

**Constraints and opportunities in communal livestock production
development in Nyandeni Local Municipality, Eastern Cape
Province, South Africa**

By

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DECLARATION

I Tholakele Carol Ngqulana, declare that this thesis hereby submitted for the degree of Master of Science in Agricultural Extension at the University of Pretoria, is entirely my own work and not been submitted anywhere else for the award of a degree or otherwise.

Signature: 

Date: 31 MAY 2017

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Abstract

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The study identifies the constraints faced by communal livestock farmers and the opportunities which exist to develop communal livestock production in Nyandeni Local Municipality in Eastern Cape Province, South Africa. Previous research has indicated that some of the most common problems in the developing world are feeding practices, health issues and inadequate support services. The previous research also showed that the livestock industry in the small scale sector is developing slowly and in some areas of South Africa the livestock numbers have not grown. Lastly, it also showed that an improvement in extension services would be able to benefit small-scale livestock owners. The study was qualitative in nature. Convenience sampling method was used to collect the data. The data comprised of goat, cattle and sheep farmers. The data was collected using semi-structured questionnaires. Data was coded, captured and analyzed using SPSS version 23 to find frequencies, means, and compare means between variables.

The findings showed that the mean age of the respondents was 55. The independent t-test showed a higher significant difference in mean age of male compared to female respondents ($P < 0.05$) and male respondents

owned more livestock compared to female respondents. 50% out of the 68 respondents were unable to read or write and those who were able to read and write only 7% have acquired a Matric education. 27% of the respondents had knowledge of how much land was available for grazing with a mean size of 11.33ha. A total of 85% of the respondents mentioned that they use pastures only for livestock feeding. Poor health was a major cause of lambing mortality and low lambing rates in livestock in the area. The most common diseases in the area were found to be pulpy kidney, tick-borne, sheep and goat scab, bloat, internal parasites and external parasites.

A total of 47% of the respondents who sold their livestock for meat production used informal markets. 38% of the respondents used formal markets for selling their wool and 48% used informal markets. Sheep production contributed 11.35% to the average income; cattle contributed 15% and goats only 7%. Only 23% of the respondents had communication with an extension worker every second month. Mean percentage income which the farmers would like to receive in 5 years time was 22.52% from sheep, 19.24% from goats and 17.63% from cattle. The farmers had knowledge of how much wool they sold and the prices sold in last season.

The conclusion was that there is still less youth involved in agriculture. Poor health was one of the major technical constraints faced by farmers followed by a shortage of feed. The unavailability of formal markets to sell the livestock and the lack of knowledge about the markets has led to farmers receiving less income from their livestock. The study revealed that there was a lack of communication between the farmers and extension workers. The study showed that farmers are aspired to grow. The study revealed marketing opportunities in the area that the farmers were already taking advantage of.

It was recommended that extension and veterinary services should be more problem specific and more information on good health management should

be provided. Secondly, farmers need information on ways to manage the land, and information on the available meat markets.

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List of abbreviations used in the document

ARC	Agricultural Research Council
BATAT	Broadening Access to Agriculture Thrust Consultative
BKB	Boeremakelaars Koöperatief Beperk
CGIAR	Consultative Group on International Agricultural Research
EC	Eastern Cape
FAO	Food and Agriculture Organization
GEAR	Growth, Employment Redistribution
ILCA	International Livestock Center for Africa
LSU	Large Stock Unit
NADIS	The National Animal Disease Information Service
NAMC	National Agricultural Marketing Council
NDA	National Department of Agriculture
NERPO	The National Emergent Red Meat Producers' Organization
NWGA	National Wool Growers Association
PLAAS	Program for Land and Agrarian Studies
SA	South Africa
SABC	South African Broadcasting Corporation
SOFI	State of Food Insecurity
SPSS	Statistical Package for the Social Sciences
SSU	Small Stock Unit
StatsSA	Statistics South Africa
USAID	The United States Agency for International Development
WWF	World Wildlife Fund

CHAPTER 1: INTRODUCTION

1.1 Background and information to the study

Livestock in South Africa represents a valuable asset to large numbers of poor people, yet currently, this asset does not deliver the material benefit to its owners that it is capable of. Some of the major concerns were the effectiveness of support services, particularly those pertaining to animal health, animal nutrition and the marketing of cattle and small stock. Morton and Matthewman (1996:3) state that links with agricultural extension services can be improved and crop and livestock information provision intergraded at the local level, as well as the improvement of veterinary service. Currently, in South Africa as a whole the government provides the most assistance to communal livestock producers, the assistance though is mostly aimed at animal health rather than better ways of livestock production. Furthermore, the veterinarians and animal health technicians are not trained to communicate with the farmers. “The livestock production in the small-scale sector is inefficient, reproduction rates are low, the control of important parasites is patchy and supplementary feeding is virtually unknown” (Morton & Matthewman 1996:2).

Lehloenya et al. (2007:2) mentioned that small-scale farming seems not to be sustainable due to low productivity, not only in South Africa but in most African countries. There has been considerable scope for raising rural incomes through improvements in livestock productivity. In the communal areas of the Eastern Cape, the problem has been the same. Farmers use traditional livestock production systems and marketing of their production is small. Even today when poverty is at its highest, especially in these areas, communal farmers are still seen as people who view their livestock as a way of social power in their communities rather than an important asset for food security. Furthermore, cattle herds are firmly locked into systems of use by the household, with very few animals being available for

disposal on the formal market. According to Morton and Matthewman (1996:4), the major issue causing the above-mentioned problem is a lack of information to the farmers, and the inability to address information needs as they arise to the farmers.

1.2 Problem statement

Livestock production has a recognized potential that it can play to alleviate poverty in rural areas and improve rural livelihoods. Moyo et al. (2010:20) mentioned that livestock plays multiple roles in the livelihoods of the people in developing communities especially to the poor providing food and nutrition, work, economic and social status. Lehloenya et al. (2007:5) mentioned that population growth, urbanization and income growth all point to an expected increase in the future demand for livestock products and an opportunity for small-scale farmers to respond to the demand and benefit economically.

Mtero (2012:2) found that there is a decline in agricultural production in rural areas of Eastern Cape; furthermore Ainslie (2005:8) notes that the livestock numbers in the Eastern Cape are still similar to how they were in the 1930s, which shows that the numbers are more constant than how they are portrayed to be and this also shows that the numbers of livestock are growing slowly. Ainslie (2002:64) on the study done in Xhalanga area in the Eastern Cape found that 65% of farmers only use their cattle for milk, manure and for ritual purposes and only 20% use them for meat production.

However, by looking at specific problems which result in communal livestock not contributing to the rural livelihoods and not developing in order to meet the demands of the rural communities can assist in finding the solutions which can help in developing the communal livestock production. Farmers can be able to take advantage of the opportunities which are arising due to population growth and urbanization which were mentioned above. One can be able to find the type of information that is

needed by the farmers in the area and the kind of assistance that the farmers need. More importantly, for years farmers in communal areas have been seen as people who view their livestock as a source of social power especially cattle and not for income generation, it is therefore important to find out whether the farmers are still stuck in this view or do they want to develop and improve livestock production.

1.3 Objectives of the study

The main objective of the study is to identify the constraints and opportunities in communal livestock production development in Nyandeni local Municipality.

The sub-objectives are as follow:

- To determine the socio-economic, technical and economic constraints hindering communal livestock production In Nyandeni local Municipality;
- To determine the support services that exists in the area to assist with developing communal livestock production;
- To establish the opportunities that are available to develop communal livestock production in Nyandeni Local Municipality; and
- To establish opportunities for communal livestock development through farmer's knowledge and aspirations.

1.4 Research Questions

- Which socioeconomic, technical and economic constraints hindering communal livestock development in Nyandeni Local Municipality?
- Which opportunities are available to develop communal livestock production in Nyandeni Local Municipality?
- Which support services are available and involved with the development of livestock production?

- What are the farmers' knowledge and aspirations to developing communal livestock production in Nyandeni Local Municipality?

1.5 Significance of the study

The background of the study and the problem statement showed the importance of communal livestock production to the population as a whole and to the farmers. This means, therefore, researchers, extensionists, the government departments and municipalities must constantly find ways to improve this production in order for the rural communities to benefit from it. Secondly, one has already seen that the livestock production does not serve the purpose it is expected to in communal areas; the numbers seem to be declining and some farmers' still use livestock for milk and manure rather than receiving an income from it.

This study was conducted in one of the poor regions of the Eastern Cape (in the former Transkei area) in Nyandeni local municipality. The research was done to find some of the constraints which hinder the development of communal livestock production from reaching its potential in Nyandeni local municipality; it will also give attention to some of the opportunities that the farmers do have in order to develop their production. This will help all the service providers in the area especially the government departments and the municipality to know the pressing issues which need to be addressed in the area in terms of livestock production and therefore provide assistance which is aimed specifically to the farmers in the area. Morton and Matthewman (1996: 3) mentioned that a solution to meeting communal livestock problems must be situation specific and it cannot be one size fits all.

This research will also determine the farmer's perceptions and aspirations to establish whether farmers do want to develop or are they still stuck in the old way of thinking. This will assist in determining if there is potential for development in the area. This research will assist farmers in the area

with developing their livestock because when their constraints are recognized a plan of action will come about. Secondly, this research can be conducted in other municipalities in the surroundings to assist people in those areas too.

1.6 Organization of the study or outline of remaining chapters

This dissertation is composed of five chapters:

Chapter one has looked at the background information to the study, the problem statement, the objectives, the research questions and the rationale of the study.

Chapter two will be concentrating on the relevant literature associated with the problem addressed in this study. The chapter will first be introduced and then will have topics on the relevant literature reviewed.

Chapter three will present the methods used for data collection and the sampling methods. It will also look at the analysis methods used and then the study area in which the study was conducted.

Chapter four contains the analysis of the data collected or research results and the discussion of the findings according to the objectives presented in Chapter one. It will determine the socio-economic and technical constraints faced by communal livestock producers. It will outline opportunities available to developing livestock production it will also present the aspirations and knowledge of communal livestock farmers in the area.

Chapter five offers the summary and the conclusion on the researcher's findings and also the recommendations for future research.

CHAPTER 2

COMMUNAL RUMINANT LIVESTOCK PRODUCTION DEVELOPMENT IN SOUTH AFRICA AND OTHER DEVELOPING COUNTRIES

2.1 Introduction

This chapter will review the literature on the overview of communal and small-scale livestock production in South Africa. It will also concentrate on some of the issues facing agriculture in the former homelands of South Africa, then the constraints faced by small-scale and communal farmers in South Africa and in other developing countries. It will also review the role that the government plays in developing this communal livestock production in the Eastern Cape and also the role of extension in developing communal livestock production and ways to improve agricultural extension to better serve the communal sector.

2.2 The review of ruminant livestock production in South Africa

2.2.1 Cattle Production

According to ComMark (2009:26) cattle account for between 80 and 90 % of the asset value of livestock in the small-scale sector, in addition to that there are 3.1-million cattle in the Eastern Cape, 22% of the South African total; 65% of these cattle are owned by communal farmers. ComMark (2009:26) further states that 150,000 of the 350,000 households in the Eastern Cape own cattle with 84% owning between 5 and 15 heads of cattle, 12% owning between 15 and 25 herds and 5% have herd sizes greater than 24 in size. According to StatsSA (2016:4) there are currently 34.1% households who own between 1 to 10 heads of cattle and 22.8% who own between 11 and 100 herds of cattle. According to the South African Ministry of Agriculture and Land Affairs (1998:35), cattle owners were facing certain difficulties in producing and also earning an income from their cattle production; the most important policy initiatives required are in the areas of health, nutrition and marketing.

ComMark (2009: 2) mentioned that the past involvement of the government has had a pervasive and destructive effect on the initiative and enterprise of cattle owners to manage their own interests, the public sector's assumption of the responsibility for animal health and marketing are the most important anomaly. According to Mkhabela (no date: 3) Public-sector intervention removed the need for cattle owners to organize themselves and, as a consequence, there is a paucity of associations to attend to cattle owners' interests. Goqwana et al. (2008: 9) explained that there are very few associations in existence which could assume responsibility for those activities which are essentially the responsibility of the owner, but which because of the small size of individual herds, can be more efficiently undertaken in groups.

The Ministry of Agriculture and Land Affairs (1998:36) states that the highest priority with regard to cattle is the improvement of animal health; this includes the control of ticks to prevent tick-borne diseases, prophylactic inoculations, and the treatment of illness and injury. Masika et al. (1997:1) explain that out of the mentioned priorities for improvement of animal health, tick control is generally more efficiently provided for by collective action, whether through group management of dip tanks or the group purchase of materials for individual treatment with hand sprays or pour-on treatments. All other treatments are more efficiently performed by the individual farmer.

2.2.1 Small stock production

According to Coetzee et al. (2005:11) small stock is kept in all parts of the country but achieves importance in terms of formal marketing only in the Eastern Cape. In this province, wool and mohair are significant contributors to the rural economy and are growing in importance. Jordaan (2012: 3) agrees with the above notion as he mentions, that small stock do play a valuable role in all rural communities because of their low cost,

which makes accumulating herds easier for the poorer groups; their small size, which means that they are easily disposed of when slaughtered; and the ease with which they can be marketed to meet minor cash demands. The Ministry of Agriculture and Land Affairs (1998:38) noted that the particular importance of small stock is that they offer the marginalized members of the community a means of support and security against total destitution.

The Ministry of Agriculture and Land Affairs (1998:38) noted that the policy priorities with regard to small stock are disease, pest control, extension services, and marketing. The government has been providing services in terms of diseases and pest control in the homelands of South Africa which have been very helpful to the small stock farmers. Goqwana et al. (2008: 3) pointed out that with the exception of Eastern Cape, there appears to be a lack of trained extension staff dealing with small stock. A prerequisite for improvement in the sector is therefore that specialist advisory services should be introduced or strengthened.

In the Eastern Cape as mentioned above, fiber production is a significant activity and has the potential to expand in output and improve in value. Improvements such as inputs needed to enable direct marketing and improved shearing, classing and packaging of the fleece for the expansion of this sector to be possible. Jordaan (2012:10) explains that these require rudimentary buildings for shearing and classing, and wool presses for baling the wool, as this is required for delivery to the auctions. According to Coetzee et al. (2005:12) in the marketing of fibre products, the formation of wool and mohair growers' associations should be a priority for the small-stock advisory service as these associations would be the means to securing shearing facilities, skilled classing of wool and proper packaging for the market for their members.

2.3 Challenges in agriculture in the former homelands

There are a number of issues around agriculture in the former homelands which need to be looked at. According to SA History (2011:2) homelands were established by the apartheid government in South Africa, to prevent the majority of the black population from living in the urban areas of South Africa. One of the issues documented by Porter and Howard (1997:4) is that in the former homelands of Transkei land and labour problems have not been resolved even though many promises have been made after the 1994 elections. Porter and Howard (1997:6) mention that initiatives on inputs and infrastructure are limited and proceeding at a frustratingly slow pace and commercial agriculture is becoming increasingly vulnerable. According to The then Ministry of Agriculture and Land Affairs (1998:30) the problem with livestock production in particular in the former homelands has been defined in two ways; firstly, it was said that stock encumbered the earth in excessive numbers, producing almost nothing in the way of material benefit; furthermore, the approach to livestock was described as a strategic waste of valuable resources, yielding nothing to its owners in exchange for damage the stock was causing to the environment.

The then Ministry of Agriculture and Land Affairs (1998:30) also state that the second problem was that excessive stock population in the former homelands were degrading the rangeland resource and were a threat to the sustainability of grazing system; the solution to this problem was decided to be de-stocking. This kind of thinking has been very popular; in a paper, by Goqwana et al. (2009:7) the stakeholders argued that veld management and carrying capacity could only be possible after the livestock numbers have been reduced. In the same paper Goqwana et al. (2009:7) stated that the stakeholders indicated that farmers were discouraged from selling their livestock because of bad market prices, which are linked to limited market opportunities. The Ministry of Agriculture and Land Affairs (1998:32) indicates that later on the approach of destocking has been challenged with

evidence of the important economic role of cattle in milk provision, exchanges, and securing capital.

Some of the other issues identified by farmers in a study done by Van Niekerk et al. (2011:5) poor farming systems which were the main cause of poorly performing breeds; unfenced fields, outdated farming systems, lack of fertilizers, irrigation, and mechanization. Goqwana et al. (2009:8) findings also identified issues such as poor market access, poor work ethic; inadequate financial assistance and poor support services were hindering agricultural development in the rural areas.

2.4 Constraints in the communal livestock production sector

It has been established that livestock plays an important role in poverty reduction in rural areas; however, it is also opposed by a number of constraints which exist globally and locally. These constraints are the stumbling blocks to the development of livestock production and also for it to be able to reach a level where the people in rural areas are able to reap the benefits of keeping livestock. This section will concentrate on the constraints that are faced by small-scale and livestock producers on a global scale it will further look at the constraints face by communal livestock farmers in South Africa.

2.4.1 Production constraints in livestock development

One of the production constraints which Pen et al. (2009:4) mentioned in the study done in Cambodia revealed that feed for the livestock was seen as one of the challenges that result in poor production in the rural areas. Mutibvu et al. (2012:9) added to the Pen et al. (2009:4) findings and reported that farmers in Simbe Zimbabwe mentioned that there were seasonal fluctuations in feed availability for the livestock. However, Pen et al. (2009:3) argued that in Cambodia farmers mentioned no fluctuations in

the amount of feed available but the feed shortages existed throughout the year.

The problem of feed availability also poses a problem to how much labor is used. According to Pen et al. (2009:3) the farmers use more labor hours in order to take livestock to the grazing land which is further away from where they live; this result in farmers using approximately 4.5hours of labor per day on feeding. Pen et al. (2009:3) further mentions that for farmers who plant their forage they spend on average 2.5 hours of labor per day cutting it and feeding to the animals. There are different causes to the problems of feed in all areas of the world; one of the causes mentioned by Mutibvu et al. (2012: 9) is that there is more planted land for crop production because farmers are trying to meet some of the pressures of urbanization but this compromises land for grazing. However, even though there are some farmers who see feed shortages as the major constraint in livestock productions there are some farmers who view feeding as not a significant constraint in production. “Livestock farmers do not view feed shortages as a significant constraint to livestock production” (Mucuthi and Munei; No date: 4). However, Mucuthi and Munei (no date: 4) also argued that even though the farmers did not view feed shortages as a significant constraint there were visible signs of overgrazing in the area.

According to FAO (1999:21) and Belay et al. (2013:1) livestock health is another limiting factor to livestock production in the small scale sector. FAO (1999:21) further mentioned that the issue with livestock diseases is that the producers have limited knowledge and understanding of disease control and those farmers who do understand the benefits have limited access to appropriate vaccines. Some diseases are also as a result of feed and water shortages in some areas of the world. Belay et al. (2013:2) discovered that most diseases in Ethiopia occurred during the dry season when the water quality is poor and also the grazing land is dry. Mucuthi

and Munei (No date: 2) found that in Kenya farmers saw mortality by diseases as the most important constraint followed by water shortages.

Breeding is another production constraint to small-scale livestock production; however, this factor is not always seen as a pressing issue by livestock owners in rural areas. Petrus et al. (2011) as cited in Mutibvu et al (2012:12) explained that the use of improved breeds in developing countries presents farmers with a major challenge as they require intensive management for them to realize full production potential. Birthal and Parthasarathy (2002:31) argued that crossbreeding low-yielding indigenous breed with high yielding exotic breeds has been widely acknowledged as a valuable strategy to improve animal productivity. FAO (1999:13) argued that only when feed and health have improved and large gains have been realized from indigenous breeds then genetic make-up might be important.

2.4.2 Economic constraints in livestock production

So far the discussion has been looking at the production constraints that are a stumbling block to the development of livestock production. The other constraints that exist are economic constraints which involve marketing and credit facilities. In most areas, however, farmers do not view marketing as the major constraint to the development of livestock development. In a study done in Cambodia by Pen et al. (2009:3), farmers ranked marketing as the least important constraint to livestock development. However FAO (No date: 3) and Zander et al. (2013:13) mentioned that marketing is one of the issues that most seriously impede livestock development in Africa.

Marketing should play an important role in the process of transforming small-scale farmers into commercial producers; according to Coetzee et al. (2005:4) the market is the institution that should provide the necessary incentives for farmers to increase their income. However, Ainslie et al.

(2002:10) found that the number of livestock marketed from the small-scale sector of the Eastern Cape Province is well under 10% of the total herd. This is very low compared to the commercial sector that, according to Jooste (1996:50), ranges between 23 and 25% of the total herd.

The problem of marketing for small-scale farmers begins at the farm gate, is the poor condition of livestock leading to prices set lower especially during dry spells. According to Bailey et al. (1999:16), weak public information systems contribute to the importance of informal networks with marketing systems in rural areas. Coetzee et al. (2005:10) mention that despite some efforts to improve the situation through the provision of telephone communication, the farmers in rural areas are still struggling with getting information on market prices, trends and auction sale dates. USAID (2003: 13) found that the immediate constraint to marketing was illegal marketing of livestock.

“Another problem for rural farmers is the lack of infrastructure; this includes both institutional infrastructure (market information, security and animal disease control) and physical infrastructure (communication, transport, and roads)” (Coetzee et al. 2005: 11). BATAT (2004:3) support the above statement by mentioning that rural areas are usually found in areas remote from marketplaces, where there is a serious lack of the above-mentioned services. Poor production and marketing management is another problem, which is caused by the fact that most livestock is kept for traditional purposes in rural areas.

Coetzee et al. (2005:20&21) states that most livestock in the rural areas especially oxen and small stock, are sold through an informal market in rural areas; these are the markets which are characterized by a high degree of seasonality, poor market information pertaining to prices and quality required. Nkosi and Kirsten (1993: 11) found that the informal markets are

the preferred outlets even though they have all their pitfalls. The USAID (2003:15) confirmed this trend, as they found that only a few farmers sell their livestock in auctions during Christmas and Easter. These periods are usually the ones when loved ones are coming back from urban areas, therefore, there is a high demand for livestock for slaughtering for the traditional purpose. FAO (No date: 2), Zander et al. (2013:14) and Zwane (2012:6) mentioned credit financing as another constraint in livestock development in developing areas. Farmers need financing for purchasing inputs however it can be difficult for communal farmers to receive such financing due to a lack of access to assets for security.

2.4.3 Environmental constraints in livestock production

The environment can have an effect on livestock and livestock production can affect the environment. The environment has a major impact on agricultural development due to the fact that agricultural production is largely dependent on the natural resources which can be affected by environmental factors such as the weather. Kaasschieter et al. (1992:5) explains that the availability of land, capital, water and human resources are the major determinants of the farming system to be followed by the farmers. In a study done in Kenya by Zander et al. (2012:4) farmers mentioned land availability as the major constraint to livestock development. Land availability determines the amount of feed the livestock get therefore it is very important in livestock development. Mucuthi and Munei (no date: 2) also indicated that in Kenya the lack of water and grazing land were amongst one of the hindering factors in livestock development. They further explain that the lack of water was the leading factor to mortality rates.

The FAO (no date:1) mentioned that the rainfall pattern is also another major constraint as it determines the production of forage plantation for the feeding of livestock, this leads to varying amounts of feed in seasons.

Svotwa et al. (2007:10) explained that in Zimbabwe high temperatures in spring were a cause of high disease incidence. According to Mutibvu et al. (2012:6) vegetation and water quality deterioration were assigned the highest rank amongst problems facing cattle production in Zimbabwe.

Climate seems to be one of the major problems to resource-poor livestock production farmers. In South Africa Scholtz et al. (2013:4) mentioned that the livelihood of extreme events such as more frequent droughts and floods coupled with the general scarcity of and poor water quality signals that global warming could make a major impact on water resources. Some studies such as McMichael and Anslie (2010:13) and the WWF (2010:10) have argued that the water used in livestock production should be channeled to crop and vegetable production which requires less water. However Scholtz et al. (2013:5) argues that this is an invalid point as most areas are not suitable for growing crops and animal production is the most sustainable food that can be produced in these areas.

2.4.4 Support services constraints in livestock production

In addition to environmental constraints, the most important constraints are support services in the developing world, some of these support services are the delivery of health services, education, training, and extension services. Morton and Wilson (2000:2) and Kaasschieter et al. (1992:4) explain that this is due to support delivery system in communal areas; lack of drug distribution, lack of transport and lack of networks leading to extension workers feeling demotivated. Morton and Matthewman (1996:2) argued that extension services are concentrated on cropping systems and these systems lead to livestock production being neglected.

In South Africa the state provides some of the above-mentioned services; however Getchell et al. (2002:6) and Masika et al. (1997:1) state that the Government policy on dipping in the Eastern Cape and other provinces in South Africa has varied since 1994. The budgetary constraints stemming

from the introduction of the Growth Employment Redistribution (GEAR) policy in 1996 caused the department to cease the supply of chemicals for dipping and only supplied personnel. Masika et al. (1997:1) mentions that this was later changed as seeing that the farmers were struggling and both the chemicals and the personnel was supplied by the government, but the transportation of the medicines was provided by the dipping committee and the farmers. This shows some of the decisions which are made by the government which affects communal livestock farmers.

According to Jenjezwa and Seethal (2014:12) in a study done in the Eastern Cape South Africa; there is also a shortage of support staff which reduces the efficiency of service delivery especially during vaccinations and testing programs which seem to take longer to complete. They further mention that the animal health technicians are not able to cater for all the needs of the stock farmers due to these shortages.

A study done in Asia by the FAO (1999:28) revealed that government extension services have generally failed to provide information to individual farmers as they saw the task to be too large. Mureithi and Mukiria (2015:4) mentioned that in Kenya farmers ranked extension advice for government, training, and veterinary services as one of the problems they are facing; only 5% of farmers mentioned that they had access to government veterinary services and most of them relied on private veterinary services. According to Belay et al. (2013:4) in Ethiopia lack of veterinary services has led to farmers using traditional medicines and these were reported to be functioning poorly.

2.4.5 Summary of Constraints

Production constraints	Economic constraints	Environmental constraints	Support services constraints
Limited and fluctuating in feed availability	Lack of marketing facilities and knowledge thereof	Land availability	Delivery of health services is poor
Health (limited knowledge and understanding of diseases)	Poor market information	Lack of water	Lack of drug distribution
Water quality	Lack of infrastructure	Rainfall pattern	Lack of transportation
Poor Breeding practices	Weak information systems	Climate change and global warming	Shortage of support staff

2.5 The role of agricultural extension in communal livestock production in southern Africa

So far the discussion has been on the constraints that are facing communal farmers in livestock production and one of those constraints were the agricultural extension sector which was seen as not doing enough for the livestock farmers. This section will be exploring some of the roles that agricultural extension services are playing to support small-scale farmers and possible roles that it can play to improve this sector. Specific attention will be given to possible ways in which agricultural services can be improved to better serve this sector.

There has been a serious doubt on whether extension can play a role in rural development; according to Anaeto et al. (2012:3-4) a role is a set of norms, values and interaction patterns associated with a given category of an individual and the role of agricultural extension services includes acting as a go between agricultural development institutions, carries out the formulated agricultural extension policies, and links farmers with sources of farming inputs and credit facilities.

In Kenyan agricultural development Cuellar et al. (2006:16) mentioned that agricultural extension services play a role in enhancing farmer, staff and stakeholder knowledge and skills, they support the establishment of forums and institutions that promote participation of private service providers in the agricultural sector and promote and strength farmers institutions. Kiptot et al. (2015:37) also found that in Kenya farmers mentioned that they received information about feeding practices from community extension service providers, volunteer farmer trainers, and other service providers. Even though extension service providers were not ranked as highest in terms of a reliable source for disseminating this information, however, it still shows that extension services do have a role that they play in livestock development in the small scale sector.

According to Akpalu (2013:5) and the NDA (No date: 6) in South Africa agricultural extension plays a role in assisting farmers in organizing themselves into groups, where appropriate, to gain access to finance and other production requirements and to market their products through group action. Akpalu (2013:5) explained that some other roles that agricultural extension can play in livestock production could be assisting rural communities seeking to better manage local agricultural and natural resources through new forms of organizations such as livestock associations. The NDA (no date: 6) listed some of the roles that can be played by extension services in linking wool farmers to the market:

- “Organizing working groups in rural areas at which proper extension could take place”.
- “Distribute marketing information on a regular basis to farmers in rural areas, by doing this small scale farmers would begin to have a feel for the market and should be inspired to produce better quality on a more regular basis”.
- “A pool can be established to which producers can supply their clip. The contents of this pool can then be classed, packed and marked and producers each can receive payment according to his/her individual contribution after the contents of the pool has been auctioned. This can ensure that central gathering points in developing area are established from where proper extension and marketing of wool can take place”.

2.6 Improving agricultural extension for communal farmers of South Africa

The above topic explored the problems for communal and small-scale farmers in general and those for livestock farmers, whereas the previous sections explored issues which are facing agriculture in the communal areas. This section will now look at ways in which agriculture extension can be improved for small-scale and communal farmers. A number of studies have been done on how agricultural extension can be improved from the way it is operating now as to benefit small-scale farmers.

Morton and Matthewman (1996:4) mention that governments are unlikely to start creating new institutions or even funding new services in order to deliver extension for communal farmers’ production. Therefore, the needs of the farmers must be met by reforms of existing institutions and services. They mention that in all settings participatory assessment of producers’ information needs is essential before institutional forms are decided upon. The importance of needs assessment cannot be stressed enough in development efforts. According to Acunzo and Protz (2010) in Van Niekerk

et al. (2011:8) agricultural extension has changed from a transfer of technologies and diffusion of research to a process known as communication, which includes encouraging people to identify and acknowledge a problem.

Sebidi (1997) in Hedden-Dunkhorst and Mollel (1999:12) suggested on how adjustments in the extension system can be made as to improve the way in which extension is delivered to communal farmers they state that the approach to program targeting needs adjustment, secondly the organizational structure of the agricultural system; others will be mentioned below:

- The extension methods and approaches;
- The content of extension advice;
- Training of extension workers and;
- Attitudes towards farmers existing knowledge and practices;

These adjustments have been implemented in some areas such as the Northern Cape.

2.7 Programs to improve communal livestock production sector in Eastern Cape

The importance of livestock in rural communities cannot be stressed enough; therefore, a review of what has been done in order to assist the farmers in rural areas is important. There are different programs which have been developed in the Eastern Cape Province from the support of and development of livestock production. Namely: the Eastern Cape Red Meat project, as well as Mngcunube program and its pillars.

2.7.1 Eastern Cape Red Meat Project/ National Red Meat Program

According to ComMark (No date: 1) This project was developed in 2005 by ComMark in partnership with Agricultural Research Council (ARC); National Agricultural Marketing Council (NAMC); Pfizer Animal Health; National and Provincial Departments of Agriculture and District and local

municipalities, with the main objective of increasing the income of communal cattle farmers by assisting them to realize higher prices for their cattle. ComMark (No date: 2) states that in developing this program certain issues were identified which were said to be the limiting factors for communal livestock producers, namely physical access to markets; Control of the conditions of production; understanding of grading processes; access to good market and price information; understanding of a market approach; and information about market procedures and systems.

Mkhabela (No date:4) mentioned that by exposing farmers to information about grading, classification, market systems and abattoir procedures, ComMark has been able to move towards the objectives of its agri-business interventions. Success has been achieved in ensuring emerging farmers obtain access to formal markets, which gives them the opportunity to benefit from higher prices and added value for their products. According to ComMark (2009:4) they did an analysis to find the pressing issues particularly in the Eastern Cape communal area they, therefore, found that their priorities should be, to develop a training program for local farmers; a market linkage program; and the promotion of better animal husbandry.

ComMark (2009:5) explain that after doing their analysis they, therefore, developed the training program, the market linkage program and the animal husbandry program. In the training program, the following activities are done; there are training days, trips to commercial auctions, and trips to abattoirs. According to Mkhabela (No date: 8), the market linkage program involves a process where farmers are connected to outside markets and also given knowledge on auctions. The animal husbandry program, an additional element of this project addresses the problem of poor animal health.

a) Challenges

Like in any development effort, this project faces some challenges (ComMark, no date: 8) outlined as:

- “The communal land tenure system and the resultant lack of control over grazing conditions and herd management make it very difficult for individual farmers to increase the production of animals for commercial purposes”.
- “Communal farmers are typically elderly, retired men who are not career farmers and so often do not see the value in changing their ways or the purpose for which they keep cattle”.
- “Attitudes of individuals within the municipalities and extension officers have a significant impact on the involvement of the Department of Agriculture and therefore the implementation of the program”.

b) Impact

Even with all the challenges it faces this project has been able to make a remarkable impact on livestock farmers. According to ComMark (no date: 9) these are the positive aspects of the program:

- A market approach to the red meat sub-sector is now on the agenda of the Department of Agriculture;
- Higher prices are starting to be realized by emerging farmers;
- Farmers have gained an understanding of market-related pricing and grading;
- Farmers are beginning to understand the value of selling young stock and the numbers of wieners presented at sales points are increasing steadily; and
- ComMark’s program has involved the traditional authorities. Negotiations with these authorities have helped to shape and define the program.

According to NAMC (2014: 1), this project is now currently operating in five provinces at a different level in municipal districts. In Kwazulu Natal the project is already 90% complete with more custom feeding programs build.

2.7.2 Mngcunube Development Program/ Mngcunube Mentorship program

According to Mngcunube Development (No date: 1), this is a program developed in 1994 as a business in order to assist small-scale livestock farmers with information and medical assistance to their produce. Their aim is to identify obstacles to significant growth and development opportunity in communal areas. “The importance of mentorship has been viewed and acknowledge as vital, where experienced farmers mentor emerging farmers” (Jordaan; 2012:2). According to Mngcunube Development (2008:6), they have noticed that the main challenge for mentoring is finding experienced farmers with a developmental approach that are willing to take inexperienced farmers under their wings.

Jordaan (2012:4) states that the Mngcunube Development Program has created a hands-on approach that is widely recognized for its immediate financial benefit to the farmers. Mngcunube Development (2008:8) explains that this program relies on experienced mentors to assist in identifying full value in existing skills, assets and technologies and in providing and increasing farmers’ profits through the application of basic stock management principles. This program has not only succeeded in the transfer of knowledge but also availability and affordability of resources such as livestock medicines have been brought into the reach of even the smallest farmers (Mngcunube Development; 2008:5).

The program has different projects of both livestock improvement and those supporting land reform in the different areas of Eastern Cape. According to Mngcunube Development (No date: 12), the current projects and the progress they have made are the following:

- Elundini Livestock Project: This project started in 2004; it covered livestock owners in Wards 8 – 15 of Elundini Local Municipality in the UKhahlamba District of the Eastern Cape. This project went on

until 2009, in the Elundini Municipality of the Eastern Cape. It has handled over a million small stock units and has reached over 4000 farmers.

- Alfred Nzo Livestock Project: A large scale project in the Alfred Nzo District (January 2007-2011), is very similar to the Elundini Project mentioned above and has reached nearly 3000 farmers and 7500 sheep and goats and nearly 7000 cattle within 30months.
- Mbashe Livestock Project: A project in the Mbashe Municipality from 2008 ongoing that has reached over 1800 farmers.
- Chris Hani District livestock improvement program: A livestock improvement project in the Sakhisizwe, Intsika Yethu, Tsolwana, Emalahleni and Engcobo areas of the Chris Hani District that has reached over 6000 farmers.
- A livestock improvement and marketing project in the Nyandeni Local Municipality of the OR Tambo District that started in August 2010 and has reached over 1700 farmers.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter will indicate how the research was done concentrating on the design of the research, the sampling methods, study area and the analysis procedures used to get the results. A qualitative research design was used in the form of interviews using a semi-structured questionnaire. The following discussion will give detailed information to the study.

3.2 Research design

The main aim of this research was to identify the pressing problems that are hindering development in communal livestock production in Nyandeni district. Secondly to look at the opportunities that exist to develop this sector. And to look at farmer's aspirations and knowledge in order to establish if there is an opportunity for livestock development in the area. A descriptive research methodology was used for this study; the survey research method was used to determine aforementioned objectives in Nyandeni Local Municipality. The survey was administered to a selected sample of farmers in Nyandeni Local Municipality.

The survey instrument used was a questionnaire with both semi-structured and structured questions. Surveys are used to obtain data from individuals about themselves, their households, or about larger social institutions. Sample surveys are an important tool for collecting and analyzing information from selected individuals. "They are widely accepted as a key tool for conducting and applying basic social science research methodology" (Rossi et al. 1983:7). The design of the study took into consideration the fact that some members of the population could not read or write and therefore could not fill in the questionnaires; the administration of the questionnaire thus took a form of face-to-face interviews with the farmers as opposed to self-administration. According to Becker (2011:5), face-to-face interviews are advantageous as they can

allow the research to have long interviews and also they allow the interviewer to explain the questions to the interviewee. The questionnaire was composed of both open ended and closed ended questions and each questionnaire had a total of 69 questions.

3.2 1 Study area

Nyandeni local municipality is part of the O.R. Tambo District, situated in the Eastern Cape Province. This area is part of the Wild Coast area in the eastern with a lot of natural attractions. According to Nyandeni Local Municipality (2011:18), the area is largely rural with 79% of its households residing in traditional or village type settlements while only 20% reside in urban informal. The most famous crop grown in the area by the farmers is maize production which plays a large role in the people's livelihood.

The research was conducted in the Nyandeni local municipality which has two small village towns Libode and Ngqeleni, this is more rural-based and the majority of its population is Xhosa speaking. Most farmers here produce maize for their own consumption and also to feed their livestock which means their farming is more subsistence.

The Nyandeni Local Municipality (2011:20) states that there are 332 settlements within the Nyandeni local Municipal area; it has 36 wards, and approximately 61,647 households. Many of the families in the rural regions were supported by men who work as migrant labor at local mines. Some households have very little income showing high levels of poverty in these areas.

According to Department of Water Affairs (2007:1), Libode has 143 traditional villages with 22,172 households and Ngqeleni has 227 villages with 34,679 households.

3.2.2 Sampling and data collection procedures

For this study four villages from the local municipality were selected; these were Bukwini, Ngidini, Mdumazulu, and Ludaka. These villages were selected because at the time of data collection there were inoculations and stock inspections taking place in these villages, therefore, it was easy to reach the farmers this way as they were all in one place.

Convenience sampling methods were used to select the farmers to be interviewed; this is a non-probability type of sampling method where the units that are selected for inclusion in the sample are easiest to access. According to Lund Research (2012:2), this type of sampling requires less governing rules allowing the researcher to achieve the required sample size in a fast and inexpensive way. Even though the interviews were conducted at sites where most of the farmers were available, the farmers were not randomly selected; any farmer who was done with inoculation or those who were still waiting for their turn were interviewed.

The number of the sample was 15 farmers for each category of livestock that is the cattle, sheep, and goat farmers for each village which led to a sample size of 180 farmers. However the researcher realized that most respondents farm with the three of the above-mentioned livestock categories which therefore led to 68 farmers being interviewed. This sample size was selected due to limited facilities such as transport, labour and financial facilities which were available to the researcher. The data was collected in September and October 2015.

3.2.3 Analysis of the data

The data was divided into independent which is a variable which is not affected by the state of any other variable in the study, intervening this is a variable which helps explain the relationship between two variables and dependent variables, any variable which depends on other factors are measured. Data obtained from the respondents was coded especially with the unstructured questions and captured using Statistical package for Social Sciences (SPSS) version 23 computer program. Descriptive statistics were generated to represent respondent's opinions on various aspects of livestock production; these included the frequencies which were presented as percentages, the mean which is the average scores for the group on each of the factors. Inferential statistics were used to test differences in responses between male and female farmers; this was performed using the independent samples t-test. According to Pallat (2005:135), the t-test is the most appropriate test to use when comparing mean score for independent groups.

CHAPTER 4

FINDINGS OF THE STUDY

The purpose of the study was to identify the constraints in communal livestock production development these were divided into technical, economic and socio-economic constraints; to look at the support which is provided by government and other stakeholders in assisting with communal livestock development; to establish the opportunities which are available in developing this sector in the area; and lastly to look at farmers' aspirations. The following discussion will be illustrating the results or findings and also what the results mean. The first topic will be looking at the constraints which were established to be hindering communal livestock development in the study area.

4.1 Constraints Hindering Communal Livestock Development in Nyandeni Local Municipality

4.1.1. Socio-economic constraints hindering development in communal livestock development

This section of the chapter shows the social aspects of the respondents which were interviewed for the study. The social aspects of the population are important as they affect the behavior of the farmers in agricultural development efforts. For this study age of the population, gender, literacy, and marital status were all included in the interviews and analysis was done to look at percentages and means for the variables as well as t-test was done to check for the difference between the age of females and males.

a) Age and Gender

The mean age of the respondents shows the average age for respondents; this will help to find how a development worker can address the farmers as most elderly people for example are illiterate, and therefore age is important in agricultural development. Below is the table showing the results of the analysis.

Table 1: The mean age of respondents according to gender

Gender	Mean	N
Female	49.78	23
Male	57.72	43
Missing		2
Total	54.95	68

The table above shows the mean age of the respondents 54.95. This shows that there is less youth involved in agriculture in the area.

According to Quisumbing et al. (2014:4) in agriculture gender affects all development efforts as every society is marked by gender differences and these differences vary widely across culture. Therefore, it is important to look at the dynamics of each society and how gender affects decision-making, depending on how many female farmers the development worker will be dealing with and how many males. SOFI/FAO (2011:28) mentioned that in rural areas, especially women have less education compared to their male counterparts. Therefore, the way in which extensionists would address a woman would have to be different compared to the way in which a man would be addressed.

The findings show that the majority of the correspondents (43) were men. Further statistics were run to see if there is any difference in the mean age between male and female respondents and from Table 1 the mean age of female respondents is 49.78 which is less than the mean age for male respondents which is 57.72. The independent samples t-test showed that the mean age for male respondents is significantly higher than female; $P=0.039$ $P<0.05$ and the $T=-2.112$. This means that the 23 female respondents are significantly younger than 43 male respondents.

b) Marital status

In rural areas marital status can have an effect on how households deal with problems especially when it comes to married women. Kiriti and Tisdell (2002:24) mentioned that women seem to lose their decision-making

ability with marketing and agricultural land use as the husbands usually make all the decisions. Knowing the marital status of the farmers as an agricultural advisor is important especially if one is going to be working with female farmers. The table below will indicate the marital status of the respondents.

Table 2: The Marital Status of Respondents

Respondents Categories	Frequency	Percent
Married	60	88.0%
Divorced	3	4.4%
Widow/Widower	1	1.5%
Single	4	5.9%
Total	68	100%

Table 2 shows the frequencies for marital status. The respondents were given four options to choose from and those were either the respondent is married, divorced, widowed or single, as it is observed from the table the majority of respondents 88% were married. Only 6% of the respondents were single.

c) Literacy and educational qualification

According to Okpach et.al (2014:5), the level of education of a farmer or whether the farmer can read or write has an impact on how a farmer responds to new scientific technologies intended for agricultural development. It can be difficult for illiterate farmers to understand these new technologies. It was, therefore, vital to look at the farmers' literacy levels to see how they would understand new ways of doing things, the way they respond to the problems they face in agriculture and how they solve them, is related to their level of education. Table 3 below shows the percentage of farmers, who can read to those who cannot read or write as well as the level of education.

Table 3: Literacy levels of respondents and educational qualification

Respondents categories	Frequency	Percent
I can read	2	2.9%
I can write	1	1.5%
I cannot read or write	33	48.5%
I can read and write	32	47.1%
Total number of respondents	68	100%
Grade 1-5	40	59.7%
Grade 6-11	19	28.4%
Grade 12	5	7.5%
Certificate	2	2.9%
Diploma	1	1.5%
Missing	1	1.5%
Total number of respondents	67	100%

The results showed that 49% of the respondents cannot read or write but also shows that 47% can read. In addition, the results showed that 60% of the respondents had a grade 1-5 educational qualification and 28% had a grade 6-11 qualification, only 8% had a grade 12 qualification. Only one respondent had a diploma qualification.

d) Livestock Farming Experience

Farming experience plays an important role in agricultural development, farmers with more experience are aware of the risks that come with farming and are able to deal with them well. In this study farmers were asked to estimate the number of years that they have been involved in livestock farming, the results are indicated in the table below.

Table 4: The mean number of years in livestock farming per category according to respondents

Categories	N	Minimum	Maximum	Mean
Goat farming experience (years)	59	1	40	12.20
Sheep farming experience(years)	63	1	40	12.17
Cattle farming experience (years)	59	1	40	12.32

The maximum number of years that the respondents mentioned they have been farming for was 40 years for all three livestock categories, this also an indication that the majority of the respondents are well above 50 years as shown in Table 1 from the previous discussion. The mean number of years in livestock farming was between 12.20 for goats, 12.17 for sheep and 12.32 for cattle farming. The next discussion will be looking at the technical constraints hindering livestock development.

4.1.2 Technical constraints hindering communal livestock development

a) Livestock numbers per respondent

This study was aimed at looking at communal livestock production and to accomplish it, four villages from Nyandeni local municipality were chosen and fifteen farmers from each of villages farming with goat, cattle and sheep production were interviewed. One of the important aspects of this study was to find out how many livestock each farmer owns. This, in turn will give an indication of the mean number of livestock in each village. The first findings will show the descriptive statistics for the number of livestock owned by respondents followed by the mean number of livestock owned for each of the villages. The table below displays the average number of livestock according to respondents.

Table 5: The mean number of livestock owned by the respondents

Categories	Respondents	Minimum	Maximum	Mean
Sheep	65	1	142	35.09
Goats	60	2	61	16.63
Cattle	61	1	18	6.87

The mean number of sheep shown in Table 5 was 35.09 with a maximum of 142, the mean number of goats was 16.63 with a maximum of 61, and the mean for cattle was 6.87 with a maximum of 18. From the table it is clear that the majority of farmers owned more sheep than the other livestock. According to Coleman (2016:1) in most areas of the Eastern Cape sheep are a major contributor to communal farmers' income.

The table below shows the different means and standard deviations for each of livestock category in the four villages.

Table 5.1: The number of sheep, goats and cattle per village according to study respondents

Village		Sheep	Goats	Cattle
Bukwini	Mean	27.72	16.53	6.33
	Number of respondents	18	15	15
	Std. Deviation	23.245	12.495	3.200
Ngidini	Mean	40.27	17.93	6.93
	Number of respondents	15	15	14
	Std. Deviation	34.802	17.790	4.341
Mdumazulu	Mean	35.50	18.25	7.75
	Number of respondents	14	16	16
	Std. Deviation	23.171	11.393	3.975
Ludaka	Mean	37.83	13.50	6.44
	Number of respondents	18	14	16
	Std. Deviation	30.417	12.113	4.516
Total	Mean	35.09	16.63	6.87
	Number of respondents	65	60	61
	Std. Deviation	28.053	13.452	3.981

According to the table above the village with the highest mean number of sheep was Ngidini 40.27. The village with the lowest mean number of

sheep was Bukwini ranking at 27.72. The village with the highest mean number of goats was Mdumazulu namely 18.25 and, the village with the highest mean number of cattle was Mdumazulu at 7.75. The mean number of sheep in the villages varies at 27.72 to 40.27, the mean number of goats varies at 13.50 to 18.25 and the mean number of cattle varies at 6.33 to 7.75.

b) Number of sheep owned according to the Age of respondents

Age is an important aspect in agricultural development. The Guardian (2014:1) mention that this is due to the fact that agricultural development requires technological innovations; introducing these new technologies can be difficult to do if most of the farmers are old as they may take time to understand. This can be a problem for development in livestock farming in rural areas. It was important for this study to determine if there was a difference between the mean numbers of livestock between the age categories for the respondents. The table below will show the findings.

Table 5.2: Mean number of livestock according to Age categories of the respondents

Age category		Number of Sheep	Number of Goats	Number of Cattle
20-35	Mean	27.80	7.00	6.25
	Number of respondents	5	4	4
	Std. Deviation	14.653	4.397	2.500
36-51	Mean	43.35	21.89	8.05
	Number of respondents	20	19	19
	Std. Deviation	33.358	16.024	4.743
52-67	Mean	30.92	12.71	5.09
	Number of respondents	25	21	22
	Std. Deviation	26.823	8.361	2.810
68-83	Mean	33.92	18.43	8.31
	Number of respondents	12	14	13
	Std. Deviation	26.811	15.451	4.070
Total	Mean	34.78	16.49	6.78
	Number of respondents	63	59	59
	Std. Deviation	28.443	13.522	4.017

The table shows the different means for the number of livestock for the different age categories. The age category (36-51) indicated the highest mean in the number of sheep namely 43.35. The age category (20-35) indicated the lowest mean for a number of sheep, namely 27.80. This indicates that youth is not focused on farming because only five sheep farmers fall within this age category.

The table also reveals the difference in the means between the age categories and mean number of goats. The results from the analysis showed that the age category (36-51) indicated the highest average number of goats 21.89 and the lowest mean in this case also came from the youth category with a mean of 7 goats.

Lastly, the highest mean for cattle came from the age category 68-83 years which is the oldest age category from the table with a mean of 8.31 and the lowest mean number of cattle was indicated in the age category (52-67) namely 5.09. These results show that there is still a problem motivating youth into being involved in livestock production. As discussed above even in Nyandeni local municipality it is evident that the people who are most involved in livestock production are elderly. “So as farmers are getting older, this raises questions about future prospects for increasing farm productivity” (FAO 2014:2).

c) Gender and number of livestock

From the previous section gender was described as one of the most important aspects of agricultural development, it was explained why looking at gender was important for the study. SOFI/FAO (2011:30) mentioned that one of the problems which need to be dealt with in agricultural development is closing the gap in terms of ownership of livestock between men and women, it was further mentioned that men own more livestock compared to women. Looking at whether males own more

livestock compared to females or if females own more and whether there is a difference at all would help determine whether this problem is the same even at Nyandeni local municipality. The findings are presented in the table below.

Table 5.3: Gender and Mean Number of livestock according to the respondents

	Gender	N	Mean	Std. Deviation	Std. Error Mean	T-test sig. (2-tailed)
Sheep	Female	25	26.04	17.413	3.483	0.019
	Male	39	41.03	32.299	5.172	
Goats	Female	19	13.63	11.672	2.678	No difference
	Male	40	17.95	14.290	2.259	
Cattle	Female	21	6.38	3.263	.712	No difference
	Male	39	7.13	4.384	.702	

The table shows the descriptive statistics then it shows the results for the independent t-test. Firstly we will look at the number of sheep. The test revealed a higher statistical difference between male and female, namely the female mean number of sheep=26.04 and male mean number of sheep=41.03. The t-test results revealed a P-value =0.019 which is less than 0.05, this reveals that the average number of sheep kept by male farmers was significantly more than that owned by female farmers.

The results for goats revealed a mean difference between female (13.63) and male (17.95) however the difference was not statistically significant because p-value (0.256) was higher than 0.05.

The results from the t-test revealed no statistical significance between male and female in the mean number of cattle owned. The results show the female respondents had a mean number of cattle (6.38) and male mean number of cattle (7.13). The p-value (0.496) was more than 0.05.

d) Size of land available for livestock grazing

In agriculture land is one of the most important assets; it determines how many livestock a farmer can keep, and what type of crop to plant. “The problem with rural areas is that farmers have no legal rights to the grazing land but it is owned by the traditional leaders and therefore the farmers do not know the size of land they have for grazing” (Migot-Adholla, et al. 1991: 155). Goeringer et al. (2014: 2) mentions that these days with more farming land being taken and sold to be used for residential settlement, poses a threat to agricultural production and growth thereof. Especially livestock production as more land is needed for livestock grazing.

For this study, farmers were asked if they knew the size of the land which was available to them for livestock grazing and also land available for the different types of crops. Descriptive statistics for the mean land that the respondents had was determined and the independent t-test were run to see whether there was a significant difference between the average size of the land owned by female and male respondents.

Only 27% of farmers responded to the question the rest said they did not know how much land was available for grazing. The mean hectares of land owned by those who responded was 11.33ha. According to FAO (1999) 10ha of land can accommodate up to 100 sheep/goats; this means that the carrying capacity of land would be 10SSU/ha (sheep/goat) while during a dry season it would be 5SSU/ha. In the Eastern Cape the carrying capacity is 5 to 7LSU/ha

Table 6 : Descriptive statistics land size available for grazing according to male and female respondents

	Gender	N	Mean	Std. Deviation	Std. Error Mean	Sig. (2-tailed)
Size of Land Available	Female	6	9.67	4.926	2.011	No difference
	Male	13	12.38	5.455	1.513	P-value=0.314

Table 6 shows the descriptive statistics for land ownership, the results show the different means between male (12.38ha) and female respondents (9.67ha). The t-test results showed no significant difference in the results between male and female land ownership and the p-value was greater than the cut off 0.05(P-value=0.314).

e) Land available for crop production

In the previous discussion it was explained why land is important for agricultural development. This section will indicate the land available for crop production as mentioned by the respondents, as well as the crops they plant. The results revealed that 93% of the respondents have land available for maize production, 78% have land available for cabbage, 62% have land available for potato production, 31% for bean production, 28% for beetroot and 44% have land available for spinach production. The results showed that maize is the most planted crop in the area and according to NDA (No date: 1) and CGIAR (2001: 2) maize is the most important staple food in South Africa. In the rural areas of Eastern Cape it has been the most planted crop because not only is it consumed by the people but also as feed for the livestock.

The descriptive and independent samples t-test were run to determine if there were differences between female and male respondents in terms of the size of land they use for each crop. The table below will display the results.

Table 7: The land available for crop production according to female and male respondents

	Gender	N	Mean	Std. Deviation	Std. Error Mean	Sig. (2-tailed)
land for maize	Female	23	.70	.250	.052	P-value= 0.01
	Male	39	1.05	.776	.124	

Table 7 shows the descriptive statistics for the land available for maize between male and female respondents. According to the table there is a difference in the mean size of land available between male and female respondents. The mean size of land for female is 0.70ha and for male respondents it is 1.05ha. The independent samples t-test (-2.127) revealed that males had significantly more land available for maize production than females P-value= 0.01. The same test was done for all the other crops but the results showed no significant difference in the size of land owned by males compared to females.

f) Health-related constraints

FAO (1999:21) and Belay et.al (2013:1) mentioned that livestock health is another limiting factor to livestock production in the small scale sector. It can affect the quality of the meat, and in the case of wool production it can affect the quality and the quantity of wool and can affect reproduction. This section will look at all the common diseases in the area according to the respondents and how they treat and prevent them.

Every area has a set of common diseases which affect the livestock, it is important to know which diseases are more recurrent in the area in order to know which kind of health assistance they need. The table below shows the responses from the farmers.

Table 8: The most common livestock diseases in the area according to the study respondents

		Responses	
		Number of responses	Percent
Common diseases	Blue tongue	1	0.5%
	Pulpy kidney	37	19.0%
	Sheep scab	46	23.6%
	Internal parasites	42	21.5%
	External parasites	8	4.1%
	Foot rot	2	1.0%
	Anthrax	8	4.1%
	Tick-borne diseases	40	20.5%
	Black leg	4	2.1%
	Bloat	7	3.6%
Total		195	100.0%

According to the table the disease that the farmers said is the most common, is sheep scab with 24% of 195 responses. The second common diseases the farmers indicated are internal parasites in livestock with 22%. The third common diseases are tick-borne diseases, 21% of the responses. The fourth common disease is pulpy kidney with 19% responses. Other diseases which did not receive as many responses were anthrax, external parasites, foot rot, black leg and bloat. These diseases show that they still occur in this area but not as frequent as the other diseases.

For each of these diseases there are different ways of treating and/or preventing them. It was important therefore to, find out what the farmers were currently doing in order to treat and/or prevent these diseases. The two ways which were mentioned here were inoculation and dosing while some respondents did mention dipping as another way for treating and or preventing some of the mentioned diseases. FAO (1999:21) mentioned that the issue with livestock diseases is that the producers have limited

knowledge and understanding of disease control; those farmers who do understand the benefits have limited access to appropriate vaccines.

The table below will show how the farmers said they prevent or treat each disease. The question is; are they doing the right thing to treat or prevent the disease?

Table 8.1: Ways in which farmers treat and or prevent common diseases in livestock in the study area

Disease	Dosing	Inoculation
Pulpy Kidney	1.4%	47.8%
Sheep and Goat Scab	8.7%	59.4%
Internal Parasites	13%	40.6%
External Parasites	2.9%	10.1%
Tick-Borne Diseases	13%	33.3%
Bloat	4.3%	4.3%

A total of 48% respondents said they treat pulpy kidney with inoculation. In case one of the livestock has already been diagnosed with the disease, according to animal health technicians, inoculation is the right way to treat pulpy kidney.

The respondents mentioned that the most occurring disease in the area is sheep and goat scab. To treat this disease 59% of the respondents said that they use inoculation and 9% use dosing. According to Afrivet (no date: 3), one of the ways to treat sheep and goat scab is by inoculation; this means that 59% of farmers in the area were doing the right thing.

Internal parasites can affect the growth of livestock according to Gadberry et al. (2011: 1) it can affect both small and large stock and especially in young animals, therefore it is important to make sure they are treated and prevented correctly. A total of 40% of the respondents said that they treat internal parasites by inoculation and 13% treat them by dosing and while 47% of the respondents did not respond. This may be due to the fact that the disease does not occur or they do not know how to treat or prevent the

disease. According to the animal health technician in the area, internal parasites can be treated with both inoculation and dosing.

NDA (2007:3) mentioned that external parasites are important to be looked at and be prevented and treated as they can be bothersome for cattle and can make them uncomfortable causing wounds, bleeding spreading diseases leading to death and low production. Only a small number of respondents mentioned this disease as common in the area and 10% of those who said it occurs said that they treat it with inoculation. The most effective way of treating external parasites is by dipping the cattle and using sprays for livestock. However according to NDA (2007: 5), some external parasites can be treated with injectable medicines.

One of the diseases which can be a problem for cattle, sheep and goats are tick-borne diseases. According to Infonet (2016:1) ticks are a major limiting factor to livestock productivity; not only do they suck blood causing weakness in livestock but if they are many they carry diseases which lead to death. In this area, the respondents complained about gall sicknesses which affect the cattle mostly. A total of 33% of the respondents said they treat these diseases by inoculation and 52% did not know how to treat these diseases. Only 13% said that they use dosing to treat it. The most effective way to treat tick-borne diseases according to the animal health technician in the area is inoculation of the livestock.

Laven (2016: 1) mentioned that bloat can cause discomfort and death in cattle if it is not treated in time. Farmers in the area were not concerned with it and those who said that it is a problem they treat bloat by dosing and inoculation (4%). However according to Laven (2016:3) and the animal technician in the area Bloat can be treated by dosing.

According to Wobeser (2002:4) preventing diseases entering and spreading in livestock populations is the most efficient and cost-effective way of managing diseases. The farmers were asked to indicate what they do in

order to prevent the diseases using dosing or inoculation. The findings are presented in Table 8.2 below.

Table 8.2: How the farmers prevent common diseases from infecting the livestock

Disease /prevented by	Dosing	Inoculation
Pulpy Kidney	4.3%	27.5%
Sheep and Goat Scab	2.9%	43.5%
Internal Parasites	7.2%	31.9%
External Parasites	0	10.1%
Tick-Borne Diseases	4.3%	18.8%
Bloat	2.9%	5.8%

The table above shows that 28% of the respondents said they use inoculation to prevent pulpy kidney; 4% said they use dosing, while 68% do not prevent the diseases or it did not occur. According to the animal health technician in the area and Dunn (2007:2) inoculation is the most effective way to prevent pulpy kidney from attacking the livestock.

Table 8.2 shows that to prevent sheep scab 44% of the respondents indicated that they inoculate the sheep and the goats and 3% indicated that they use dosing. The most effective way of preventing sheep scab according to Afrivet (no date: 6) and the animal health technician, is inoculation and dipping the livestock.

The table above shows that 32% of respondents indicated that they use inoculation to prevent internal parasites, while 7% mentioned that they use dosing. According to the animal health technician in the area, the most effective way for treating internal parasites in livestock is by dosing and also using supplementary feeds for the livestock. Therefore 32% of the respondents were not preventing the disease effectively.

A total of 88% of the respondents did not mention how they prevent external parasites and only 10% use inoculation. As seen from previous discussion external parasites can be dangerous for livestock. And the effective way to prevent external parasites is by dipping, using sprays and

not popular, also inoculations can be used to prevent them. Even though dipping was not part of the categories to select from some farmers did mention that they use dipping as a way of preventing external parasites.

Only 19% of respondents said they use inoculation to prevent tick-borne diseases and some mentioned that they also use dipping and 4% of the farmers use dosing to prevent these diseases from occurring. Inoculation is used to prevent tick-borne diseases but also combined with dipping and using sprays to prevent ticks.

Only 6% of the farmers use inoculation to prevent bloat from occurring and 3% of the farmers use dosing. According to Laven (2016:4), it is effective to prevent bloat rather than to treat affected animals and dosing is effective in preventing bloat in livestock.

g) The condition of a dip tank

A dip tank for both cattle and sheep is important as it is helpful in preventing ticks in livestock as seen from the previous discussions on prevention and treatment of external parasites and tick-borne diseases. In rural areas it is the widely used form of tick prevention in cattle. Masika et al. (1997: 4) found that dipping is one of the major interventions by the state in communal livestock production. It is important to determine if the dipping tanks are in good condition for dipping of the cattle; if they do have dipping tanks at all and if this intervention is still in a good condition. The following table shows the results from the respondents.

Table 9: The percentage number of farmer respondents with a dip tank and condition of the dip tanks

	Frequency	Percent
We do not have a dip tank in our area	25	36.7
Condition of the dip tanks		
Poor	8	11.7
Good	35	51.5
Total	68	100.0

The table shows that 37% of the respondents indicated that they did not have a dip tank in their area; 12% mentioned that it was in a poor condition and 52% said that they had a dip tank and it was in good condition. This means if there are villages which still have no dip tanks, their cattle are still at a risk still of being affected by tick-borne diseases.

h) Breeding practices followed by farmers

One of the problems which one may notice in rural areas is that most of the farmers do not keep rams and bulls and rely on other farmers for rams and bulls during the mating season, Getachew et al. (2010:5) found that having one ram or bull to mate many ewes or cows leads to less breed selection and therefore poor quality production. In order to determine whether the respondents experience the same problem, it was important to ask if they do keep rams and bulls on the farm. The findings are presented in Table 10 below.

Table 10: Percentage number of respondents who own bulls and rams

Do you keep:		Number of respondents	Percent
Categories	Rams (sheep)	42	61.8%
	Rams (goats)	25	36.8%
	Bulls	17	25%

The table shows that 62% (42 respondents) keep sheep rams. Only 37% (25 respondents) keep goat rams. And 25% (17 respondents) said that they kept bulls, this means a total of 75% of the respondents do not keep bulls.

i) The number of year’s rams and bulls are kept

According to Schoenian (2011:4) rams usually reach their peak breeding performance when they are 3 to 4 years old and in commercial situations they are culled at the age of 6. Schoenian (2011:4) further mentioned that it is preferred to use bulls which are less than 4 years old during breeding as they are less likely to have injuries. Farmer respondents were asked to mention the number of years they keep their rams and bulls for breeding and to determine if they were doing the right thing when it comes to their breeding techniques. The table below shows the results from their responses.

Table 10.1: The mean number of years in which the farmers keep bulls and rams

How long do you keep:	Number of responses	Minimum years	Maximum years	Mean year	Std. Deviation
Sheep rams	41	1	4	3.10	.664
Goat rams	26	1	5	3.23	.710
Bulls	14	2	9	5.64	1.737

The descriptive statistics in the table revealed that the sheep farmers kept their rams for an average (mean) of 3years; this is when the rams are still at peak period. The mean number of years is the same for goat rams (3 years). The mean number of years in which bulls are kept is 6 years the bulls are older at this age but they still perform well. This shows that respondents do have knowledge on how long they keep their rams and bulls to be able to perform well.

j) Estimated lambing and calving percentage and mean percentages

From the above discussion it shows that there is a problem of rams and bulls not available for everyone, however even if the above is not a major problem for low lambing and calving percentages there are other factors which will be looked at in the following discussions. Reiling (2011:1) mentions that the goal for calving and lambing percentages should be 90% or more. The table below shows the mean lambing and calving percentages.

Table 11: The mean lambing and calving percentages according to respondents

	Number of respondents	Minimum	Maximum	Mean	Std. Deviation
Lambing % sheep	60	1	90	38.98	17.542
Lambing % goats	44	0	100	31.89	18.526
Calving %	36	0	50	21.19	11.627

The descriptive statistics from the table revealed that the mean lambing percentage for sheep was 38.98% with a minimum of 1% to maximum of 90%; the mean lambing percentage for goats was 31.89 % with a minimum of 0 to 100%; and for calving was 21.19% with a minimum of 0 to a maximum of 50%. From these results it therefore shows that the desired percentages are not met.

Further it was important to see if the mean percentages were different according to male and female respondents. The results are shown in the table below.

Table11.1: Mean lambing and calving percentages according to gender

Gender		Lambing % sheep	Lambing % goats	Calving %	Sig. (2- tailed)
Female	Mean	37.96	24.83	18.15	No difference
	N	24	12	13	
Male	Mean	39.67	34.53	22.91	No difference
	N	36	32	23	
Total	Mean	38.98	31.89	21.19	No difference
	N	60	44	36	

The mean sheep lambing percentages for female respondents was 37.96% and for male respondents was 39.67%. The mean goat lambing percentage for females was 24.83% and for males was 34.53%. And mean calving percentage was 18.15% and 22.91% for females and males respectively.

The independent t-test from the table revealed no significant difference for lambing percentage in sheep between male and female t-value = -0.367 and the p-value= 0.715 which is greater than 0.05. There was also no significant difference in the goat lambing percentages between male and female respondents t-value=-1.573 and p-value=0.123 also greater than 0.05. There was also no evidence of a significant difference in the calving percentages between male and female respondents, t-value =-1.189 and p-value=0.244.

k) Lambing and calving percentages change

It was important to determine whether the lambing and calving percentages were increasing, decreasing or remained unchanged. Results are shown in the table below.

Table 11.2: Change in lambing and calving percentages as perceived by the respondents

	Change in lambing % for sheep	Change in lambing % for goats	Change in calving %
Decreased	50.7%	42.0%	36.2%
Increased	15.9%	7.2%	5.8%
No change	23.2%	30.45	37.7%
Total	89.9%	79.7%	79.7%
Missing system	10.1	20.3	20.3
Total	100.0	100.0	100.0

The table shows that 51% of the respondents said their sheep lambing percentages decreased, 16% said it increased and 23% said that there was no change. A total of 42% of respondents said that their lambing percentage for goats decreased, 7% said it increased and 30% said it did not change. A total of 36% percent of cattle farmers said that their calving percentage decreased, 6% said that it increased and 38% said it did not change. From these results it shows that majority of respondents experienced a decrease in these percentages. Some of the respondents who mentioned an increase in lambing and calving percentages mentioned that they were new farmers.

There are many possible causes responsible for low lambing and calving percentages and these causes differ for each farmer and each area depending on the management of livestock. From the above results it shows that the lambing and calving percentages have either decreased or there was no change. It was important to determine what according to the respondents are the major causes for the change or no change in lambing and calving percentage. The findings are presented in the table below.

Table 11.3: Major causes of change in lambing and calving percentages according to the respondents

Categories	Frequency	Percent
Poor health management	39	57.4
Good health management	1	1.5
New farmer	4	5.9
No feed	3	4.4
Dogs eating the livestock	2	2.9
No bulls/rams means mating can be difficult	6	8.8
Missing	13	19.2
Total	68	100.0

The table shows that 57% of the respondents indicated a decrease in lambing and calving percentages caused by poor health management followed by 9% who said that there were no bulls/rams available for mating, followed by poor feed (4%), new farmers(6%) and 3% mentioned that dogs eat their livestock. Only 1.5% of the farmers mentioned that his/her lambing/calving percentage increased due to good health management.

1) Good livestock management

Farmers are different in the way they view their livestock, this then determines the way a farmer will see good livestock management, if a farmer's goal is to sell the farmer will view good livestock management as getting more income from their livestock. This will also help determine the farmer's goals in terms of his/her production. Below is a table which shows what each farmer said in terms of what good livestock management meant to them.

Table 12: What good livestock management means according to the farmers

	Frequency	Percent
Lower livestock mortality	2	2.9
Higher wool production	3	4.4
Higher financial income	38	55.8
More lambs/calves produced	1	1.5
Higher average production	24	35.4
Total	68	100

The table above shows that 55% of the respondents said that good livestock management means higher financial income. Only 35% said that it means higher average production this shows that farmers want to grow their livestock production.

m) Feeding practices

According to Ayantunde et al. (2005:10) and Hall et al. (2008:5) one of the main constraints to livestock development is the scarcity of and fluctuating quantity and quality of available food and supply. What livestock eat has an effect on their wellbeing, it affects mating and growth and development of the livestock. The feeding practices that farmers follow were important to determine whether they have enough food or if it is a stumbling block in communal livestock development in the area. The table below will show the feeding practices that the respondents said they were using for their livestock.

Table 13: Feeding Practices followed by Farmers

		Responses		Percent of Cases
		N	Percent	
Feeding practices	Natural pastures only	66	84.6%	100.0%
	Crop Residues (maize), natural pastures and planted pastures	9	11.5%	13.6%
	Supplementary feeding	2	2.6%	3.0%
	Other	1	1.3%	1.5%
Total		78	100.0%	118.2%

According to the table 85% of the respondents said that they use natural pastures only. Only 12% of the respondents said they use natural pastures, planted pastures and crop residues such as maize; while only 3% of the respondents also add supplementary feeding to their feeding practices. Although there are some benefits which are associated with using natural pastures only Schivera (2002:1) mentioned that natural pasture feeding is beneficiary to the health of the animals, the people and the environment. However, Mmbengwa et al. (2015:8) argued that seasonal grazing variables are a problem and require supplementary feeds. This means that even though the farmers are using natural pastures supplementary feeding is still required during a low rainfall season.

n) Feeding practices a farmer would like to use

The farmers were asked if there were any other feeding practices they would like to add to their practices. The table below shows the feeding practices that farmers mentioned they would like to use.

Table 13.1: Other feeding practices which the farmer wishes to add to current feeding practices

	Frequency	Valid Percent
Planted Lucerne	39	57.3
Maize	3	4.4
Supplementary feeding	5	7.3
Nothing	11	16.1
Missing	9	13.2
Total	68	100.0

A total of 57% of the respondents said that they would like to add planted lucerne to their feeding practices; 4% said they would like to add maize; 7% said they would like to add supplementary feeding and 16% indicated nothing to add. These results show that the farmers do have some idea of other feeding practices they could use to compliment the natural pastures that they are currently using.

o) Factors preventing farmers from using the other feeding practices mentioned

Farmers were asked to mention the factors that were preventing them from using other practices if they knew about them. The results are presented in the table below.

Table 13.2: Factors preventing farmers from using the other mentioned practices as perceived by study respondents

Factors	Frequency	Percent
Insufficient funds	23	33.82
Insufficient Infrastructure	26	38.2
Insufficient knowledge	12	17.6
Lack of opportunity	6	8.8
Missing	1	1.4
Total	68	100.0

The table above shows that 34% of the respondents said that the factors preventing them from using the other practices were insufficient funds; 38% said insufficient infrastructure; 18% said insufficient knowledge about how to get the feeds or how to go about planting the crop and some do not know about availability of the feed, and 9% said it's the lack of opportunity to get the feed.

p) Availability of water in the area

Belay et.al (2013:2) discovered that most diseases in Ethiopia occurred during the dry season when the water quality is poor and also the grazing land is dry. Water availability for livestock is therefore as important as the food that they eat, having water for livestock to drink is always a major part in their wellbeing, according to Kebreab et al. (2005:33) water availability controls the supply of feed and animal welfare. It was important to see if the farmers have water available for the livestock to drink. The majority of respondents (97%) indicated that they have a dam or a river available for their livestock to drink.

4.1.3 Economic constraints hindering communal livestock development

a) Sources of income

According to Andrew et al. (2003:4) the vast majority of South Africa's poor rural residents derive their livelihoods from a number of diverse on-farm and off-farm sources: "The off-farm sources include wages, remittances from migrants and commuters, and income from informal economic activities and from state welfare grants". From this study, as one has viewed from the social aspects 50% of the respondents were not educated which means they do not have well-paying jobs. Another important factor about this variable is that it can also help one determine whether the farmers do receive income from their livestock. The table below will show the mean percentage income received by farmers from the following sources of income sheep, goat, cattle, crop production, informal

employment (own a business), formal employment, pension or grants. Other sources of income which they mentioned that they receive money are from children who work in urban areas and also inheritance money.

Table 14: The mean percentage income received from different income sources according to farmer respondents.

Categories of sources of income	N	Mean	Priority order	Std. Deviation
% income from sheep production	32	11.91	7	9.969
% income from goat production	9	6.78	8	3.153
%income from cattle production	6	14.50	5	27.260
%income from formal employment	30	53.73	2	32.691
%income from pension/grant	55	60.73	1	33.986
%income from informal employment	26	21.65	3	23.167
%income from crop prod	12	18.50	4	12.236
%from other sources	5	14.00	6	8.916

The table shows that 55 of the respondents mentioned that they receive income from pensions/grants, mean percentage income of 61%. The mean percentage income received by 32 respondents from sheep production was 11.91%. The mean percentage income received from goat production was only 7%. The mean percentage income received from cattle production was 15%.

A total of 30 respondents said that they receive income from formal employment with a mean percentage income of 54% which was close to the mean income from grants and pensions. Mean percentage income from crop production was 19%, informal employment was 22% and the mean percentage income from other sources was 14%. According to the above

table income from grants/ pensions and from formal employment is still the most important source of income.

b) Meat marketing

Marketing of livestock for meat production in rural areas is not easy and therefore some farmers in rural areas end up not selling their livestock and if they do; they sell it in the informal market. NDA (No date: 5) mentioned that this can be due to low levels of literacy, a distance from improved technologies and poor communication systems. We wanted to know whether the farmer respondents were selling their livestock. The percentage number of respondents who sell their livestock is indicated in the table below.

Table 15: Percentage responses for farmers who sell their livestock for meat production

Livestock marketing	Responses		Percent of Cases
	N	Percent	
Do you sell sheep for meat production	31	64.6%	93.9%
Do you sell goats for meat production	12	25.0%	36.4%
Do you sell cattle for meat production	5	10.4%	15.2%
Total	48	100.0%	145.5%

Only 48 of the respondents out of 68 answered the question and according to the table the percentage respondents who sell their sheep for meat production in Nyandeni local Municipality was 65%. Only 25% of the respondents sell their goats for meat production, while only 10% of the respondents sell cattle for meat production. These results support the conclusion from Jooste (1996:50) who mentioned that the numbers were very low compared to the commercial sector that, range between 23 and 25% of the total herd. Ainslie et al. (2002:10) found that the number of livestock marketed from the small-scale sector of the Eastern Cape Province is well under 10% of the total herd.

After learning whether the farmers do sell their livestock for meat production the next step was to find out which market they use to sell the livestock. The results are shown in the table below.

Table 16: Markets used by farmer respondents to market their livestock

Markets used	Frequency	Percent
Formal market	1	1.4
Informal market	32	44.4
Missing	34	50
Total	68	100.0

According to the table 44% of the farmers use the informal market to sell their livestock. The results agree with Nkosi and Kirsten (1993: 11) who found that the informal markets are the preferred outlets even though they have all their pitfalls as they are the ones accessible to the farmers in rural areas.

It was important to determine if farmers knew about any formal markets available that they can use to market their livestock. And the table below shows the markets they had knowledge of to them.

Table 17: Formal markets which are available to the farmers in the study area

Available markets	Frequency	Percent
Auctions	8	11.8%
Butcheries	14	20.6%
I do not know	21	30.9%
Missing	25	36.8%
Total	68	100%

Only 12% mentioned that they know about auctions that are available to them for selling livestock for meat production, while 21% of farmers said they know of butcheries that are available. A total of 31% of farmers said they did not know which markets are available to them for marketing

livestock for meat production. A total of 37% did not respond to this question, which is an indication that the farmers have little knowledge of the markets available to them.

The farmers who said they sell their livestock were asked to mention the livestock they have sold and the price they sold them at, for this study this variable was important as it would determine if one of the problems facing the farmers was receiving a lesser amount per annum than what they should be receiving. The farmers mentioned that the price for livestock is determined by the villagers and not by individual farmers which means it does not matter whether the other farmer's livestock is in good condition the farmer will get the same price. Descriptive statistics were run to determine the mean price they get from selling livestock.

Table 18: The mean price and number of livestock sold in the year 2015 according to respondents

Categories of animals sold	Number of livestock	Mean number of animals sold	Mean price for animals sold
Number of ewes sold	2	1.50	R950.00
Number of steers sold	3	1.00	R8000.00
Number of whethers sold	24	2.29	R1056.00

The table shows the number of ewes, steers, and whethers sold in the last year; it also shows the mean price for each of the livestock categories. According to the table, the mean number of ewes sold was 1.5 and the mean price was R950.00. The mean number of steers sold was 1 per farmer and only 4% of the farmers said they sold at a mean price of R8000.00, the mean number of whethers sold was 2.29 per farmer at a mean price of R1056.00. At least 36% of the farmers sold their livestock. According to NDA (No date:8), the price paid for castrated animals is more than the one

paid for other animals, it is therefore a good thing that the farmers are selling more wethers and steers than the other animals.

i) The age of livestock when sold

The age in which the livestock are sold also determines the price that the farmers receive for the livestock they are selling. The majority of respondents mentioned that they sold wethers and steers. “ Prices for males increase at an increasing rate with age, up to 5.7 years and they increase at a decreasing rate to age 11.4, where they begin to fall” (Bekure and Tilahun;1982:12). NDA (No date: 7) further mentioned that the age of livestock is important also because younger animals are preferred in the market as their meat is tender. NDA (No date: 7) carries on to say the preferred ages are 2 to 3 years of age. The table below will show the results from the respondents.

Table 18.1: The mean age in which livestock were sold according to respondents

	N	Minimum years	Maximum years	Mean years	Std. Deviation
Age steers are sold	4	4	15	7.50	5.196
Age wethers are sold	29	3	7	4.00	1.035

The table shows that the mean age in which steers were sold was 8years; this already is a problem as seen from the above discussion when the animals are sold at this age the farmers will be paid lower prices and might not sell at all. Wethers were 4 years, compared to the desirable age which as seen from above is 2 to 3 years the farmers were selling their livestock at an older age.

The farmers were asked what they would like to do to add value to the meat they produce and the reason is to find out if they want any improvement in the livestock they produce. The findings are presented in Table 19 below.

Table 19: Farmer respondents’ perception of measures that will add value to the meat they produce

Categories	Frequency	Percent
I can introduce good quality rams and/or bulls into my breeding practices	1	1.5
I can select the ewes and sows for mating	2	2.9
Ensure good health management	51	75.0
I can ensure better feeding practices	13	19.1
Missing	1	1.5
Total	68	100

The table shows that 75% of farmers would like to ensure good health management; this result clearly indicates that the major problem that the farmers would like to change is to ensure good health management for livestock. Only 19% of the farmers mentioned they would ensure better feeding practices.

c) Wool production and marketing in Nyandeni Local Municipality

Perret (2002: 14) explains that wool production is one of the major contributors to rural household income for sheep farmers. In some areas this product is neglected and some farmers do not sell it because they do not have enough information on the wool markets and sometimes others sell at low prices to people who offer to buy it. This section will be looking at where the farmers sell their wool; how it is transported to the market and the income they receive from it.

For wool farmers having a shearing shed helps farmers to formally record the kilograms of wool they sell every shearing season. In addition to this Bragdon and Smith (2015:13) mention that shearing sheds can be a form of an innovation platform where stakeholders and farmers can meet to discuss some of the problems that farmers have. Another advantage of having a shearing shed is that, there is one place where all the wool can be sheared

and classed and it is easier for the wool auctioneers or brokers to come and collect it. It also helps to ensure that the wool is handled properly. The following results will show whether the farmers have a shearing shed in their area or not.

Table 20: Percentage number of farmers who have a shearing shed in their village

	Frequency	Percent
Yes	11	16.2
No	54	79.4
Missing	3	4.4
Total	68	100.0

According to the table above 79% of the respondents said they did not have a shearing shed in their area. Only 16% indicated that they have formed a co-operative, providing them with some of the services which can be provided by a shearing shed.

The name of the co-operative is Gcinimfuyo with 27 members we were only able to interview 11 of the members from the two villages Bukwini and Ngidini and all the other respondents mentioned that they were not part of any co-op. The majority of the respondents (73%) did all the shearing themselves; while 27% mentioned that they hired someone to do the shearing.

USAID (2003:3) found that there are two types of markets where a farmer can sell the wool namely the formal and the informal market. According to Coetzee et al. (2005:10) market availability is still one of the problems which face communal farmers and where a farmer sells his/her wool will also determine the price of the wool. The farmers were asked to mention where they sell the wool, the results will be shown in the table below.

Table 20.1: Type of market respondents mentioned where they sell their wool

	Frequency	Percent
Formal market	26	38.2
Informal market	33	49.0
Missing	9	13.2
Total	68	100.0

The results from the table revealed that 38% of the farmers sell the wool in the formal market while 49% sell the wool in the informal market. Only 13% mentioned that they do not sell their wool at all, some burn it or throw it away because they do not know where to sell. Coetzee et al. (2005: 11) mentioned a lack of information systems as one factor that contributes to farmers not using proper markets to sell their wool, the results above support this statement. 81% of the farmers who sell their wool mentioned that the wool is collected from their homes by the brokers and 7% also mentioned that they would like to use their own transport as a better option to transport the wool.

i) How farmers would add value to the wool they produce

Farmers were asked to identify some of the aspects they would like to improve in order to add value to the wool they produce; this will help determine the priority areas in the development of communal livestock production. Findings are presented in the table below.

Table 20.2: Percentage responses what a farmer would do to add value to the wool they produce

Aspects to add value to the wool	Frequency	Percent
I can introduce good quality rams into my breeding practices	2	2.9
I can select the ewes for mating	1	1.5
I can practice good sheep health control	49	72
I can ensure better wool classing	3	4.4
I can ensure better feeding practices	9	13.2
Missing	4	5.8
Total	68	100.0

From the table 72% of respondents would like practice good sheep health control; a clear indication that one of the problems they are faced with is poor health control. Only 13% of the respondents said they would like to ensure better feeding practices and even though it is not a big number it is a problem that they are faced with. Only 4% of the respondents mentioned better wool classing, and 3% introducing good quality rams into the breeding system.

4.2 Government and private sector interventions to develop communal livestock or support services to assist in the development of communal livestock in Nyandeni local Municipality

According to Tukahirwa et al. (no date; 1) information is a key component in improving smallholder agricultural production and linkages to remuneration markets thus improving rural livelihoods. This information coming from service providers such as the agricultural extensionists are important aspects that support the development of agriculture in the rural areas. Especially important are the veterinary services in terms of livestock health. The aim of this variable was to determine whether the farmers do have contact with their service providers and if so which ones do they have contact with at least every second month. The findings are presented in Table 21 below.

Table 21: Percentage responses for service providers’ farmer respondents have contact with every second month

Service providers	Responses		Percent of Cases
	N	Percent	
Members of agric EC Extension service	35	23.0%	51.5%
Members from Veterinary services	67	44.1%	98.5%
Reps from pharmaceutical Companies	30	19.7%	44.1%
Members of the Malusi Program	19	12.5%	27.9%
Total	152	100.0%	223.5%

The table shows a list of service providers which the respondents said they have contact with. Only 23% of respondents from the 152 responses said that they have contact with the members from Eastern Cape (EC) Department of Rural development and Agrarian Reform (Extension services). A total of 44% of the respondents said they have contact with the members from Veterinary Services. Only 20% of the respondents have contact with the representatives from pharmaceutical companies and 13% of the farmers have contact with members from the Malusi project.

In Table 1 the importance of gender was documented; an independent t- test was run to determine if there is a difference between men and women in terms of access to the information or service providers available. The results are presented in Table 21.1 below.

Table 21.1: The difference in mean numbers between male and female respondents in contact with service providers

	Gender	N	Mean	Std. Deviation	Std. Error Mean	Sig. (2-tailed)
Members of agric EC Extension	Female	25	1.44	.507	.101	No difference
	Male	42	1.50	.506	.078	No difference
Members from Veterinary services	Female	25	1.00	.000	.000	No difference
	Male	43	1.02	.152	.023	No difference
Reps from pharmaceutical Companies	Female	25	1.68	.476	.095	No difference
	Male	43	1.49	.506	.077	No difference
Members of the Malusi Program	Female	25	1.72	.458	.092	No difference
	Male	42	1.71	.457	.071	No difference

The Table above shows the difference in means between male and female respondents in terms of contact with the services providers that they mentioned. The first service provider is the Department of Agricultural Extension; the table shows that there is a small difference between the mean numbers for male (1.50) and female (1.44). According to the independent samples t-test this difference was not statistically significant $t=-0.469$ and $p\text{-value}=0.641$ which was more than 0.05.

The second service provider are the members from the Veterinary Services and the table shows that females had a mean of 1 and males of 1.02, the independent samples t-test revealed no significant difference between male and female respondents with a $p\text{-value}= 0.450$ greater than 0.05 and the $t\text{-value} = -0.469$.

The third service providers that the farmers mentioned that they have contact with are the representatives from pharmaceutical companies.

According to the table the mean number for female respondents is 1.68 and for male respondents is 1.49. The independent samples t-test revealed no difference between male and female with access to pharmaceutical companies the p-value= 0.124.

The fourth and last service provider that the farmers mentioned was the members from Malusi Project the mean for female respondents was 1.72 and for male respondents was 1.7 and the t-test also shows no difference between the two categories the females and the males have equal access to the members of the Malusi Project.

ii) Services provided by service providers according to farmers

According to Anaeto et al. (2012:4) the role of agricultural extension includes acting as a go between agricultural development institutions, carries out the formulated agricultural extension policies and credit facilities. The farmers were asked to mention the services which are provided by the service providers. Below is a table which will show the services that the farmers mentioned.

Table 21.2: Percentage responses services provided by service providers according to respondents

Services Provided	Members of agric Extension	Members from Veterinary Service	Reps from pharmaceutical Companies	Members of the Malusi Program
Project support	22%			
Give information on available markets	7.4%			
Farming advice	13.2%			
Provide links between farmers and other organizations	8.8%			
Inoculations		66.2%		1%
Treatment		29%		14%
Stock inspection		1.9%		
Provision of medicines			33%	16%
Advice on health management			10%	

The table shows that 22% of the respondents said that the members of the Agricultural Extension Services provide them with project support; 9% said that it provides them with links between them and organizations such as the Malusi project and the members of National Wool Growers Association (NWGA); 13% farmer respondents indicated that they provide them with farming advice and 7% said they provide them with information on available markets.

The members of the Veterinary Services were the ones with the highest number of responses. A total of 66% of the farmers mentioned that they provide assistance with inoculation of the livestock, 29% indicated treatment of the livestock and 1.9% mentioned stock inspection. Even though Jenjezwa and Seethal (2014:12) have mentioned the shortage of veterinary staff in the Eastern Cape this study shows that the staff which are there are able to perform some of their duties.

Pharmaceutical Companies also seem to be playing a role in providing some of the services for farmers. A total of 33% of the farmers mentioned that

they provide medicines and 10% indicated receiving health management advice. Only 14% of the respondents said that they receive treatment for their livestock from the Malusi Project and 16% mentioned the provision of medicines.

iii) Available auctioneers

The only auctioneer that the farmers had knowledge of was BKB situated about 700km from the area in Port Elizabeth. BKB is the one which assists farmers with selling their wool, however not everyone knew about this auctioneer only 34% of the farmers knew about it and were selling their wool to this auctioneer.

iv) Services provided by service providers according to service providers

a) Services provided by Animal Health Technicians to livestock farmers

Disease Control and Surveillance: performing day duties, such as rabies inoculation (293 dogs and 192 cats), cattle dipping (10754), small stock inspection (3912 sheep; 294 goats), 113 horses; 1 mule; 99 cattle branded and 430 sheep; 156 goats dosed, 102 animals castrated and treated 59 animals.

Statutory compliance and administration: Mondays are office days; they serve the community by doing livestock transfers summarize all previous work duties, also serve notices for the following duties:

- Veterinary training and extension: They hold meetings every last Monday of the month with community animal health workers and dipping committee members, advise them about diseases that are common in our area and inform them on how to treat or prevent them, also inform them about remedies for dosing and when to use it.

- Promote and render livestock improvement: They advise farmers to form an association, so that it will be easy to get bulls or rams of high standard to improve their livestock and heifers from farmers. They also advise farmers to keep pastures in good condition and not to burn it during winter.
- Promote animal health care: They advise farmers to be fully equipped with injection and remedies that will help their livestock when they are sick or having worms or to be vaccinated. They organize stock owners who have the dosing remedies or vaccine and do it for them.

b) Services provided by extension workers to farmers

They meet with farmers in each village in a form of a meeting to promote farming and organize farmer days.

They have motivated farmers with no shearing sheds to form and register a co-op in order to be able to sell their wool at one place, and meet up with all the farmers to discuss the membership of the co-op and select someone who will be able to manage all the administration for the farmers (a representative for them).

They visit the villages who are involved in Agricultural projects to monitor the projects and to see if they have any problems such as diseases and to contact the animal health technician to come to that project and treat the disease, or they contact the veterinarian to come and identify the diseases.

They serve as a liaison for the bull project and the ram exchange program which is only available to farmers who have organized themselves into a co-op in the villages. They give information on the importance of farming and planting their own gardens and provide information on better ways to farm especially for people involved in projects.

They provide information on where people can buy feed for animals and sometimes buy the feed. On Mondays, since it is office day they serve the

farmers by writing letters for livestock transfers to transfer them to the animal health technicians. They communicate with farmers in order to hear about and learn their farming problems. They also inform farmers why it is not always the best idea to sell their wool in the informal markets and motivate them to join the co-ops and sell it on formal market.

c) Members from Malusi Project or Mngcunube Project

They meet with farmers to advise them on better ways to manage their livestock especially during the rainy season where wool can get damaged due to wet kraals. They advice farmers on better feeding practices during the winter season. They provide vaccinations for all the diseases which are common in the area before they can attack the animals, these vaccinations are provided at costs and only to farmers willing to pay. They arrange days to treat the animals. They sell medicines helpful for treating livestock diseases.

Their aim is to reduce the number of livestock deaths per year. It is to increase production for the farmers and also to increase the quality of livestock produced by farmers. They provide farmers with books to keep records of their stock.

v) Other sources of agricultural information utilized by respondents

The media plays an important role today in influencing people's behavior but also it is the only source of information for most people. According to Nazari and Hassan (2011:1) mass media offers effective channels for communicating agricultural messages which can increase knowledge and influence behavior of the audience members. Nakabugu (no date: 2) mentioned that a radio and television often are used to complement the effort of the extension worker especially rural radios or community radio stations. The results are presented in the next table.

Table 22: Percentage number of famer respondents who own a radio and/or a television

	N	Radio	N	Television
Yes	20	29.4%	49	72.1%
No	45	66.2%	19	28.0%
Missing	3	4.4%	0	0
Total	68	100.0	68	100.0

The percentage number of respondents who said they have a radio was 29.4% and those who did not have a radio was 66.2%. It was further important to determine if the farmers who own a radio did gain any knowledge from listening to it. Only 9% of the respondents who owned a radio said that the radio does improve their knowledge to some extent and 23.2% said they did not listen to any agricultural programs on the radio.

Television also plays an important role in agricultural development and according to Nazari and Hassan (2011: 4) the broadcast media has the ability to disseminate information to large audiences efficiently; and the television can be a particularly important channel. Farmers were asked if they had a TV and if so if they watch the program which airs on South African Broadcast Corporation (SABC 2) on agricultural information and the extent to which this program plays a role in improving their knowledge in agriculture.

The percentage number of respondents who owned a TV was 72% which shows that there were more farmers who had access to a TV compared to those who had a radio. Farmers were asked if they watch the program on SABC 2 on agricultural information. Only 16% of the farmer respondents said they watch the program and the reason for such low numbers is that some of the respondents said they did not know about this program. For the 16% who said they watch the program, only 7% of them said that it did improve their knowledge to some extent. This study finding is in

contradiction with Nazari and Hassan (2011:1) finding that mass media did influence farmer’s agricultural knowledge.

Tukahirwa et al. (no date: 2) mentioned that cell phones are recognized as an important tool for development because they offer benefits such as mobility and security to owners. Therefore the table below will show us whether the farmers do receive information through their cell phones from the service providers that they mentioned from the previous tables.

Table 23: Percentage number of farmer respondents who receive agricultural information via cell phone

	Frequency	Percent
Yes	6	8.8
No	61	89.7
Missing	1	1.5
Total	68	100.0

The table shows that only 9% of respondents said they do receive information through their cell phones from service providers. Those who mentioned that they receive information via their cell phones said that the information they receive is from the animal health technician.

vi)Provision of livestock treatment

According to Jenjezwa and Seethal (2014: 1) the state provides veterinary services to farmers including medical care; and resource-poor farmers, in rural areas, are highly dependent on state veterinary services due to their low income. It was important to determine whether the farmers are using some of the services provided by the government for health management in livestock production. Farmers complained that when they do the treatment themselves it can happen that they are not doing the treatment right which may lead to deaths. The table below shows the treatment and prevention of livestock diseases.

Table 24: Treatment and prevention of livestock diseases according to farmer respondents

Categories	Frequency	Percent
I did it myself	56	82.4
The veterinarian	1	1.5
The animal health technician	6	8.8
Missing	5	7.4
Total	68	100.0

The table shows that 82% of respondents indicated that they treated the livestock themselves; 9% of the livestock were treated by the animal health technician and only 1% were treated by the veterinarian. The reason may be due to the fact that when this research was done the state-funded inoculation for sheep scab had just started and some of the farmers had already done the inoculations and treatment themselves for other diseases. Masika et al. (1997:1) mentioned that all other treatments are more efficiently performed by the individual farmer and government only provides some of the treatment and preventions for livestock not for all diseases.

The importance to determine where the remedy came from is important so that one can know whether the problem is that the medicines are not available and whether the government is playing its part in providing these medicines to the communal farmers. The table below will show whether the farmers buy their own remedies or it were provided by the government.

Table 25: The provision of remedy for treatment and prevention according to farmer respondents

	Frequency	Percent
I bought out of my own pocket	55	81
I received it from the government	9	13.2
Missing	4	5.8
Total	68	100.0

The table shows that 81% of the respondents indicated that they bought the remedies out of their own pockets and only 13% of the respondents said that they receive it from the government. As mentioned by the study done by Masika (1997:1) and Jenjezwa and Seethal (2014:12) some other medicines are provided by farmers and not by the government.

4.3 Farmers aspirations to development and opportunities

a) Aspirations

Knowing where the farmers see themselves in the future in terms of their livestock production helps to determine whether the farmers are willing to develop in the future and also the aim of the farmer. According to Makonnen and Gerber (2015:19) a farmer that is willing to grow in livestock production will tend to use more innovations than a farmer who is not. Makonnen and Gerber (2015:20) also indicated that low aspirations lead to low innovation use and less willingness to grow. Farmers were firstly asked to mention the number of livestock they were aspired to own in the next five years; the table below will show the mean number of livestock that the farmers are aspired to own.

Table 26: The number of livestock respondents were aspired to own in 5 years time

	N	Minimum	Maximum	Mean	Std. Deviation
Sheep aspired to own	63	10	1000	300.63	398.501
Goats aspired to own	56	4	1000	220.87	350.258
Cattle aspired to own	58	10	1000	100.48	215.300

The mean number of sheep that the respondents said they were aspired to own was 300.63 with a maximum of 1000 and the standard deviation of 398.5. The mean number of goats that the farmers aspired to own was 220.87 also the maximum number was 1000 and the minimum was 4 the standard deviation was 350.258. The mean number of cattle that the respondents said they were aspired to own was 100.48. These results indicated that from the original mean number of livestock that the farmers owned namely sheep= 35.9, goats= 16.63, and cattle= 6.9 the respondents are aspired to grow.

b) Gender and aspiration for livestock growth

FAO (No Date: 13) mentions that gender is the key determinant of aspiration; the aspirations that males have will be different from that of females due to different goals that males have and females have in terms of livestock development. Therefore it was important to determine whether there is a difference in the aspiration in livestock growth between males and females. The findings are presented in Table 26.1 below.

Table 26.1: Differences in mean number of livestock aspired to own according to gender

Gender		Sheep aspired to own	Goats aspired to own	Cattle aspired to own	Sig. (2-tailed)
Female	Mean	155.42	164.67	53.33	P-value=0.010
	N	24	18	21	
Male	Mean	390.00	247.50	127.24	No difference(p-value=0.414)
	N	39	38	37	
Total	Mean	300.63	220.87	100.48	No difference(P=0.104)
	N	63	56	58	

Table above shows the difference in means between male and female in the number of livestock that they were aspired to own. The table shows that the mean for the number of sheep that the females were aspired to own was 155.42 and for males was 390.00. This shows that there was a difference between the mean numbers of sheep males are aspired to own in 5 years' time. The table shows that the mean number of goats that the female respondents were aspired to own was 164.67 and that for male respondents was 247.50 also showing a difference. There was also a difference in the mean number of cattle that female respondents were aspired to own mean= 53.33 and that for male respondents=127.24.

The above table shows that there were differences between the mean numbers that female and male respondents were aspired to own. What was important was to determine whether this difference was significant or not do males have a significantly higher average number of livestock aspired to own than females? The independent t-test was run to find out this difference.

The independent samples t-test revealed that male respondents significantly aspired to own more sheep than female respondents, not assuming equal variances t- value= -2.643 and p-value was less than 0.05 at 0.010. The test

showed no significant difference between male and female respondents in the number of goats they were aspired to own, t-value= - 0.824 and p-value= 0.414 greater than 0.05, therefore even though the averages were different there difference was not significant. The t-test revealed no significant difference between male and female and the number of cattle aspired to own; t-value= -1.263 and the p-value=0.104 greater than 0.05.

c) The income farmer respondents aspired to get from livestock production

Above it is shown that the respondents aspired to own more livestock numbers than what they had, but it is not enough to just know that the farmers aspired have large numbers of livestock if they do not aspire to receive any income from them. The next table shows the mean percentage income that the respondents said they aspired to receive from livestock in 5 years and also the kilograms of wool they aspired to sell.

Table 27: Wool aspired to and income aspired to receive from livestock production according to respondents

	N	Minimum	Maximum	Mean	Std. Deviation
Wool aspired to sell in 5years(kgs)	59	10	1000	247.54	365.107
Percentage income aspired to receive from goat production in 5years	59	0	60	19.24	15.602
Percentage income aspired to receive from sheep production in 5 years	55	0	50	22.52	9.674
Percentage income aspired to receive from cattle production in 5 years	52	0	40	17.63	10.626

The table above shows that the mean kilograms of wool that the respondents aspired to sell in 5 years were 247.54 and the maximum was 1000 kg. This increase was to raise the average kilograms of wool sold per sheep from 0.5kg/sheep to 0.8kg/sheep.

The mean percentage income that the respondents said they aspired to receive from sheep production was 22.52% the maximum being 50%, which shows that compared to the average income shown previously of only 11.91% there was an increase in the amount of income they would want to receive from sheep production. The table also shows that the mean percentage income that the respondents said they would like to receive from goat production was 19.24% and the mean percentage income that the farmers would like to receive for cattle was 17.63%. These numbers showed that the farmers aspired to receive a higher income from their livestock production in the next five years.

d) Willingness to be mentored

It is important to determine whether the farmers are willing to be supported in order to achieve their goals. Mentorship is important in livestock production as the already developed farmers are able to mentor those who are still growing but a mentorship program cannot be successful unless the farmers are willing to be mentored. The table below shows the percentage number of farmers who indicated they are willing to be mentored.

Table 28: Respondents' willingness to be mentored

	Frequency	Percent
Yes	54	79.4
It depends	1	1.5
I have no idea what the mentorship program is	11	16.2
Missing	2	2.9
Total	68	100.0

The table shows that 79% of the respondents indicated that they were willing to be mentored and 16% had no idea what a mentorship program was. This proves that the farmers were willing to be mentored and ready to learn from others.

e) Needs to be addressed to enable respondents to farm effectively, efficiently and in a sustainable manner

The respondents were asked to mention the needs that need to be addressed in order for them to farm effectively, efficiently and in a sustainable manner. They were asked to rank these needs from 1=least important to 13=most important. The findings are presented in the following table.

Table 29: Needs to be addressed to enable respondents’ farm effectively, efficiently and in a sustainable manner

Farmers Needs	Rank Order
Financial issues	1
Farm infrastructure	3
Production aspects	5
Social aspects	6
I need more land	2
Climate conditions	7
The land tenure system	13
Over-wintering	9
Fodder crops	8
Veld management	4
Access to input supplies	13
Availability of markets to sell animals	10
Wool markets	11

According to the table the most important needs are 1=financial issues, 2= I need more land, 3= farm infrastructure, followed by veld management and production aspects.

f) Farmers knowledge on livestock production aspects

According to DAFF (2011:7) Prices paid for wool is determined by free market demand and supply forces and are closely linked to the international price for apparel wool. As this may be the case it may happen that the farmers in rural areas receive less money from their wool. According to this study 48% of the farmers sell in the informal market and prices in the

informal market are different from those of the formal market. We asked farmers in Nyandeni local municipality to give the price of the wool they got from the last shearing season and the kilograms of wool they sold. This was done to find out whether the farmers were getting a fair profit from the wool they produce. Descriptive statistics were used in order to find the mean price and the mean kilogram wool that farmers were able to sell in the last shearing season.

Table 30: The mean kilogram wool sold and price of wool sold in the last shearing season according to the farmer respondents

	N	Mean
The price of wool last season (Rand)	45	18.64
Wool sold at last season (Kgs)	34	39.22

The table above revealed that the mean price for wool sold in the last shearing season was R18.64/kg and 79% of the sheep owners responded to the question. The mean kilograms of wool sold by respondents was 39.22kg per respondent and 57% of the sheep owners knew how many kilograms of wool they sold and 43% did not know. However according to Cape Wools (2015: 3) the price of clean wool per kilogram in that season was R129.22. De Beer and Terblanche (2015:10) found that top sheds in rural areas sell on average 2.7kg of wool per sheep, the average sheds sold 1.7kg/sheep and bottom sheds sold 1.4kg/sheep. In the study area however the average wool sold were 0.5kg/sheep. This number is low compared to the other areas.

Independent samples t-test was done in order to look at whether there was a difference between male and female for the price of wool sold in the last season.

Table 30.1: Difference in the mean price of wool received last season according to gender

	Gender	N	Mean Price(rand)	Std. Deviation	Std. Error Mean	Sig. (2-tailed)
The mean price of wool last season	Female	14	13.43	4.799	1.283	0.029
	Male	31	21.00	12.014	2.158	

According to the independent samples t-test with p-value=0.029 below 0.05, t-value =-2.266; the results showed a statistically significant difference between male and female mean price for wool sold whereby the price of wool which was received by females was R13.43 significantly less than what males received (R21.00).

g) Programs for the development of communal livestock production.

According to Belay et al. (2013:2) in any development efforts if the farmers have no knowledge of them those efforts are guaranteed to fail as the people meant for them do not know about them. This part of the discussion will focus on some of the programs which the farmers said they had knowledge of both from government and the private sector. There are other programs developed to grow the communal livestock production in the area which have been mentioned in Chapter 2 but the focus will be from the ones that the farmers said they had knowledge of.

i) The Malusi program

Mngcunube Development (No date: 1) mentioned that this is a program that was developed in 1994 as a business in order to assist small-scale livestock farmers with information and medical assistance to their produce. But during the time of development it was called the Mngcunube development program. The program developed to Nyandeni local municipality later changed its name to the Malusi project.

At least 43% of the respondents indicated they know about this program that means 56% did not have knowledge of the project. Some of the respondents who said they knew about it still said they did not use the services provided by this program. To find out whether the services provided by this project were assisting those with some of the problems which the farmers are facing in the area, the farmers were asked to mention the services they receive from the above project; the following table will show these services.

Table 31: Services provided by the Malusi project according to farmer respondents

	Frequency	Percent
Assistance with vaccinations	10	14.7
Provision of medicine for the livestock	19	27.9
Information on good livestock management	3	4.4
Missing	36	52.9
Total	68	100.0

The table shows that 28% of respondents said that livestock medicines were provided to them; 15% of the respondents received assistance with vaccinations and 4% received information on good livestock management. This program shows that it was dealing with some of the issues which were mentioned by the farmers.

ii) Government, NERPO and NWGA programs

The government and commodity associations such as the National Wool Growers Association and the NERPO have been developed some programs to assist the communal livestock farmers in developing. The farmers had to mention some of the programs they had knowledge of and who developed it. The findings are presented in the table below.

Table 32: Farmer respondents who had knowledge of the Ram Exchange Program

	Frequency	Percentage
Yes	27	39.7%
No	35	51.5%
Missing	6	8.8%
Total	68	100%

Only 40% of the respondents said that they knew of the Ram Exchange Program. The respondents did not mention any other program they had knowledge of.

Table 32.1: The developers of the Ram Exchange Program as mentioned by study respondents

	N	Percentage
NWGA	3	4.4%
EC Department of Rural Development and Agrarian Reform	14	20.6%
NERPO	1	1.5%
Other	1	1.5%

Table 32.1 shows that 4.4% of the respondents indicated that the Ram Exchange program was developed by NWGA, 21% indicated that it was developed by the Eastern Cape Department of Rural Development and Agrarian Reform; only 2% mentioned NERPO and other (2%).

CHAPTER 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.1. INTRODUCTION

This chapter summarizes the main findings from the study and concludes on the basis of the results, it discusses the extent to which the objectives posed at the beginning of the study have been addressed in the analysis. The chapter generates recommendations on the basis of the results.

5.2 Summary and Conclusion

Livestock production is seen as an important asset to the rural economy, not only as a source of food but also for drought power and for income. However the literature has shown that this asset is not doing enough for the small scale sector, the livestock numbers seem to be declining each year. With the government and the small scale sector intervening in the situation in some areas there seems to be no change.

The aim of the study was to determine the constraints which hinder development in communal livestock production. These constraints were categorized into socioeconomic, economic and technical constraints, the study explored some of the aspirations and knowledge of the farmers in order to determine if there is a potential for development in the area and also the support which the farmers receive from government and the private sector in order to determine the opportunities which already exist in the area. The study was conducted at Nyandeni Local Municipality where four villages were selected using the convenience sampling method. Farmers who farm with goat, cattle and sheep production were selected; the sample number was 68 respondents. The data was collected using face to face interviews and a questionnaire. Statistical Program for Social Sciences (SPSS) was used to analyze the information which was collected from the Municipality.

Descriptive statistics were used in order to get the percentages, and averages for the data and independent samples t-test to compare the means between the categories.

i) Socio-economic Constraints- The results showed that the majority of the respondents were males and also males were statistically older than females ($p < 0.05$). One of the socioeconomic constraints revealed by the study was that males owned more livestock than females this shows that with even years of trying to involve more females in farming there is still a gap that exists in this area. Secondly Almost 50% of the respondents were unable to read or write and those who were able to read and write only 7% have acquired a matric (Grade12) education. Okpach et.al (2014:5) mentioned that illiterate farmers have difficulty understanding new scientific technologies, this will therefore be a problem in this area when development workers are introducing new technologies. This also means that only people who understand the farmers' home language will be able to communicate with the farmers. Even though the majority of the respondents mentioned that they have been farming for more than 10years the average number of livestock they owned did not show this aspect.

ii) Technical Constraints- The study also revealed that only 27% of the respondents had knowledge of how much land was available for grazing, this is due to the fact that most of the land used for grazing is under communal land rights and therefore the farmers had no knowledge of how much land they use for grazing. The mean for size of land owned was 11.33ha and the mean number of sheep was 35.09, cattle 6.87 and goats were 16.63 per respondent. All the farmers had land available for crop production. The study showed that the majority farmers only used natural pastures for livestock feeding, however it has also shown that the respondents would like to use other feeding practices, such as planted lucerne, but a lack of infrastructure and also insufficient finances were

shown to be the major constraints which hinder the respondents from using these other feeding practices.

The study revealed that health was a major cause of lambing mortality and low lambing rates in livestock in the study area. The common diseases in the study area were pulpy kidney, tick-borne diseases, sheep and goat scab, bloat, internal parasites and external parasites. Prevention and treatment of these diseases was mostly done by individual farmer but it showed that it was not done well as there were deaths due to health. Afrivet and other studies have shown the right way to prevent and treat these diseases but from the study there seems to be lack of information on how to prevent them.

iii) Economic Constraints- The study revealed a lack of knowledge in terms of meat market availability in the area. The 47% of the farmers who sold their livestock for meat production used informal markets and the rest of the respondent said that they did not sell their livestock for meat production. For the farmers who were involved in wool production the results showed that 38% of the farmers used formal markets for selling their wool and 48% used informal markets. The results also revealed that there were no shearing sheds in the villages of the study area. Another problem was that the respondents received less income from their wool this is due to the quality and the fact that the farmers received less kilograms of wool per sheep compared to other areas of the Eastern Cape. The study also showed that livestock contribute less percentage income compared to other sources of income, with sheep only contributing 11.35% percentage average income; cattle contribute 15% and goats only 7%. This conclusion contradicts with the article from findings by Coleman (2016:1) that the income contribution of sheep production to communal farmers is currently 67% and was 47% in 2014.

d) Support services/ communication- The study showed that there was a lack of communication with extension worker/s in the areas only

23% of the respondents had communication with an extension worker every second month. There was no evidence of a difference between male and female in terms of the meeting with the extension worker/s. Studies from Mucuthi and Munei (2015:4), FAO (1999:28), and Belay et.al (2013:4) have mentioned that veterinary services and extension services are failing to provide farmers with the proper support services that can help develop them. Therefore this study has shown that in this study area there is a problem of support services due to the fact that farmers still do most of the treatment and prevention themselves and also the lack of information on how to treat common diseases in the area. Jenjezwa and Seethal (2014:4) mentioned the lack of support staff in some rural areas of Eastern Cape with only 23% of the farmers who mentioned to have contact with extension workers this is evident to the gap that still exists in these areas.

- e) **Aspirations** -The farmers in this study showed that they do aspire to develop and receive more income from their livestock, the original income from livestock which the farmers currently received was 11.35% for sheep; cattle contributed 15% and goats only 7%, however the mean percentage income which the farmers would like to receive in 5 years time was 22.52% sheep, 19.24% from goats and 17.63% from cattle. The farmers also showed that they would like their livestock numbers to grow, however the growth will pose a problem of overgrazing if mean the land available is 11.33ha per respondent and the current grazing capacity is 5LSU/ha and 10SSU/ha and farmers were aspired to own 300.63 sheep on average per respondent this therefore meant that on average the farmers would need 30ha on average per respondent to be able to feed the sheep/goats aspired to own and 20ha on average per respondent to feed 100 cattle they are aspired to own. Male respondents were aspired to own more sheep in 5years than females ($p < 0.05$). The study also showed that the farmers wanted to produce 247.55kg of wool per respondent which is higher

than the 39.22kg per respondent leading to 0.8kg/sheep on average, however this increase will still be lower than the lowest performing sheds namely 1.4kg/sheep.

vi) Opportunities in the area- the study revealed both marketing and production opportunities which exist in the areas and some of the farmers were already taking advantage of these opportunities. Only a few farmers knew about the ram exchange project this is due to the fact that only farmers under a co-op are involved in this project which from previous discussions it has shown that only 27% of the respondents were part of a co-op. the study revealed that at least 43% respondents have knowledge of the Mngcunube development project now known as the Malusi project which was developed in order to assist farmers in livestock improvement and development. Only 39.7% of the farmers knew about the ram exchange project which was developed to assist farmers in producing better breeds for wool production. The literature review in chapter 2 has shown that Mngcunube development program has created a mentorship program and about 79.4% of the farmers were willing to be part of the mentorship program. Already 38% of the respondents were selling their wool in the formal market were using BKB auctioneers which are approximately 700km away from their area.

5.2 Recommendations

This study has revealed some of the problems which hinder development and some of the ways farmers are assisted by service providers to improve these problems including the fact that the farmers want to develop themselves. The following are some of the recommendations which were derived from the study conclusion.

- The farmers in the area can be taught on ways to manage land for grazing such as building camps for the livestock so that they can have

knowledge of how much land is available for them and plan towards that.

- Building shearing sheds will help farmers to have a platform where they can be able to meet with brokers, extension workers and all the other service provider more often also in an organized manner so they can receive information on markets, livestock health management and animal husbandry.
- With a mean age of 55 means more young people are still needed in agriculture. It is therefore recommended agriculture development workers need to speak to the unemployed youth and to the learners from schools on the importance of agriculture and how they can make a living out of it.
- Even though farmers have cell phones they seem not to be receiving any information from them. Service providers need to make use of this facility to plan meetings and to communicate with farmers as it is the easiest form of communication that can be used. Local radio stations can also be used as a form of communication to farmers.
- Health seems to be the most pressing issue and therefore farmers require more information on ways of preventing and treating diseases.
- Extension workers need to be problem specific rather than just concentrating on projects as most respondents mentioned that project support is the one service that they know extension workers concentrate most on.
- Involvement of more farmers in the ram exchange project so that more farmers can be able to benefit from it
- Farmers showed interest in developing their livestock production, as seen from the previous discussion; farmers who are willing to grow will be willing to use new technologies. Therefore the mentorship program would work if it were to be introduced to the farmers.
- Due to limited resources this study could not be done for more municipalities and could not include all the villages in this

municipality, therefore it would help to conduct the same study to other municipalities and also to include at least 50% of the villages in this municipality.

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