOs (8.4%). In contrast though, Vink and Kirsten (2003) uncovered that unlike smallholder farmers, commercial farmers in South Africa had actually shown a great inclination towards privately provided services. As an explanation, these farmers were said to perceive provincial departments as not that different from the former homeland Departments because they also failed to effectively maintain support services to farmers.

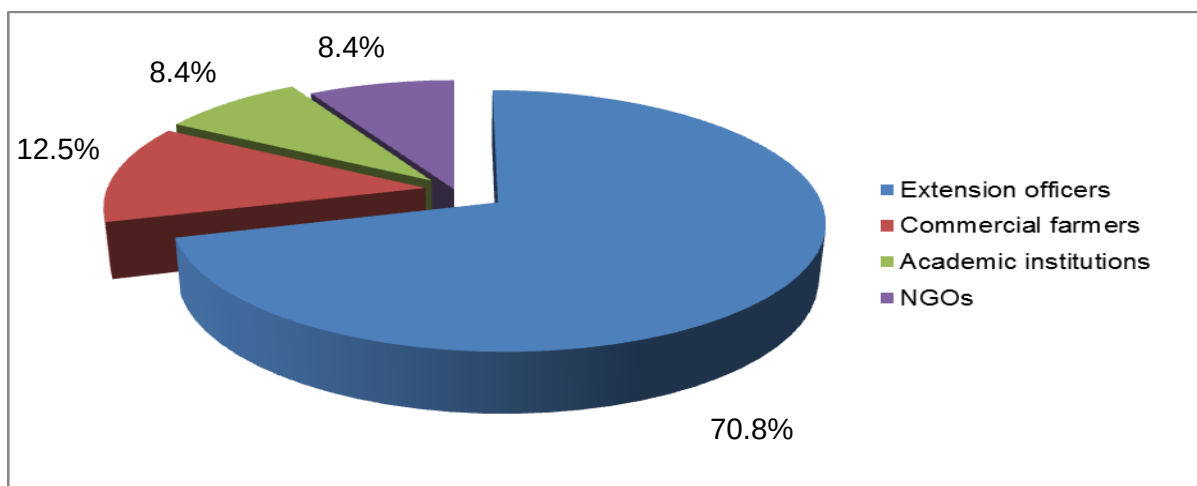


Figure 7.5: Service providers preferred by Marselle farmers as trainers

As seen in Figure 7.5, the second most preferred people, supported by 12.5% of respondents to train smallholder farmers were the local commercial farmers. The approach these respondents advocated was that of the “mentor-mentee” relationship with nearby local commercial livestock farmers. This means Marselle farmers would be attached to local commercial farms where they would learn various skills by watching commercial farm labourers use those particular skills daily in executing their duties for a certain period of time. During this mentorship period, someone would be tasked by commercial farmers to explain to the trainees all the tasks they do as they actually perform them. With time, the trainees would then get to assist physically in the commercial farm to perfect their skills. According to Chimwara (2011), similar approaches have worked successfully in various rural areas of Zimbabwe where farmers attained knowledge in calf management, pasture establishment, fodder production and storage, animal health, artificial insemination, just to mention but a few. All these skills were acquired through numerous “look and learn” tours organized for smallholders to visit farms employing the best practices (Chimwara, 2011). In the case of South Africa, Chikazunga (2012) also recognized the positive impact that mentorship programs have had in empowering smallholder farmers but was of the belief that the extent of these impacts could be enhanced if the scope of such programs could go beyond just teaching production skills and start covering management skills like finance and marketing.

7.4.1.5 Potential enterprises for consideration

Rola-Rubzen *et al.* (2002) proposed that farmers be taught how they could make extra money within their respective lines of business. This means that if farmers are rearing livestock, then their potential diversification options would be related to livestock and not something completely new such as crop production or carpentry. As the first step in such

trainings, the same authors suggested that farmers earmarked for CB should list all the different sources of income they considered to be of potential access to them and then rank them according to their merits. The justification of doing so was that at times the farmers themselves might be in a better position than the researchers to know various sources of income in their communities but lack any knowledge of how to actually access such sources. Intervention in this case comes in the form of helping the farmers breakthrough to those income sources by empowering them with all the necessary tools, be it facilitation, production skills, negotiation skills, drafting of paper work, etc.

The respondents identified four (4) alternative enterprises that they thought could help them make livestock production their major livelihood source. These are shown in Figure 7.6 and include cattle slaughtering; poultry; sheep and goat rearing. Starting with cattle slaughtering preferred by 37.5% of the respondents, the farmers said they were motivated by the high prices that red meat fetched in butcheries hence they thought selling their animals slaughtered than alive would also bring them more revenue. The majority (70.8%) of farmers believed venturing into sheep rearing could be another way to bring more revenue. Their argument was based on the fact that they had seen a number of sheep farmers in their surrounding communities that were performing very well and making good profits from selling sheep and sheep products such as wool. Literature also supports this point of view as it shows that the Eastern Cape Province is very conducive for the rearing of sheep, with at least 28% and 46% of the nation's sheep and its goats dwelling in the province, respectively, (ECDRC, 2011; Makara, 2010; Marufu, 2008). Poultry and goat breeding were the other two potential enterprises the farmers thought could do well in their community.

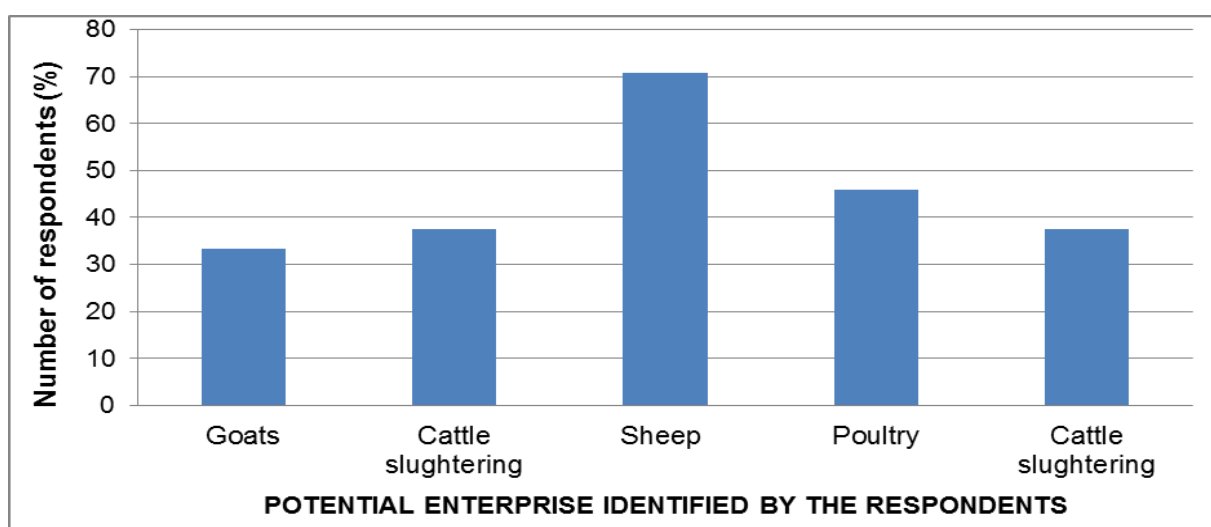


Figure 7.6: Possible sources of income for livestock farmers

As suggested by Rola-Rubzen *et al.* (2002), farmers had to give both the merits (strengths) and demerits (weaknesses) of each enterprise they identified so that priority during the intervention stage could be given to those that seem most viable (Table 7.4). In addition to the strengths and weaknesses identified by the farmers, the research team assisted with the weaknesses and opportunities that could also come with venturing in these enterprises that the farmers had identified. This completed the SWOT analysis for purposes of properly ranking the enterprises as Rola-Rubzen *et al.* (2002) postulated. The focus group approach was used to collect this data to allow farmers to share their ideas and choose those livelihood options they believe could also make a great positive impact in their lives. These options are listed in Table 7.4 in the order preferred by the farmers themselves. As the table shows, Marselle farmers preferred diversifying their business into sheep rearing for purposes of selling both mutton and wool. They said there were a number of other local smallholder and commercial sheep farmers they could work with to ensure their sheep rearing businesses succeed.

The second most desired strategy was to slaughter the livestock they already had and sell meat instead of live beasts. The least preferred option was that of rearing goats for business purposes. One major reason for the lower preference of this option was the fact that in the Eastern Cape Province the goat market is very small mainly because of issues surrounding the taste of its meat plus the common preference for goat use in rituals (Mafu and Masika, 2002). Wenhold *et al.* (2007) also reinforced these superstitious perceptions surrounding goats in the province by stating that they are used more for rituals than meat production due to the way they “call on the ancestors” through the noise they make when being slaughtered (sacrificed) unlike sheep which remain silent. This therefore limits the goat market to wool production only in the province which automatically restricts the farmers’ potential profits.

Table 7.4: Potential enterprises identified by the livestock farmers in Marselle

INCOME SOURCE IDENTIFIED	RANK	STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS
SHEEP REARING	1	1. Multi-faceted utility - meat, wool, skin and manure 2. Better adapted to arid and semi-arid tropics with marginal and sub-marginal lands 3. Eat more different types of plants than any other kind of livestock - (i.e. excellent weed destroyer). 4. Less prone to extreme weather conditions as well as other diseases	1. Internal parasites can create health problems when sheep are intensively grazed on irrigated pastures 2. Require better fencing than cattle; 3. Can be tiring feeding baby animals every 2 hours; 4. Lack of skills and knowledge	1. The province has a ready commercial wool market in the form of Wool SA, BKB, Cape Wool SA, National Wool Growers Association, which are all based in PE, 138km from Marselle 2. Provide employment opportunities	1. Prevalence of livestock diseases 2. Bush encroachment 3. Pasture deterioration 4. Climate change
CATTLE SLAUGHTERING	2	1. Increases farmers' revenue as meat has more value than live beasts; 2. One beast could be cut and sold to satisfy different markets, e.g. the poor that	1. Requires compliance certificates which could be costly 2. Is too labour intensive 3. Could require construction of certified abattoir and	1. Despite deteriorating pastures, livestock still do well in the province 2. Supply communities with their own local and processed meat	1. Prevalence of livestock diseases 2. Over dependence on single, local market

		cannot afford the entire beast; 3. It is cheaper to transport meat than live beats; 4. Learning proper slaughtering skills is very easy	proper storage facilities which could be costly 4. Too risky due to the perishable nature of the end product, meat 5. Lack of skills and knowledge	3. Provide employment	
POULTRY PRODUCTION	3	1. Short cash cycle: only 6 weeks; 2. Have wider market such as final local consumers and established outlets like supermarkets; 3. There is very little loss to predators 4. Can be produced throughout the year without seasonal breaks	1. Being confined in a relatively small space diseases spread more rapidly; 2. Feed, vaccines and medication could be very expensive; 3. Very labour intensive 4. Lack of skills and knowledge	1. Less competition due to limited local poultry producers 2. Available commercial market in the form of supermarkets 3. International competitiveness of poultry meat 4. Suitable at on a backyard level since land is not enough in SA 5. Provide employment	1. Susceptible to bird flu 2. Prices are very volatile

GOAT REARING	4	1. Cheaper to maintain, easily available and have a friendly disposition; 2. Reproduction rates are faster than for cattle; 3. Can thrive well on variety of leaves, shrubs, bushes, kitchen waste etc.; 4. Suffer from fewer ailments than other large animals; 5. Give more production per unit of investment; 6. Are smaller in size and have a younger slaughter age.	1. Demand for goat meat is limited to certain seasons in the Eastern Cape for traditional functions; 2. Can be tiring feeding baby animals every 2 hours; 3. Goats require better fencing than cattle; 4. Lack of skills and knowledge	1. Low production costs compared to other animal species 2. Low initial investment per animal compared with other animals species 3. Provide employment	1. Goat meat is not that competitive in the market
---------------------	----------	--	---	---	--

7.4.1.6 Perceived Critical Success Factors (CSF)

Even though the farmers managed to identify several enterprises that they thought could be profitable, the idea behind this and the subsequent CB study was to help the Marselle farmers acquire relevant farming knowledge and skills without necessarily changing from their current line of business. As much as new enterprises are worth exploring, ways to enhance the performance of the farmers' current enterprises are a priority. These are what Rola-Rubzen *et al.* (2002) termed the critical success factors (CSFs). Farmers were thus asked to at least suggest possible ways that could be explored to enhance their profits. Their responses are shown in Figure 7.7 and were categorized into three, *viz*; increasing productivity and profits through (i) collective action; (ii) getting subsidies particularly on inputs; and (iii) improving the condition of the road to the farm.

Starting with the issue of collective action, what stood out the most from the answers given by 59% of farmers was that their biggest weakness was individualism (Figure 7.7). The livestock project members only shared the farm resources such as dams, pastures and fence but it was the individual farmer's responsibility to make decisions regarding their individual livestock. The respondents therefore saw this as putting them at a disadvantage as they needed to work together especially if they were to reduce transaction costs. Those that made use of formal markets in distant towns usually needed transport to deliver their livestock to such markets but transport costs were usually prohibitive for individual farmers to bear. However, the farmers said they thought collective action could help minimize such costs. The same transaction cost challenge was accepted by Jaffee and Morton (1995) and Hobbs (1997) but Delgado (1999) further claimed that high transaction costs had a tendency to make smallholder farmers shun producing for marketing purposes altogether.

As for subsidies, the respondents accepted that they received assistance from government, through extension officers, such as vaccines. However, since pastures were deteriorating at a rapid rate due to bush encroachment and overstocking, they said they had realized the urgent need for supplementary feeding in order for their animals to survive and be marketable. At the same time, their lack of sufficient personal funds prompted 72% of the respondents to identify subsidies as one possible solution to deal with this problem. They said these subsidies could come from both the public and private sector and as argued by Dorward (2009), could yield greater results if they are focused

on the inputs side of production and in market intervention through higher, hence profitable output prices.

Some (63%) of the farmers expressed their desire to be involved in contract farming with established markets so that they could be easily assisted with subsidized inputs. According to Carrie (2001), having a contractual relationship with established markets reduces the farmers' risk of incurring financial losses as farmers get payment according to the predetermined terms of the contract despite fluctuations in the market conditions. In other words, contracts for livestock farmers such as those in Marselle could alleviate the challenge of traditional marketing risks (Kunkel *et al.*, 2009). The same authors also stated that with a reliable source of income, the farmers' income would be enhanced which in turn would make it easier for them to venture into other and possibly bigger markets. At least 53% of farmers held the view that if the road leading to the farm could be fixed, then taking inputs into the farm and output to the market would be much easier and affordable. Furthermore, having a good road network could attract potential buyers which could benefit farmers who lack their own transport and rely on farm-gate sales.

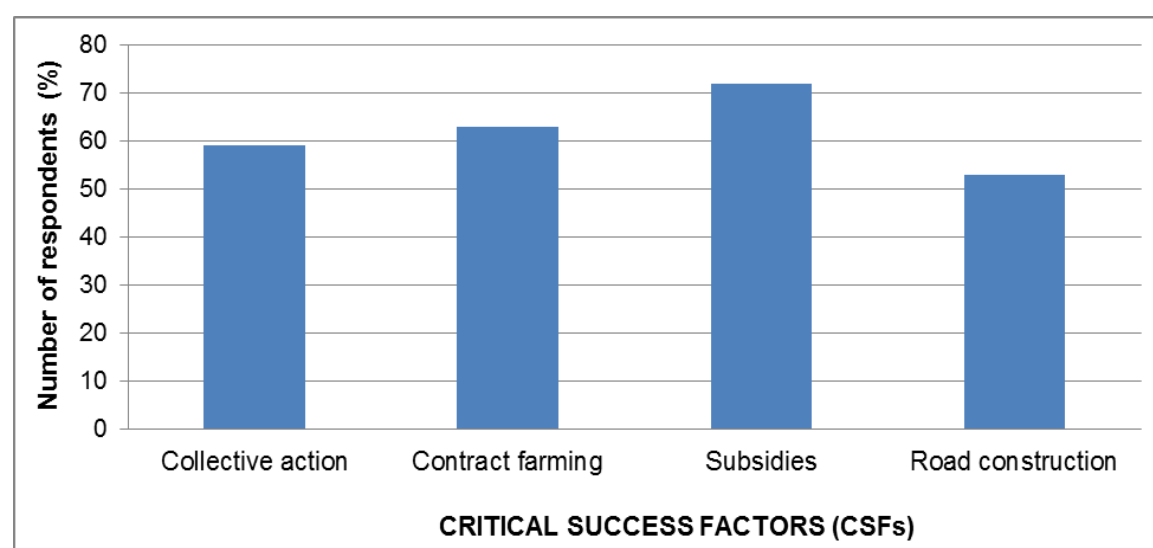


Figure 7.7: Farmers' perceived Critical Success Factors (CSFs)

7.4.1.7 Management structure for the livestock project

At the time of the study, the livestock project had 32 members operating under the name Marselle Stock Farmers Association. In order to enhance the efficiency of management of the project, the farmers elected a committee which facilitated interaction among themselves within the project and their stakeholders. A formal ballot system is used to

elect members into the committee after every two years. As is the case with the chicory project committee, the committee for the livestock project is also responsible for organizing and notifying project members about meetings, liaising with stakeholders on behalf of project members, facilitating focus group meetings with extension officers, among other things.

7.4.1.8 Criteria for electing committee members as identified by farmers

Literature from Machingura (2007) and Mandikiana (2011) suggested that smallholder farmers in the Eastern Cape lack education. In addition to this challenge, Fanadzo (2012) also noted the lack of farming skills in smallholder farming communities in the province. In accordance with such findings, election into the SFA committee does not require aspiring members to have undergone any form of training. Instead, any aspiring committee members should at least have the ability to communicate effectively in English even if they did not have formal education. There is also no discrimination against the physically disabled but be that as it may, no women had ever been elected into the committee despite some of the project members being female. In speaking to some of the female project members, it came to light that preference for males in the committee was also supported by female project members. Their explanation was that livestock rearing is a difficult task particularly for women to manage hence they preferred letting men take the leading role. Furthermore, all female members said they became part of the project by default after the passing on of their husbands which made them to automatically take-over the family livestock business otherwise they had no interest in the project to the extent of occupying any leadership positions within the project.

7.4.1.9 Assistance given by government

The respondents were also tasked with stating all interventions made by the government through its various departments such as the Department of Agriculture; Social Development and the local municipality. Even though all respondents belong to the same project, they appeared to have different views about the assistance they had received from the government. As shown in Figure 7.8, the majority (84%) acknowledged government's assistance in livestock vaccination. Despite some project members, particularly females, seemingly less involved in the farm, the reason for such a high number of project members acknowledging the government's assistance was that they were all aware of the regular vaccination and dipping of their livestock which was done every other Wednesday in the farm with the help of extension officers who also led focus group meetings that took place concurrently with the dipping.

The solar water pump and water tanks were mentioned by 75% and 65.6% of the respondents, respectively, as having been donated by the government through the DoA. These were donated to help supplement drinking water for the livestock especially during winter and drought seasons. The solar system comprised of a solar panel mounted on a 3m pole which generated electrical energy needed to run the pump to draw water from underground. The respondents said the pumped water was then stored in a reservoir strategically located where all animals could reach with ease. However, at the time of collecting data for this study, the solar panel had been stolen even though the farm had a security guard.

The issue of the fencing material was also mentioned by half the respondents as one other intervention from the government. As pointed out earlier, the quantity given was not enough to cover the entire confines of the farm and also to partition the farm into different camps. One reason given by the remaining 50% that did not mention this intervention was that they joined the project after the fence had been donated hence they were not aware of its origins. In addition, part of the fence had already been stolen by the time some farmers joined the project, hence their lack of awareness of this intervention. At least 43% of farmers mentioned that the government had also given them a tractor, although without a trailer.

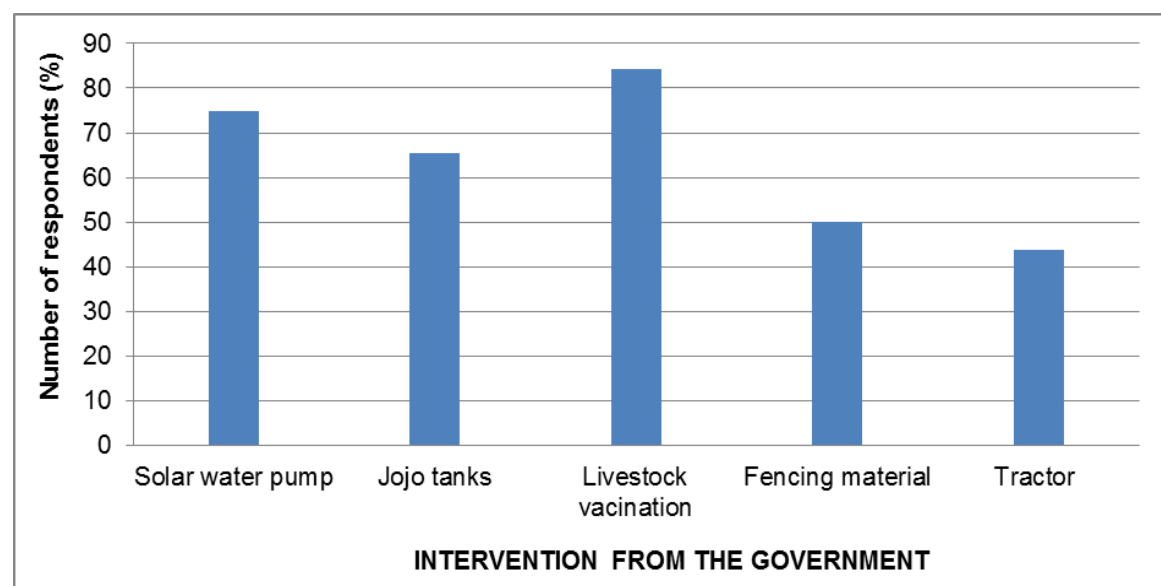


Figure 7.8: Interventions from the government

7.5 Chicory farmers

7.5.1 Technical skills

The farming knowledge and skills viewed as critical by Chell (2008), Mulder *et al.* (2007) and Lans *et al.* (2010) were identified for Marseille's chicory farmers and the findings are given in Table 7.5. From the information given in this table, the skill that lacked the most among farmers was that of value-adding and packaging which affected almost 83% of the respondents. This is in spite of evidence from Fleming (2005) that performing such value-adding activities, particularly to agricultural products that are well known for fetching low market prices, offered smallholder farmers one way of transforming an unprofitable enterprise into a profitable one. At the same time, it has been proved by Binswanger and Rosenzweig (1986) and Jaffee and Morton (1995) that undertaking such activities usually results in high transaction costs. Chemical weed control, water management practices, operation and maintenance of irrigation infrastructure were the other knowledge areas which were lacking in at least 72% of farmers.

Table 7.5: Technical skills for chicory farmers

FARMING KNOWLEDGE	LEVEL OF KNOWLEDGE: Choice proportions by respondents (%)			
	None	Little	Average	Adequate
Soil preparation	24.1	41.4	24.1	10.3
Planting	20.7	44.8	27.6	6.9
Land care	24.1	44.8	27.6	3.4
Mechanical weed control	48.3	24.1	24.1	3.4
Chemical weed control	72.4	10.3	17.2	0.0
Irrigating	65.5	17.2	13.8	3.4
Water management	72.4	13.8	13.8	0.0
Operation of irrigation infrastructure	75.9	10.3	10.3	0.0
Maintenance of irrigation infrastructure	72.4	10.3	17.2	0.0
Chemical fertilization	55.2	20.7	13.8	10.3
Manure application	34.5	37.9	24.1	3.4
Pest and disease control	58.6	17.2	20.7	3.4
Marketing	58.6	20.7	17.2	3.4
Value adding and packaging	82.8	3.4	13.8	0.0

For chicory producers, there also seemed to be a serious shortage of knowledge. For example, 24.1% of farmers did not have any knowledge at all in soil preparation and land care, whereas another 20.7% lacked knowledge in planting, mechanical weed control (48.3) and manure application (34.5). The chicory produced on the farm was only under rain-fed conditions, with no irrigation. Nevertheless, the issue of irrigation knowledge was raised as there was a water shortage problem in some seasons which could be alleviated through irrigation. Furthermore, at least 72% of farmers neither knew how to operate irrigation infrastructure nor maintain it. In addition, of all the 14 knowledge and skills areas identified, not a single one of them had more than 10.5% of farmers who were content with their knowledge levels. This means that the majority of respondents either did not have any of these skills or those that had them felt the skills were not adequate.

7.5.2 Knowledge and skills acquisition strategies

After understanding the crop production knowledge and skills that chicory farmers in Marselle had, the next step involved investigating where those who had some form of skills obtained the particular skills and knowledge from. The assumption used was that farmers with the knowledge and skills as identified in Table 7.5 could have either acquired them through formal training or Indigenous Knowledge systems (IKS). Formal training in this study was taken to mean recognised and accepted training that is endorsed by or even run by a recognised institution after farmers have met certain standards and undertaken a particular course of study for a given number of hours. On the other hand, indigenous knowledge means the knowledge that has been developed over time in a community mainly through accumulation of experiences and intimate understanding of the environment in a given culture (Briggs, 2005).

In accordance with findings from Hart (2007) that the majority of smallholder farmers in South Africa depend heavily on indigenous or local knowledge in their farming activities, not a single piece of knowledge or skill in Marselle was attained through formal training by more than 25% of farmers. In fact, as Table 7.6 shows, only knowledge in irrigation infrastructure maintenance (25%); application of chemical fertilizers (25%); planting (21.1%); and value adding and packaging activities (20%) were attained by at least 20% of the farmers through formal training. The remaining skills were acquired as indigenous knowledge (IK) which Lwoga *et al.* (2010) regarded as that which is transferred between generations mostly through oral tradition or by demonstration. In addition, even though IK was recognized by Mushi (2008) as one way of improving the productivity of

smallholder farmers, one flaw of this approach noted by Lwoga *et al.* (2010) was that much of this knowledge tended to be preserved in the memories of elders hence it is gradually disappearing due to memory lapses and death. Thus, this necessitates IK preservation either through finding better IK management systems or better ways to transfer it to as many youths as possible. From Table 7.6, it is evident that IK dominated in Marselle, with all the identified areas of knowledge used by farmers having been acquired by at least 72% of the project members. Only marketing, pest and disease control knowledge that the Marselle farmers had was purely indigenous.

Table 7.6: Knowledge and skills acquisition strategies for chicory farmers

FARMING KNOWLEDGE	Farmers with knowledge (%)	KNOWLEDGE ACQUISITION STRATEGY	
		Formal training (%)	Indigenous knowledge (%)
Soil preparation	75.9	15.8	93.2
Planting	79.3	21.1	78.9
Land care	75.9	10.5	89.5
Mechanical weed control	51.7	10.5	89.5
Chemical weed control	27.6	5.3	94.7
Irrigating	34.5	12.5	87.5
Water management	27.6	16.7	83.3
Operation of irrigation infrastructure	24.1	16.7	83.3
Maintenance of irrigation infrastructure	27.6	25.0	75.0
Chemical fertilization	44.8	25.0	75.0
Manure application	65.5	6.7	73.3
Pest and disease control	41.4	0.0	100.0
Marketing	42.4	0.0	100.0
Value adding and packaging	17.2	20.0	80.0

7.5.3 Skills needed

In as much as the knowledge and skills recommended in literature as vital for successful crop production were used in this study, the farmers themselves were given an opportunity to identify their own preferred areas of intervention. The main aim of this approach was to make sure the training planned would be comprehensive enough to cover both the knowledge areas recommended by literature and those requested by the

farmers themselves as proposed by Giller (2012) and the CRS (2007). With the current arrangement that farmers have to rely on Chicory South Africa to physically inspect their crop before harvesting and buying in their own time, all (100%) farmers identified acquiring marketing knowledge as one way they could market their produce better. The respondents also mentioned that negotiating and price-setting skills should be included in the marketing package.

According to Figure 7.9, land preparation was identified by 75% of the respondents. The same respondents said the current knowledge they had was not enough especially to deal with the hard clay soils and weeds in the farm that made cultivation difficult. In support of this point of view was Joubert (2000) who accepted that the difficulties in land preparation caused by weeds in the province required smallholder farmers to consider chemical weed control measures. One other intervention area identified by 25% of the respondents was in the field of communication (Figure 7.9). These respondents usually faced internal conflicts caused by lack of communication fuelled by the “better educated wanting to dominate the less educated in decision-making”. The same challenge of communication was noted by Prakash (2000) in Asia and in South Africa by Ortmann and King (2007) to cause similar problems to farmers operating as a group. At least 87% of the respondents wished to have training in marketing skills whereas 62% were interested in financial management.

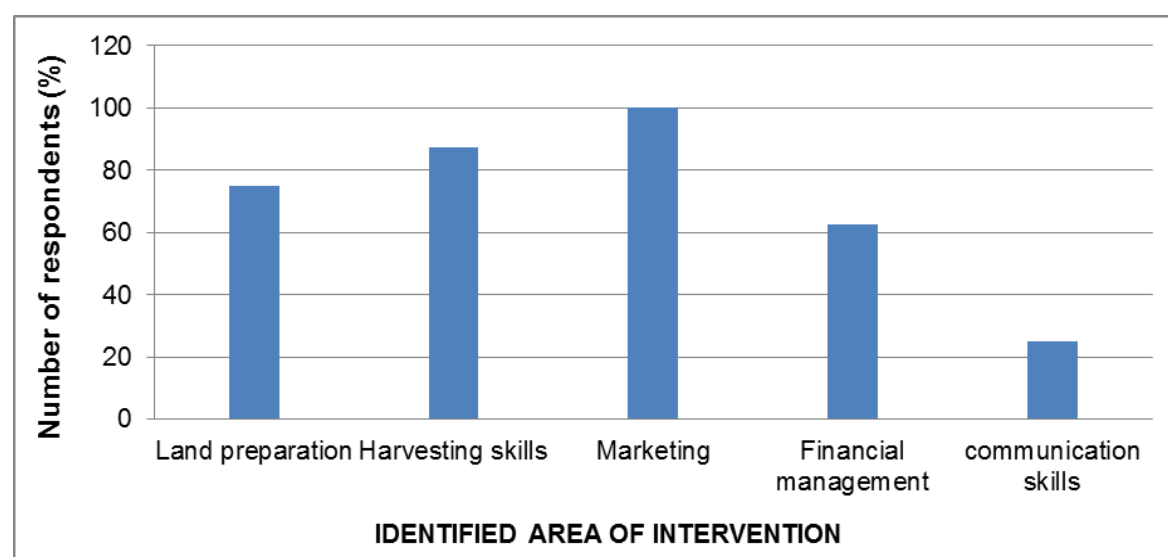


Figure 7.9: Areas of intervention identified by farmers

As was the case with the livestock farmers, chicory producers were also asked to identify their own preferred service providers. In response, all of them opted to be trained by local extension officers as they had been working with them for a while already. With other potential service providers such as academic institutions, most (88%) of the project members were women with families and as such, attending training in academic institutions would require that they had to stay away from their families for some time which was not favourable to them. As a consequence, even though some of them acknowledged the high quality of training from academic institutions, their family responsibilities dictated that they use local extension officers who ordinarily travel to the farmers and not the other way around.

7.5.4 Management structure for the chicory project

The Masakhane Silime project is currently run by a committee of five members. Their positions in the committee include the chairperson, secretary, deputy secretary, treasurer and a deputy treasurer. The committee meets twice each month and was also said to meet anytime whenever there was an urgent issue that needed its attention.

7.5.4.1 Role of the project steering committee

In terms of the roles of the Masakhane Silime project committee, they included, among other things, organizing meetings with other project members, writing proposals to possible funders for assistance and organizing training for project members. Other roles of the steering committee mentioned by the respondents which Makeham and Malcolm (1986) acknowledged include sourcing resources, resolving conflicts, managing contingency expenditure, acting as liaisons to executive groups and sponsors, and filling other roles as defined by the project. These roles are critical if the project is to succeed especially within stipulated timeframes and budget.

7.5.4.2 Selection criteria of project committee members

One other aspect investigated through this study was that of the qualifications the project members had to have in order to be elected into the committee. Seeing as the project consisted of a small group of people who had known each other for years, they said only those able to communicate in the English language both verbally and in writing were elected into the committee. However, in an attempt to empower all committee members, the project managed to send one of its committee members to Port Elizabeth earlier in 2012 for a one day training course on taxation. The training was, however, not accredited hence the trainees were not given any certificates. Two more members were

also sent to Grahamstown for a financial management course in the same year but other than these three members, none of the other members have obtained any other form of formal-type training.

7.5.4.3 Opportunities for people with disabilities

In the opinion of Giller *et al.* (2009) and de Wilde (1971), chicory production is very labour-intensive and seasonal, hence all the required labour should be available to weed, water and basically manage the plants. Nevertheless, the subject of disability in the management committee was not of great concern in Marselle as farmers believe all the tasks performed by the committee were not too demanding on one's physical ability. In other words, all the responsibilities of the committee such as arranging trainings for project members, conflict resolution and writing proposals to possible funders could be performed even by disabled people. As a result, the respondents said they would gladly welcome any disabled and interested individuals into the committee. At the time of the study, none of the members had any disability, be it physical or otherwise. The reason for investigating this issue of disability was to find out if there was any form of discrimination in the committee influenced by the nature of the tasks. The long run objective for capacity building is to make sure that none of the skills introduced are biased in favour of certain groups of people at the expense of others.

7.5.5 Potentially profitable enterprises

One knowledge area identified by Rola-Rubzen *et al.* (2002), Chell (2008), Mulder *et al.* (2007) and Lans *et al.* (2010) that trainees should have is the ability to identify potential profitable options in addition to the ones which they already had. Having such an ability would minimize the risks associated with investing all resources in a single enterprise. The enterprises identified by chicory farmers are presented in Figure 7.10 and include: starting a project in poultry, sewing and/or vegetable production. With all project members already involved in crop production through chicory, at least 62% of them were convinced of a great potential in cultivating vegetables in their small backyard gardens instead of venturing in a totally different line of business. In fact, most of them were already producing vegetables in their small backyard gardens but said would be keen to enhance their scale of production.

At the same time, half (50%) the project members wanted to venture into poultry production. Their incentive was the availability of established markets in the nearby Kenton town such as Spar Supermarket which already accepted their poultry meat.

However, the opportunity in this line of businesses was that these markets were relying on chickens “imported” from outside Kenton and this shows a gap in supply and an opportunity for local businesses. The third and least popular option identified by just 25% of the respondents was in sewing clothes for selling purposes.

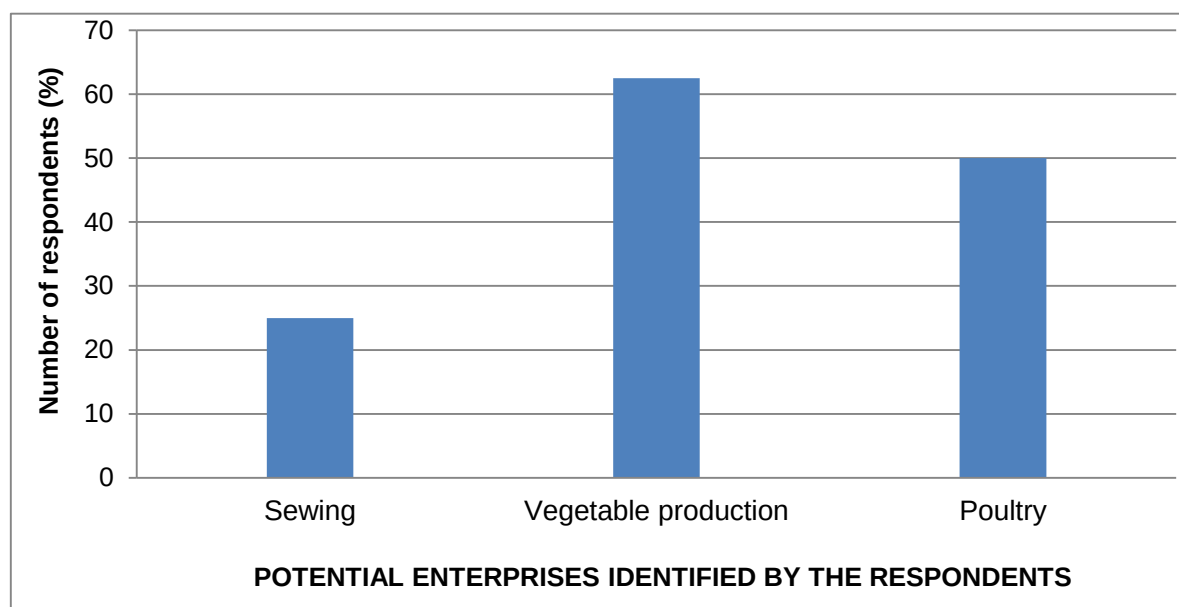


Figure 7.10: Enterprises identified by farmers as potentially profitable

7.6 Synopsis

This chapter has highlighted the various skills that both the chicory and livestock farmers have. The most common language in Marselle is Xhosa as it could be read, written and spoken by 86.2%, 79.3% and 100% of the farmers, respectively. On the issue of aspirations, at least 66% of livestock farmers wished to progress and trade commercially in the next five years. In terms of the livestock skills, only animal healthcare skills were shown to be possessed by more than half the respondents. There is also a great shortage of skills in the remaining knowledge areas in spite of the extension officers assisting farmers on a regular basis through information sharing sessions. Fourteen knowledge areas were identified for the chicory farmers and from this number only soil preparation, planting, land care, mechanical weed control and manure application were common to more than 60% of the project members, albeit their level of knowledge being regarded by farmers as inadequate.

Indigenous knowledge sources also seemed to dominate in all identified knowledge areas in Marselle as indicated by most respondents. This chapter of the study uncovered

that some of the current livestock farmers took over the livestock they owned from their late parents who also happened to be their source of farming knowledge prior to their passing on. This could explain the dominance of IKS in providing farmers with the necessary farming skills. The same IK sources were also used even in the chicory project. As also discussed in this chapter, some of the livestock farmers had vegetable gardens in their backyards hence when asked to identify the skills they wished to be trained on, they also mentioned crop production skills. For the skills that they did not have, the respondents in both projects seemed to prefer getting trained by local extension officers as they had been working with them already than going to academic institutions. One other interesting thing highlighted in this chapter pertaining to the farmers' preferred service providers was the use of the "mentor-mentee" approach whereby local commercial farmers could be used as mentors for the Marselle farmers.

The chapter also presented the various enterprises members of each of the two projects regard as having the potential to improve their household incomes should they invest in. In addition to poultry, livestock farmers identified cattle slaughtering; sheep and goat rearing as other potentially profitable enterprises.

Also mentioned in this chapter was the issue of the project steering committee and the roles given to each committee member. Both projects have steering committees whose members were democratically elected but on condition they had the ability to communicate in English. Briefly, findings presented in this chapter suggest that the Marselle farmers in both projects lacked adequate skills.

Now that the farming skills gaps have been identified, the next phase prior to investing in CB is to identify factors that could influence the knowledge and skills acquisition by farmers. The next chapter thus assesses various socio-economic factors that had some form of influence on the Marselle farmers' level of skills, especially the livestock farmers who are the major owners of the Forest Hill farm.

CHAPTER 8

ECONOMETRIC RESULTS

8.1 Introduction

This chapter presents the results based on the econometric model used to determine the relationship between various socio-economic factors and the knowledge and skills acquired by the Marselle farmers. The model is based on the socio-economic characteristics of the farming population as given in Table 8.1. Starting with the mean, each characteristic did not vary much from the median. If the median and mean do not have much of a difference, then literature from Gujarati (1992) and Hao and Naiman (2007) suggests that for each socio-economic characteristic assessed, none of them were outliers.

Table 8.1: Socio-economic characteristics of selected respondents

Variable	Mean	Median	Std. Dev.	Kurtosis
Age of household head	63.2	64.00	16.82	-0.05
Farming experience	6.31	6.50	2.33	-0.31
Use of family labour	1.41	1.00	0.50	-1.97
Household size	3.88	3.00	2.61	1.84
Marital status of household head	1.53	2.00	0.51	-2.12
Education	2.31	2.00	0.82	-0.41
Farmer status (Full/Part time)	1.50	1.50	0.51	-2.14
Loans	1.66	2.00	0.48	-1.63

As explained in the methodology chapter, the binary regression econometric model was used only for the livestock farmers as their population was big enough to successfully run the model to obtain credible outcomes. The outcomes of this model are presented per each of the six (6) skills identified as feeding; slaughtering; veld management practices; marketing; animal healthcare; and livestock housing and handling. In this study, the *Nagelkerke* R^2 value was computed at the expense of the Cox and Snell's R^2 value since the latter has a weakness of not achieving the maximum value of one, even when the model perfectly predicts all the outcomes (Nagelkerke, 1991; Hosmer and Lemeshow, 1989). The following section discusses the results of each of the six (6) skills and knowledge areas together with the influences caused by the identified socio-economic characteristics of farmers.

8.2 Socio-economic factors affecting the farmers' feeding skills

The estimated parameters of factors whose influence on farmers' feeding knowledge was tested are presented in Table 8.2. Starting with the proportion of variance in the dependent variable associated with the selected predictor variables, a *Nagelkerke R²* of 0.834 was obtained. According to Gujarati (1988) and Hebden (1981), this means that a high proportion (83%) of the variation in the dependent variable (feeding skills) was explained by the selected independent variables, with an overall prediction percentage of 93.8. There was also a significant relationship between the farmers' feeding skills and the following socio-economic factors at a 5% significance level; gender of household head; years a farmer had spent practicing agriculture; farmer's education level; and farming status (i.e. full-time or part-time farming)

Table 8.2: Estimates of determinants of farmers' livestock feeding knowledge

Explanatory variable	β	S.E.	Wald	P-value
Gender of household head	13.335	5.759	5.361	.021*
Age of household head	-.096	.107	.806	.369
Farming experience	2.442	1.062	5.293	.021*
Use of family labour	-3.277	2.833	1.338	.247
Household size	.738	.515	2.055	.152
Marital status of household head	1.537	2.439	.397	.528
Education	8.870	4.156	4.554	.033*
Farmer status	5.064	2.492	4.129	.042*
Loans	-4.964	3.311	2.249	.134
Intercept	-49.527	21.674	5.222	.022
Nagelkerke R ²	0.834	Overall Percentage		93.80
LR chi-square (df=9)	31.387	(-2)Log likelihood		12.850

NB: * and ** indicates significance at $p=0.05$ and $p=0.01$ probability level respectively

Regarding gender, the livestock project was dominated by males as shown by a positive beta value of 13.335. This conclusion was also confirmed by a significant *p-value* of 0.021 at 5% significance level which means there was a gender bias in favour of male farmers when it came to livestock feeding knowledge in Marselle. The implication is that increasing the number of male-headed farming households at *ceteris paribus* by a single

unit may enhance the livestock feeding knowledge by 13.335 units. Similar deductions were drawn by Chawatama *et al.* (1998), Francis and Sibanda (2001) and Mapiye *et al.* (2006) after recognizing the dominance of males in the smallholder livestock sector in the communal areas of Zimbabwe. Ndebele *et al.* (2007) also posited that males in this sector usually make all the cattle-related decisions such as feeding albeit in consultation with their marital partners and elder children.

Concerning the number of years that a farmer had been involved in livestock farming and the level of feeding skills they had, a significant relationship ($p\text{-value} = 0.021$) between these two variables was found. In other words, those farmers that had been in livestock farming for longer were estimated to possess better livestock feeding skills than those that had been involved for shorter periods. What could explain this significant relationship is that some farmers had spent some time working on commercial farms prior to being resettled in Marselle. Thus, even though the livestock project is not that old, it was when the farmers were farm labourers that they acquired the livestock feeding skills. The correlation co-efficient value of 2.442 suggests that the direction of relationship between the dependent and independent variable was positive as predicted. Therefore, holding all the other variables that had an influence on the farmers' livestock feeding knowledge constant, the model suggested that if for every extra year a farmer remains in farming, his livestock feeding ability may be enhanced by at least 2.442 units.

The results in Table 8.2 also show that in Marselle, the level of farmers' education had a significant ($p\text{-value} = 0.033$) influence on the constant. This means that more educated farmers possessed better livestock feeding skills than the less educated. Judging from the correlation coefficient, the results of the study suggest that in relation to livestock feeding, each Marselle farmer stood to enhance their feeding skills by as much as 8.870 units by going to the next higher education level. As illustrated earlier in Figure 6.3, the majority of farmers in Marselle only possessed primary education. As such, there is still room for them to enhance their feeding skills by going a step further academically.

Chandy (n.d) concluded in the same way that the farmers' education is positively linked to their feeding abilities hence they need to appreciate the scientific feeding of animals in order to secure economic gains and proper management of animal feeds. The same author also acknowledged the value of farmer education in giving farmers that extra ability to ration the feed economically in such a way that costs are minimized but not at the expense of animal nutrition. These arguments therefore support the view that farmer

education is most likely to play an important role in giving the smallholder farmers that extra edge when it comes to feeding their animals.

With beta and *p-values* of -0.096 and 0.369, respectively, it can be concluded from this study that the farmers' age in the case of the livestock project in Marselle had no effect on the acquisition of feeding skills. Thus, those who had feeding knowledge, though mostly indigenous, were in various age groups that include both the young and old. Other than the farmers' age, the availability of family labour to assist in livestock feeding, marital status of the household head and size of the farming household did not have any significant influence on the acquisition of the livestock feeding knowledge and skills. Even though Ikerd (2000) posited that most females in the rural communities of developing nations usually have reasonable livestock feeding and other necessary agricultural knowledge due to their marriage into families with farming enterprises, their livestock feeding influence in the SFA could not be established.

Pertaining to the issue of family labour, no significant relationship (*p-value* =0.247) between these two variables was noted in Marselle. In addition, as Table 8.2 shows, at *ceteris paribus*, increasing household size by one individual was likely to cause a deterioration in feeding ability by 3.277 units. Furthermore, there was no significant influence noted on the farmers' feeding ability as a result of their marital status (*p-value* =1.537). The same inference was drawn, at the 5% significance level, regarding the use of loans by farmers to enhance their livestock feeding skills since the *p-value* was 0.134. However, even though no significant influence was established pertaining to borrowing funds, Ikerd (2000) has warned that smallholder farmers should be careful when borrowing as most have gone broke from getting loans prior to them acquiring adequate farming knowledge.

8.3 Socio-economic factors affecting the farmers' animal healthcare skills

It was stated in chapter 7 that livestock in the EC Province faces numerous health challenges such as ticks. Transferring animal healthcare skills to the Marselle farmers is therefore crucial. Table 8.3 presents the estimated parameters whose influence on Marselle farmers' animal healthcare knowledge and skills was assessed. As can be seen from the table, a *Nagelkerke R²* value of 0.790 was obtained which suggests that at least 79% of the variation in the dependent variable (animal healthcare skills) was explained by the selected independent variables, with an overall prediction percentage of 87.5%. Of the nine independent variables analyzed, gender of the household head; age; and

education status, together with the availability of family labour were found to have significant effect on the farmers' animal healthcare skills.

As shown in Table 8.3, the findings confirm the *a priori* expectations that gender bias in terms of animal healthcare skills was more towards male than female farmers. This is shown through a significant *p-value* of 0.039 and a positive beta value of 13.148. Nevertheless, such a bias could be explained by the high number of males in the project. Furthermore, the farmers said they got animal healthcare services from local extension officers through regular focus group meetings which female farmers said they did not attend. In fact, what these results suggest is that increasing the number of males in the project by one unit could yield an overall increase of 13.148 units in the farmers' overall healthcare skills. Thus, these results support the positive bias towards males when it comes to the acquisition of livestock healthcare skills.

These findings, though, are in contrast with what other researchers discovered in other developing communities. In India, for example, Ghotge and Ramdas (2002) discovered that female farmers performed more than half the daily activities associated with livestock care. Due to such involvement, the same authors stated that women in the same country were also given opportunities to learn more about animal healthcare through working closely with animal health workers and participating in all the healers' meetings. Sanwan *et al.* (1990) had earlier reported that gender roles in animal husbandry differed, with men acting as the decision makers and women bearing the responsibility for implementing those decisions. In a general study conducted by Narmatha *et al.* (2009) on the level of participation of women in livestock farming activities, their conclusions were that women livestock farmers were more heavily involved in caring for the newly-born than vaccinating, deworming, de-ticking and delicing. Upadhyay and Desai (2011) drew the same conclusions after studying livestock farmers in Gujarat.

The association between education and the constant was also found to be positive (5.927) and significant (*p-value* = 0.038) as presented in Table 8.3. In other words, at *ceteris paribus*, a unit positive change in the farmer's education level was likely to yield a positive 5.927 units change in that farmer's animal healthcare skills. The logic behind this outcome was provided by McNeal (2012) who claimed that in as much as a hands-on or "learning by doing" approach can enhance the farmers' animal healthcare skills, some of the skills may require education or semi-technical learning. Simela (2012) added that

educated farmers have an added advantage when it comes to disease surveillance, diagnosis, early treatment of diseases, just to mention but a few. In the case of United States farmers, Kramer (2012) reckoned that animal health was taken so seriously to an extent that most beef farmers at least have a high school diploma, with some now in possession of college degrees in animal science, agriculture, or a closely related field. The same farmers worked closely with qualified veterinarians to keep their animals healthy by way of regular vaccination and other medication protocols (Kramer, 2012).

To develop the Marselle farmers to produce livestock for marketing purposes, it is critical that they keep their livestock healthy. Joubert (2000) and Marufu (2008) discovered that the province of the Eastern Cape is susceptible to certain livestock diseases. It was also established earlier that the animal healthcare knowledge the Marselle farmers had was predominantly indigenous. This is not an isolated case as the same pattern was noted by Bekure and de Leeuw (1991) in Kenya's Maasai tribe where livestock is treated through indigenous means due to the unavailability of extension officers. However, dealing with diseases requires great expertise which is better assimilated by those with formal education. Bekure and de Leeuw (1991) thus recommended that if farmers are to be trained on proper animal healthcare skills, then focus should be towards the educated as they have a better chance of understanding than their illiterate counterparts. In short, a positive and significant association between education and animal healthcare skills was ascertained in this study and is strongly supported by literature.

Table 8.3: Estimates of determinants of farmers' animal healthcare knowledge

Explanatory variables	β	S.E.	Wald	P-value
Gender of household head	13.148	6.364	4.269	.039*
Age of household head	-.331	.144	5.273	.022*
Farming experience	-.609	.578	1.111	.292
Use of family labour	13.655	6.561	4.332	.037*
Household size	-.153	.600	.065	.798
Marital status of household head	2.565	2.317	1.226	.268
Education	5.927	2.862	4.289	.038*
Farmer status	6.001	3.381	3.150	.076
Loans	-1.427	3.043	.220	.639

Intercept	-40.165	17.456	5.294	.021
Nagelkerke R^2	0.790	Overall Percentage		87.5
LR chi-square (df=9)	28.486	(-2) Log likelihood		15.374

NB: * and ** indicates significance at $p = 0.05$ and $p = 0.01$ probability level, respectively

This study further revealed another significant (p -value = 0.022) relationship between the farmers' animal healthcare skills and age, although this being against the *a priori* expectation which was based on evidence from Kunene and Fossey (2006) and Simela *et al.* (2006) that the majority of livestock farmers in SA are pensioners. As Table 8.3 shows, if all the other predictor variables are held constant, increasing the household head's age by one year should trigger a 0.331 unit decrease in that individual's animal healthcare skills. In simple terms, even though the expected outcome was that farmers acquired animal healthcare skills and knowledge as they grew older, the econometric results suggested otherwise for the studied population. Thus, as farmers grew older, their access or ability to acquire this knowledge declined. In fact, some of the old farmers no longer attended the regularly held focus group meetings meant to help them overcome the health challenges affecting their livestock due to old age and illness. They had resorted to relying on their younger farming colleagues to help them with their animals as all they were now interested in is hand over the animals to their children once they come back from urban centres where they are in formal employment.

To deal with this challenge, Groeneweg *et al.* (2006) proposed capacity building approaches that focus on adult education principles which allow farmers to work as groups in order to share their thoughts and overcome their age and lack of education barriers. In addition, this method could help enhance the farmers' lobbying skills and create a pool of farmers whose knowledge could benefit the entire community (Vaarst *et al.* 2007).

Additionally, this study could not establish any significance between the number of years the farmers had spent in farming (p -value = 0.292), each household head's marital status (p -value = 0.268), and their animal healthcare knowledge and skills. Whether farmers practiced their farming activities on a part-time or full-time basis was also found not to be significant in determining their animal healthcare skills.

In spite of the insignificance of the use of loans by farmers to enhance their animal healthcare skills ($p\text{-value} = 0.639$), evidence from Ahuja (2004) shows that in some cases smallholder farmers relied on loans and government subsidies specifically to access commercialized private veterinary practices. Heffernan and Misturreli (2000) added that this willingness by smallholder farmers to take this route was on condition that they were assured of getting quality service that they would otherwise not get from subsidized public practices. In Swallow's (2000) opinion, the majority of smallholder farmers actually lost significant numbers of their livestock to diseases due to their limited investment in production inputs and advanced risk-management practices that could help curb the spreading of any livestock diseases. The existing body of knowledge identified in Chawatama *et al.* (2005) also highlighted the importance of loans and adequate funding to smallholder livestock farmers by giving an example of the resettled farmers in the Kadoma district of Zimbabwe who started struggling to purchase livestock drugs since the government removed the subsidies on the drugs.

8.4 Socio-economic factors affecting the farmers' livestock marketing

The results presented in the preceding chapter stated that the Marselle farmers heavily relied on their neighbours for a market. This section goes a bit deeper to investigate the various socio-economic factors that have considerable influence on the marketing of livestock by these farmers. As presented in Table 8.4, the deviation between the dependent variable is explained by at least 55% of the independent variable as shown by the *Nagelkerke* R^2 value of 0.559, with an overall prediction percentage of 84.4%. Out of all the nine explanatory variables investigated, the age of household head, years of farming experience, marital status of the household head, availability of loans and the availability and use of family labour were insignificant.

As for the issue of household head age, it was insignificant ($p\text{-value} = 0.885$) and biased towards younger farmers ($\beta = -0.005$). One possible explanation for this is that the younger farmers were probably those that had simply inherited livestock from their parents. As such, they were not as enthusiastic about farming as their predecessors hence took every chance they got to sell their newly acquired livestock. As a result, the number of livestock owned by such farmers was dwindling at a very fast rate due to excessive selling without replacing those sold. When asked to explain why younger farmers had better success in marketing than the older ones, the response was that the former still have the energy to drive long distances in search of better markets whereas the latter only relied on their local neighbours for a market. It is through travelling that

younger farmers most likely got their marketing knowledge. Shiimi's (2010) reasoning supports this perception that younger farmers were more business-minded and profit-oriented hence they always sought the best markets and were, thus, most likely to have better marketing skills even though the body of knowledge given earlier by Makhura (2001) anticipated older farmers to have more knowledge having been acquired over time. One marketing weakness of older farmers was that they are not very flexible as they immensely rely on the same markets due to trust issues (Gebremedhin and Jaleta, 2010), hence the bias towards the younger farmers in terms of marketing skills.

From the financial side, Table 8.4 suggests a lack of any significant relationship ($p\text{-value} = 0.200$) between cattle marketing and funding even at the 10% significance level. This could be due to the fact that Marselle farmers were not making use of financial institutions as highlighted in the previous chapter. Nevertheless, Negassa *et al.* (2011) held the view that smallholder farmers usually withdraw from participating in livestock markets as a result of high transaction costs caused by the inaccessibility of the main urban market centers. This was a direct outcome of poor road infrastructure which resulted in the exploitation of such farmers by unscrupulous transporters who took advantage of the situation by charging unreasonably high transport fees (Shiimi, 2010). As such, Hobbs (1997) and the Strauss Commission (1996) advocated for financial institutions to play a critical role in assisting the smallholder farmers overcome these transaction cost barriers and partake of more profitable markets.

Table 8.4 also shows that the household's gender was significantly ($p\text{-value} = 0.043$) likely to influence the farmers' marketing skills although negatively by at least 2.849 units for every 1 unit increase in the number of female farmers in the project. Earlier studies by Oladele and Monkhei (2008) arrived at the same conclusion in the nomadic and semi-nomadic societies of Africa. One possible explanation for this could be that, unlike men who reared livestock mostly as a sign of wealth in most rural societies, females often found it too challenging to look after them in the absence of males. As a result, the increase in cattle marketing most likely increased in those households where male heads had recently passed on as uncovered in Marselle. Female farmers, in households where they headed, usually sold their cattle in order to concentrate on rearing smaller ruminants which are much easier to manage even in the absence of males (Mabe *et al.*, 2010). In another study conducted by Musemwa *et al.* (2010) to investigate the causes of low cattle market off-take rates in communal production systems of South Africa, their results pointed to a similar bias towards women in marketing activities. Thus, cattle

disposal tended to increase with an increase in the number of female-headed livestock-rearing households.

This study also suggests that increasing a farming household size by one member might lead to a 0.698 unit decrease in cattle marketing skills. The extent of this relationship between these two variables was also significant ($p\text{-value} = 0.019$) as shown in Table 8.4. The expected relationship between household size and cattle marketing was positive due to the understanding that larger households had better access to adequate and cheaper labour to carry out the various marketing duties. The same argument was also presented by Mapiye *et al.* (2009) and Chimonyo *et al.* (1999) who postulated that bigger households in rural areas typify most Southern African countries. Similar inferences were arrived at by Hangara *et al.* (2001) after conducting similar studies on the Omaheke communal farmers in Namibia. At the same time, in line with conclusions drawn by Nkhori (2004), an increase in household size could also lead to increased competition and pressure for food within the household which in turn could adversely affect livestock marketing activities.

Table 8.4: Estimates of determinants of farmers' livestock marketing knowledge

Explanatory variables	β	S.E.	Wald	P-value
Gender of household head	-2.849	1.407	4.098	.043*
Age of household head	-.005	.038	.021	.885
Farming experience	-.356	.277	1.654	.198
Use of family labour	2.106	1.367	2.374	.123
Household size	-.698	.297	5.535	.019*
Marital status of household head	-.533	1.155	.213	.644
Education	-3.022	1.150	6.906	.009**
Farmer status	-2.899	1.405	4.256	.039*
Loans	1.920	1.500	1.640	.200
Intercept	16.423	7.005	5.496	.019
Nagelkerke R ²	0.559	Overall Percentage		84.4
LR chi-square (df=9)	17.283	(-2) Log likelihood		26.577

NB: * and ** indicates significance at $p = 0.05$ and $p = 0.01$ probability level, respectively

In Marselle there appeared to be a significant ($p\text{-value} = 0.009$) relationship between marketing and the farmers' education at 10% significant level. This relationship was also inverse as shown in Table 8.4 and could be due to the fact that more educated farmers tended not to take farming as their preferred livelihood strategy hence the more educated they get, the less energy they invest in farming. In contrast though, Nkhori (2004) stated that when it came to marketing, education played a crucial role as it afforded farmers the ability to read and interpret vital market information which provided them an extra edge over their competition. Furthermore, formal education allowed farmers to analyse market information critically and also adopt better marketing approaches. Teweldemedhin and Kafidii (2009) also revealed that education prepared farmers for the risks associated with marketing thereby helping them make informed decisions between being risk averse and risk-taking. In other words, as a proxy for farmer's ability to acquire and use marketing skills, education was thus assigned *a priori* positive effect in anticipation that educated farmers would be more likely to have this skill.

8.5 Socio-economic factors affecting the farmers' animal housing and handling

Research from scholars such as Grandin (1998; 2001) has consistently established that proper handling of livestock is key to satisfactory livestock productivity as it reduces livestock stress which in turn enables the animals to gain weight and improve both their meat and milk quality. Ames and Arehart (1972) also reported that cattle are very sensitive to noise even though they could easily adapt (Ames (1974). As such, farmers are encouraged to minimize noise levels especially when transporting their livestock to the market to reduce their stress levels. According to Grandin (1993), cattle that were harshly treated in feedlots tended to become wilder and carried more bruises than those from feedlots with gentle handling. More evidence from Grandin (1998) suggests that livestock stress is likely to impede the biological mechanisms of both reproduction and the immune functions. Therefore, livestock injuries should also be avoided as much as possible through proper handling approaches. Shiimi (2010) recommended the construction of community based auction pens as one way of achieving this.

Other approaches could depend on certain socio-economic factors that have a direct bearing on the farmers' animal housing and handling knowledge. In the case of farmers in Marselle, this study concluded that there was no association between the level of farmers' education ($p\text{-value} = 0.557$), availability of family labour to assist ($p\text{-value} = 0.157$), size of the farming household ($p\text{-value} = 0.436$), marital status of the

household head (p -value =0.624), and the use of loans to create better livestock housing and handling facilities (p -value =0.212) as Table 8.5 illustrates.

Table 8.5: Estimates of determinants of farmers' livestock housing and handling skills

Explanatory variables	β	S.E.	Wald	P-value
Gender of household head	7.944	3.506	5.135	.023*
Age of household head	-.153	.077	3.949	.047*
Farming experience	1.420	.569	6.233	.013*
Use of family labour	3.260	2.301	2.007	.157
Household size	.327	.421	.606	.436
Marital status of household head	.741	1.514	.240	.624
Education	-.688	1.173	.344	.557
Farmer status	3.830	1.826	4.401	.036*
Loans	-2.456	1.968	1.558	.212
Intercept	-18.997	8.866	4.591	.032
Nagelkerke R^2	0.726	Overall Percentage		90.6
LR chi-square (df=9)	25.183	(-2) Log likelihood		19.179

NB: * and ** indicates significance at $p = 0.05$ and $p = 0.01$ probability level, respectively

On the issue of influence of financial loans, an insignificant relationship (p -value =0.212) between the farmers' use of loans and livestock housing and handling was found as shown in Table 8.5. Further interaction with the respondents revealed that even though they wanted these facilities, their lack of collateral and loan repayment ability had influenced them to prefer assistance in the form of donations of the required equipment or grants that they would not have to pay back. Bicudo *et al.* (2002) believed the majority of smallholder farmers were sceptical about investing in proper livestock handling facilities due to high investment costs that they perceived to exceed returns. This is in spite of the overwhelming evidence from scholars such as Ames and Arehart (1972), Grandin (1993), Fowler (1978), Ames (1974) and Shiimi (2010) that having such facilities was every livestock farmer's priority. Bicudo *et al.* (2002) added that beyond the construction costs, farmers would also need to spend almost yearly to maintain these

facilities. This was where funds from financial institutions would be required by the majority of smallholder farmers. Beyond funding the construction of handling facilities, animal identification tags, pour-on treatments such as for deworming, fly control, calving assistance and weaning. Nevertheless, the Marselle farmers were not making use of financial institutions and their livestock were kept on a collectively leased farm.

Findings of the association between cattle handling skills and gender of household head indicate a significant association ($p\text{-value} = 0.023$) which concurs with the body of literature that recognizes livestock handling activities as being dominated by males. In addition, as per the *a priori* expectation, the correlation coefficient also had a positive value ($\beta = 7.944$) to suggest an inclination towards males of close to 8 units for every 1 unit increase in male-headed households. As highlighted earlier, this was partly a direct result of the long distance between the farmers' residential area and the farm where cattle were kept which discouraged female farmers from actively partaking of the activities in the farm. In addition, the interviewed female farmers said they either asked other male farmers from the community to help look after their animals on their behalf or hired labourers.

Dogan and Demirci (2012) revealed that there are a number of people who have been known to have suffered serious injuries and deaths every year as a result of animal-related accidents. These injuries usually occurred as farmers loaded their animals onto trucks/trailers to move them to various locations e.g. for artificially insemination, vaccination or dehorning. Murray and Lopez (1998) and Vilardo (1988) concluded that livestock-related injuries to farmers were likely to surpass the figure of death, morbidity and disability caused by all communicable diseases combined by 2020. These researchers claimed this would most likely affect farmers in developing countries, particularly those practicing intensive livestock rearing. It was due to these associated risks and other demands of livestock handling that Myers (1998) and Stallones (1990) concluded that livestock handling is usually the responsibility of males than females. The same sentiment is shared by Kleinbooi and Lahiff (2007) and was supported by the findings of this study.

The study uncovered a positive and significant influence ($p < 0.05$) on the handling skills and number of farming years as shown by a beta value of 1.420. The implied meaning is that the farmers' livestock handling skills could be enhanced by as much as 1.420 units for every single year a farmer remains in livestock farming. This is understandable

because handling livestock requires a direct hands-on approach and the more time farmers spend in the business, the more handling knowledge they are expected to accumulate. Stafford (2005) shared the same opinion by arguing that cattle required particular handling skills which farmers may acquire overtime. Dogan and Demirci (2012) suggested that good cattle handlers accumulated their handling skills by way of observing others first, followed by their own trial and error. Thus, with passage of time they are expected to understand that cattle have a great memory which allows them not to forget unpleasant experiences such as rough handling, electric shocks and pokes to which they react accordingly (Gay and Grisso, 2012; Hutson, 1993; Pascoe, 1986).

At 5% level, there was a significant association of full-time farmers and livestock handling skills (*p-value* of 0.036 and beta value of 3.830). This is rational since part-time farmers did not spend as much time with their animals as full-time farmers. The majority of Marselle farmers were full-time and visited the farm on a regular basis to check the fence and availability of their animals since stock-theft was rife. Thus, conclusively from the results and in agreement with Dogan and Demirci's (2012), full-time farmers had an added advantage of emerging with better livestock handling skills as they spent more time on their farms compared to part-time farmers. The case in Marselle was that unemployment levels were very high and the majority (75%) of the respondents were full-time farmers; see Table 6.3.

One of the findings of this study was that the farmers' age was significantly (*p-value* =0.047) but inversely (β =0.153) associated with livestock handling and housing. Put differently, as a farmer grew older, his/her cattle handling skills deteriorated. The Nagelkerke R^2 value of 0.726 implies that at least 72% of the discrepancies in the dependent variable are explained by the nine investigated independent variables, with an overall prediction percentage of at least 90% (Table 8.5).

8.6 Socio-economic factors affecting the farmers' veld management knowledge

This study did not find any association between farmers' veld management knowledge and five of the nine socio-economic variables. As shown in Table 8.6, these variables included the age of the household heads (*p-value* =0.757), their farming experience (*p-value* = 0.442), assistance given by other family members, the size of each farming household and whether farmers were practicing farming on a part-time or full-time basis. Since proper pasture management may require cattle to be monitored as they graze,

regularly, Nqeno (2008) conceded that the challenge faced by modern farmers was that the youth are increasingly unwilling to participate in livestock herding.

Table 8.6: Estimates of determinants of farmers' veld management knowledge

Explanatory variables	β	S.E.	Wald	P-value
Household head gender	5.000	2.119	5.570	.018*
Age of household head	.015	.047	.096	.757
Farming experience	.179	.233	.591	.442
Use of family labour	-1.156	1.468	.620	.431
Household size	.775	.413	3.519	.061
Marital status of household head	4.500	1.859	5.860	.075
Education	3.138	1.499	4.380	.036*
Farmer status	2.071	1.527	1.839	.175
Loans	-4.744	2.133	4.944	.026*
Intercept	-21.929	9.921	4.885	.027
Nagelkerke R ²	0.681	Overall Percentage		87.5
LR chi-square (df=9)	22.682	(-2) Log likelihood		21.178

*NB: * and ** indicates significance at 0.05 and 0.01 probability level respectively*

In Marselle, it was also discovered that farmers just put their livestock in the farm and did not shepherd them at all. They only checked them mostly on Wednesdays especially during the dipping week. This practice could be the cause of the insignificant influence (p -value = 0.431) of the family labour on pasture management in Marselle.

Notwithstanding the insignificant influence of the farming household size (p -value = 0.061), Chin (1998) indicated that to efficiently and effectively manage communal grazing land was a complex task that required farmers with high levels of cooperation and dedication. According to the information presented on Table 8.6, increasing the number of household members by 1% might result in a 0.775% increase in veld management knowledge. The insignificant influence (p -value = 0.442) associated with the number of years farmers spent in livestock farming and their knowledge in veld

management could be a result of the fact that the project is still new. The farm is also collectively leased but farmers practice individualism. This means that even those farmers with the necessary veld management knowledge have little overall influence on how the pastures are managed.

Financial assistance in the form of bank loans was found to be significantly associated ($p\text{-value} = 0.026$) with the farmers' ability to manage their pastures. The expected relationship was a positive one, agreeing with Nyagumbo and Rurinda's (2011) that smallholder farmers lacked funds yet proper veld management practices required the purchasing of such things that Chin (1994) identified as pasture seeds and fence for demarcating camps. The availability of these funds was, therefore, expected to positively influence pasture management yet in this study the results, through a negative beta value of 4.744, confirm that this is the opposite in Marselle. This is most likely to be a direct result of some farmers not keeping their livestock for marketing purposes and also those that sold theirs did not do so regularly, hence their income was limited. In addition, none of the farmers had any reasonable collateral and the project was not operating as a separate legal entity. All this left most farmers in fear of failing to repay the loans if they borrowed.

The farmers' level of education was found to have a positive ($\beta = 3.138$) and significant influence ($p\text{-value} = 0.036$) on the veld management practices (Table 8.6). Even though the majority did not have adequate education, they indicated that they were aware of and interested in acquiring proper pasture management skills. This was probably influenced by their judgement that the farm was overgrazed, which made their animals starve during winter seasons. The farmers indicated their desire to learn how to calculate proper stocking levels and grazing rates and also the techniques of planting palatable pastures. The results support theoretical expectation that educated farmers would be more aware of the hazards of poor veld management practices such as overstocking which could put a strain on the palatable plants than farmers with less education (Allsop, 1999; Milton and Dean, 1995). Farmers with some form of formal education were therefore viewed as being in a better position to make informed decisions, properly determine acceptable stocking rates and grazing capacity and adopt better practices (King and Bembridge, 1988). The positive beta sign ($\beta = 3.138$) in Table 8.6 is in line with these conclusions that as farmers gain more education they become more knowledgeable about proper veld management and other farming practices. In recommendation, Bailey (2004) urged

farmers to manage natural pastures by fencing them, which was a challenge the Marselle farmers needed to achieve as discussed in Chapter 6.

In contrast though, the relationship between the household head's age and veld management skills was found to be insignificant ($p\text{-value} = 0.757$). The magnitude of the correlation coefficient value of less than 1 ($\beta = 0.015$) indicates a mild but positive influence of the farmer's age towards their veld management skills. This means that as farmers grew each year, their odds of attaining more veld management skills also increased but by less than a single unit margin, *ceteris paribus*. The direction of association, however, contradicted Bembridge (1975) whose studies provide evidence that a farmer's age is usually inversely related to their acceptance of veld management practices. No significant association ($p\text{-value} = 0.075$) was found regarding the farmers' marital status and their veld management skills.

Based on the *Nagelkerke* R^2 value of 0.681, the model was able to adequately explain the discrepancies and it was supported by a good overall prediction percentage of 87.5%).

8.7 Socio-economic factors affecting the farmers' livestock slaughtering

As illustrated in Table 8.7, the deviation between the dependent variable is explained by at least 73% of the independent variable as shown by the *Nagelkerke* R^2 value of 0.734, with an overall prediction percentage of 87.5%.

This study uncovered that in Marselle, increasing the household size by a single member might improve the livestock slaughtering odds by close to one (0.886), *ceteris paribus*. This association was found to be true at 95% confidence level as shown in Table 8.7. The farmers made use of manpower with no machinery or other equipment such as stun guns which were used by commercial farmers. Their reliance on manpower was because they lacked adequate means to acquire proper equipment. They also did not slaughter cattle prior to selling since they usually sold to their neighbours. Nevertheless, they had a tendency of assisting in slaughtering after the purchase of the animals as they believed that offering such an after sales service helped attract more local buyers. With such dependence on manpower, it is not surprising that larger households with more manpower had an added advantage compared to smaller households when it came to cattle slaughtering as also uncovered by Chimonyo *et al.* (1999) and Mapiye *et al.* (2009).

Table 8.7: Estimates of determinants of farmers' cattle slaughtering knowledge

Explanatory variable	β	S.E.	Wald	P-value
Gender of household head gender	4.326	2.142	4.076	.043*
Age of household head	-.023	.051	.207	.649
Farming experience	.677	.431	2.461	.117
Use of family labour	1.225	1.791	.468	.494
Household size	.886	.445	3.971	.046*
Marital status of household head	-1.262	1.826	.477	.490
Education of household head	5.547	2.504	4.907	.027*
Farmer Status	6.641	2.977	4.976	.026*
Loans	-2.243	1.998	1.260	.262
Intercept	-32.153	12.685	6.425	.011
Nagelkerke R ²	0.734	Overall Percentage		87.5
LR chi-square (df=9)	25.584	(-2) Log likelihood		18.788

NB: * and ** indicates significance at 0.05 and 0.01 probability level respectively

Drawing from another study conducted in the Amatole, Chris Hani and Alfred Nzo Municipalities of the Eastern Cape Province, Musemwa (2009) concluded that participation in livestock slaughtering activities was done more by males than by females. Not even a single female was found to be participating in livestock slaughtering activities in any of the three sampled municipalities in Musemwa's (2009) study because women were already heavily involved in other household chores and looking after the kids. Results of this study confirmed the pattern as indicated by a *p-value* of 0.043 which was significant at the 5% level. The positive sign on the correlation coefficient value of 4.326 confirmed the *a priori* expectation which was also in line with findings from Musemwa (2009) that bias in cattle slaughtering was towards males. Perhaps this was a result of the physical demands of the slaughtering task particularly if one takes into consideration the possible dangers highlighted by Dogan and Demirci (2012) which were associated with handling fully grown cattle.

The education level of farmers was statistically significant at the 95% confidence level as shown by a *p-value* of 0.027. This means that if one went one level up the education ladder, then the odds of improving their slaughtering skills would be enhanced by 5.547 units, holding all the other variables constant. According to Grandin (1993), livestock slaughtering was one of the few areas with very strict regulations in animal agriculture. Therefore, if cattle are to be slaughtered for selling purposes especially through formal channels, then certain standards have to be adhered to. These include the humane ways of slaughtering such as those that first render the animals unconscious to pain before lifting, blood draining and cutting (Grandin, 1993). Using proper methods can go a long way in maintaining the meat quality which in turn helps the farmers get better prices. More educated farmers are, thus, more likely to have these skills compared to their less educated counterparts.

However, those households with active members participating as labour for slaughtering purposes did not seem to benefit at all. This is illustrated in Table 8.7 by an insignificant *p-value* of 0.494 at the 95% confidence level. The farmers' number of years in livestock rearing (*p-value* =0.117), number of years in the livestock rearing business (*p-value* =0.117), availability of loans (*p-value* =0.262) and marital status (*p-value* =0.490) were also found not to have any significant influence on the slaughtering skills even at the 10% significant level.

8.8 Synopsis

This chapter assessed the influence that selected socio-economic variables had on the six livestock-related skills which were identified by Chell (2008), Mulder *et al.* (2007) and Lans *et al.* (2010) as important for profitability. These skills include livestock housing and handling; feeding; marketing; slaughtering; healthcare; and veld management. The chapter also revealed that, as predicted in the *a priori* expectations, the gender of household heads was significantly associated with all six skills investigated. The direction of association was also found to be positive except for the farmers' marketing knowledge.

Pertaining to the age of household heads, literature argues that it should have a positive effect on farming skills on the basis that as farmers grow older, they become wiser. The results of this study disputed this theory when it comes to animal healthcare and housing, and handling skills as the association was significantly negative. However, the

influence of age of household head on cattle slaughtering, veld management, marketing and feeding knowledge could not be established.

Another *a priori* expectation was that farmers who had been in the farming business longer possessed better livestock knowledge than those who were newcomers. The logic for such a point of view was that skills are attained through a hands-on trial and error process. At the 95% confidence level, farming experience only significantly influenced the farmers' livestock feeding and handling knowledge but not cattle slaughtering, veld management, marketing and animal healthcare knowledge.

The availability of able-bodied family members within the farming households that could assist with the livestock activities had a significant influence on animal healthcare knowledge at 5% significance level. At the same time, bigger households tended to benefit from cattle slaughtering knowledge but marketing knowledge was higher in smaller households.

One factor with the biggest influence on all but one (livestock housing and handling skills) of the nine selected variables was education. Literature suggests that as the world changes, so does farming technology. Farmers therefore have to stay abreast with all the changes happening around them if they are to succeed in their farming activities. Education was therefore expected to play a key role in ensuring that smallholder farmers could access relevant information about markets, new technologies and all the other things that influence their success. On these grounds, it is not surprising that the relationship between education and the majority of dependent variables investigated in this study was positive. The chapter also determined the influence of other socio-economic factors, namely; the farmers' marital status, their use of loans and their farming status.

With skills transfer being the core objective of this research, it was critical to assess those socio-economic factors that could have a reasonable influence on the farmers' skills so that during the CB phase, appropriate attention could be given to them. In as much as understanding the current knowledge and skills that the Marselle farmers have or lack, the planned intervention programmes should be designed in such a way that they are aligned with farmers' socio-economic characteristics if they are to succeed.

CHAPTER 9

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

9.1 Introduction

This study was a case study whose focus was limited to only the Forest Hill farmers in Marselle. The reason for its specific focus on these farmers was that it is the first part of a two-phase and its role was to lay a foundation for the second phase. The second and final phase would involve capacitating the farmers with the right knowledge and skills needed to make them more productive in their agricultural enterprises. The target respondents in this study were beneficiaries of the LRP who practice their farming on a 620ha farm. As part of this dissertation, various socio-economic characteristics of the Marselle community that deemed to potentially affect the farmers' training such as age, education levels and gender were discussed. Particular attention though was paid to the knowledge and skills that the farmers had so that those they needed but currently do not have might be the focus point of the CB phase.

9.2 Summary

It has been echoed by several development economists that one way to fight poverty is to empower the vulnerable with the necessary skills that make them rise to the challenge and produce for themselves. However, the reality for most smallholder farmers has been that they lacked essential skills which are necessary for them to produce efficiently. Consequent to this, two schools of thought have emerged when it comes to the issue of using smallholder agriculture to promote economic development, and alleviate poverty and food insecurity problems; one in favour of promoting smallholder agricultural sector whilst the other maintains that resources should be channeled towards other sectors that produce high value commodities than agriculture.

As for the South African government, it has made several attempts to advocate and promote the smallholder agricultural sector as one way of dealing with poverty and food insecurity. What local smallholder farmers should realize is that the government has set up some structures and policies earmarked to assist those who operate as cooperatives. As such, all farmers working jointly should be encouraged to make use of these institutional arrangements and structures. In Marselle, for example, smallholder farmers were leased the 620 ha Forest Hill Farm to carry out their farming activities. The same farmers were later financed by Land Bank, one of government's financial institutions set up with a mandate to fund farmers, both small-scale and commercial. Nonetheless, the

same farmers continue to operate in isolation against numerous challenges that threaten to derail their productivity and farming sustainability.

This study can state that the livestock project's objectives included removing livestock from the residential areas, providing the livestock with a safe place, reducing road accidents and also developing livestock farming as a livelihood source. In spite of having such clear objectives, none of them had been successfully met as the animals still got stolen from the farm and others were still kept in the residential areas. The farmers themselves had their own reasons for rearing cattle and these were consumption, selling, ritual purposes and store of wealth. Some of them kept livestock for only one of these reasons but others sought to maximize on simultaneous objectives, for example, consumption and selling or consumption, selling and ritual purposes.

The market for livestock was considerably local, with neighbours buying most of the animals especially during the months of June and December for traditional functions. There were other markets in Kenton, PE and Port Alfred. On the issue of price determination, not all farmers set their own prices as some (46.9%) depended on prices set by other farmers operating either locally or in other markets; others (13%) allowed market forces to set prices for them and the rest (41%) set their own prices. In spite of farmers not always having the bargaining power to influence selling prices, they had the choice of responding to unfavourable prices by withdrawing their market participation until prices peaked.

This study also found that pastures on the farm were natural and not always able to sustain the livestock in every season. At the same time, none of the farmers had resources to supplement the livestock feed. Over-grazing had also depleted the pastures' ability to replenish themselves every time they are grazed. Despite the project having a committee to act on behalf of project members, no action was being taken against members who violated the project's code of conduct such as members keeping livestock on the farm on behalf of non-members.

Water for livestock was mostly found in dams located within the farm. Due to soil erosion and other reasons, some of the dams had dried up, leading to the animals having problems accessing drinking water on occasions. The government donated a solar pump which was later stolen and at the time of the study, assistance was coming from the local

municipality which delivered water to the farm through water bowsers. Nevertheless, this intervention was not enough as animals at times went for days without water.

Chicory farmers on the other hand had their own project, an initiative aimed at creating jobs and providing a livelihood strategy for the local poor. Even though the project had been in existence since 2006, neither objective had been met at the time data was collected for this study. Project members cultivated chicory only on a 10ha portion of the 620ha Forest Hill Farm where the majority (57%) preferred manual weeding but were constrained by unavailable and unaffordable labour. The project had a tractor donated by the government through the local municipality but it came with neither a disc nor trailer, hence it had limited use. The tractor was also old and had regular breakdowns which had to be attended to by the project members; other communities used the same tractor through the local municipality free of charge.

All the produce from this project was sold to Chicory SA with whom the farmers had a contract. Literature suggests that such a farmer-buyer relationship controlled by a legally binding contract should make the farmers' business easier but in Marselle problems had come mostly from the buyer. With farmers not having any bargaining power, they could not influence the prices hence sold at whatever price Chicory SA set. In addition, other problems facing the project include bush encroachment and weeds that suffocate the crop. This was further exacerbated by the farmers' lack of implements and manpower to deal with these challenges.

The presence, or lack thereof, of financial institutions was also investigated from the angle of both livestock and chicory producers. The findings were that at least 90% of the farmers were not aware of the existence of any such institutions in their surrounding communities. On the other hand, those that acknowledged their existence said they were found in Kenton, Alexandria and Port Alfred. There were still some concerns amongst farmers concerning borrowing funds as farmers usually did not have any repayment means, others did not borrow deliberately because of fear of debt and lack of collateral.

As the main objective of this study, the farmers' knowledge and skills were scrutinized. This was because the next phase of this Land Bank project was to empower farmers with the knowledge and skills they needed to become more productive in their farming activities through capacity building. The conclusion that could be drawn is that the majority of farmers still lacked a number of crucial skills. In the case of livestock farmers,

in the seven identified knowledge areas (feeding; animal healthcare; slaughtering; veld condition management practices; cultivated pastures; marketing; and housing and handling), only animal healthcare knowledge was possessed by at least half the respondents. The majority of these farmers acquired animal healthcare knowledge through the regular focus group meetings during which they also got other valuable farming information from local extension officers even though they believed that their level of knowledge was very little. The remaining six knowledge areas were not very popular as more than half the farmers did not have them at all.

The livestock project also had a committee that was mandated to represent the project members in external meetings and organizing training and other information sharing workshops. Nevertheless, this committee did not consist of people with relevant project management skills. The only prerequisite for being elected into the committee was the ability of a member to communicate in English and literature argues that this is not enough since managerial, analytical and soft skills are generally regarded as equally important, if not more. The same problem existed in the chicory project.

Apart from the subject of management skills, the majority of chicory project members were found to be lacking in a number of other knowledge and skills areas which included chemical weed control; irrigating; chemical fertilization; value-adding and packaging; marketing; and pest and disease control. More than half the farmers did not have these skills and the few that had them acquired them through IKS. Formal training was not common as a skill acquisition strategy in Marselle as IKS also dominated in the skills like soil preparation; planting; land care; mechanical weed control, and manure application.

The main objective of this study was to determine the knowledge and skills gap in Marselle farmers with the intention of closing those gaps by way of training the farmers through capacity building. Farmers in both projects indicated, through their interaction with the data collection team, their knowledge and skills, together with their desired areas of intervention. For purposes of capacitating these farmers, the following section summarizes the key areas that should be prioritized during the capacity building phase of the farmers.

9.3 Identified areas of intervention

Since the emphasis of this study was on identifying the skills and knowledge areas for CB purposes, this dissertation will, thus, conclude with a list of these critical areas of intervention.

9.3.1 Livestock project

9.3.1.1 Technical skills

In their CB framework, Rola-Rubzen and Gabunada's (2003) defined the technical skills aspect as being concerned the production and marketing side of farming. Through interacting with the farmers, the necessary technical interventions were identified and are given as follows:

9.3.1.1.1 Livestock feeding

The ECDC (2011) and Marufu (2008) view the province as the home of livestock in South Africa. This is due to the natural conditions that are usually favourable for natural rearing of livestock. However, in Marselle the problem of deteriorating pasture conditions will force the farmers to supplement their livestock's feed with hay and other supplements if they intend growing their cattle project into a sustainable commercial enterprise. As such, farmers should be equipped with knowledge of how to feed their animals, where to get the necessary feed and how best to get this feed.

9.3.1.1.2 Animal healthcare

The issue of high prevalence of animal diseases particularly in the coastal areas of the Eastern Cape is well documented. At the same time, less than half the Marselle farmers had proper knowledge on animal healthcare. In addition, more than 60% of those who had any knowledge of this nature obtained it through indigenous sources. At the time of collecting data for this research, this skills gap was being closed with the help of extension farmers who discussed the farmers' challenges through regularly held focus group meetings. Farmers also dipped their livestock regularly during the days they held focus group meetings. However, of concern was that despite the farmers dipping and vaccinating their animals, the majority of farmers had no idea which diseases they were protecting their livestock from through dipping and vaccination. Thus, having an all-inclusive training session with the farmers could be vital in empowering them with proper and adequate animal healthcare knowledge. The same local extension officers could be asked to assist in this regard particularly since the farmers themselves expressed their

desire to be trained by the same local extension officers at the expense of sending them to an academic institution.

9.3.1.1.3 Marketing skills

One other challenge that the farmers identified during the period of the study was that of relying mostly on local markets in the form of local neighbours and the rest of the Marselle community. These markets were informal and resulted in very low prices for the farmers' livestock. Training should be in pricing, negotiating, marketing research and value-adding activities such as branding, packaging and grading. The idea is that value-adding activities can unlock a number of more formal and reliable markets that could enhance the farmers' profits.

Another relevant skill needed is that of sourcing established markets such as abattoirs, butcheries, food processors and super- markets and fostering contractual relationships with them. Having this kind of formal relationships would guarantee a steady market with competitive rates. However, it should be noted that the success of such formal relationships would be highly dependent on the farmers themselves being able to deliver adequate produce of desirable quality as and when expected by the buyers.

Still on the issue of marketing, the farmers did not have any influence on the prices for their produce. They either sold at the prevailing market prices regardless of how unfavourable they were or withheld their market participation until the prices improved. One skill that could help is to empower them with good negotiating skills so that they could negotiate for better prices instead of letting the potential buyers dictate prices.

9.3.1.1.4 Proper pasture management practices

The livestock on the farm relied entirely on the natural pastures for food. However, as this study uncovered, natural pastures were inadequate to sustain the livestock particularly during the winter season. This was a result of both poor pasture management practices (which have encouraged bush encroachment and deteriorating pasture conditions) and overstocking. As a proposed solution to enhance the quality of natural pastures, farmers should create paddocks (camps) within the farm. This could, however, require external assistance to acquire the material with which to create these camps. Training could therefore be focused on how farmers should manage these camps effectively and how and when to rotate the animals between different camps.

With proper camp management, expenditure on and the need to use supplements could be obviated drastically as the animals would rely mostly on natural pastures.

9.3.1.2 Managerial knowledge and skills

9.3.1.2.1 Farm management skills training

Farmers should be taught how to handle finances and be encouraged to make use of local financial institutions. If they were to be given financial management skills like budgeting, book-keeping and simple variance analysis, then they could realize that it would be possible to borrow and repay the loans to grow their farming enterprise.

9.3.1.2.2 Business plan development

This study further uncovered that one of the responsibilities of both the chicory and livestock committee members was to draft proposals for potential funding. At the same time, the same committee members were found not to have any relevant knowledge of how to execute such duties professionally. Training should thus also include training on how to apply for funding, approach potential investors and draw up business plans to accompany the business proposals. Both projects were run without any business plans and this made it difficult for potential funders to intervene without having a clear idea of what the farmers' projects actually sought to achieve, together with their strategies for achieving these goals, their short- and long-term goals and resources at their disposal.

9.3.1.2.3 Information accessing skills

Information asymmetry is one factor with various repercussions when it comes to any business. The Marselle farmers had continuously failed to take advantage of various market opportunities that could have enhanced their profits. For example, the majority of them relied on local markets not out of choice but because they had no means of finding out about the other existing and potentially more profitable markets in other towns. With the global economy changing so rapidly, it is therefore important that farmers are taught how to make use of information communication technologies (ICT) such as mobile phones and the internet.

They should also be encouraged to use printed media in the form of leaflets, pamphlets, booklets and posters and also take advantage of events such as information seminars. What matters beyond just acquiring proper information is the farmers' ability to interpret it and respond accordingly for their benefit. Information on weather conditions is also relevant in farming as it can make a difference between failure and success.

With proper access to information, farmers could take advantage of economic opportunities through better access to more profitable markets, improved negotiating powers and better production methods

9.3.1.3 Soft skills

9.3.1.3.1 Team building

The baseline study uncovered that the SFA was an individual project whereby project members only shared the farm but with each farmer bearing the sole responsibility for their own livestock. This study found out that this had not changed. In addition, even though the project had a committee, no penalties were imposed on offending members. As a result, some members kept livestock in the farm on behalf of non-members, an act that had resulted in serious over-stocking and pasture deterioration. The extent of individualism within the project was detrimental to building synergistic partnerships as farmers only came together to dip their livestock and attend focus group meetings with the extension agents.

There was a need for team-building among farmers so that they could adopt a culture in which they opened-up to each other and openly shared ideas. The farmers have to be made aware that, with proper team building skills, they could efficiently coordinate their activities, improve their management and communication skills, and develop an atmosphere of trust, confidence, energy and resourceful creativity, all of which could enhance their productivity.

9.3.1.3.2 Analytical skills

Analytical skills focus on the farmers' ability to carefully analyze certain prevailing conditions and take advantage of those that are favourable and develop mitigation measures against the unfavourable ones. The farmers were thus tasked with identifying enterprises they thought were likely to be profitable but in spite of their ability to do so, the knowledge of assessing each of these options in terms of the resources needed to run those enterprises, the availability of established markets, proper profit indicators, conduciveness of the environment to sustain the enterprises, etc. is still needed. This is based on the fact that the basis for the enterprises they identified was that they had seen similar enterprises been run successfully yet in reality there are many factors that determine the success of any project. Understanding how to conduct proper feasibility studies will assist farmers in choosing the most relevant and appropriate enterprises should they decide to diversify.

9.3.2 Chicory project

9.3.2.1 Technical skills

9.3.2.1.1 Marketing

The biggest disadvantage that the chicory farmers had was that their market had a monopsony, a single market for their produce, Chicory SA. This meant that the buyer determined the prices of chicory, with very little, if any, input from the farmers themselves. This was also partly due to the fact that chicory in South Africa is bought mostly for export purposes, hence its prices are subject to global market forces. As such, focus should not be on training the farmers to negotiate for better prices but to enhance their productivity whilst minimizing production costs which could, in the long run, yield economies of scale. This is an indirect marketing approach that puts emphasis on the farmer more than the buyer and due to this, profitability could be controlled more by the farmers themselves than the monopsony.

9.3.2.1.2 Crop production

There is also a need to consider transferring the general planting knowledge to farmers. This knowledge should encompass soil preparation techniques, and planting and land care skills so that the farmers get the best from their land. As highlighted in the data analysis chapter, only a handful of farmers had knowledge in these areas and most of this knowledge is indigenous.

Still on the issue of planting, the quality of chicory could be enhanced through improving the soil quality by way of using fertilizers and manure. One problem noted by Gockowski (1999) that smallholder farmers in the SSA region have was a tendency of using large amounts of fertilizers which usually exceeds the recommended amounts thereby losing efficiencies and courting unwarranted negative environmental externalities like surface water pollution, hence the need for proper training. Training on fertilizer application should thus incorporate farmers' access to: fertilizers at affordable cost; credit institutions for loans; and cost-effective ways of delivering the fertilizer to the farm and other supply chain interaction techniques.

9.3.2.1.3 Weed control

Weeds are a problem in Marselle just like in any part of the Eastern Cape Province. As Joubert (2000) proposed, smallholder farmers in the province should consider chemical weed control techniques if they are to win the battle against fast-growing weeds. Chicory is known to grow very well under well-managed conditions with adequate water and no

weeds. Less than 30% of the farmers were found to have some level of chemical weed control knowledge even though none of them said their knowledge was enough. Intervention should therefore aim to empower project members with knowledge on which weed control techniques to apply, how often and in what quantities.

Since the number of project members was small, learning and adopting chemical weed control techniques could help the project members cut down on more labour-intensive mechanical and cultural practices such as hoeing, pulling, cutting, fertilizer management, and mulching. Training on chemical weed techniques should include foliar spraying, basal bark spraying, stem injection, cut stump, cut and swab, stem scraper and wick application. Due to the dangers posed by herbicides if improperly handled, training farmers on these techniques would require a qualified service provider with the correct accreditation as a trainer. Other weed control techniques that could be considered include mechanical control (which employ powered tools and machinery to manage weeds) and biological control (which makes use of insects or pathogens that affect the health of the weed). Manual control (whereby hands or handheld tools are used to deal with weeds) might not be effective enough on such a big farm.

9.3.2.1.4 Irrigation knowledge

The introduction of irrigation technology is one of the recommended interventions to enhance the production of chicory. The current level of irrigation knowledge as uncovered in this study is very low. Irrigation systems consist of water pipes, pumps, sprinklers (in the case of sprinkle irrigation) and gauge valves. All these require regular maintenance so that water is not lost through leaking pipes and the pump should be serviced just like any other machine. Capacity building should therefore incorporate skills in different irrigation techniques; maintenance and operation of irrigation equipment, water management techniques through irrigation scheduling and also the operation of irrigation infrastructure.

9.3.2.2 Managerial knowledge and skills

9.3.2.2.1 Entrepreneurship

Entrepreneurship goes beyond just managing the project, its resource and the stakeholders. There is evidence obtained through interacting with the chicory farmers in Marselle that entrepreneurship skills were still low. Other critical skills needed include negotiating better input and output prices, fostering partnerships, initiating value-adding activities, etc. In the case of contract farming, each farmer should understand the role of

each partner in a contractual agreement and how to deal with challenges should they arise.

9.3.2.3 Soft skills

9.3.2.3.1 Communication

In spite of the small number of members in the chicory project, one challenge that was identified within the project was that of internal conflicts caused by poor communication. Some members who are “better educated” than others were said to be causing conflicts by trying to dictate in all major decisions regarding the project. This resulted in the other members becoming more resistant to opinions of others and being less cooperative. Communication skills are thus needed to resolve such challenges to keep the farmers motivated and working towards a common goal.

9.3.2.3.2 Common skills

The term “common skills” in this study was used to refer to those skills that are not only specific to a single, particular enterprise. In other words, these are the skills needed by both chicory and livestock farmers and they include (i) Farm management skills training; (ii) Business plan development; (iii) Information accessing skills; and (iv) Team building skills. These have already been discussed for livestock farmers; the same approach should be used here in the case of chicory farmers.

9.4 General areas of intervention

Whilst focus is on identifying the knowledge and skills gap for purposes of capacity building, there are other important areas where intervention is needed if farmers are to progress agriculturally. Some of these key areas are given below;

9.4.1 Proper Infrastructure

9.4.1.1 Road infrastructure

Forest Hill farm is located too far from the residential areas. The road is characterized by dangerous gullies, slippery surface and a very low and narrow bridge which made the farm inaccessible during the rainy season. Building a proper road is likely to make it easier for farmers to deliver inputs to the farm and their produce to the markets on time. Also, accessibility can enhance their chances of getting assistance from various sources as their progress can be easily monitored.

9.4.1.2 Dam rehabilitation

Other forms of necessary infrastructure include providing adequate water bodies since any form of agriculture, be it livestock rearing or crop production, depends on water. The farm has a number of dams but their biggest challenge is their inability to retain enough water for prolonged periods of time due to mud accumulation caused by excessive soil erosion. As such, the farm's dams need to be cleared of all the mud that has accumulated to enhance their volume so that during the rainy season, enough water can be retained.

9.4.1.3 Water pumping system

In addition, the water pump system was said to have helped the farmers a lot before it got stolen. This means that the water table has adequate water that could be pumped to the surface either for livestock or irrigation purposes. What needs to be done is to replace the pump and find better ways of securing it. The previous system consisted of a solar panel permanently mounted on a pole in the middle of the farm. One safety option could be putting a removable panel that the farmers can only mount when pumping water and remove afterwards.

As part of the water pump system, chicory farmers could also do with introducing irrigation to the farm to enhance the quality of their produce. At the time of the study, the crop was grown under rain-fed conditions which limited its potential to fetch higher prices in the market as water is rarely enough every season. Introducing irrigation would make it possible to grow the crop in and out of season for the benefit of the farmers. What is needed therefore is proper irrigation infrastructure in the form of irrigation pipes and pump.

9.4.1.4: Housing infrastructure

The situation analysis uncovered that the farm had some buildings which were used to house the previous farm owners. However, since the moving-in of the current beneficiaries, these buildings had deteriorated to such an extent that they no longer had proper roofing and windows. This study confirmed this was still the case. At the same time, if the farmers are to have a round-the-clock security guard, proper store rooms for their equipment and such things as stock feed, then these buildings have to be renovated. With value-addition being one of the identified skills that the Marselle farmers are most likely to be encouraged to train in, such activities will most likely require proper facilities. For example, in the case of livestock farming, if slaughtering was to be adopted

by farmers, this would require a slaughter house and refrigeration facilities which automatically raises the importance of renovating the current buildings.

9.4.2 Proper fencing of the farm

This study also uncovered that one of the challenges faced by the livestock farmers in particular was the lack of camps within the farm. Whilst it is also true that the farmers themselves did not have adequate paddocking knowledge, training them on this would not do so much unless the resources for fencing the camps are provided. This means that as farmers undergo pasture management and paddocking training, more intervention should also be in providing the fence and poles for creating camps.

9.4.3 Farming implements

The issue of farm implements affected both the livestock and chicory farmers, albeit in different ways. The chicory farmers mentioned that they relied on hired labour for weeding and planting purposes. The hired labour used hand-held equipment such as hand-hoes and spades. Be that as it may, there were very few farmers with these implements as established in Table 7.6. In addition, the only mode of transport available to travel to and from the farm was a tractor, which did not have a trailer. The same tractor was donated without a disc to work the land prior to planting. These implements are needed if farmers are to be able to get to the farm consistently and work the land effectively. Having a disc would also reduce the need for manual labour which the farmers believed was scarce and expensive.

9.5 Socio-economic factors influencing knowledge and skills acquisition

As discussed in Chapter 8, there were a number of socio-economic variables which had some significant influence on the skills possessed by the livestock farmers. These factors have to be taken into consideration when developing capacity building approaches. Education, for example, was found to have a significant influence on almost all the livestock rearing skills. Therefore, as a recommendation, interventions should be designed in such a way that the intended outcomes can also be achieved by those respondents with less education. One approach that has been proven to be effective by incorporating even the less educated is that of using commercial farmers that are well-established to adopt and mentor the Marselle farmers. The advantage with this approach apart from the fact that it is cheaper is that it allows smallholder farmers a more hands-on approach to skills acquisition. As argued in the literature reviewed, farmers usually learn better through observing others as they perform their tasks over time than

attempting the same tasks themselves through trial and error over time. This approach could work very well in Marselle due to the high number of local commercial farmers that some of the investigated farmers actually worked for.

One other aspect that should be noted when considering farmers for training is their age. Literature discussed in explaining the econometric results in chapter 8 hinted on the dangers and physical demands that come with livestock rearing activities. At the same time, the majority of Marselle farmers were old pensioners. Such factors have been noted to cause less intervention in the smallholder farming sector as most local governments view training old and less energetic farmers as a waste of resources. Bearing this in mind, training programmes in Marselle should also incorporate the youth so that the transferred skills could be used deep into the future. As these trained youth grow older, they could act as IKS and pass on their knowledge to other farmers in the community.

In conclusion, a gender balance should also be struck when training farmers because, as this study has revealed, gender does have an influence on some of the skills critical in farming. Thus, in addition to the youth being encouraged to join farming, women and the disabled should not be kept out of the planned capacity building interventions. Members from both projects revealed that they would welcome people with disabilities predominantly to serve in the steering committees since the tasks involved do not discriminate against people with particular physical abilities. In as much as the main goal behind the CB intervention is to foster community development through enhancing the farmers' skills, it also seeks to encourage cooperative efforts amongst farmers which could be the key to enhancing their productivity and breaking the barriers caused by high transaction cost and the farmers' limited resources.

Even though the skills intervention areas have been identified through this study to inform the capacity building phase, the actual capacity building itself will require collective efforts from various stakeholders. This is because of the diverse range of farming skills that were identified in this study. Partnerships should be fostered with the right stakeholders such as the extension officers and other relevant service providers who are experts in their respective fields. Having qualified service providers will enhance the quality of the knowledge and skills transferred to the farmers which in turn will most likely result in improved productivity.

BIBLIOGRAPHY

- ABULE, E, SNYMAN, HA & SMIT, GN, 2005. Comparisons of pastoralists' perceptions about rangeland resource utilisation in the Middle Awash Valley of Ethiopia. Journal of environmental management, 75 (1): 21- 35.
- ADAMS, DW & FITCHETT, DA, 1992. Informal Finance in Low-Income Countries, Boulder: Westview Press.
- ADAMS, M, SIBANDA, S & TURNER, S, 1999. Land tenure reform and rural livelihoods in Southern Africa. ODI Natural Resources Perspectives No 39. Overseas Development Institute, London.
- ADB, 1991, Human Resource Policy and Economic Development: Selected Country Studies, Asian Development Bank, Manila.
- ADUGNA, E, 2008. Livelihood strategies and its determinants in Southern Ethiopia: The case of Boloso Sore of Wolaita zone. Arba Minch University, Ethiopia.
- AHUJA, V, 2004. The economic rationale of public and private sector roles in the provision of animal health services. Scientific and technical review, 23: 33-45.
- AJAYI, AR, 1995. Community self-help projects' implementation procedures: a case study of Ekiti South-West Local Government Area of Ondo State. Agrosearch, 1(1): 47-55.
- AJAYI, AR & OTUYA, N, 2006. Women's participation in self-help community development projects in Ndokwa agricultural zone of Delta State, Nigeria. Community Development Journal, 41(2), 189-209.
- ALIBER, M, 2009. Exploring Statistics South Africa's national household surveys as sources of information about household-level food security. Agrekon, 48(4): 384-209.

- ALIBER, M, 2008. Strategies to support South African smallholders as a contribution to government's second economy strategy. Report commissioned by the second economy strategy project. Volume 1: Situation analysis, fieldwork findings and main conclusions.
- ALIBER, M & HART, TGB, 2009. Should subsistence agriculture be supported as a strategy to address rural food insecurity? Agrekon, 48(4): 434 – 458.
- ALLSOP, N, 1999. The effects of grazing and cultivation on soil patterns and processes in the Paulshoek area of Namaqualand. Plant Ecology, 142; 179-187.
- ALTIERI, M.A. 1995. Agroecology: the science of sustainable agriculture. Westview Press, Boulder
- AMES, DR, 1974. Sound stress and meat animals. In: Proc. Int. Livest. Environ. Symp. Am. Soc. Agric. Eng. SP-0174. p 324.
- AMES, DR & AREHART, LA, 1972. Physiological response of lambs to auditory stimuli. Journal of Animal Science, 34:994.
- ANI, AO, RAHMAN, SA & KWAGHE, PV, 2009. Economic contribution of women to groundnut production in rural area of Borno State, Nigeria. Asia-Pacific Journal of Rural Development, 19(2): 47-56.
- ARDRI, 2001. Rural livelihoods survey in the Mbashe municipality: Final report. ARDRI, Univ. Fort Hare, Alice.
- ARNALDS, O & BACKARSON, BH, 2003. Soil erosion and land use policy in Iceland in relation to sheep grazing and Government subsidies. Environmental science and Policy, 2: 115 - 121.
- ASLIN, HJ, MAZUR, NA & CURTIS, AL, 2002. Identifying regional skill and training needs for integrated natural resource management planning. The Bureau of Rural Sciences (BRS), Canberra.

- ATKINSON, D, 2006. Is there a case for support for smallholder agriculture? A response to Palmer and Sender. *Journal of Contemporary African Studies*, 24(3): 77-383.
- ATTANANDANA, T, VERAPATTANANIRUND, P & YOST, RS, 2005. Capacity building of the farmers to improve soil resources and economic conditions in Thailand. Paper presented at the 20th International Symposium of RRIAP on "Prospects for food production, rural communities and bio-resources under globalization". Nihon University, Shonan Campus, Kanagawa, Japan.
- AYANDA, IF & Ogunsekan, O, 2012. Farmers' Perception of Repayment of Loans Obtained from Bank of Agriculture, Ogun State, Nigeria. *Journal of Agricultural Science*, 3(1): 21-27.
- BAILEY, DW, 2004. Management strategies for optimal grazing distribution and use of arid rangelands. *Journal of Animal Science*, 82; 147 – 153.
- BANNISTER, S, 2004. Rural settlement: Programme for Land and Agrarian Studies (PLAAS) POLICY BRIEF No.7: Debating land reform and rural development. University of the Western Cape, Cape Town.
- BARRIBEAU, P,BUTLER,B,CORNEY,J, DONEY, M, GAULT, J, GORDON, J, FETZER, R, KLEIN, A, ROGERS, C.A, STEIN, I.F, STEINER, C, URRSCHEL, H, WAGGONER, T & PALMQUIST, M, 2005. Survey Research. Writing at CSU. Colorado State University Department of English. Online: <http://writing.colstate.edu/guides/research/survey/>. Accessed: 10/09/09
- BAYDAS, M. & GRAHAM, D.H. (1996). The demand for financial services by the micro-enterprise sector in selected sites of the Northern Province and KwaZulu/Natal. Report prepared for the Development Bank of Southern Africa, Midrand
- BECKER, G, 1998. Human Capital and Poverty. *Acton Institute for the Study of Religion and Liberty*, 8(1):1-14.

- BEKURE, S & DE LEEUWIN, PN, 1991. The potential for improving the livestock production and welfare of the pastoral Maasai. In: Solomon Bekure, de Leeuw P N, Grandin B E and Neate PJN (eds), Maasai herding: An analysis of the livestock production system of Maasai pastoralists in eastern Kajiado District, Kenya. Systems Study 4. ILCA (International Livestock Centre for Africa), Addis Ababa, Ethiopia.
- BEMBRIDGE, TJ, 1984. A Systems Approach Study of Agricultural Development Problems in Transkei. Ph.D. thesis, University of Stellenbosch, Stellenbosch, South Africa.
- BEMBRIDGE, TJ, 1979. Problems of livestock production in the black states of Southern Africa and future strategy. *South African Journal of Animal Science*; 9: 163-176.
- BEMBRIDGE, TJ, 1975. The communication and adoption of beef cattle production practices in Matabeleland and Midlands Provinces of Rhodesia. D InsL Agrar Thesis, University of Pretoria, Pretoria.
- BENBASAT, I, GOLDSTEIN, DK & MEAD, M, 1987. The case research strategy in studies of information systems. *IMS quarterly*, 11: 369 – 386.
- BENNELL, P, 2007. Promoting livelihood opportunities for rural youth. Online: <http://www.ifad.org/events/gc/30/roundtable/youth/benell.pdf>. Accessed: 12/11/12.
- BERNSTEIN, A, 2009. Land reform in South Africa: A 21st century perspective. Research report no 14. The Centre for Development and Enterprise, Parktown, Johannesburg, South Africa.
- BERRY, RA & CLINE, WR, 1979. Agrarian Structure and Productivity in Developing Countries. John Hopkins University Press, Baltimore.
- BEYENE, AD, 2008. Determinants of off-farm participation decision of farm households in Ethiopia. *Agrekon*, 47(1), 140-161.
- BHARADWAJ, K, 1974. Production Conditions in Indian Agriculture, Cambridge University Press, London.

- BICUDO, JR, MCNEILL, S, TURNER, L, BURRIS, R & ANDERSON, J, 2002. Cattle handling facilities: Planning, components, and layouts. Kentucky Cooperative Extension Service, University of Kentucky College of Agriculture, Kentucky.
- BIJMAN, J, 2008. Contract farming in developing countries: an overview. Working Paper, Wageningen University, Wageningen.
- BINSWANGER, HP & ROSENWEIG, MR, 1986. Behavioural and material determinants of production relations in agriculture. *The Journal of Development Studies*, 22:503-539.
- BIRCH, NVE, 2000. The vegetation potential of natural rangelands in the Mid-Fish River Valley, Eastern Cape, South Africa: Towards a sustainable and acceptable management system. Unpublished PhD thesis, Rhodes University, Grahamstown, South Africa.
- BLESS, C & HIGSON-SMITH, C, 2000. Fundamentals of Social Research Methods: An African Experience 3rd Ed. Juta, Cape Town, South Africa
- BLOOM, B.S, 1976. Human characteristics and school learning. New York: McGraw-Hill.
- BRADSTOCK, A, 2005. Key experiences of land reform in the Northern Cape Province of South Africa. Policy and research series. Farm-Africa, Kimberley, South Africa.
- BRAVO-URETA, B.E, & PINHEIRO, A.E., 1997. Technical, Economic and Allocative Efficiency in peasant farming: Evidence from the Dominican Republic. *The Developing Economies*, 35(1): 48–67.
- BRIGGS, J, 2005. The use of indigenous knowledge in development: problems and challenges. *Progress in Development Studies*: 5(2):99-114.
- BROMBERGER, N, & ANTONIE, F., 1993. Black small farmers in the homelands, In: Lipton, M and Simkins, C. (ed.). *Op cit*: 409-449.

- BROMLEY, DB, 1990. Academic contributions to psychological counselling: I. A philosophy of science for the study of individual cases. *Counselling Psychology Quarterly*; 3(3), 299-307.
- BROOKS, J, 2006. Global trade reforms and income distribution in developing countries. *Electronic Journal of Agricultural and Development Economics*, 3(1): 86–111.
- BROWN, LR, 2004. World Food Security Deteriorating: Food Crunch in 2005 Now Likely. Washington DC: Earth Policy institute, Washington, DC, USA.
- BROWN, L, LAFOND, A & MACINTYRE, K. 2001. Measuring Capacity Building. Chapel Hill: MEASURE Evaluation Project. Carolina Population Centre, Carolina.
- BURGESS, J, 2006. Country pasture/forage resource profiles. Online: <http://www.fao.org/ag/AGP/AGPC/doc/Counprof/Botswana/botswana.htm>. Accessed: 12/01/13.
- CACADU DISTRICT MUNICIPALITY, 2007. Integrated Development Plan 2007/2008. Online: <http://www.cacadu.co.za/>. Accessed: 16/10/12.
- CAMPBELL, DT & STANLEY JC, 1963. *Experimental and Quasi-Experimental Designs for Research*. Boston: Houghton Mifflin.
- CARRIE, L, 2001. Livestock Production Contracts: Information for Pennsylvania Farmers. The Dickinson School of Law of the Pennsylvania State University, Pennsylvania.
- CARTER, MR, 1994. Sequencing capital and land market reforms for broadly based growth. Paper No. 379, Department of Agricultural Economics, University of Wisconsin, Madison.
- CAVAYE, ALM, 1996. Case study in research: a multi-faceted research approach for IS. *Information Systems Journal*, 6: 227 – 242.

- CES, 2012. Proposed resort development on portion 17 of farm Gorah 398, Ndlambe Municipality, Bathurst District, Eastern Cape Province, South Africa. Online: www.cesnet.co.za. Accessed: 21/12/12.
- CHAMBERS, R, 1983. Rural development: Putting the last first. Longman, London.
- CHAMBERS, R & CONWAY, GR, 1992. Sustainable rural livelihoods: practical concepts for 21st century. Institute of Development Studies Discussion Papers, 296, Cambridge.
- CHANDY, KT, Undated. Feeds for Farm animals & Poultry. Booklet No. 33. Animal Husbandry: AHS-3.
- CHAUHAN, SK & MOORTHY, TV, 1999. Income and employment pattern, in Economics of sheep farming, Mittal Publication, New Delhi.
- CHAWATAMA, S, MUTISI, C & MUPAWAENDA, AC, 2005. The socio-economic status of smallholder livestock production in Zimbabwe: a diagnostic study. *Livestock Research for Rural Development*, 17(12), Article #143.
- CHAWATAMA, S, NDLOVU, LR, DZAMA, K, TSIMBA, R, TOPPS, JH & MUTIMBA, J, 1998. Socio economic aspects in draught animals Crop linkages: a diagnostic study of Tsholotsho, Chinyika and Smallholder farming areas of Zimbabwe. *Journal of Applied Sciences in Southern Africa*, 4 (1): 11 – 18.
- CHELL, E, 2008. The Entrepreneurial Personality: A Social Construction, London: Routledge.
- CHIKAZUNGA, D, 2012. Rescuing emerging farmers in South Africa? Institute for poverty, land and agrarian studies. University of the Western Cape, Western Cape.
- CHIKAZUNGA, D, JORDAN, D, BIENABE, E & LOUW, A, 2007. Patterns of restructuring food markets in South Africa: The case of fresh produce supply chains. *Paper presented at the African Association of Agricultural Economists Second International Conference, August 20-22, 2007, Accra, Ghana.*

- CHIKOYE, D, MANYONG, VM, CARSKY, RJ, EKELEME, F, GBEHOUNOU, G & AHANCHEDE, A., 2002. Response of speargrass (*Imperata cylindrica*) to cover crops integrated with hand-weeding and chemical control in maize and cassava. *Crop Protection*, 21: 145–156.
- CHIMONYO, M, KUSINA, NT, HAMUDIKUWANDA, H & NYONI, O, 1999. A survey on land use and usage of cattle for draught in a smallholder farming area of Zimbabwe. *Journal of Applied Sciences for Southern Africa*, 5(2): 111-121.
- CHIMWARA, DR, 2011. Improving the lives of the rural and marginalized farmers through dairy market linkage program in the rural areas of Zimbabwe (Tsonzo, Risitu, Chikwaka and Marirangwe). Online:
<http://globalfoodchainpartnerships.org/india/Papers/Posters/DoreenChimwara.pdf>.
Accessed: 13/12/12.
- CHIN, FY, 1998. Forage development and management in communal grazing system in Malaysia. In: *Proceeding of 19th MSAP Annual Conference on Harmonizing Livestock Production with the Environment*, 8-10 Sept., Johor Bahru.
- CHIN, FY, 1994. Managing and organising communal grazing land for livestock production. Proc. FAO/DLVS Workshop-cum-Training on Grassland Management and Forage Production Under Different Farming Systems, May 10-13 1994, Vientiane, Lao P.D.R.
- CHISASA, J & MAKINA, D, 2012. Trends In Credit To Smallholder Farmers In South Africa. *International Business & Economics Research Journal*, 11(7): 771 – 774.
- CLAUDE, LPH, 2010. Evaluation of strategies on a farm animal census for the Eastern Cape Province, South Africa. Unpublished PhD thesis. University of Veterinary Medicine, Hannover.
- COE, NM, DICKEN, P & HESS, M, 2008. Introduction: global production networks - debates and challenges. *Journal of Economic Geography*, 8: 267–269.

- COETZEE, G, 2003. Agricultural finance in South Africa, in: Nieuwoudt L & Groenewald J (Eds.). The challenge of change: agriculture, land and the South African economy. Pietermaritzburg: University of Natal Press.
- COMMISSION FOR GENDER EQUALITY, 2009. A gendered analysis of land reform policy and implementation outcome in South Africa (2006 – 2008/09), pp. 45-50. Commission for Gender Equality.
- CONWAY, G, 1985. Agro-ecosystems analysis. *Agricultural Administration*, 20:31-55.
- COTULA, L, TOULMIN, C & HESSE, C, 2004. Land tenure and administration in Africa: Lessons of experience and emerging issues. International Institute for Environment and Development, London.
- COUSINS, B, 2000. Why land invasions will happen here too. University of the Western Cape: Programme for Land and Agrarian Studies, Western Cape, South Africa.
- COWAN, T, 2002. Value-added agricultural enterprises in rural development strategies. Congressional Research Service: The Library of Congress. Online: <http://www.nationalaglawcenter.org/assets/crs/RL31598.pdf>. Accessed: 24/10/12.
- CPLO, 2010. South Africa's Land Reform Programme: Progress and problems. Briefing Paper 237: Cape Town.
- CRS, 2007. Preparing farmer groups to engage successfully with markets: A field guide for five key skill sets. The Rural Innovation Institute, CIAT, Cali, Colombia.
- CSIF, 2011. What you can do to prevent livestock theft and vandalism. Online: <http://magissues.farmprogress.com/NEF/NF12Dec11/nef060.pdf>. Accessed: 13/11/12.
- CWATI, ST, 2004. Comparing anti-corruption strategies in South Africa's Western and Eastern Cape Provinces. Unpublished Master of Public Administration thesis, University of the Western Cape, Western Cape.

- DAVIES, S, 1996. Adaptable livelihoods. Coping with Food Insecurity in the Malian Sahel, London: MacMillan.
- DE LANGE, AO, 1991. Peasant farming and the rural economy of the Eastern Cape. Agrekon, 30 172-174.
- DE WILDE, J, 1971. Electrical forcing of Belgian endive (chicory - witloof). Acta hort. (ishs), 22:55-56.
- DEATH, C, 2011. Food Security: issues and trends in international politics. IBERS: Knowledge-Based Innovations, 4: 32-37.
- DEFRA, 2007. Barriers to farm diversification: Report of the Joint Industry Working Group, Department for Environment, Food and Rural Affairs, London.
- DEININGER, K, 1999. Making negotiated land reform Work: Initial experience from Columbia, Brazil and South Africa. Washington, DC: The World Bank.
- DEININGER, K & BINSWANGER, H, 1992. Are large farms more efficient than small ones? Government intervention, large-scale agriculture and resettlement in Kenya, South Africa and Zimbabwe. Unpublished working paper, Department of Applied Economics, University of Minnesota.
- DELGADO, C, 1999. Sources of growth in smallholder agriculture in sub-Saharan Africa: The role of vertical integration of smallholders with processors and marketers of high-value added items. Agrekon, 38(Special Issue): 165-189.
- DELGADO, CL, HOPKINS, J & KELLY, VA, 1998. Agricultural growth linkages in Sub-Saharan Africa. Washington, D.C.: U.S. Agency for International Development.
- DELVE, RJ, CADISCH, G & TANNER, JC, THORPE, W, THORNE, PJ & GILLER, KE, 2001. Implications of livestock feeding management on soil fertility in the smallholder farming systems of sub-Saharan Africa. Agriculture, Ecosystems and Environment, 84 (2001): 227-243.

- DEPARTMENT OF AGRICULTURE, 2004. The draft Agri-BEE framework: An overview. Online:
http://www.nda.agric.za/docs/agribee/AgriBEE_dgpresentation_24august.pdf.
Accessed: 14/08/10.
- DEPARTMENT OF LAND AFFAIRS. 1997. White Paper on South African Land Reform. Department of Land Affairs. Pretoria.
- DESHINGKAR, P, 2004. Understanding the implications of migration for pro-poor agricultural growth, London, Overseas Development Institute.
- DE SWART, C, 2005. Trends and policy challenges in the rural economy: four provincial case studies. Eastern Cape case study. HSRC Press. Online:
<http://www.hsrc.ac.za/en/research-data/view/1188>. Accessed:13/11/12
- DEVEREUX, S, 2001. Transfers and safety nets. In Devereux, M. and Maxwell, S., (eds.), "Food security in Sub-Saharan Africa". Institute of Development Studies, ITDG Publishers, London.
- DEVEREUX, S, 1993. Goats before ploughs: Dilemmas of Household response sequencing during food shortages. *Institute for Development Studies Bulletin*, 24: 29-43.
- DFID, 2000. Sustainable Rural Livelihoods Guidance Sheet, London, UK.
- DICKHOEFER, U, BUERKERT, A, BRINKMANN, K & SCHLECHT, E, 2008. The role of pasture management for sustainable livestock production in semi-arid subtropical mountain regions. *Journal of Arid Environments*, 74 (2010) 962–972.
- DIDIZA, AT, 2006. Land and Agrarian Reform in South Africa: 1994-2006. Presentation by the Minister for Agriculture and Land Affair for the International Conference on Agrarian Reform and Rural Development, Brazil.

- DIJKMAN, J, GEBREWOLD, A & ANNE PEARSON, R, 2000. Multipurpose use of work animals in smallholder farming systems. in: Kaumbutho P G, Pearson R A and Simalenga T E (eds), 2000. Empowering farmers with animal traction. Proceedings of the workshop of the Animal Traction Network for Eastern and Southern Africa (ATNESA) held 20-24 September 1999, Mpumalanga, South Africa. 344p. ISBN 0-907146-10-4.
- DLA, 1997. White Paper on South African Land Policy. Department of Land Affairs, Pretoria.
- DLAMINI, J, 2011. Facilitating institutional change: A precursor for development success? Proceedings, Congress of the South African Sugar Technologists Association, 84: 95 – 99.
- DOGAN, KH & DEMIRCI, S, 2012. Livestock-handling related injuries and death. In Tech Open Access Publisher, Turkey.
- DONI, TM, 1997. A Study to identify and evaluate the impact of the Keiskammahoek Farmer Support Programme on Farmer Development. Unpublished M Agric (Agricultural Economics) Thesis, University of Fort Hare, Alice, South Africa.
- DOROSH, P & HAGGBLADE, S, 2003. Growth linkages, price effects and income distribution in Sub-Saharan Africa. IFPRI, Washington DC. Journal of African Economies, 12(2): 207-235.
- DOVIE, DBK, SHACKLETON, CM & WITKOWSKI, ETF, 2006. Valuation of communal area livestock benefits, rural livelihoods and related policy issues. Land Use Policy, 23:260-271.
- DORWARD, A, 2009. Rethinking agricultural subsidy programmes in a changing world. Centre for Development, Environment and Policy, School of Oriental and African Studies (SOAS) University of London. A Report Prepared for the Trade and Markets Division, Food and Agriculture Organization (FAO) of the United Nations, Rome
- DUBOIS, DD, 1993. Competency-based performance improvement: A strategy for organizational change Amherst, MA: HRD Press, Inc.

- DÜVEL, GH & AFFUL, DB, 1997. Towards an understanding of stocking rate decisions for communal rangelands in South Africa: the role of culture. *South African Journal of Extension*, 26: 53-70.
- EASTERN CAPE BUSINESS, 2007. Agriculture & agri-processing. Global Africa Network (Pty) Ltd.
- ECDC, 2011. Agriculture. Online:
http://www.ecdc.co.za/opportunities/agriculture_and_minerals. Accessed: 13/11/2011.
- ECKSTEIN, H, 1992. Case studies and theory in Political Science. In *Regarding Politics: Essays on Political Theory, Stability, and Change*. Berkeley: University of California Press.
- EGODIGWE, L, 2006. Pipeline to success. *Black Enterprise*, 36(10): 59.
- EICHER, CK, 1994. African agricultural development strategies. In: Stewart, F, Lall, S and Wangwe, S (eds.). *Alternative Development Strategies in Sub-Saharan Africa*. London: The Macmillan Press.
- ELLIS, F, 2000. *Rural livelihoods and diversity in developing countries*, Oxford University Press, Oxford.
- ELLIS, F, 1999. *Rural livelihood diversity in developing countries: Evidence and policy implications*. Overseas Development Institute, Department for International Development, London.
- ELLIS, F, 1993. *Peasant economics: Farm households and agrarian development*, 2nd edition. Cambridge University Press, Cambridge.
- ELY, DP, 1985. Education and Training: Two paths or one? *Programmed learning and Education technology*, 22:75-77.

- ENNIS, MR, 2008. Competency models: A review of the literature and the role of the Employment and Training Administration (ETA). Division of Research and Evaluation. U. S. Department of Labour, USA.
- ESPINOSA, EA, LAÑADA, EB, TAVEROS, A, PYM, RAE & CLARK, R, 2002. Usefulness of 'thinking tools' in enhancing smallholder farmer capacity to improve their village chicken production, 7th Asia Pacific Poultry Congress, Gold Coast.
- ESTUDILLO, JP, & OTSUKA, K, 1999. Green revolution, human capital and off-farm employment: changing sources of income among farm households in central Luzon, 1966-1994. *Economic Development and Cultural Change*, 47(3): 497-523.
- EVANS, AEV, GIORDANO, M & CLAYTON, T, 2012. Investing in agricultural water management to benefit smallholder farmers in Ghana. AgWater Solutions Project country synthesis report. Colombo, Sri Lanka: International Water Management Institute (IWMI) 37p. (IWMI Working Paper 147). doi: 10.5337/2012.209.
- FAFCHAMPS, M, 2004. Market institutions in sub-Saharan Africa: theory and evidence. The MIT Press, Cambridge.
- FANADZO, M, 2012. Revitalisation of smallholder irrigation schemes for poverty alleviation and household food security in South Africa: A review. *African Journal of Agricultural Research*, 7(13): 1956-1969.
- FAO, 2011. The state of food and agriculture: 2010 – 11. FAO, Rome, Italy.
- FAO, 2009. Land Policy Development in an African Context, FAO, Rome, Italy.
- FAO, 2004. Socio-economic analysis and policy implications of the roles of agriculture in developing countries. Summary Report, Roles of Agriculture Project, FAO, Rome, Italy.
- FAO, 2002. Improved animal health for poverty reduction and sustainable livelihoods. FAO, Rome, Italy.

- FAO, 1986. Ethiopian highlands reclamation study. Final Report. 2 volumes. FAO, Rome, Italy.
- FEDER, G, 1985. The relation between farm size and farm productivity: The role of family labor, supervision and credit constraints. *Journal of Development Economics* 18:297-313.
- FELLONI, F, 2006. Impact evaluation in the absence of baseline surveys. International Workshop on Development Impact Evaluation, Paris.
- FEYNES, T & MEYER, N, 2003. Structure and production in South African agriculture, in: Nieuwoudt L & Groenewald J (eds.). The challenge of change: agriculture, land and the South African economy. University of Natal Press, Pietermaritzburg.
- FISCHER, E & QAIM, M, 2001. Smallholder farmers and collective action: What determines the intensity of participation? Global Food Discussion Papers, University of Göttingen, Germany.
- FLEMING, K, 2005. Value-added strategies: Taking agricultural products to the next level. College of Tropical Agriculture and Human Resources (CTAHR). University of Hawai'i at Mānoa, Honolulu, Hawai'i.
- FOSTER, PN, 2002. Using case-study analysis in technology education research. *Journal of Career and Technical Education*, 19(1); 47-66.
- FOWLER, ME, 1978. Restraint and handling of wild and domestic animals. Iowa State University Press, Ames.
- FRANCIS, J & SIBANDA, S, 2001. Participatory action research experiences in smallholder dairy farming in Zimbabwe. *Livestock Research for Rural Development*, 13 (3): 1-6.
- FRASER, GCG, MONDE, N & VAN AVERBEKE, W, 2003. Food Security on South Africa: A case study of rural livelihoods in the Eastern Cape Province. In Lieb Nieuwoudt and Jan Groenewald (Eds), The Challenge of Change: Agriculture, Land and the South African Economy. University of Natal Press, Pietermaritzburg.

- GATES, R & MCDANIEL, C, 19967. Contemporary Marketing Research. West Publishing Company.
- GAY, SW & GRISSO, R, 2012. Safe handling of livestock. Online: <http://bse.srv214.bse.vt.edu/Grisso/Ext/AnimalHandling.pdf>. Accessed: 13/01/13
- GEBREMEDHIN, B & JALETA, M, 2010. Commercialization of smallholders: Does market orientation translate into market participation? Improving Productivity and Market Success (IPMS) of Ethiopian farmers project Working Paper 22. Nairobi, Kenya, ILRI.
- GEMEDO-DALLE, MAASS, BL & ISSELSTEIN, J, 2006. Rangeland condition and trend in the semi-arid Boran lowlands, southern Oromia, Ethiopia. *African Journal of Range and Forage Science*, 23 (1): 49- 58.
- GERRING, J, 2004. What is a case study and what is it good for? *American Political Science Review*, 98 (2): 341-354.
- GERRITS, A, 2000. Dissemination of fodder materials in the Central Highlands of Kenya. In: Calliandra calothyrsus and other fodder trees: Moving forward in research and development. Oxford Forestry Institute, Oxford, UK and ICRAF (International Centre for Research in Agro-forestry), Nairobi, Kenya.
- GHOTGE, N & RAMDAS, S, 2002. Women and livestock: Creating space and opportunities. LEISA Magazine, India. pp 1-2.
- GIDDENS, A, 1979. Central problems in social theory: Action, structure and contradiction in social analysis, London: MacMillan.
- GILLER, K, 2012. Helping farmers find their own solutions. Online: <http://www.new-ag.info/en/view/point.php?a=2711>. Accessed: 23/10/12.
- GILLER, KE, WITTER, E, CORBEELS, M & TITTONELL, P, 2009. Conservation agriculture and smallholder farming in Africa: The heretics' view. *Field Crops Research*, 114 (2009) 23–34.

- GOCKOWSKI, J, 1999. Intensification of horticultural production in the urban periphery of Yaounde. In P. Moustier, A. Mbaye, H. De Bon, H. Guerin & J. Pages. Agriculture periurbaine en Afrique subsaharienne. Actes de l'atelier 20-24 avril 1998. Montpellier, France. pp. 63–79. CIRAD/CORAF.
- GOODMAN, RM, SPEERS, MA, MCLEROY, K, FAWCETT, S, KEGLER, M & PARKER, E, 1998. Identifying and defining the dimensions of community capacity to provide a basis for measurement. *Health Education Behaviour*; 25(3): 258-278.
- GORDON, A, & GOODLAND, A, 2002. Smallholder access to inputs in Sub-Saharan Africa, NRI Policy Series. Chatham, UK .
- GOVERNMENT OF ZIMBABWE, 1998. National Land Policy, Government Printers, Harare.
- GRANDIN, BE, DE LEEUW, PN & DE SOUZA, M, 1991. Labour and livestock management. In: Solomon Bekure, de Leeuw P. N., Grandin B.E. and Neate P.J.H. (eds), Maasai herding: An analysis of the livestock production system of Maasai pastoralists in eastern Kajiado District, Kenya. ILCA System Study 4. ILCA (International Livestock Centre for Africa), Addis Ababa, Ethiopia.
- GRANDIN, T, 2001. Management practices that reduce livestock bruise and injuries and improve handling efficiency Livestock: Handling Guide. National Institute for Animal Agriculture. Online:
<http://www.animalagriculture.org/Education/Pamphlets/Livestock%20Handling%20Guide.pdf>. Accessed: 21/12/12.
- GRANDIN, T, 1998. Reducing handling stress improves both productivity and welfare: Review. *The Professional Animal Scientist*, 14(1): 1-10.
- GRANDIN, T, 1993. Teaching principles of behavior and equipment design for handling livestock. *Journal of Animal Science*, 71: 1065-1070.
- GREENBERG, DS, 2009. Science for sale: The perils, rewards and delusions of campus capitalism. Chicago: University of Chicago Press, Chicago.

- GROEWNEWEG, K, BUYU, G, ROMNEY, D & MINJAUW, B, 2006. Livestock farmer field schools – Guidelines for facilitation and technical manual. International Livestock Research Institute, Nairobi, Kenya.
- GUBA, EG & LINCOLN, YS, 1981. Effective evaluation. San Francisco, CA: Jossey-Bass Publishers, San Francisco.
- GUJARATI, D, 1992. Essentials of Econometrics. McGraw-Hill, Boston.
- GUJARATI, D, 1988. Basic Econometrics, 2nd edn, McGraw-Hill, New York.
- GUZMAN, J & SANTOS, F, 2001. The booster function and entrepreneurial quality: An application to the province of Seville. *Entrepreneurship and Regional Development*, 13: 211-228.
- GWANYA, T, 2003. Land Restitution in South Africa: Our achievements and challenges. Commission on restitution of land rights. Online: <http://land.pwv.gov.za/restitution>. Accessed: 14/10/10.
- GYAU, A & TAKOUTSING, B, 2012. Producers' perception of collective action Initiatives in the Production and Marketing of Kola in Cameroon. *Journal of Agricultural Science*, 4(4): 117- 128.
- HAGGBLADE, S, PETER, H & BROWN, J, 1989. Farm-nonfarm linkages in rural Sub-Saharan Africa. *World Development*, 17(8): 1173-1201.
- HALL, R, 2004. LRAD rapid systematic assessment survey: Nine case studies in the Eastern Cape. Unpublished paper, Programme for Land and Agrarian Studies, University of the Western Cape, Western Cape.
- HANF, C & MÜLLER, R, 1997. 'Schlüsselaktivitäten betrieblicher Anpassung: Informations beschaffung, Wissensakquisition, Erwerb von Fähigkeiten'. In: Schriften der Gesellschaft für Wirtschaft- und Sozialwissenschaften des Landbaus, 33 pp. 207-218.

- HANGARA, GN, TEWELDEMEDHIN, MY & GROENEWALD, IB, 2011. Measuring factors that can influence cattle supply response to the market in Namibia: Case study from Omaheke communal farmers. *Journal of Agricultural Extension and Rural Development*, 3(8); 141-146.
- HAO, L & NAIMAN, DQ, 2007. Quantile regression. The John Hopkins University, Baltimore.
- HART, TGB, 2007. Local knowledge and agricultural applications: Lessons from a Ugandan parish. *South African Journal of Agricultural Extension*, 36: 229-248.
- HAYWARD, J & BOTHA, C, 1995. Extension, training and research. In R. Singini & J. Van Rooyen (Eds.), *Serving small scale farmers: An evaluation of DBSA's farmer support programmes*. Halfway House: Development Bank of Southern Africa.
- HEARY, CM, 2000. The use of focus group interviews in Pediatric Health Care Research. *Journal of Pediatric Psychology*, 27(1): 47 – 57.
- HEBDEN, J, 1981. Statistics for Economists, Philip Allan, Oxford.
- HEFFERNAN, C & MISTURRELI, F, 2000. The delivery of Veterinary services to the poor: Preliminary findings from Kenya. Veterinary Epidemiology and Economics Research Unit. Department of Agriculture, University of Reading, Reading.
- HENNING, J, LACEFIELD, G, RASNAKE, M, BURRIS, R, JOHNS, J, JOHNSON, K & TURNER, L, 2000. Rotational grazing. University of Kentucky Cooperative Extension Service, University of Kentucky, Kentucky.
- HIRSHLEIFER, J, GLAZER, A & HIRSHLEIFER, D, 2005. Price theory and applications decision, market and information (7th ed). Cambridge University Press, New York.
- HOBBS, JE, 1997. Measuring the importance of transactions costs in cattle marketing. *American Journal of Agricultural Economics*, 79(4): 1083-1095.

- HOFFERTH, SL, 2003. Persistence and change in the food security of families with children, 1997-1999. Department of Family Studies, University of Maryland, Maryland.
- HOLLING, C, 1993. Investing in research for sustainability. *Ecological Applications*, 3: 552-555.
- HOSMER, DW & LEMESHOW, S, 1989. Applied Logistic Regression, Wiley, New York.
- HOWE, A, 1985. Education and Training: Is there any difference? *Programmed Learning and Education technology*, 22:1-6.
- HUFFMAN, R, 2012. Ranchers guard against cattle theft during calving season. Online: <http://www.oregon.gov/ODA/pages/news/120307theft.aspx>. Accessed: 15/10/12.
- HUTSON, GD, 1993. Behavioral principles of sheep handling. In Livestock handling and transport. T. Grandin, (Ed.). CAB International Wallingford, UK.
- HYMANS, SH & SHAPIRO, HT, 1976. The allocation of household income to food consumption. *Journal of Econometrics*, 4: 167-188.
- IFAD, 2010. New realities, new challenges: new opportunities for tomorrow's generation. International Fund for Agricultural Development (IFAD). Rome, Italy.
- IKERD, J, 2000. New farmers for a new century. *Paper presented at Youth in Agriculture Conference. Ulvik, Norway, 14-15 February 2000.*
- IRZ, X, LIN, L, THIRTLE, C & WIGGINS, S, 2001. Agricultural productivity growth and poverty alleviation. *Development policy review*, 19(4): 449-466.
- ISLAM, R & BUCKLEY, G, 2009. Rising food prices and their implications for employment, decent work and poverty reduction, Employment Working Paper No. 30, ILO.

- JAFFEE, J & MORTON, J, 1995. Marketing Africa's high-value foods: Comparative experience of an emergent private sector. Washington, DC: World Bank, and Dubuque, Iowa: Kendall/Hunt Publishing Company.
- JANELID, I, 1975. The role of women in Nigerian agriculture. FAO, Rome.
- JARI, B, 2009. Institutional and technical factors influencing agricultural marketing channel choices amongst smallholder and emerging farmers in the Kat River Valley. Unpublished Masters thesis, University of Fort Hare, Alice.
- JARI, B & FRASER, GCG, 2009. An analysis of institutional and technical factors influencing agricultural marketing amongst smallholder farmers in the Kat River Valley, Eastern Cape Province, South Africa. *African Journal of Agricultural Research*, 4(11):1129-1137.
- JAYNE, TS, MATHER, D & MGHENYI, E, 2007. Principal challenges facing smallholder agriculture in Sub-Saharan Africa. Department of Agricultural Economics, Michigan State University, Michigan.
- JIGGINS, J, SAMANTA, RK & OLAWOYE, JE, 1997. Improving agricultural extension. A reference manual. Food and Agriculture Organization of the United Nations, Rome.
- JOOSTE, A & VAN ROOYEN, CJ, 1996. Constraints to small farmer development in the red meat industry. *Invited paper, Red Meat Producers Conference*, Roodevallei, Pretoria, 27 March 1996.
- JOUBERT, ABD, 2000. Weed control by smallholder farmers in Ciskei, Eastern Cape Province, South Africa. In: "Starkey P and Simalenga T (eds), 2000. *Animal power for weed control*. A resource book of the Animal Traction Network for Eastern and Southern Africa (ATNESA). Technical Centre for Agricultural and Rural Cooperation (CTA), Wageningen, The Netherlands. ISBN 92-9081-136-6.
- KABIRIZI, J, MPAIRWE, D & MUTETIKKA, D, 2004. Testing forage legume technologies with smallholder dairy farmers: a case study of Masaka district, Uganda. *Uganda Journal of Agricultural Sciences*, 9: 914-921.

- KABWE, G, 2010. Uptake of agroforestry technologies among smallholder farmers in Zambia. Unpublished PhD thesis, Lincoln University, Christchurch, New Zealand.
- KAETHAMASORN, M & WONGSAMEE, S, 2006. A preliminary survey of gastrointestinal and haemoparasites of beef cattle in the tropical livestock farming system in Nan Province, northern Thailand. *Parasitology Research*, 99: 306-308.
- KALINDA, TH, SHUTE, JC & FILSON, GC, 1998. Access to agricultural extension, credit and markets among small-scale farmers in southern Zambia. *Development Southern Africa*, 15(4): 589-608.
- KANDIYOTI, D, 1990. Women and rural development policies: The changing agenda. *Development and Change*, 21(1):5-22.
- KANG'ETHE, GW, 2004. Agricultural development and food security in Kenya. Building a Case for more Support. A paper prepared for Food and Agriculture Organization (FAO), Rome.
- KARANJA, GM & NDUBI, JM, 2008. Enhancing impact through uptake and upscaling of agricultural technologies and information: The KARI-ATIRI experience. Kenya Agricultural Research Institute, Nairobi, Kenya.
- KARIUKI, SM, 2004. Creating the black commercial farmers in South Africa. ASC Working Paper 56/2004. University of the Witwatersrand, South Africa.
- KAUZYA, JM, 2005. Decentralization: Prospects for peace, democracy and development. Division for Public Administration and Development Management. DPADM Discussion paper. United Nations Department of Economic and Social Affairs, United Nations, New York.
- KEPE, T, 2002. The dynamics of cattle production and government intervention in communal areas of Lusikisiki District. In: Ainslie A (ed.) *Cattle Ownership and Production in the Communal Areas of the Eastern Cape, South Africa*. Research Report No 10. Programme for Land and Agrarian Studies (PLAAS), University of the Western Cape, Belville.

- KEY, N & RUNSTEN, D, 1999. Contract farming, smallholders, and rural development in Latin America: The organization of Agro-processing firms and the scale of out-grower production. World Development, 27(2): 381-401.
- KHERALLAH, M & MINOT, N, 2001. Impact of agricultural market reforms on smallholder farmers in Benin and Malawi. IFPRI Collaborative Research Project. International Food Policy Research Institute, Washington DC.
- KIMENYI, SM, 2002. Agricultural, economic growth and poverty reduction. Nairobi: Kippraa.
- KING, PG & BEMBRIDGE, TJ, 1988. An extension approach for the National Grazing Strategy based on farmer characteristics in the Eastern Cape. Journal of Agricultural Extension, 14; 11- 17.
- KIRSTEN, JF & MOLDENHAUER, W, 2006. Measurement and analysis of rural household income in a dualistic economy: The case of South Africa. Agrekon, 45 (1): 60-77
- KIRSTEN, JF & VAN ZYL, J, 1998. Defining small-scale farmers in the South African context. Agrekon, 37(4): 560-571.
- KIRSTEN, JF, VAN ZYL, J & SARTORIUS VON BACH, HJ, 1997. Farmer support and household food production in South Africa's developing areas. Agrekon, 36(2): 217-228.
- KISAKA-LWAYO, M, 2012. Risk preferences and consumption decisions in organic production: the case of Kwazulu-Natal and Eastern Cape Provinces of South Africa. Unpublished PhD thesis (Agric. Economics), University of Fort Hare, Alice.
- KLEINBOOI, K & LAHIFF, E. 2007. The man is the head and is foremost: Women's attitudes to land and farming in the communal areas of Namaqualand. Journal of Arid Environments, 70 (4): 799–817.

- KORMAWA, PM, EZEDINMA, CI & SINGH, BB, 2004. Factors influencing farmer-to-farmer transfer of an improved cowpea variety in Kano State, Nigeria. *Journal of Agriculture and Rural Development in the Tropics and Subtropics*, 105(1): 1-14.
- KOTELLOS, KA, AMON, JJ, GITHENS & BENAZERGA, WM, 1998. Field experiences: Measuring capacity building efforts in HIV/AIDS prevention programs. AIDSCAP Family Health International, AIDS 12 (suppl. 2) s 109- S117.
- KRAMER, MH, 2012. Beef cattle farmer. Online:
<http://animalcareers.about.com/od/Production/a/Beef-Cattle-Farmer.htm>. Accessed: 24/12/12.
- KUIPER, M, MEIJERINK, G & EATON, D, 2007. Rural livelihoods: Interplay between farm activities, non-farm activities and the resource base: In Science for Agriculture and Rural Development in the South. M. Kuiper, G. Meijerink, H. van Keulen, R. Roetter and J. Verhagen eds: Springer-Verlag.
- KUNENE, NW & FOSSEY, A, 2006. A survey on livestock production in some traditional areas of Northern KwaZulu Natal in South Africa. *Livestock research for rural development*, 18, Article # 113.
- KUNKEL, KL, PETERSON, JL & MITCHELL, JA, 2009. Agricultural production contracts. The University of Minnesota, Minnesota.
- KURWIJILA, RL & HENRIKSEN, J, 2010. Milk supply to urban centres in Tanzania with particular reference to the city of Dar Es Salaam. Department of Animal Science & Production. Sokoine University of Agriculture, Morogoro, Tanzania.
- LAHIFF, E, 2007. State, market or the worst of both? Experimenting with market-based Land Reform in South Africa. Occasional Paper No. 30. Programme for Land and Agrarian Studies, University of the Western Cape.
- LAKER, MC, 2004. Development of a general strategy for optimizing the efficient use of primary water resources for effective alleviation of rural poverty. WRC Report No. KV149/04. Pretoria: Water Research Commission.

- LANDRUM, LB & BAKER, SL, 2004. Managing complex systems: Performance management in Public Health. Journal of Public Health Management & Practice, 10(1): 13-18.
- LANS, T, BIEMANS, HJA, MULDER, M & VERSTEGEN, JAAM, 2010. Self-awareness of Mastery and Improvability of Entrepreneurial Competence in Small Businesses in the Agrifood Sector. Human Resource Development Quarterly, 2 (21): 147-168.
- LAZEAR, EP, 2005. Entrepreneurship. Journal of Labor Economics; 23(4): 649-680.
- LE DEIST, FD & WINTERTON, J, 2005. What is competence? Human Resource Development International, 8(1): 27-46.
- LEHMKUHL, LD, 1996. Nonparametric statistics: Methods for analyzing data not meeting assumptions required for the application of parametric tests. The American Academy of Orthotists and Prosthetists, 8(3): 105 - 113.
- LEMAIRE, G, WILKINS, R & HODGSON, J, 2005. Challenges for grassland science: Managing research priorities. Agriculture, Ecosystems and Environment, 108: 99-108.
- LIEBERSON, S, 1992. Small N's and Big Conclusions: An Examination of the reasoning in comparative studies based on a small number of cases. In: What Is a Case? Exploring the Foundations of Social Inquiry, ed. Charles S. Ragin and Howard S. Becker. Cambridge: Cambridge University Press.
- LIEBERSON, S, 1994. More on the uneasy case for using Mill-Type methods in small-N comparative studies. Social Forces; 72: 1225–37.
- LINNELL, D, 2003. Evaluation of capacity building: Lessons from the field. Alliance for Nonprofit Management. Washington, DC, Washington.
- LUBAMBO, PT, 2011. An appraisal of post transfer production of selected land reform projects in the North West Province, South Africa. Unpublished M Inst. Agrar. (Agricultural Economics). University of Pretoria, Pretoria.

- LUCIA, AD & LEPSINGER, R, 1999. The art and science of competency models: Pinpointing critical success factors in organizations New York: Pfeiffer.
- LUND, T, 2012. SA not reaping benefits of land reform: Rocky road to progress. Online: <http://www.fm.co.za/politics/2012/08/08/sa-not-reaping-benefits-of-land-reform>. Accessed: 23/11/12.
- LUSTHAUS, C, ANDERSON, G & MURPHY, E, 1995. Institutional Assessment: A framework for strengthening organizational capacity for IDRC's Research Partners. International Development Research Center, Ottawa.
- LWOGA, ET, NGULUBE, P & STILWELL, C, 2010. Understanding indigenous knowledge: Bridging the knowledge gap through a knowledge creation model for agricultural development. *SA Journal of Information Management*; 12(1); 436-444.
- LYNE, MC, 1996. Transforming developing agriculture: Establishing a basis for growth. *Agrekon*, 35(4):188-192.
- LYNE, MC & DARROCH, MAG, 2003. Land Redistribution in South Africa: Past Performance and Future Policy. University of Natal, Pietermaritzburg, South Africa.
- MABE, LK, ANTWI, MA & OLADELE, OI, 2012. Factors influencing farm income in livestock producing communities of North-West Province, South Africa. *Livestock Research for Rural Development*. Volume 22, Article #142.
- MACHETHE, CL, 2004. Agriculture and poverty in South Africa: Can agriculture reduce poverty? Paper presented at the Overcoming Development Conference held in Pretoria, 28-29 October 2004.
- MACHINGURA, C, 2007. An analysis of factors that can be used to identify successful smallholder farmers a case study of Mbhashe and Ngqushwa. Unpublished Masters thesis, University of Fort Hare, Alice, South Africa.
- MAFU, VJ & MASIKA, PJ, 2002. Milk production from local goats, is it a viable option? *ARDRINews*, 2002 6-8.

- MAGINGXA, LL, ALEMU, Z & VAN SCHALKWYK, HD, 2005. Factors that influencing market access for smallholder irrigators in South Africa. *A paper presented at the 43rd Annual AEASA conference in Polokoane, Limpopo, September 21-23, 2005.*
- MAIL & GUARDIAN, 2010. Land-reform beneficiaries owed R3.4bn by government. Cape Town, South Africa.
- MAKARA, NM, 2010. An investigation of the role and impact of the extension services in the Massive Food Programme introduced at Zanyokwe Irrigation Scheme of the Amahlati local municipality in the Eastern Cape. Unpublished M.Agric thesis (Agricultural Extension), University of Fort Hare, Alice.
- MAKEHAM, JP & MALCOLM, LM, 1986. The economics of tropical farm management. Cambridge University Press, Cambridge.
- MAKHURA, MT, 2001. Overcoming the transaction cost barriers to market participation of smallholder farmers in the Northern Province. Unpublished PhD thesis, University of Pretoria, Pretoria, South Africa.
- MANDIKIANA, BW, 2011. The economics of Bt maize/yeild gard production: Case of smallholder farmers in the Eastern Cape Province. Unpublished MSc. (Agricultural Economics), University of Fort Hare, Alice, South Africa.
- MANDLENI, B & ANIM, FDK, 2012. Climate change and adaptation of small-scale cattle and sheep farmers. *African Journal of Agricultural Research*, 7(17): 2639-2646.
- MANENZHE, TJ, 2007. Post settlement challenges for land reform beneficiaries: three case studies from Limpopo Province. Unpublished Masters in Philosophy (Land and Agrarian Studies) thesis. University of the Western Cape, Western Cape, South Africa.
- MANONA, SS, 2005. Smallholder agriculture as local economic development (LED) strategy in rural South Africa: Exploring prospects in Pondoland, Eastern Cape. Unpublished Masters in Philosophy thesis. University of Western Cape, Western Cape, South Africa.

- MAPIYE, C, CHIMONYO, M, DZAMA, K, RAATS, JG & MAPEKULA, M, 2009. Opportunities for improving Nguni cattle production in the smallholder farming systems of South Africa. *Livestock Science*, 124: 196-204.
- MAPIYE, C, FOTI, R, MWALE, M, CHIKUMBA, N, POSHIWA, X, CHIVURAISE, C & MUPANGWA, JF, 2006. Constraints to adoption of forage and browse legumes by smallholder dairy farmers in Zimbabwe. *Livestock Research for Rural Development*, 18 (12).
- MARTINS, C, 1990. The role of women in the production of livestock in third world countries. A review of literature. Working paper. (GTZ Project 90.9127.3–91.100). Berlin, Germany.
- MARUFU, MC, 2008. Prevalence of ticks and tick borne diseases in cattle on communal rangelands in the highland areas of the Eastern Cape province South Africa. Unpublished MSc thesis, University of Fort Hare, Alice, South Africa.
- MASHINGAIDZE, N, TWOMLOW, SJ & HOVE, L, 2009. Crop and weed responses to residue retention and method of weeding in first two years of a hoe-based minimum tillage system in semi-arid Zimbabwe. *Journal of SAT Agricultural Research*, 7: 1-11.
- MAXWELL, S & FRANKENBERGER, T, 1992. Household food security, concepts, indicators and measurements: a technical review. UNICEF/IFAD, New York/Rome.
- MAZVIMAVI, K, NDLOVU, PV, NYATHI, P & MINDE, IJ, 2010. Conservation Agriculture Practices and Adoption by Smallholder Farmers in Zimbabwe. *Poster presented at the Joint 3rd African Association of Agricultural Economists (AAAE) and 48th Agricultural Economists Association of South Africa (AEASA) Conference, Cape Town, South Africa, September 19-23, 2010.*
- MBILINYI, M, 1997. The end of smallholder farming? Gender and structural adjustment. Revised paper presented to TGNP Gender and Development Seminar Series. Online: <http://www.pdfio.com/k-536435.html>. Accessed: 12/10/12.

- MBOGOH, SG, 1992. Analysis of some socio-economic aspects of dairy development in Kenya. Paper presented at a KARI/ISNAR Workshop on Planning and Research Priority Setting for Dairy Cattle Research in Kenya, Kenya Agricultural Research Institute, (KARI), Nairobi, Kenya.
- McCATTY, M, 2004. The process of rural-urban migration in developing countries. Unpublished thesis. Carleton University, Ottawa, Ontario.
- McCOLLOUGH, C, 1974. Introduction to statistical analyses: a semi-programmed approach. New York: McGraw-Hill Book Co.
- M^CDOWELL, RE, 2012. Importance of crop residues for feeding livestock in smallholder farming systems. FAO, Rome.
- M^CELWEE, G, 2008. A taxonomy of entrepreneurial farmers. *International Journal of Entrepreneurship and Small Business*, 6(3): 465-478.
- M^CGUIRE, JS & POPKIN, BM, 1990. Helping women improve nutrition in the developing world: beating the zero sum game. World Bank Technical Paper (IBRD) No. 114. Washington, DC, World Bank; A.R. Quisumbing & L. Pandolfelli. 2010. Promising approaches to address the needs of poor female farmers: resources, constraints, and interventions. *World Development*, 38 (4): 581–592.
- M^CNEAL, LG, 2012. Basic farm animal husbandry skills. BowTie, Inc., California.
- MEIJERINK, G & ROZA, P, 2007. The role of agriculture in economic development. Markets, Chains and Sustainable Development Strategy & Policy paper 4. Stichting DLO: Wageningen.
- MHAZO, N, MVUMI, BM, NYAKUDYA, E & NAZARE, RM, 2012. The status of the agro-processing industry in Zimbabwe with particular reference to small- and medium-scale enterprises. *African Journal of Agricultural Research*, 7(11): 1607-1622.
- MILTON, SJ & DEAN, WRJ, 1995. South Africa's arid and semi-arid rangelands: Why are they changing and can they be restored? *Environmental Monitoring and Assessment*, 37, 245 -267.

- MKIZE, N, 2003. A contribution to cabbage pest management by subsistence and small-scale farmers in the Eastern Cape, South Africa. Unpublished MSc. (Entomology) thesis, Rhodes University, Grahamstown, South Africa.
- MLAMBO-NGCUKA, P, 2006. A catalyst for Accelerated and Shared Growth-South Africa (ASGISA): A Summary. Media Briefing by Deputy President Phumzile Mlambo-Ngcuka. Online: www.info.gov.za/asgisa. Accessed: 10/07/10.
- MNKENI, PNS, 2007. Best Management Practices For Smallholder Farming In Two Irrigation Schemes And Surrounding Areas In The Eastern Cape And Kwazulu-Natal Through Participatory Adaptive Research. WRC Project Nr K5 1477//4 Deliverable 7c Report: Quarterly report on testing, monitoring and evaluation of technologies in search of solutions to socioeconomic, institutional and biophysical constraints to crop production at Zanyokwe and Tugela Ferry Irrigation Schemes: A Progress Report on the Implementation of the Capacity Building and Research Program for 2006/07.
- MOAGI, TM & OLADELE, OI, 2012. Analysis of Information Needs among Land Redistribution for Agricultural Development Beneficiaries in Waterberg District, Limpopo Province, South Africa. *Journal of Human Ecology*, 39(2): 95-101.
- MOLE, PN, 2000. An economic analysis of smallholder cashew development opportunities and linkages to food security in Mozambique's Northern Province of Nampula. Unpublished PhD thesis (Agricultural Economics). Michigan State University, Michigan.
- MOLOI, MJ, 2008. Comparison of socioeconomic characteristics that determine the farm income of emerging livestock and horticultural farmers in South Africa. Unpublished MSc Agric (Agricultural Economics) thesis. University of Limpopo, Limpopo, South Africa.
- MONDE, N, 2003. Household food security in rural areas of central Eastern Cape: The case of Guquka in Victoria East and Koloni in Middledrift Districts. Unpublished PhD thesis. University of Fort Hare, Alice, South Africa.

- MONDE, N, CHIDUZA, C, BRUTSCH, MO, MNKENI, PNS, MTSHALI, S, DLADLA, R, MODI, AT, MTHEMBU, BE, VAN DER STOEP, I & STEVENS, J, 2005. Best management practices for smallholder farming on two irrigation schemes and surrounding areas in the Eastern Cape and KwaZulu-natal through participatory adaptive research: A Situation Analysis Report on the Zanyokwe and Tugela Ferry Irrigation Schemes. WRC Project NrK5/1477. Deliverable number 2.
- MONTSHWE, BD, 2006. Factors affecting participation in mainstream cattle markets by small-scale cattle farmers in South Africa. Unpublished MSc Agric thesis, University of Free State, Bloemfontein, South Africa.
- MOORE, D., 2004. Marxism and Marxist intellectuals in Schizophrenic Zimbabwe: How many Rights for Zimbabwe's left? A comment, *Historical Materialism*, 12(4): 405-25.
- MOORE, LF, COLLINS, J, ROSSET, P & ESPARZA, L, 1998. World Hunger: Twelve Myths, 2nd Edition. Grove Press, New York.
- MORGAN, N., PRITCHARD, A & PRIDE, R, 2010. Destination branding: creating the unique destination branding proposition. (Revised 2nd ed.) Oxford, UK: Butterworth – Heinemann
- MORTON, J, COULTER, J, MIHESO, V, STAAL, S, KENYANJUI, M & TALLONTIRE, A, 1999. Internal provision of agricultural services through cooperatives and self-help groups in Kenya. Project R6117CA, Phase II. Chatham: NRI.
- MOSHER, AT, 1971. To create a modern agriculture. New York, Agricultural Development Council, New York.
- MOYO, S, 2005. The politics of land distribution and race relations. In: MOYO, S, 2005. The politics of land distribution and race relations. In: Y Bangura & R Stavenhagen (eds) UNRISD (United Nations Research for Social Development). Racism and public policy. Great Britain: Palgrave Macmillan.

- MOYO, T, 2010. Determinants of participation of smallholder farmers in the marketing of small grains and strategies for improving their participation in the Limpopo River Basin of Zimbabwe. Unpublished MSc thesis. University of Pretoria, Pretoria, South Africa.
- MUCINA, L & RUTHERFORD, MC, 2007. The vegetation of South Africa, Lesotho and Swaziland. Strelitzia 19, South African National Biodiversity Institute (SANBI).
- MUDHARA, M, 2010. Agrarian transformation in smallholder agriculture in South Africa: A diagnosis of bottlenecks and public policy options. *Conference paper presented at 'Overcoming inequality and structural poverty in South Africa: Towards inclusive growth and development Johannesburg, 20-22 September 2010.*
- MULDER, M, LANS, T, VERSTEGEN, J, BIEMANS, H & MEIJER, Y, 2007. Competence development of entrepreneurs in innovative horticulture. *Journal of Workplace Learning*, 19 (1): 32-44
- MULLER, CFJ, 1981. Five Hundred years: a history of South Africa; (3rd Ed.). Academica, Pretoria, South Africa.
- MURAGE, P, 2006. Tackling poverty and food insecurity among smallholder farmers through organic trade. Paper Presented during the Regional Workshop on promotion production and trading opportunities for Organic Agriculture production in East Africa, Arusha- Tanzania.
- MURRAY, CJ & LOPEZ, AD, 1998. The global burden of disease: A comprehensive assessment of mortality and disability from diseases, injuries, and risk factors in 1990 and projected to 2020. Harvard University Press, Boston, MA.
- MUSEMWA, L, MUSHUNJE, A, CHIMONYO, M & MAPIYE, C, 2010. Low cattle market off-take rates in communal production systems of South Africa: Causes and mitigation strategies. *Journal of Sustainable Development in Africa*, 12(5): 209 – 226.

- MUSEMWA, L, 2008. Marketing constraints and opportunities faced by beneficiaries of Nguni cattle programme in the Eastern Cape, South Africa. Unpublished MSc Agric. Economics thesis, University of Fort Hare, Alice, South Africa.
- MUSEMWA, L, MUSHUNJE, A, CHIMONYO, M, FRASER, G, MAPIYE, C & MUCHENJE, V, 2008. Nguni cattle marketing constraints and opportunities in the communal areas of South Africa: Review. *African Journal of Agricultural Research*, 3 (4): 239-245.
- MUSEMWA, L, CHAGWIZA, C, SIKUKA, W, FRASER, G, CHIMONYO, M & MZILENI, N, 2007. Analysis of cattle marketing channels used by small scale farmers in the Eastern Cape Province, South Africa. *Livestock Research for Rural Development*, 19, Article 131.
- MUSHI, D, 2008. Improved seeds help boost crop production. Daily News. Online: <http://dailynews.habarileo.co.tz/editorial/index.php?id=6711>. Accessed: 29/06/09.
- MUSHUNJE, A, 2005. An investigation on efficiency of small scale farmers and land reform in Zimbabwe. Unpublished PhD thesis, University of Fort Hare, Alice, South Africa.
- MUSHUNJE, A, MUCHAONYERWA, P, MANDIKIANA, BW & TARUVINGA, A, 2011. Smallholder farmers' perceptions on Bt maize and their relative influence towards its adoption: The case of Mqanduli communal area, South Africa. *African Journal of Agricultural Research*, 6(27): 5918-5923.
- MUTANDA, D, 2012. The local media and Zimbabwe's Land Reform Program. *Journal of Sustainable Development in Africa*, 14(3): 262 – 279.
- MUTHAMIA, JGN, MUSEMBI, F, MAINA, JM, OKURO, JO, AMBONGA, S, MURIITHI, F, MICHENI, AN, TERRY, J, OVERFIELD, D, KIBATA, G & MUTURA, J, 2001. Participatory on-farm trials on weed control in smallholder farms in maize-based cropping systems. *Paper presented at the seventh Eastern and Southern Africa Regional Maize Conference, 11th – 15th February, 2001. pp.468 – 473.*

- MUZA, L, 1998. Selecting green manure legumes for relay and intercropping systems with maize on sandy soils in Zimbabwe. In: Buckles, D., Eteka, A., Osiname, O., Galiba, M. and Galiano, G. (eds) *Cover crops in West Africa: Contributing to sustainable agriculture*. pp. 251–257. IDRC: Ottawa, Canada.
- MWANZA, R & MAPEMBA, J, 2000. Crisis mitigation in livestock dependent systems: Concern, universal experiences and challenges in promotion of livestock production in Dedza District. Food Security & Sustainable Livelihoods Programme.
- MYBURGH, DW, 1994. The response of farmers to the drought hazard in the Karoo environment. *Geo Journal*, 33 (4): 401– 410.
- MYERS, JR, 1998. Injuries among farm workers in the United States, 1994. National Institute for Occupational Safety and Health, DHHS (NIOSH) publication 98-153, Washington DC.
- NAGELKERKE, NJD, 1991. A note on a general definition of the coefficient of determination. *Biometrika*, 78: 691-692 .
- NARMATHA, N, UMA, V, ARUN, L & GEETHA, R, 2009. Level of participation of women in livestock farming activities. *Tamilnadu Journal of Veterinary & Animal Sciences*, 5(1): 4-8.
- NATIONAL FOOD SERVICE MANAGEMENT INSTITUTE, 2004. Competencies, Knowledge and Skills of effective school nutrition managers. National Food Service Management Institute. The University of Mississippi, Mississippi.
- NDEBELE, JJ, MUCHENJE, V, MAPIYE, C, CHIMONYO, M, MUSEMWA, L & NDLOVU, T, 2007. Cattle breeding management practices in the Gwayi smallholder farming area of South-Western Zimbabwe. *Livestock Research for Rural Development*, Volume 19, Article #183.
- NDURU, M, 2003. Development-South Africa: No great harvest with land reform just yet. Online: <http://www.ipsnews.net/news.asp?idnews=30148>. Accessed: 17/08/06.

- NEGASSA, A, RASHID, S & GEBREMEDHIN, B, 2011. Livestock production and marketing. ESSP Working Paper No. 26. Addis Ababa, Ethiopia: IFPRI.
- NEMAANGANI, ML, 2011. The implementation of the Public-Private Partnership model in land restitution claim settlement for the Masakona community in Limpopo Province, South Africa. Unpublished Master of Development (MDEV) thesis, University of Limpopo, Limpopo.
- NETTING, R, 1993. Smallholders, householders: farm families and the ecology of intensive, sustainable agriculture. Stanford, CA: Stanford University Press.
- NGQANGWENI, S & DELGADO, C, 2003. Decision on livestock keeping in the semi-arid areas of Limpopo province. Working paper. University of Pretoria. Pretoria.
- NGUTHI, FN, 2006. Adoption of agricultural innovations by smallholder farmers in the context of HIV/AIDS: The case of tissue-cultured banana in Kenya. Unpublished thesis, Wageningen University, Wageningen.
- NJOLSTAD, O, 1990. Learning from history? Case studies and limits to theory-building. In: Olav Njolstad, (ed.), Arms Races: Technological and political dynamics, Thousand Oaks, CA: Sage.
- NKHORI, PA, 2004. The impact of transaction costs on the choice of cattle markets in Mahalapye district, Botswana. Unpublished MSc Agric. thesis, University of Pretoria, Pretoria.
- NKOSI, SA & KIRSTEN, JF, 1993. The marketing of livestock in South Africa's developing areas: A case study of the role of speculators, auctioneers, butchers, and private buyers in Lebowa. *Agrekon*, 32(3): 200 - 237.
- NORTON, A & FOSTER, M, 2001. The potential of using sustainable livelihoods approaches in poverty reduction strategy papers. Working Paper 148. Centre for Aid and Public Expenditure, London.

- NPDALE, 1999. Mega business plan for water care program in Northern Province. Paper Prepared for National Department of Agriculture, Government of the Republic of South Africa.
- NQENO, N, 2008. Reproductive performance of cows in sweet and sour veld types under communal production systems in the Eastern Cape Province of South Africa. Unpublished MSc (Animal Science) thesis, University of Fort Hare, Alice, South Africa.
- NTSHONA, Z & TURNER, S, 2002. The social and economic structure of livestock production systems in Maluti District. In: Ainslie A (ed.) Cattle Ownership and Production in the Communal Areas of the Eastern Cape, South Africa. Research Report No 10. Programme for Land and Agrarian Studies (PLAAS), University of the Western Cape, Belville.
- NWAFOR, CU, 2004. Small ruminant livestock marketing in The Gambia: a socio-economic perspective. *Livestock Research for Rural Development*, 16(4): 24.
- NYAGUMBO, I & RURINDA, J, 2011. An appraisal of policies and institutional frameworks impacting on smallholder agricultural water management in Zimbabwe. *Physics and Chemistry of the Earth*, 47; 21-32.
- O'FARRELL, PJ, DONALDSON, JS & HOFFMAN. MT, 2007. The influence of ecosystem goods and services on livestock management practices on the Bokkeveld plateau, South Africa. *Agriculture, ecosystems, and environment*, 22 (3); 312-324.
- OBARE, GA, SHIFERAW, BA & MURICHO, G, 2006. Leveraging rural institutions for collective action to improve markets for the poor: lessons and policy options. Strategic Assessments and Development Pathways for Agriculture in the Semi-arid Tropics, Policy Brief No. 8. Sage Publishing, New York.
- ODHIAMBO, JJO & MAGANDINI, VN, 2008. An assessment of the use of mineral and organic fertilizers by smallholder farmers in Vhembe district, Limpopo Province, South Africa. *African Journal of Agricultural Research*, 3 (5): 357-362.

- OETTLE, NM, FAKIR, S, WENTZEL, W, GIDDINGS, S & WHITESIDE, M, 1998. Encouraging sustainable smallholder agriculture in South Africa. Environment and Development Consultancy Ltd, Wales.
- OKELLO, JJ, 2010. Using ICT to integrate smallholder farmers into agricultural value Chain: the case of Drumnet Project in Kenya. International Journal of ICT Research and Development in Africa, 1(1), 23-37.
- OLADELE, OI & MONKHEI, M, 2008. Gender ownership patterns of livestock in Botswana. Livestock Research for Rural Development, Volume 20, Article #156.
- OLWOCH, JM, REYERS, B, ENGLEBRECHT, FA, ERASMUS & REYERS, BFN, 2008. Climate change and the tick-borne disease *Theileriosis* (East Coast fever) in sub-Saharan Africa. Journal of Arid Environments, 72: 108-120.
- ONUOHA, C, 2006. Financial analysis of small-scale okra production in Ebonyi State, Nigeria. Unpublished MSc Dissertation. Department of Agriculture, Abia State University, Uturu, Nigeria.
- OOSTHUIZEN, L.K, 2002. Land and water resources management in South Africa. University of the Free State. Bloemfontein, South Africa.
- ORTMANN, GF & KING, RP, 2007. Agricultural cooperatives II: Can they facilitate access of small-scale farmers in South Africa to input and product markets? Agrekon, 46(2): 219-244.
- ORTMANN, GF & KING, RP, 2010. Research on agri-food supply chains in Southern Africa involving small-scale farmers: Current status and future possibilities. Agrekon, 49(4): 397-417.
- OSBORNE, JW & COSTELLO, AB, 2004. Sample size and subject to item ratio in principal components analysis. Practical Assessment, Research & Evaluation, 9(11): 8.
- OSENI, G & WINTERS, P, 2009. Rural non-farm activities and agricultural crop production in Nigeria. Agricultural Economics, 40, 189–201.

- OUATTARA, K & GRAHAM, D, 1996. Report prepared for the DBSA. Department of Agricultural Economics, Ohio State University, Ohio.
- OZOR, N & NWANKWO, N, 2008. The role of local leaders in community development programmes in idea to local government area of Imo State: Implication for Extension Policy. *Journal of Agricultural Extension*, 12(2): 63-75.
- OZOWA, VN, 1996. Information needs of small scale farmers in Africa: The Nigerian example. *Quarterly Bulletin of the International Association of Agricultural Information Specialists, IAALD/CABI*: 40(1)-23-30.
- PADDY, F, 2003. Gender differentials in land ownership and their impact on household food security: A case study of Masaka District, MA Dissertation, Uganda.
- PARKIN, F, SHACKLETON, C & SCHUDEL, I, 2006. The effectiveness of schools-based National Arbor Week activities in greening of urban homesteads: A case study of Grahamstown, South Africa. *Urban Forestry & Urban Greening*, 5: 177-187.
- PASCOE, PJ, 1986. Humaneness of an electro immobilization unit for cattle. *American Journal of Veterinary Research*, 10: 22-52.
- PERRET, S, 2002. Livelihood strategies in rural Transkei (Eastern Cape Province): how does wool production fit in? Working paper: 2002-20, Department of Agricultural Economics, Extension and Rural Development, University of Pretoria.
- PERRET, S, CARSTEN, J, RANDELA, R AND MOYO, S., 2000. Activity system and livelihoods in Eastern Cape Province rural areas (Transkei): Household typologies as socio-economic contributions to Land Care project. University of Pretoria/ Working Paper, CIRAD Tera, num 28/00, 35 pp
- PHILBIN, A, 1996. Capacity Building in social justice organizations. Ford Foundation, Alliance for Nonprofit Management. Online:
<http://209.190.249.70/content/index.php?pid=64>. Accessed: 19/11/12.

- PILISO, S, 2010. Reaping benefits of a bold initiative: Project helps poor Eastern Cape families to harvest thousands of tons of maize. Online:
http://webcache.googleusercontent.com/search?q=cache:1RJE_RWcJjAJ:www.timeslive.co.za/business/article384430.ece/Reaping--benefits-of-a-bold-initiative+has+ASGISA+been+successful%3F&cd=7&hl=en&ct=clnk&gl=za.
 Accessed; 13/10/10.
- POLGREEN, L, 2012. In Zimbabwe land takeover, a golden lining. The New York Times Newspaper, pp A1.
- POLLOT, G & WILSON, RT, 2009. Sheep and Goats for diverse products and profits. FAO, Rome, Italy.
- POOKPAKDI, A, 1992. Sustainable agriculture for small-scale farmers: A farming systems perspective. Kasetsart University, Bangkok, Thailand.
- PRAHALAD, CK & HAMEL, G, 1990. The core competence of the corporation. Harvard Business Review, May – June, pp. 79 – 91.
- PRAKASH, D, 2000. Development of Agricultural Cooperatives -Relevance of Japanese Experiences to Developing Countries. *Paper presented at the 14th ICA-Japan International Training Course on "Strengthening Management of Agricultural Cooperatives in Asia" held at IDACA-Japan on April 18, 2000.*
- PROVIDE, 2009. A profile of the Eastern Cape Province: Demographics, poverty, income, inequality and unemployment from 2000 till 2007. Background Paper Series: 1(2). Ellensburg. Cape Town.
- PSACHAROPOULOS, G, 1985. Returns to education: a further international update and implications. *The Journal of Human Resources*, 20(4): 584-604.
- RAJPUT, ZI, HU, S, CHEN, W, ARIJO, AG & XIAO, C, 2006. Review: Importance of ticks and their chemical and immunological control in livestock. *Journal of Zhejiang University Science B*, 7(11): 912-921.

- RAO, V & CHOTIGEAT, T, 1981. The inverse relationship between size of land holdings and agricultural productivity. American Journal of Agricultural Economics; 63(3): 571-574.
- READER'S DIGEST, 1988. Illustrated history of South Africa: The real story. Reader's Digest Association, New York.
- REARDON, T, BERDEGUÉ, J, BARRETT, C.B & STAMOULIS K, 2006. Household income diversification into rural non-farm activities. Baltimore: Johns Hopkins University Press.
- REARDON, T, STAMOULIS, K, CRUZ, ME, BALISCAN, A, BERDEGUÉ, J & BANKS, B, 1998. Rural non-farm income in developing countries, In: the State of Food and Agriculture 1998. Rome: FAO.
- REED, MS & DOUGILL, AJ, 2002. Participatory selection process for indicators of rangeland condition in the Kalahari. The Geographical Journal, 168 (3): 1- 12.
- RETZER, V 2006. Impacts of grazing and rainfall variability on the dynamics of a Sahelian rangeland. Revisited-new insights from old data. Journal of Arid Environments, 67(1): 157- 164.
- REYNOLDS, N & TURCSÁNYI-SZABÓ, M, 2010. Key competencies in the knowledge society. Springer-Verlag, Berlin.
- RIISE JC & REYNTJENS, D, 1998. Report on training needs of research staff at the National Fisheries Institutes in Libya, Morocco and Tunisia. Results of missions to Libya, Morocco and Tunisia in October/November 1998.
- ROHDE, RF, MOLEELE, NM, MPHALE, M, ALLSOPP, N, CHANDA, R, HOFFMAN MT, MAGOLE, L & YOUNG, E, 2006. Dynamics of grazing policy and practice: environmental and social impacts in three communal areas of southern Africa. Environmental Science and Policy, 9(3): 302- 316.

- ROLA-RUBZEN, MF & GABUNADA, FM, 2003. Capacity Building of smallholder livestock farmers in Western Leyte, Philippines. Paper presented to the Australian Agricultural and Resource Economics Society Conference, Perth, WA, 11-14 February 2003.
- ROLA-RUBZEN, MF, GABUNADA FM & MESORADO, R, 2002. Marketing systems for small livestock in the Philippines: The case of Western Leyte. Paper Presented at the 46th Annual Conference of the Australian Agricultural and Resource Economics Society, 12- 15 February, Canberra.
- RÖLING, N, 2010. WP10: Africa can feed the world beyond expertise to new frontiers of trans-disciplinary Science. Foresight project on global food and farming futures. Wageningen University, The Netherlands.
- ROMER, P, 1994. The origins of endogenous growth. *Journal of Economic Perspectives* 8 (1): 3-22.
- ROSSET, P, 1999. Policy Brief No.4: The multiple functions and benefits of small farm agriculture. Food First/The Institute for Food and Development Policy Oakland, CA, USA.
- ROSSET, P, PATEL, R & COURVILLE, M, 2006. Promised land: competing visions of agrarian reform. Land Research Action Network. Food First Books, Oakland.
- ROWLEY, J, 2002. Using case studies in research. *Management Research News*, 16(1): 16 – 27.
- SA EXPLORER, 2011. Kenton-on-sea climate. Online:
http://www.saexplorer.co.za/south-africa/climate/kenton-on-sea_climate.asp.
Accessed: 11/11/11.
- SAHRC, 2004. The Pace of Land Reform in South Africa. Submission to the Portfolio Committee for Agricultural and Land Affairs, National Assembly, Public Hearings held on 18 – 20 October 2004.

- SALAMI, A, KAMARA, AB & BRIXIOVA, ZUZANA, 2010. Smallholder agriculture in East Africa: Trends, constraints and opportunities, Working Papers Series N° 105 African Development Bank, Tunis, Tunisia.
- SALEEM, M, ALI, T & AHMED, M, 2010. Identification and prioritization of competencies possessed by mango growers in district Faisalabad, Pakistan. *Pakistan Journal of Agricultural Science*, 47(4):421-424.
- SAMSON, E, 2007. Communication patterns among extension personnel and farmers: A case of Dire Dawa Administrative Council. An M.Sc thesis presented to the Sokoine University of Agriculture, Morogoro.
- SANDREY, R & VINK, N, 2008. Trade and innovation project case study 4: deregulation, trade reform and innovation in the South African agriculture sector. OECD Trade Policy Working Paper No. 76.
- SANGOTSHA, V, 2011. Cops go beyond the call of duty. Daily Sun Newspaper. Published: 13/01/12.
- SANWAN, V, MUNJAL, S & PUNIA, PK, 1990. Participation of farm women in farm activities. *Indian Journal of Extension Education*, 26 (1&2): 112.
- SCHULTZ, TW, 1975. Value of ability to deal with disequilibria. *Journal of Economic Literature*, 13(3): 827-846.
- SCHULTZ, TW, 1964. Transforming traditional agriculture: New Haven and London: Yale University press.
- SCOONES, I, 1998. Sustainable rural livelihoods: A framework for analysis. IDS Working Paper 72.
- SEN, A, 1975. Employment, technology and development, Oxford: Clarendon Press.
- SHABANE, PM, 2002. LRAD in KwaZulu-Natal. Unpublished paper presented at the Annual Symposium of the South African Society for Agricultural Extension: KwaZulu-Natal Branch, 5th December, 2002, Cedara, South Africa.

- SHACKLETON, CM, GAMBIZA, J & JONES, R, 2007. Household fuelwood use in small electrified towns of the Makana District, Eastern Cape, South Africa. *Journal of Energy*, 18:4-10.
- SHACKLETON, CM, SHACKLETON, SE & COUSINS, B, 2001. The role of land-based strategies in rural livelihoods the contribution of arable production, animal husbandry and natural resource harvesting in communal areas in South Africa, *Development Southern Africa*, 18:581–604.
- SHAH, T, VAN KOPPEN, B, MERREY, D, DE LANGE, M & SAMAD, M, 1992. Institutional alternatives in African smallholder irrigation: Lessons from international experience with irrigation management transfer. International Water Management Institute, Colombo, Sri Lanka .
- SHEN, F, HUGHEY, K & SIMMONS, D, 2008. Connecting the sustainable livelihoods approach and tourism: A review of the literature toward integrative thinking. Environment, Society and Design Division Lincoln University, New Zealand.
- SHERRY, S, 2008. Food security at stake. Online:
<http://secure.financialmail.co.za/08/1107/features/ifeat.htm>. Accessed: 16/03/12.
- SHIIMI, T. 2010. Transaction costs and cattle farmers' choice of marketing channel in Northern Central Namibia. Unpublished Masters thesis. University of Free State, Free State, South Africa.
- SIBALE, E, 2010. Strategies for commercialising smallholder agriculture. Food and Agricultural Organisation (FAO). Online:
<http://www.howwemadeitinafrica.com/strategies-for-commercialising-smallholder-agriculture/5676/>. Accessed: 12/05/12.
- SIBANDA, S, 2001. Land Reform and poverty alleviation in South Africa. Department of Land Affairs (DLA), Pretoria, South Africa.
- SIEGEL, S, 1956. Nonparametric statistics for the behavioral sciences. New York: McGraw-Hill.

- SIHLONGONYANE, MF, 2000. Land occupation in South Africa. A research paper undertaken for the National Land Committee. Online:
<http://www.landaction.org/gallery/SthAfricaLandReportcomb.pdf>. Accessed: 26/07/09.
- SIKWELA, MM, 2008. Determinants of household food security in the semi-arid areas of Zimbabwe: A case study of irrigation and non-irrigation farmers in Lupane and Hwange districts. Unpublished MSc thesis (Agricultural Economics), University of Fort Hare, Alice, South Africa.
- SIMALENGA, TE, BELETE, A, MZELENI, NA & JONGISA, LL, 2000. Profitability of using animal traction under smallholder farming conditions in Eastern Cape, South Africa. In: Kaumbutho P G, Pearson R A and Simalenga T E (eds), 2000. Empowering Farmers with Animal Traction. Proceedings of the workshop of the Animal Traction Network for Eastern and Southern Africa (ATNESA) held 20-24 September 1999, Mpumalanga, South Africa. 344p. ISBN 0-907146-10-4.
- SIMELA, L, 2012. Options for the delivery of primary animal health care for livestock farmers on communal land in South Africa: Mnisi community case study. Unpublished MSc (Veterinary Tropical Diseases), University of Pretoria, Pretoria, South Africa.
- SIMELA, L, MONTSHWE, BD, MAHANJANA, AM & TSHUWA, MP, 2006. The livestock production environment in the South African smallholder sector. New challenges for the animal science industries. SASAS 41st Congress Abstracts.
- SINGINI, R & VAN ROOYEN, J, 1995. Serving small-scale farmers: An evaluation of the DBSA's farmer support programmes. Development Bank of Southern Africa Development Paper 44, Midrand, South Africa.
- SINISCALCO, M & AURIAT, N, 2005. Questionnaire Design. Unesco. Paris.
- SMIT, A, 2004. Changing external conditions require high levels of entrepreneurship in agriculture. *Acta Horticulturae*, 655: 167-173.

- SOBHAN, R, 1993. Agrarian reform and social transformation: Preconditions for development. London: Zed.
- SOLOMON, TB, SNYMAN, HA & SMIT, GN, 2007. Cattle-rangeland management practices and perceptions of pastoralists towards rangeland degradation in the Borana zone of southern Ethiopia. *Journal of Environmental Management*, 82: 481-494.
- STAFFORD, KJ, 2005. Cattle handling skills. Institute of Veterinary Animal and Biomedical Sciences, Massey University, Palmerston North, New Zealand.
- STAKE, R, 1998. Case studies. In N.K. Denzin & YS, Lincoln (Eds.), Strategies of Qualitative Inquiry. Thousand Oaks, CA: Sage.
- STALLONES, L, 1990. Surveillance of fatal and non-fatal farm injuries in Kentucky. *American Journal of Industrial Medicine*, 18; 223-234.
- STATS SA, 2007a. Community survey, 2007 – Eastern Cape. Online: http://www.statssa.gov.za/PublicationsHTML/Report-03-01-322007/html/Report-03-01-322007_15.html?gInitialPosX=10px&gInitialPosY=10px&qZoomValue=100. Accessed: 14/10/12.
- STATS SA, 2007b. Labour force survey, March 2007. Online: www.statssa.gov.za. Accessed: 15/03/12.
- STEYN, GJ, 1988. A farming systems study of two rural areas in the Peddie district of Ciskei. Unpublished PhD Thesis, University of Fort Hare, Alice, South Africa.
- STIGLITZ, J, 1997. Whither Socialism? Cambridge, MA: MIT Press, Cambridge.
- STRAUSS COMMISSION, 1996. Final report of the commission of inquiry into the provision of rural financial services. Government Printer, Pretoria.

- STRINGFELLOW, R, COULTER, J, LUCEY, T, McKONE, C & HUSSAIN, A, 1997. Improving the access of smallholders to agricultural services in Sub-Saharan Africa: Farmer cooperation and the role of the donor community. Online: <http://www.odi.org.uk/nrp/20.html>. Accessed: 25/08/06.
- SWALLOW, BM, 2000. Impacts of trypanosomiasis on African agriculture. PAAT Technical and Scientific Series, No. 2. Rome, FAO.
- TADELLE, D & OGLE, B, 1996. Effect of maize (*Zea mays*) and noug (*Guizotia abyssinica*) cake supplementation on egg production performance of local birds under scavenging conditions in the central highlands of Ethiopia. Unpublished M.sc Thesis, Swedish University of Agricultural Sciences, Sweden.
- TAHER, S, 1996. Factors influencing smallholder cocoa production: a management analysis of behavioural decision-making processes of technology adoption and application. Unpublished PhD thesis, Wageningen University, Netherlands.
- TAPSON, DR & ROSE, CJ, 1984. An investigation into the Kwa-Zulu cattle industry. ARDRI Report 2/84. ARDRI, University of Fort Hare, Alice, South Africa.
- TASCHEREAU, S, 1998. Evaluating the impact of training and institutional development programs: A collaborative approach. EDI Learning Resources Series, Economic Development Institute of the World Bank.
- TAYLOR-POWELL, E & RENNER, M, 2003. Analyzing qualitative data. University of Wisconsin Extension Cooperative Publishing Operations, Madison, Wisconsin.
- TEMBELY, S, 1998. Small ruminant production in Ethiopia: prospect for improving productivity. ILRI. In: Proceeding of fifth National conference of the Ethiopian society of animal production (ESAP). 15-17 February, 1997. Addis Ababa, Ethiopia. pp 82-90.
- TEODORESCU, T, 2006. Competence versus competency: What is the difference? *Performance Improvement*, 45(10), 27-31.

- TERREFE, 1992. Farmers' training programs with special emphasis on residential farmers training centers in Ethiopia. An MSc thesis presented to University of Reading, Reading.
- TESFAYE, A 2010. Demand influencing attributes in the smallholder livestock marketing practices. *Livestock Research for Rural Development*. 22 (11), Article #208
- TEWELDEMEDHIN, MY & KAFIDII, L, 2009. Risk management strategies of cattle farmers in Namibia: Case study from Omaheke and Otjozondjupa regions. *Journal of Agricultural Extension and Rural Development*, 1(2): 063-070
- THIRLWARL, AP, 1999. Growth and development (6th Ed.). Macmillan, London.
- THORNDIKE, R, 1976. Correlational procedures for research. New York: Gardner Press Inc.
- THWALA, WD, 2003. Backgrounder - Land and agrarian reform in South Africa. National land committee, Johannesburg, South Africa.
- TILLEY, S, 2007. International comparative study of strategies for settlement support provision to land reform beneficiaries, PLAAS, University of the Western Cape, Western Cape, South Africa.
- TÓGYER, TN, 2012. Characteristics of arable land valuation in Hungary. *Club of Economics in Miskolc' TMP*, 8(2): 95-100.
- TOMICH, TP, KILBY, P & JOHNSTON, BF, 1995. Transforming agrarian economies: Opportunities seized, opportunities missed. Cornell University Press, Ithaca.
- TSHIKUDU, PP, 2005. Irrigation and dry land fruit production. Opportunities and constraints faced by small-scale farmers in Venda. Unpublished MSc thesis. University of Pretoria, Pretoria.
- TSHUMA, MC & MONDE, N, 2012. A socio-economic impact assessment of a project to identify and implement best management practices at the Zanyokwe Irrigation Scheme at farm level. *Water SA*, 38(5): 783 – 792.

- TUPY, ML, 2006. South Africa's land woes. The Washington Times, Washington DC.
- TURNER, S & IBSEN, H, 2000. Land and agrarian reform in South Africa: A status report. Unpublished report, Programme for Land and Agrarian Studies (PLAAS), University of the Western Cape, Cape Town, South Africa.
- UGANDA EXPORT PROMOTION BOARD (UEPB), 2004. Increasing Incomes through exports: Market analysis and entry strategy for Uganda, The Republic of Uganda. Online: http://www.ugandaexportsonline.com/strategies/market_strategy.pdf. Accessed: 09/04/2011.
- UNITED NATIONS, 2005. The Millennium Development Goals report. United Nations Department Of Public Information, New York.
- UPADHYAY, S & DESAI, CP, 2011. Participation of farm women in animal husbandry in Anand District of Gujarat. *Journal of Community Mobilization and Sustainable Development*, 6(2): 117-121.
- VAARST, M, BYARUGABA, DK, NAKAVUMA, J, & LAKER, C, 2007. Participatory livestock farmer training for improvement of animal health in rural and peri-urban smallholder dairy herds in Jinja, Uganda. *Tropical Animal Health and Production*, 39:1-11.
- VAN AVERBEKE, W & HEBINCK, P, 2007. Contemporary livelihoods. In Hebinck and Lent (Eds.) 'livelihoods and landscapes: the people of Guquka and Koloni and their resources'. Brill publishers, Netherlands.
- VAN AVERBEKE, W & MOHAMED, SS, 2006. Smallholder irrigation schemes in South Africa: past, present and future. Centre for Organic and Smallholder Agriculture, Department of Crop Sciences, Tshwane University of Technology, Pretoria.
- VAN ROOYEN, CJ, 1995. Overview of DBSA' farmer support programme, 1987-93, in Serving small-scale farmers: An evaluation of the DBSA's farmer support programme, edited by Richard Singini & Johan van Rooyen. DBSA, Halfway House

- VAN ROOYEN, CJ, VINK, N & CHRISTODOULOU, N.T, 1987. Access to the agricultural market for small farmers in South Africa: The farmer support programme. Development Southern Africa, 4(2): 207-223.
- VAN ROOYEN, J, HOBSON, S & KIRSTEN, J, 2010. The contribution of agribusinesses to Broad-Based Black Economic Empowerment in South African agriculture: Summary report and main findings. Agricultural Business Chamber Report. Pretoria, South Africa.
- VAN ZYL, J & VINK, N, 1992. Effects of farmer support programmes on consumption and investment. Development Southern Africa, 9(4): 493- 499.
- VAN ZYL, J, BINSWANGER, HP & THIRTLE, C, 1995. The relationship between farm size and efficiency in South African agriculture. Policy research: Working paper 1548. The World Bank, Washington.
- VAN ZYL, J, KIRSTEN, J & BINSWANGER, HP, 1996. Agricultural land reform in South Africa. Policies, markets and mechanisms. Oxford University Press. Cape Town.
- VICTORIA, VFV, 2004. Impacts of Best Management Practices on farm financial performance. Unpublished MSc thesis (Agricultural and Applied Economics), Virginia Polytechnic Institute and State University, Virginia.
- VILARDO, FJ, 1988. The role of the epidemiological model in injury control. J Safety Res, 19; 1-4.
- VINK, N & KIRSTEN, J, 2003. Agriculture in the national economy, In: L. Niewoudt & J. Groenwald (eds.), *The challenge of change: Agriculture, land and South African economy*. Scottsville: University of Natal Press.
- VINK, N & VAN ROOYEN, J, 2009. The economic performance of agriculture in South Africa since 1994: Implications for food security. Development Planning Division Working Paper Series No.17, DBSA: Midrand, South Africa.
- VOJTECH, V, 2006. Review of agricultural policies in South Africa. Organization for economic co-operation and development, Pretoria, South Africa.

- VON BLANKENBURG, P, 1993. Large commercial farming and land reform in Africa: The case for Zimbabwe. Ashgate, Zimbabwe.
- WAGNER, J, 2006. Are nascent entrepreneurs 'Jacks-of-all-trades'? A test of Lazear's theory of entrepreneurship with German data. *Applied Economics*, 38(20): 2415 – 2419.
- WAGNER, J, 2003. Testing Lazear's jack-of-all-trades view of entrepreneurship with German micro data. *Applied Economics Letters*, 10(11): 687 – 689.
- WALKER, C, 2003. The limits to land reform: reviewing 'the land question'. Paper presented at the African Studies/History seminar University of Natal, Durban.
- WARD, D, NGAIRORUE, BT, APOLLUS, A & TJIVEZE, H, 2000. Perceptions and realities of land degradation in arid Otjimbingwe, Namibia. *Journal of Arid Environments*, 45: 337- 357.
- WATER RESEARCH COMMISSION, 2007. Revitalization of smallholder rain-fed and irrigated agriculture in South Africa. Paper submitted in Local Actions at 4th World Water Forum.
- WATERS-BAYER, A, 1988. Dairying by settled Fulani in central Nigeria: The role of women and implications for dairy development. Farming systems and resource economics in the Tropics 4. Wissenschaftsverlag Vauk, Kiel, Germany.
- WEGERIF, M, 2004. A critical appraisal of South Africa's market-based land reform policy: The case of the Land Redistribution for Agricultural Development (LRAD) programme in Limpopo. Cape Town: Programme for Land and Agrarian Studies, University of the Western Cape, Western Cape, South Africa.
- WELSCH, DE, 1978. Farm systems research to improve the livelihood of small farmers: Discussion. *American Journal of Agricultural Economics*, 60(5): 813-18.

- WENHOLD, FAM, FABER, M, VAN AVERBEKE, W, OELOFSE, A, VAN JAARSVELD, P, JANSEN VAN RENSBURG, WS, VAN HEERDEN, I & SLABBERT, R, 2007. Linking smallholder agriculture and water to household food security and nutrition. *Water SA*, 33(3): 327-336.
- WERNER, W & ODENDAAL, W, 2010. Livelihoods after land reform. Policy Brief No. 1 - Resettlement: How viable is the small-scale farming model? Online: <http://www.lalr.org.za>. Accessed: 15/12/11.
- WICKHAM, PA, 2006. Strategic entrepreneurship. Harlow: Pearson Education
- WORLD RESOURCES INSTITUTE, 2007. Greening the world's capital markets. Annual Report 2006–2007. Online: http://pdf.wri.org/wri_annualreport_2006.pdf. Accessed: 13/12/12
- WORLD VISION, 2004. PRA Analysis and community feedback report. World vision, Enable ADP, Limpopo, South Africa.
- WYNNE, AT & LYNE, MC, 2003. An empirical analysis of factors affecting the growth of small-scale poultry enterprises in KwaZulu-Natal. *Development Southern Africa*, 20(5): 563-577.
- XINGWANA, L, 2006. Address by the Minister of Agriculture and Land Affairs, Ms Lulu Xingwana, at the graduation ceremony of Masters Mentors. Online: <http://www.info.gov.za/speeches/2006/06100213151001.htm>. Accessed: 13/06/12.
- YARO, IJ, 2010. The impact of mining on livelihoods of local communities: A case study of Newmont Ahafo South Mining Project of Brong Ahafo Region of Ghana. Unpublished Masters thesis (Arts in Development Studies). Graduate School of Development Studies, The Hague, Netherlands.

- YESUF, M & BLUFFSTONE, R, 2008. Risk aversion in low-income countries: Experimental evidence from Ethiopia. How can African agriculture adapt to climate change? Insights from Ethiopia and South Africa. Ethiopia Development Research Institute. Online:
http://www.ifpri.org/sites/default/files/publications/rb15_16.pdf. Accessed: 12/01/13
- YIN, RK, 2003. Case study research, design and methods (3rd ed., vol. 5). Thousand Oaks: Sage.
- YIN, RK, 1994. Case study research: Design and methods. Newbury Park, CA: Sage.
- YIN, RK, 1981. The case study crisis: Some answers. *Administrative Science Quarterly*, 26(1), 58-65.
- YOUDEOWEI, A & KAWRTENG, J, 1995. Development of training materials in agriculture: A course manual. Sayce Publishing, London.
- ZUCKER, DM, 2009. How to do case study research. School of Nursing Faculty Publication Series. Paper 2. University of Massachusetts, Massachusetts.

LIST OF APPENDICES

APPENDIX 1 QUESTIONNAIRE

DEPARTMENT OF AGRICULTURAL ECONOMICS AND EXTENSION
FACULTY OF SCIENCE AND AGRICULTURE



QUESTIONNAIRE 1: SOCIO-ECONOMIC INFORMATION

QUESTIONNAIRE ON THE INVESTIGATION OF FARMER SUPPORT PROGRAMMES
(FSPs) AND CAPACITY BUILDING (CB) DIRECTED TO LAND REFORM
BENEFICIARIES IN THE EASTERN CAPE PROVINCE: A CASE OF FOREST HILL
FARMERS IN THE KENTON-ON-SEA COMMUNITY IN THE NDLAMBE LOCAL
MUNICIPALITY

Name of interviewer:
Name of respondent:
Status in household:
Date of interview:
Questionnaire number:

A. DEMOGRAPHIC INFORMATION

A1 Please provide the following information about your household

Name	Relation to hh head	Age	Gender (m/f)	Marital status	Education	Employment status (Full/part time)	Occupation	Field of employment	Time home

Relation to HH head: 1 = wife; 2 = Son/Daughter; 3 = Cousin/Nephew; 4 = Uncle/Aunt; 5 = Grandfather/mother; 6 = Parents; 7 = Grandchild

Marital status: 1 = Married; 2 = Engaged; 3 = Divorced; 4 = Widowed 5= Single

Education: 1 = None; 2 = Lower Primary (Gr. 1-4); 3 = Junior Secondary (Gr. 5-7); 4 = Senior Secondary (Gr. 8-12); 5 = Tertiary

Occupation: Examples – nurse, farmer, driver, teacher, combination of jobs, etc

Time home: 1 = Every night; 2 = Weekends only; 3 = 1/month; 4 = Irregular; 5 = 1/yr

B: INCOME

B1. Please state the sources of income available to your household as well as the amounts received from each source per cycle.

External sources of income

Source	Cycle	Income per cycle (R)	No. of cycles per annum	Net income/a (R)
Remittances (Cash)				
Remittances (Kind)				
Child support from parent outside household				
Salaries & Wages				
Old age pension				
Disability grant				
Child support grant				
Other government grants, specify				

Local sources

Source	Cycle	Income per cycle (R)	No. of cycles per annum	Net income/a (R)
Eco-tourism				
Hawking (Food)				
Hawking (Other)				
Spaza shop				
Selling liquor/shebeen				
Taxi business				
Lending money				
Carpentry				
Plumbing				
Building houses				
Crops kinds				
Crops cash				
Animals kind				
Animals cash				

C: EXPENDITURE

C1. How much money does your household spend on the following items per month or per year?

ITEM	CYCLE	EXP/CYCLE (R)	NO. OF CYCLES PER ANNUM	TOTAL EXP/ANNUM (R)
Food				
Electricity				
Clothing				
Furniture				
Medical expenses				
Educational expenses				
Transport				
Agriculture inputs				
Maintenance/building of residence				
Hiring of labour				
Telephone and postage				
Subscription and membership fees				
Church contributions				
Entertainment				
Interest on loans				

D. AGRICULTURAL – ARABLE LAND

1. Do you have access to the Forest Hill Farm? Yes No

2. What is the size of the Forest Hill farm? (*Morgan/ha/acres*)

3. When last did you cultivate your portion of the FH farm? (*State year*)

4.1. If you are no longer cultivating, what are your reasons?

.....

4.2: What portion of the farm is cultivated? $1 = \frac{1}{2}$; $2 = \frac{1}{3}$; $3 = \frac{1}{4}$;

4.3: For the portion of land that is not cultivated, please provide reasons.

.....

.....

5. Please provide the following information about the crops grown in the portion under cultivation

Name of crop	Area planted	Yield Obtained	Reason for growing	Amount sold	Amount consumed
Chicory					
Maize					
Beans					
S/Potatoes					
Other (<i>Specify</i>)					

6. What method of cultivation do you use? (*Mark with an X*)

Tractor	Draught power – ploughs	Hand hoes	Other (<i>Specify</i>)

7. Which of the following equipment do you use? Please state number, condition and ownership.

Equipment/machinery	Number	Own	Borrowed	Hired	Condition (Poor; Good; Very good)
Tractor					
Van					
Disc Plough					
Cultivator					
Hand hoes					
Spades					
Forks					
Wheel Barrow					
Sprinklers					

8. Do you own any livestock? a) Yes b) No

☐

8.1. If "YES" to Qtn 10, then please provide the following information about your livestock

Type of animal	Number owned	Reason for keeping them	If you sell, state market
Cattle			
Sheep			
Goats			
Poultry			
Donkeys			
Pigs			
Other (specify)			

Available market options: 1 = Local; 2 = Kenton; 3 = Alexandra; 4 = PE; 5 = Other (specify)

8.2. If you sell your produce, please give reasons for using the market(s) that you use

.....
.....

9. Do you encounter any problems in accessing any of the markets mentioned above?

a) Yes b) No

☐

9.1. If "YES", what kind of problems do you encounter from each market mentioned above?

.....
.....
.....
.....

10. If you sell your crops and/livestock, do you also perform any value-adding activities such as grading of crops, packaging, sorting, etc? a) Yes b) No

☐

10.1. If "YES", what is it that you do exactly?

.....
.....

11. What kind of benefits do you enjoy from performing these activities? a) None b) High
Income c) Other (*specify*)

12. Who performs these activities? a) Family members b) Hired labourers
c) Other local farmers d) Neighbours e) Other (*Specify*)

13. Did you receive any training on how to do these activities well? a) Yes b) No

13.1. If "YES", where did you receive the training?

14. How do you determine your prices? (*Mark with an X*)

Get prices from other local farmers	Charge own prices	Set by extension officers	Set during farmers' meetings	Set by the market (demand & supply)	Other (<i>specify</i>)

14. Which of the following cropping practices do you use? (*Mark with an X*)

Practice	Yes/No
Cropping plan	
Pest/Disease control (Herbicides & Pesticides)	
Manure application	
Cattle Dipping	
Weed control	
Fertilizer application	
Irrigation/water management	
Other (<i>Specify</i>)	

E. AGRICULTURE - RANGELANDS

1. What is the proportion of FH farm allocated to rangeland? (*Ha/Morgan/Acres*)

2. How many animals are on this farm? (*Estimate*)

3. Do you have animals grazing on the farm? a) Yes b) No ☐

4. Which of the following animals are kept on the farm? ☐
a) Cattle b) Goats c) Sheep d) Other (*Specify*)

5. How many animals is each member allowed to keep on the farm? ☐

6. Do all members adhere to these regulations? a) Yes b) No ☐

6.1. If "NO", what kind of sanctions (if any) do people receive?
.....
.....
.

7. What is the condition of these rangelands in terms of fencing? ☐
a) Not fenced at all b) Poorly fenced c) Well fenced d) Don't know

7.1. Provide an explanation for the answer given above.
.....

8. What is the condition of these rangelands in terms of pastures? ☐
a) Poor b) Good, d) Very good d) Don't know

8.1. Provide an explanation for the answer given above.
.....

9. Are the rangelands able to sustain your livestock for the entire year? a) Yes b) No ☐

9.1. If "NO", how do you cope with that challenge?
.....
.....

10. Is there any committee/association responsible for managing the use of both arable and grazing land? a) Yes b) No ☐

11. Are there any penalties given to those who fail to use the rangelands in a proper and sustainable manner? a) Yes b) No ☐

12. Where do your animals get water for drinking?.....

12.1. How many of these drinking points are available? (*State number*)

12.2. Does your livestock at times experience water shortage problems? a) Yes b) No

12.3. If "YES", how then do you deal with these problems?.....

.....

.....

.

13. Is there any fence separating the camps? a) Yes b) No

14. What social problems do you encounter, e.g. stealing of animals and fence, etc.?

.....

F. FINANCIAL INSTITUTIONS

1. Are there any financial institutions in your community or nearby town?
a) Yes b) No

1.1. If "YES", where are these institutions located?

2. What kind of assistance do these institutions give? a) Loans b) Subsidies c) grants d)
Other (*Specify*).....

3. How much do they give per person? (*Specify*).....

4. Have you ever borrowed money to keep your business running? a) Yes b) No

4.1. If "YES", who were your sources? (*Mark with an X*)

Village money lenders	Neighbours	Relatives	Friends	Local financial institutions	Other (<i>Specify</i>)

4.2. What is the interest rate charged on these loans?

4.3. What kind of collateral is needed when borrowing money, if any?

4.4. What criteria are used to select those who qualify for assistance?

4.5. What is the repayment period?

4.6. What constraints do you face in making use of these institutions?

4.7. What do you think should be done to deal with these problems?

5. If "NO" to Qtn 4, do you wish to borrow money to finance your business? a) Yes b) No

☐

5.1. What usually stops you from borrowing?

6. Which of the following do you use to keep your financial savings? (Mark with an X)

Bank	Burial clubs	Lending people	Other (Specify)

7. In your opinion, what other sources of income do you think should be exploited in your community?

G. SOCIAL INSTITUTIONS

1. Who are the leaders of this community?

2. How were they (s)elected?

3. Are the leaders also involved in farming? a)Yes b) No

☐

4. Is the Marselle Stock Farmers Association still in existence? a)Yes b) No

☐

4.1. What are its objectives?

Objective 1:

Objective 2:

Objective 3:

Objective 4:

4.2. Which of its laid objectives have been met thus far?

.....

5. Who are the members of this Association?

6. What are the conditions for joining the Association?

7. How often do the members of the Association meet?

8. Are community leaders invited to the Association's meetings? a)Yes b) No

☐

9. Does the Association get any form of support from the community leaders? a)Yes b) No

☐

9.1. If "YES", what kind of support do they give?

.....

10. In your own opinion, what role do you think the leaders should play in the farm as a whole and the Association?

.....

THE END

APPENDIX 2

QUESTIONNAIRE 2 KNOWLEDGE AND SKILLS REVIEW

AN INVESTIGATION OF SKILLS AND KNOWLEDGE AND FARMER SUPPORT PROGRAMMES OF LAND REFORM BENEFICIARIES: A CASE OF FOREST HILL FARMERS AT KENTON-ON-SEA IN THE NDLAMBE LOCAL MUNICIPALITY

Date of interview	
Name of Municipality	
Ward name	
Village name	
Name of enumerator	
Name of respondent	
Questionnaire number	

A: PROFILE OF BENEFICIARIES

A1. Please provide the following information:

Race.....Gender.....Age.....Marital status.....Education.....

A2. What is your mother language?

(a) Xhosa (b) Sisotho (c) Isizulu

A3. Can you read and write your home language? Yes/No

Language	Read	Write
Xhosa		
SiSotho		
IsiZulu		

A4. Can you speak, read and write the following languages? Yes/No

Language	Speak	Read	Write
English			
Afrikaans			

A5. What is your main household income?

(a) Farming (b) Salaries and wages (c) Social grants (d) Trade (e) Other, specify

A6. Please state the size of your food plot in the project.

A7. How big is your home garden?

A8. How big is your arable field?

A9. How many animals do you farm with?

B: ASPIRATIONS IN FARMING

B1. When did this project start?

B2. When did you join the project?

B3. Where did the idea of the project come from?

- (a) Project members (b) Department of Agriculture (c) Municipality (d) Umhlaba (e)
Community members (e) Other, specify.

B4. What motivated (your aspirations) you to join the farming project?
.....

B5. Where do you see yourself five years from now in farming business?
.....
.....

B6. Would you say you are in the right track in achieving your farming goals? Yes (b) No

B7. If yes, please provide explanation.
.....
.....

B8. If not, identify three most important reasons (in order of importance) that prevent you
from achieving your goals.
.....
.....

B9. How can these problems be addressed in order for you to achieve your farming goals?
.....
.....

B10. Have you discussed these challenges and solutions with your service provider in the
past? Yes (b) No

C: ASSESSMENT OF FARMING KNOWLEDGE AND SKILLS

C1. What major farming activities you undertake in this project?

(a) Vegetable production (b) Crop production (c) Nursery (seedlings) (d) Livestock production

C2. For each farming activity mentioned above, please specify the enterprises (e.g. Maize, potato, chicory, chickens, cattle, etc.).

- Vegetable production (which veges):
- Crop production (which crops):
- Livestock production (which animals):

C3. Do you have formal training in any of the major farming activities you are involved in?

(a) Yes (b) No

C4. If yes, please specify the farming activity you've been trained on.
.....

C5. When did you acquire this training? a) This year (b) Last year (c) Two to five years ago (c) More than five years ago

C6. Who provided the training? a) Extension officers (b) Municipality officials (c) NGO (d) Academic institution (e) Other, specify.

C7. Is the training you acquired accredited (recognized elsewhere)? Yes (b) No

C8. Do you have a formal certificate for it? Yes (b) No

C9. What is the NQF level of the formal qualification you have?

C10. For vegetable and crop production farming activities, please state the type and level of your technical farming knowledge.

Farming knowledge	Level of Knowledge			
	None	Little	Average	Adequate
Soil preparation				
Planting				
Land care				
Mechanical Weed control				
Chemical weed control				
Irrigating				
Water management				
Operation of irrigation infrastructure				
Maintenance of irrigation infrastructure				
Chemical Fertilization				
Manure application				
Pest and disease control				
Marketing				
Value adding and packaging				

C11. If you have adequate knowledge of any of the above, please state whether this was acquired through formal training or indigenous knowledge.

Farming knowledge	KNOWLEDGE ACQUISITION METHOD	
	Formal training	Indigenous knowledge
Soil preparation		
Planting		
Land care		
Mechanical Weed control		
Chemical weed control		
Irrigating		

Water management		
Operation of irrigation infrastructure		
Maintenance of irrigation infrastructure		
Chemical Fertilization		
Manure application		
Pest and disease control		
Marketing		
Value adding and packaging		

C12. For farming knowledge acquired through formal training, please provide the following information.

Farming knowledge	Who provided the training?	When?	Duration of training?
Soil preparation			
Planting			
Land care			
Mechanical Weed control			
Chemical weed control			
Irrigating			
Water management			
Operation of irrigation infrastructure			
Maintenance of irrigation infrastructure			
Chemical Fertilization			
Manure application			
Pest and disease control			
Marketing			
Value adding and packaging			

C13. For livestock production farming activities, please state the type and level of your technical farming knowledge.

	LEVEL OF KNOWLEDGE			
Farming knowledge	None	Little	Average	Adequate
Housing and handling				
Feeding				
Animal health care				
Slaughtering				
Veld condition management practices				
Cultivated Pastures				
Marketing				

C14. If you have adequate knowledge of any of the above, please state whether this was acquired through formal training or indigenous knowledge.

	KNOWLEDGE ACQUISITION METHOD	
Farming knowledge	Formal training	Indigenous knowledge
Housing and handling		
Feeding		
Animal health care		
Slaughtering		
Veld condition management practices		
Cultivated Pastures		
Marketing		

C15. For farming knowledge acquired through formal training, please provide the following information.

Farming knowledge	Who provided training	When	Duration of training
Housing and handling			
Feeding			
Animal health care			
Slaughtering			
Veld condition management practices			
Cultivated Pastures			
Marketing			

C16. Is there any member of your family who is trained or has knowledge in any of the faming activities you do? Yes (b) No ☐

C17. If yes, what farming knowledge do they have?

C16. Do they help you with this knowledge on the farm? Yes (b) No ☐

C17. In relation with what you do, which areas of farming you need further training on (name them in order of importance)?

C18. What is your preferred method of provision for such training?

C19. Who is your preferred service provider for such training?

C20. Why do you prefer this service provider?
.....

C21. What kind of support did you get from government (department of Agriculture, Social development, Municipality) upon receiving this farm or project?

Technical:

Financial:

Physical:

C22. Other than government, do you get support elsewhere? Yes (b) No

☐

C23. If yes, who and what kind of support?
.....

QUESTIONS FOR THE FOCUS GROUP

1. Does the project have a management structure?
2. The name of the management structure if different from the project
3. Roles and responsibilities of committee members
4. Ability to execute their duties
5. Possession of management and organizational skills from members of management (project management, human resource management, meetings, book keeping, leadership, etc.)
6. Conduct and management of meetings (how often, duration, and management)
7. Evidence of mentoring and skills transfer
8. Training workshops organized for the beneficiaries
9. Gender questions check list:
Who does what activity?
What resources are needed?
Do women have access and control over resources needed for these activities?
What needs and opportunities exist for increasing women's knowledge and productivity in farming?

What needs and opportunities exist for increasing women's access to and control of resources?

Are the training programmes sensitive to women's needs?

Are there any women with disabilities?

Do personnel have the necessary skills to provide any special inputs required by women?

Are there appropriate opportunities for women to participate in project management positions?

Are there any women in management structures?

Does the management structure enhance women's farming knowledge?

Does the management structure enhance women's access to resources?

Does the management have the institutional capability to support and protect women?

THE END