

CHAPTER I  
THE ROLE OF THE STATE AND THE ENVIRONMENT IN  
INDIGENOUS LIVESTOCK FARMING

Introduction

The purpose of this study is to examine the role of the state and the environment in indigenous livestock farming at Debe Marela in Middledrift. Most people in rural areas depend on agriculture for their livelihood. For decades, black subsistence farmers in South Africa's rural areas struggled to raise livestock but managed to reduce poverty within a framework of rural development. Subsistence farming is common among rural households who have few alternative sources of income, and these households are likely to continue to use livestock to meet basic food security needs. Small scale farmers in the Eastern Cape Province produce little food crop production for the market because their concentration is on livestock. Moreover, farmers find subsistence agriculture difficult because of unpredictable and unreliable rainfall. Middledrift is in the Eastern Cape Province. Understanding the nature of Agriculture in South Africa's rural areas is fundamental to understand development and providing effective extension services, as agriculture remains a key activity in the rural areas of South Africa (De Lange, 2000) as cited by Anseeuw et al 2005 pp 304. The case study area Debe Marela (see Figure 1) is also predominantly a stock farming area as the land is semi-arid and farming is essentially subsistence.

A most unfortunate factor in the Eastern Cape is the lack of interest that the youth have in agriculture. Moreover, the Province has a shortage of veterinary doctors and many are recruited from elsewhere (S. Garde, personal communication, December 2010).



Figure 1. Debe Marela area in the Nkonkobe Municipality

Source: Amathole District Municipality (2010)

## Livestock Farming - Medicinal Plants and Health Problems

Poor nutrition and the prevalence of diseases severely limit livestock productivity in Debe Marela. Most farmers or herders in rural areas prefer to treat livestock health problems with indigenous medicines (Mathias and Perez, 1997). Yet community knowledge of livestock disease treatment has diminished due to the erosion of traditional cultural systems and the conversion of agricultural and forest eco-systems to other uses. Gall sickness (anaplasmosis) and red water (babesiosis) are the main causes of mortality amongst cattle in communal areas as a result a high percentage of farmers (approximately 60%) mistakenly believe that the pathogenesis of red water and gall sickness are due to the accumulation of bile. At Kwa-Tyutyu (Bisho) and Koloni (Middledrift), reported cases of livestock deaths have been attributed to the simultaneous application of herbal and conventional remedies (Masika, Sonandi and van Averbeke, 1997).

Masika, Sonandi and Van Averbeke (1997) conducted a study on tick control by small scale cattle farmers in five magisterial districts in the communal areas of Victoria East, Keiskammahoek, Zwelitsha, Middledrift and Mdantsane, and noted a high level of participation from livestock owners as they perceived dipping to be beneficial. They came to the conclusion that dipping was very successful in the local livestock production system. The killing of ticks was important otherwise the ticks have a negative effect on the teats and hides. However, there was the need to determine optimal dosing and concentration for herbal remedies, and the need to

identify possible side effects of acaricides in the control of ticks. Also, to protect medicinal plant resources, there should be no conversion of natural vegetation into other forms of land use. Moreover, there was a need to conduct agronomic research into growing herbal plant gardens. Masika, Sonandi and van Averbek (1997), and Dold and Cocks (2001), undertook studies that confirmed that knowledge of traditional medicines was handed down from one generation to another. It was further found that the remedies were prepared only by the stock owners themselves without the aid of traditional healers. Furthermore, vaccines for diseases like anthrax and lumpy skin were not properly stored in safe places. Again, a number of subsistence farmers did not have adequate transport to travel to co-operatives where animal medicines were sold because they were far away.

They also suggested that immunization was a viable option as prevention was always better than cure. They also suggested that farmers should be encouraged to keep indigenous breeds with proven tick resistance and high levels of immunity to tick borne diseases. The Eastern Cape Provincial Department of Agriculture would do well to embark on a major information campaign to inform small scale farmers of the advantages of indigenous stock. Furthermore, a change in the genetic composition of the herd aimed at improving immunity, and disease resistance was recommended. Masika, Sonandi and van Averbek (2000) investigated the use of herbal remedies in the treatment of livestock in seven districts in the Central part of the Eastern Cape Province (Victoria East, Peddie, Keiskammahok, Middledrift, Mdantsane, Zwelitsha and Stutterheim). They noted that old men who relied heavily on pension grants tended to use herbs. Of forty-four farmers who used herbal

remedies, twenty stated that the low cost of these remedies is the primary reason for using them. They also indicated that access to these herbs or remedies was easy. Herbal medicines, though used for both humans and livestock, were more commonly used for human diseases (Ladio and Lozada 1992; McCockle and Mundy, 1992; Pieroni, 2006; Schillhorn van Veen, 1997 and van der Merwe et al., 2001).

It is debatable whether farmers who cannot afford to purchase conventional medicines should use ethnoveterinary medicines (Schillhorn Van Veen, Van der Merwe, Swan and Botha 2001; Yadar, 2007). The use of ethnoveterinary practices has spread to many countries in the world such as Egypt, China, Kenya, Ethiopia, Pakistan and South Africa (Kamal and Kumar, 2004; Martin, McCockle and Mathias 2001; Matekaire and Bwakura, 2004; Pieroni, 2006; Schillhorn van Veen, 1997).

All livestock farmers did not believe in herbal medicines. Some regarded them as outdated, especially those who lost their animals due to incorrect preparations and ingredients. There were no known standard measurements of dosage and some treatments of ailments were not effective. Also, in some cases, recommended plants were not available, especially during dry seasons. Ethnoveterinary medicine was considered important, sustainable, cost effective and socio-culturally acceptable to livestock problems (McCorkle and Mathias, 2001; Mathias and Mundy, 1992; Yadar 2007).

Ethno-veterinary medicines were usually used for treating diseases like heartwater, red water, diarrhoea, foot rot and black quarter (Getchell et al. 2002; Kamal & Kumar, 2004; Masika & Afolayan, 2003; Matekaire & Bwakura, 2004; van der Merwe, 2001).

In the Central Eastern Cape, most people believed that livestock, especially cattle, were likely to contract gall sickness after consuming green grass, which increased bile. This normally happened after heavy rains. Some livestock owners believed in supernatural acts such as witchcraft as a major cause of animal disease (McCorkle et al., 1996). Livestock farmers, when preparing herbal medicines, used plants, barks, bulbs, seeds, flower roots, leaves, tubers and fruit (Masika et al., 2000; Van der Merwe et al., 2001). The herbs were usually used individually or sometimes as a mixture with other plants (Masika et al., 2000). Sometimes transhumance was practised to avoid tick borne diseases (Beinart, 2007; O' Farrell, Donaldson and Hoffman, 2007). Mathias (2001) believed that the literature on veterinary medicine offered little data on the economic impact of promoting both traditional and ethnoveterinary medicines. Having seen the findings about the effectiveness of ethnoveterinary medicines, Mathias (2001) suggested that in-depth studies were needed to determine how the economic potential of ethnoveterinary medicine can be utilized. Martin (1998) and Mathias (2001) also noted that knowledge developed from livestock farming in rural areas was less systematized than in Western laboratory based scientific veterinary studies. Furthermore, there was a need to introduce curricula in colleges and universities which also focused on the importance of ethnoveterinary medicine and placed more emphasis on indigenous practices rooted in the environment and based on different cultural values.

Schillhorn van Veen (1997) observed that much information was under threat of being lost as traditional and social patterns changed and many young people moved away from villages to cities, breaking the cycle of oral and customary transfer of

indigenous knowledge. However, a large proportion of conventional practitioners of human and animal health care were skeptical about the value of alternative practices. Western animal paradigms influenced such skepticism as well as economic considerations. Getchell et al. (2002) observed that livestock owners in the North West Province of South Africa administered incorrect types of medicines to treat their livestock, some even used dangerous non-veterinary disinfectants such as Jeyes fluid. However, several constraints limited their field research such as time, the reluctance of the community to co-operate with animal health technicians (AHTS) using participatory rural appraisal methods (PRA), and their inability to speak the local language, necessitating the use of translators. Many of their workshop sessions also confirmed that the livestock owners did not belong to any organized farmer association. Finally, Mathias (2001) conducted a study in Western Java, Indonesia, comparing ethno-veterinary medicine with traditional medicines and concluded that the two could be complementary and could cross-validate each other.

Getchell et al. (2002) further suggested that the structures of public administration offices, churches and agricultural co-operatives should be used as possible venues for regular meetings of farmer groups. Moreover, workshops should be offered to the communities to train people in the identification of specific diseases. Livestock problems require further diagnostic investigation and research to determine how best to prevent and treat diseases. It was also important for livestock owners to be better informed about commercial remedies and treatment. Lastly, small scale farmers in Debe Marela in the field of agriculture must draw on the experience of others in order to improve their farming practices. Getchell et al. (2002) believed that in a series of

studies conducted it was not quite clear which medicines were best suited for indigenous livestock as the farmers used both conventional and traditional medicines.

There are very few studies on the environment and the state with regard to livestock farming. There was also little information about plants used in the traditional treatment of animal diseases, which were not catered for in the veterinary services budget of the Eastern Cape Provincial Department of Agriculture. The study therefore seeks to examine the role played by the state as well as the environment in indigenous livestock farming. Research studies about traditional medicines have shown that it was not clear which medicines are best suited for indigenous livestock farmers who used both conventional and traditional medicines. There is also little information about plants used in the traditional treatment of animal diseases; also, the indigenous treatment of animal diseases is not catered for in the veterinary services budget of the Eastern Cape Provincial Department of Agriculture. This study therefore seeks to examine the role played by the state and environment in indigenous livestock farming.

### Research Questions

The following are the questions that the study seeks to answer:

1. What are the indigenous practices in Debe Marela location with regard to livestock farming in traditional rural areas.



2. What plants have the indigenous farmers used in making medicines to treat livestock?
3. When, and why, do they use western or indigenous medicines to treat livestock diseases?
4. How and why have the farmers in the Middledrift area combined the use of the indigenous practices with modern western practices in livestock farming?
5. How do indigenous subsistence farmers grow and conserve medicinal plants for animal diseases?
6. Which varieties of medicinal plants are especially cultivated or conserved and why?
7. What services or support does the state provide to livestock farmers and how is this support provided?

#### Aim and Objectives of the Study

The aim of the research is to determine the role of the state and the environment in indigenous livestock farming. The objectives are:

1. To investigate indigenous livestock farming in traditional rural areas.
2. To determine the medicinal plants used to treat livestock by marginal farmers.
3. To assess when, and why, marginal farmers use western or indigenous medicines to treat livestock diseases.
4. To investigate how and why farmers in the Middledrift area combined the use of the indigenous practices with modern western practices in livestock farming.

5. To establish how indigenous subsistence farmers grow and conserve medicinal plants for animal diseases.
6. To establish varieties of medicinal plants that indigenous farmers cultivate or conserve.
7. To assess the kind of support the state provides to livestock farmers and how this support is provided.

### Research Methodology and Techniques

The study used qualitative methods. The study also presents the challenges encountered during the data collection process. According to Stead and Struwig (2001), qualitative research attempts to understand issues from the view point of the participants although the researcher and the participants are both involved in interpreting the data. Stead and Struwig (2001) describe the social setting of the participants so that the participants' views are not isolated from the contexts. Stead and Struwig (2001) further claim that the natural setting is the place where the researcher is most likely to discover or uncover what is to be known about the phenomenon of interest. Qualitative research also includes direct observation and the use of interviewing in natural field settings.

According to Flick (2002), qualitative research is orientated towards analyzing concrete cases in their temporal and local settings and begins with analyzing people's expressions and activities in their local contexts. In qualitative research the researcher has special importance. Researchers and their communicative

competencies are the main instrument of collecting data. Hofster (2006) stated that if one undertakes qualitative research, one needs to try to present the data with 'open minds' and realize that all data are 'value laden'. The qualitative researchers acknowledge that the researcher and the study are intimately connected and that the researcher cannot be completely objective. The research therefore will be descriptive and explanatory in nature. The information and knowledge acquired will emphasize the participants' perspective and beliefs. According to Flick, von Kardoff and Steinke (2004), collecting verbal data becomes increasingly important in the day-to-day practices of qualitative research. Observing processes and activities was still a prominent way of doing qualitative research. Among suitable techniques to be employed in the study are focus groups, questionnaires and interviews with livestock owners. Both questionnaire surveys and personal interviews are an excellent way to collect data for research.

According to Valentine (2005) interviews enable the interviewer to repeat the question for clarity purposes but in different words. Structured interviews ask all respondents the same questions and give them the same options for answering. The first technique used in this study is interviewing. Interviews are closely related to questionnaires except that they are oral. This study used an interview schedule that adhered strictly to the order of the questions. This technique allows a question to be repeated when a response indicates that the respondent has misunderstood a question. According to Briggs (1986) (cited in Bryman and Burgess, 1999:20), "It has been estimated that 90 percent of all social science investigations use interviews in one way or another," Interviewing provides a way of generating empirical data about

the social world by asking people to talk about their lives. In this respect, interviews are special forms of conversation. The interview conversation is thus framed as a potential source of bias, error, misunderstanding or misdirection or a set of problems to be controlled. However, if the interviewer asks questions properly, the respondent will give out the desired information. Bryman and Burgess (1999) further stated that understanding how the meaning making process unfolds in the interview is as critical as understanding what is substantively asked and conveyed. The 'hows' of interviewing refer to the interaction and narrative procedures of knowledge production, not merely the interview techniques. I used this technique in my study because some members of the community in which this research was conducted were illiterate but could still answer questions based on a questionnaire. In addition, there are some disadvantages with the questionnaire technique as there is no opportunity for the interviewee to consult records during his or her reply. It can also be extremely costly as the interviewer may be required to travel many kilometers, sometimes only being able to complete one or two interviews a day.

Focus group meetings can be recorded and transcribed as written text. They also provide possibilities for exploring the gap between what people say and what they do. Gillham (2005:60) stated that a focus group can be one method of data collection for the main empirical study but as with other kinds of group interviews, they may be more useful in the early exploratory phase of a research programme. They are particularly useful for the researcher who is entering a setting for the first time. Here a group interview sometimes provides an early indication of issues that run deep,

conflicts or grievances which may not surface in the more controlled context of an individual interview.

Focus group interviews by their nature are more structured and have a variety of questions. This form of interview makes it easier to hear what people are saying when you can see the respondents because the non-verbal cues they use in ordinary listening are present and it is also much easier to identify people because you can see them talking. Generally, the interviewer operates alone with the group which is typically composed of six or eight people; however, managing a number of people in a discussion is more difficult than dealing with just one person. It is also possible to observe the group process, the dynamics of attitude and opinion leadership. Furthermore, there can be a level of emotional involvement which is seldom seen in a one on one interview. Having interviewed individuals, seeing them in a group context can be a revelation as there is something about the individual interview which promotes a more 'rational' view of self or suppression of feelings, perceptions and events (Gaskell 2000:47).

Bryman and Burgess (1999) believed that the focus group technique should be used to encourage people to engage with one another, verbally formulate their ideas and draw out the cognitive structures which previously have been unarticulated. Listening to discussions between participants gives the researcher time to acclimatize to, for example, their preferred words for speaking about the subject of discussion. In other words, focus group discussion reaches the parts that other methods cannot reach. Morgan (1988:12, cited in Flick, 2002:88) stated that the hallmark of focus groups is

the explicit use of the group interaction to produce data that would be less accessible without the interaction found in a group. Focus groups are used as a method on their own or in combination with other methods such as observations or single interviews. Focus groups could be seen and used as simulations of everyday discourses and conversations or as a quasi-naturalistic method for studying the generation of social representatives (Flick, 2002). As an individual who grew up in the study area, I was careful at all times during data collection to act as a participant observer, so as not to contaminate the data through the influence of personal opinions and possible biases. According to Powell (1996:499 as cited in Flowerdew and Martin, 2005:129) "A focus group is a group of individuals selected and assembled by researchers to discuss and comment on, from personal experience, the topic that is the subject of research". It is also a loosely constructed discussion guided by the researcher. It can be recorded and transcribed as a written text. Focus groups also provide possibilities for exploring the gap between what people say and what they do. One of the disadvantages is that some may contribute relatively little to the discussion. In addition, the likelihood of uneven coverage between individuals may well lead to an underreporting of those views and opinions that individuals perceive to be controversial. There is also a potential for unfamiliarity to inhibit participation as individuals may be concerned about the group's perceptions of them (Conradson, as cited in Flowerdew and Martin 2005:110).

During interviews, a tape recorder was used to allow the researcher to concentrate on the interview without pressure and to produce a more accurate and detailed record of the conversation. I also used a camera to take pictures of livestock and

medicinal herbs in the pasturage and of the traditional healer preparing his medicines. There are limitations in group interviews as some people may contribute relatively little to the discussion and there is also a potential for unfamiliarity to inhibit participation as individuals may be concerned about the group's perceptions of them (Conradson, 2005). Furthermore, in a group, participants can express views and feelings that they might not display in an interview. There is also the potential for harm which might lead people to regret what they have said. Participants, on the other hand, might find themselves revealing their personal feelings which may not be suitable. There are however some disadvantages with this technique as there is no opportunity for the interviewee to consult records about the facts in his or her reply. It can be extremely costly as this may require the interviewer to travel many kilometers, sometimes only being able to complete one or two tasks a day.

### Research Location

The study area is located in one of the Middledrift villages in the Eastern Cape Province of South Africa, approximately 20-30km outside Alice. Middledrift district comprises 24 villages, some of which had their land taken away by the South African Development Trust in the 1970s. The research has been confined to Debe Marela and the area is divided into Debe Marela A and Debe Marela B. The village is impoverished and the infrastructure is not well developed. The South African Development Trust redemarcated the plots of the village and the grazing land for livestock. I chose this area because I am familiar with it and because it has a long tradition of using indigenous medicines in the treatment of livestock. In addition, I have enjoyed preliminary field visits to the area. Livestock in the area are susceptible

to tick borne diseases, anthrax, red water and heart water. There are some forests nearby which make it easy for livestock owners to prepare indigenous medicines for treatment of animal diseases. Most households there have cattle, goats, and sheep.

### Significance of the Study

According to Mathias and Perez (1997) most farmers or herders in rural areas prefer to treat livestock health problems with indigenous medicines, yet community knowledge has diminished due to the erosion of knowledge. Masika Sonandi and Van Aberbeke (1997) and Dold and Cocks (2001) also undertook studies that confirmed that stock farmers prepared remedies themselves without the aid of traditional healers. The study will therefore encourage the Department of Agriculture both at Provincial and National levels to provide more support in terms of educating communal farmers about the use of ethnoveterinary medicines. The project highlighted a need to protect medicinal plant resources and to conduct agronomic research into growing herbal plant gardens. Moreover, the information attained from various projects would add value to the knowledge of ethnoveterinary medicines and indigenous practices based on different cultural values. This research was part of many research projects undertaken in various parts of South Africa with a view to having ethnoveterinary medicines recognized and documented.

Within the structure of this minidissertation, chapter one constitutes the introduction to the study, the literature review and gaps, aim and objectives, research methodology and location of the study area. Chapter two deals with the background to the study area and includes the political order, land administration and socio-



economic perspective of the area. Chapter three deals with livestock farming and the environment, historical background and history of the veterinary services in Debe Marela. Chapter four includes the field work and data collection methods in the study area. Chapter five includes the analysis of data. Chapter six deals with the conclusion and the recommendations thereof.

## CHAPTER II

### THE STUDY AREA

#### Introduction

Debe Marela is a relatively small village, situated in the Middledrift area of the Eastern Cape Province of South Africa (see figure 1). It came into existence in the late 1700s. It lies between Knappshope mission (Gqadushe) to the East and Peuleni to the West. It falls within the jurisdiction of Middledrift in the Nkonkobe Municipality. Nkonkobe Municipality was established in 2000 and incorporates the following towns: Alice, Seymour, Fort Beaufort, Hogsback and Middledrift. Middledrift is situated about 140km North West of East London on the R63 route and is 200km North East of Port Elizabeth. Nkonkobe Municipality also falls within the Amathole District Municipality and is the second largest Municipality within Amathole District Municipality. Nkonkobe Municipality covers an area of about 3725 square kilometres and constitutes 16% of the surface area of the Amathole District Municipality.

Debe Marela has a population of approximately 5000 people. The land which the community inherited from their forefathers is criss-crossed by roads in generally poor conditions, linking the rural settlements (Nkonkobe IDP Review 2001/10). Access to these settlements is therefore difficult. Most of the households have access to electricity but some still rely on paraffin. There is no water borne sewerage in the area and the residents of Debe Marela still used pit toilets.

## The History of the Debe Marela Area

For the purposes of this study the history of land acquisition for settlement and farming purposes must be understood. The study area lies within an area known formerly as the Ciskei. Pre-colonial, colonial and post-colonial conditions have played their part in the study area between the Fish and Kei rivers along the Indian ocean and extending inland to an area of the low Amathole mountains. The term Ciskei referred to the Western areas of the Kei river which the Bantu speaking Africans occupied as early as the 1840s. The term Ciskei was also used in a more restricted sense to describe the African locations established in the region (Switzer, 1993).

During the 18<sup>th</sup> century, the former Ciskei zone was home to other people like the Thembu, Mfengu and the white settlers. There were three significant phases in the former Ciskei region during the 19<sup>th</sup> century, the first in 1834/35 saw the Xhosas pushed beyond the Keiskamma River and forced to compete for survival with various other African communities now living in the frontier zone. The second between 1850 and 1853, saw the Ciskei Xhosa and their allies restricted to segregated 'locations' or expelled from the frontier zone. The third saw the Xhosa nation embarking on the killing of cattle between 1856 -1857.

The 18<sup>th</sup> Century was one of the most dramatic in the history of African resistance to colonialism. Blacks in the former Ciskei had no land for expansion. The British colonial office refused to annex territory in Ciskei and signed many treaties with

senior chiefs of the Ngqika lineage. The chiefdoms were confined to specific 'locations' with fixed boundaries within the former Ciskei. The treaty system was doomed from the beginning as it was not in the interest of the settlers. The treaty system collapsed in 1839 during the tenure of Andries Stockenström. In the end the treaties were declared ineffective and the British reverted to a military solution to complete their conquest of the former Ciskei. The Xhosa population in British Kaffraria which incorporated areas like King William's Town dropped from about 105 000 to 37 200 between January and July 1857 to a low of 25 916 by the end of 1858 (Microsoft Encyclopedia, 1993- 2004). With the annexation of British Kaffraria, the whole area of the former Ciskei between the Fish and Kei- rivers was incorporated into the Cape Colony. The Cape Colony also annexed Pondoland in 1894 and absorbed the chiefdoms between the Kei River and the Natal border. British Kaffraria was divided into the districts of East London and King William's Town. Again, three other districts, that is, Stutterheim, Cathcart and Komgha, were created out of the Crown Colony. Those towns that were directly controlled by the British colonizers were obliged to provide for colonial administration, defence and economic assistance and were frequently dragged into conflicts they would have rather avoided. Ultimately, King Williams Town was further subdivided into the districts of Middledrift and Keiskammahoek. The Fingos or Mfengu were a new tribe in the former Ciskei region who ran away from the Shaka wars and dispersed throughout South Africa.

When they arrived, they begged for land and food. The begging for land and food was called 'Ukumfenguza', hence the name Mfengu. Clan names like Dlamini and

Rhadebe belonged to the Mfengu or Fingos. The Mfengu were now in the majority in the former Ciskei and were allocated land in the Peddie, Victoria East, King Williams Town, Queenstown and Herschel districts in the 1970s. The boundaries of the surviving Mfengu, Xhosa and Thembu locations in the Ciskei remained unchanged from 1870 to the 1970s and were mostly located between the Fish and Buffalo rivers along the coast (Switzer, 1993).

### Political Order inside the former Ciskei Locations

The political order inside Ciskei's segregated African locations made the chiefs custodians of their cultures. Most peasant households had been forced to shift from stock farming to cultivation between the 1850s and 1870s. With the shift in the mode of production to subsistence farming, came a further change where government - designated headmen were appointed. Chiefs seemingly were stripped of some of the authority now given to headmen. Headmen became the main instruments of colonial surveillance in rural African locations and they received salaries from magistrates. They also helped to collect a hut tax, stolen stock, and apprehend those breaking the law. They maintained a network of social practices and received payments for land allotments. Moreover, they were usually the heads of the biggest and richest households in terms of land, stock and labour.

The headman system was highly politicized in the locations with numerous factions competing for power. Amongst the duties of headmen were the negotiating of prices to be paid for services such as hiring out cattle and ploughs, fencing gardens, and

preparing cattle kraals. Above all, the headmen were the key organizers of public opinion and colonial laws could not be implemented in African locations without their support (Switzer, 1993). In the 20<sup>th</sup> Century, blacks, particularly those who did not give up their title deeds to land became more interested in farming. Blacks in rural areas fought to reclaim their right to land when the white regime in South Africa resettled them in Bantustans. After the Land Act No. 27 of 1913 was passed, blacks were forced to live mostly in black designated areas or Bantustans in an attempt to control the black population in urban areas. However, the latter white farmers were encouraged to sell their farms to the South African Development Trust in order to accommodate blacks in the former Ciskei and Transkei bantustans. In terms of the National States Act of 1971, Ciskei was declared a self governing state, and later became an 'independent' state, until 1994, when Ciskei became integrated into the new South Africa (<http://www.ciskei.com/>).

Traditionally, land in rural areas in Middledrift was under the control of headmen and the chiefs. The community had rights to use the land without paying rent. Traditional authorities were more directly involved because the headmen and their councils were assigned the task of allocating portions of land to the residents after they paid the required amounts and slaughtered goats or sheep. If one did not belong to the village he or she was regarded as an outsider and would be required to make an exceptional payment in order to be accepted.

After the 1994 South African democratic elections, people in rural areas had different opinions on the role of the traditional authorities. Some argued that their status be

relegated to that of ordinary citizens and that their powers should be vested in the hands of the residents' association. Those in favour of chieftainships and headmanship believed that the state should not hold the land on behalf of black people. For the latter group, chiefs and headmen should therefore get the title deeds and redistribute the land. In the mid-1990s the African National Congress (ANC) government identified commonage as the pillar of its land reform programme in the rural areas to advance the rural poor's survival through household food production. It also served to bring about a new generation of young farmers among the rural poor, hence the postapartheid Department of Land Affairs sought to provide funds for managing land restitution.

### The Environmental Factor

The main factor influencing the level of agricultural production in Middledrift, especially in the Debe Marela, area is the availability of natural resources. These natural resources include water, topography and soil. The type of land in the Middledrift, including Debe Marela area is marginally arable and difficult to cultivate. Furthermore the type of soil is clay with a clay content of 25-35%. The soil depth is 300-700mm although some land is suitable for crop production. The soil for the Middledrift area, including Debe Marela is freely drained with red and yellow apedal as well as humid top soils which comprise 40% of the land type. The terrain is not level and the dominant slope angle is 3.5%. Weather conditions are not fully favourable for cultivation because annual rainfall is only 500-600mm. The dry season is winter and the wet season is summer although the weather patterns vary from one

season to another. The average temperature during summer ranges between 22 ° - 24° Celsius and the winter average temperature is 13°- 14°Celsius (Arc 2002, Resource Maps Eastern Cape, ISCW report, Pretoria, South Africa). Agriculture in the Nkonkobe Municipality, including the Debe Marela area, produces 30% of required harvest despite the fact that the land is marginally arable. When there is plenty of rain, good harvests of maize are realized. Animals, particularly cattle, sheep and goats graze on plants in difficult terrain and in the forests.

Traditional healers use natural resources such as aloes to prepare indigenous medicine to treat livestock. The community forestry committee, elected by the villagers, plays a vital role in conserving the biodiversity of the environment. Greater community participation helped to protect the existing trees and vegetation in order to sustain and preserve the loss of scarce resources in Debe Marela.

Generally, small scale black stock farmers used traditional medicines and kept animals that were not fed or injected with antibiotics to improve the growth and health of animals. Consequently one of the disadvantages is that animals take longer to reach slaughter weight. Small stock farmers and herders at Debe Marela possess indigenous knowledge about the control of animal diseases using natural plants. However, there were some restrictions and terms of utilization of the natural resources. These restrictions were in line with the National Environment principles which apply to the use of natural resources in South Africa. Failure to do so would result in the depletion of resources (Government Gazette, 27 November 1998).



## Socio-economic Perspective of the Debe Marela Area

The fathers of most families in the study area were away in search of job opportunities and were employed in South Africa's urban areas, consequently, household chores were left to their spouses. In most households, the role of a woman was to manage the intrafamilial activities while the husband was responsible for the interhousehold activities (Matobo and Mokaee, 2000). However, with political democracy in South Africa in the 1990s, there have been changes in many situations where it is common to see females managing households. Throughout the Nkonkobe Municipality, there is an ongoing population shift from the villages to urban areas. One reason for that is the high unemployment rate in the rural areas. The Draft IDP Review of the Nkonkobe Municipality (2009/2010) stated that young people from age 0-35 years account for the largest portion of the population. It therefore makes good planning sense for development to focus on the youth. The fact that the Municipality has decided on a special programme unit that focuses on the youth reflects this situation.

Educational facilities were available in Debe Marela and primary school has been in existence since 1800's. The senior secondary school was opened in 1979. The Debe Marela secondary school was doing well and produced good results. The pass rate during the past five years was as follows: 2005-55.1%, 2006-51.2%, 2007-54.8%, and 2008-66.7%, 2009-63.6%. A number of learners also attend or enrol in the neighbouring schools especially when their choice of subjects is not offered at the senior secondary school. Having passed Senior Certificates, they further their

education at institutions like the University of Fort Hare and Walter Sisulu. The rate of unemployment is high and the Nkonkobe Draft Review 2009/2010 revealed that the Nkonkobe municipal economy was only able to create jobs for 35% of the population.

During the 1970s, rural communities in the Middledrift established cooperatives for various activities, including community gardens. They provided their own labour whilst the Ciskei Department of Agriculture supplied them with seeds and seedlings for the projects. They produced fresh vegetables in their home gardens and sold their surplus to the surrounding communities at low costs. Just as in other villages in the Middledrift area, livestock and crop farming was important in Debe Marela.

Subsistence livestock farming was practised in most villages, including Debe Marela. Almost 75% of the households have kraals and small stock such as goats, sheep and cattle. Up to the early 1980s, the Debe Marela area prospered because small stock farmers practised both crop farming and livestock farming. The free and open migration of people to the cities in the postapartheid era resulted in the lack of interest in cultivation, with arable land now lying fallow and being used as pasturage. Mimosa trees and other alien plants have also taken the place of maize and other crops on the land. The environment in this area was suitable for livestock farming with livestock production being an important component of multiple livelihood strategies. Communities sold livestock to make a living and use stock for social and ceremonial functions such as initiation ceremonies. In Debe Marela, subsistence livestock farming is of critical significance in the determination of socio-economic conditions and the welfare of many households. Lately, it is increasingly concentrated among the well-to-do rural households in the area.

In conclusion, subsistence livestock farming in Debe Marela has been ignored in terms of development and farmers are largely landless. Moreover, both the National and Provincial Departments of Agriculture, showed little interest in the indigenous knowledge of the black people. Many agricultural practices were also ignored because they did not fit in with the government's beliefs; however, since 1994 this has changed. Agriculturists in South Africa including Nkonkobe Municipality are now part of an international movement to recognize the importance of indigenous knowledge and practices, and to use these to improve the economy and lives of the people. It would be commendable if the Department of Education and the Department of Agriculture in the Eastern Cape Province worked together to facilitate day-to-day mentoring and to provide formal training and budgets for such activities. It was noticed that most matriculants who have graduated from high school do not further their studies; instead they seek employment. In addition, financial constraints prevented many learners from pursuing tertiary education, especially in fields such as agriculture. The next chapter explains the livestock farming and the environment as well a history of the veterinarians in South Africa during the Apartheid and Post Apartheid era.

CHAPTER III  
LIVESTOCK FARMING AND ENVIRONMENT  
Historical Background

South Africa has experienced a successive number of very different dispensations. Of these, the more recent periods of the Bantustans and the post-apartheid era call for attention for the purposes of this study. Here we will briefly sketch the characteristics of these periods relative to stock farming. Thereafter the chapter presents a brief outline of the history of veterinary development and concludes with a detailed discussion of the role of the Department of Agriculture in the Eastern Cape during the post-apartheid era.

The apartheid government policy since the 1950s, forced black people to live in Bantustans in mainly poor rural areas. These areas were not well suited for agriculture due to poor soils and irregular and less than desirable rainfall. Agriculture could not flourish given that there were far too many people and animals for the land to support. In these Bantustans, it was not commercial farming that was the order of the day, but communal subsistence farming. Commercial livestock farmers, unlike communal farmers, did not share their grazing areas with people who were not part of their farms.

Under the guidance of traditional culture and leadership, the land and its vegetation was protected so as to avoid and at least minimize, the degradation of the land and

the depletion of vegetation. At the time, the system of rotational grazing with land being divided by fences into smaller camps, also contributed to this end. Then too, the Eastern Cape Department of Agriculture employed rangers to look after the camps and to prosecute trespassers. (Microsoft@Encarta@Encyclopedia 2005@1993-2004 Microsoft Corporation. All rights reserved.)

The South African State furthermore embarked on a stock census and required people to keep record of the stock they owned. The South African State used this information to develop well-planned budgets and to coordinate its activities. The Department of Agriculture also employed foremen to oversee the dipping of livestock. Dip facilities and vaccination were available free of charge. Furthermore, during the 1970s the state enforced stock-cuts, applying restrictions on the number of stock that was allowed to graze so as not to thin the land. These measures contributed to relatively efficient disease control. Although the homelands were autonomous and, later 'independent', they were in many ways administered as in the 'white South Africa' except for the fact that communal subsistence farming and communal ownership of the land was the order of the day, (M.Vitsha, personal communication, 17 September 2009)

The post-apartheid era has seen many changes in the rural communal, former homeland areas. These changes have not all been good. For example, the dip foremen were relieved of their duties and the system of controlling camps lapsed. Buildings were vandalized and cutting of fences was rife. The dip tanks were no longer properly cleaned and monitored. Tick borne diseases increasingly came to

affect livestock. Committees whose members were not necessarily knowledgeable about farming activities replaced dip foremen, only to be replaced in turn by Animal Health Technicians (M. Vitsha, personal communication 20 July, 2010)

### South Africa's History of Veterinary Development

The notion of veterinary services was initiated in the Cape in 1858 by British military veterinarians. It was after the outbreak of Brucellosis in Natal in 1870, that state veterinary services were established to control this killer disease. A colonial veterinarian named Wilshire was appointed in 1874 and based in Pietermaritzburg. However, little progress was made in the control of animal diseases like Blackwater and African horse sickness, while their causes were unknown. It was even thought that these were all different manifestations of one and the same disease ([www.nda.agric.za/vetweb/](http://www.nda.agric.za/vetweb/)). The year 1876 saw the appointment of Brandford as colonial veterinarian for the Cape of Good Hope. He made advances in the control of diseases and was able to distinguish between lung-sickness, tuberculosis, glanders, sheep-scab and mange. Still, he had no knowledge of Galziekte (gall-sickness), Vomangemeerzikete (vomiting sickness), Lanziekte (bullion), Maltziekte (anthrax) and Harbvatec (heartwater). While in charge Brandford made many salutary recommendations. For instance, all cases of glanders were to be destroyed and buried, and the burning of veld was to be prohibited.

He also believed that most animals in the Cape suffered from poor nutrition and that land degradation contributed to disease. Although there were indigenous pests and

plagues, some diseases were introduced to South Africa from elsewhere. For example, lung sickness was brought to the Cape Colony by way of a bull imported from Holland in 1854. Lung disease among Angora goats in 1882 was traced to goats imported to Somerset-West in 1881. To eradicate lung disease, 6 162 goats, with a total value of £2 878, were slaughtered and destroyed. Rabies was introduced to South Africa by way of an Avondale terrier in 1892. This disease quickly spread among local dogs and later to wild animals. The disease is still endemic to certain regions in South Africa. Foot and mouth disease then present in Bechuanaland (Botswana) and Griqualand West in the Northern Cape spread by way of carcasses on rail transport, to all four provinces in 1884. In 1896, the runderpest epidemic erupted, along with East Coast fever, and thousands of animals died, hurting the country's economy. ([www.marnal@nda.agric.za](http://www.marnal@nda.agric.za)).

The establishment of veterinary services throughout the country became an urgent matter and led to the establishment of a Veterinary Department in the Orange River Colony in 1896. The same period saw the establishment in 1891 of a veterinary research laboratory in Grahamstown, while in 1897 the government of the Transvaal and of Natal established two more laboratories at Onderstepoort and Allerton, respectively. In 1908, just prior to the founding of the Union of South Africa, the four provinces combined to establish the Veterinary Services of the Union of South Africa. Its stated aim was to prevent and fight animal diseases in the country.

It was also judged right to create a research institute to develop expertise and medicines against animal diseases. It was realized that there would be an organization with the necessary legal competence, funds and staff to prevent the

importation of diseases from abroad while the Union's Veterinary Services were just to deal with current problems. It also promoted general animal health and increased livestock production ([www.nda.agric.za/vetweb/](http://www.nda.agric.za/vetweb/)). Accordingly, the Union's Veterinary Services appointed Theiler to head a new division focusing exclusively on research. This involved some form of veterinary training and Theiler advocated the establishment of an institution to train veterinarians. This resulted in the creation of a Faculty of Veterinary Science in the Transvaal University College to which Theiler was appointed Dean. Theiler subsequently received invitations from the University Colleges of Witwatersrand and Stellenbosch to establish Faculties of veterinary Sciences at the institutions. Consequently, students took basic courses in Botany, Chemistry, Anatomy and Physiology at these institutions and thereafter studied specialized courses at Onderstepoort to become veterinarians. A director and Dean of faculty were appointed to this position and allocated staff duties for optimal function. The training of veterinarians in South Africa was officially launched in 1920, while the first students qualified in 1924. Then the idea took hold that the functions of veterinary field services and veterinary research should be combined. That was attained on the 1<sup>st</sup> April, 1927. ([www.nda.agric.za/vetweb/](http://www.nda.agric.za/vetweb/)).

### The Role of the State in regard to Veterinary Services in the Post-Apartheid Era

In discussing the role of the state it must be remembered that government, in providing veterinary services, can at all times make use of such expertise as has become available through the development briefly outlined in the previous section.



The National Directorate of Veterinary Services seeks to promote animal health and welfare by controlling diseases and enabling a vibrant livestock industry. To protect livestock the emphasis is on the provision of community based dipping structures and dipping materials to kill ticks and cure diseases associated with their infestation. The structure of the veterinary services in every District Municipality consists of a manager, an assistant manager, three state veterinarians, one meat control inspector and an administration clerk. (Revised Organogram, Department of Agriculture Eastern Cape, March 2009)

The Amathole District Municipality in the Eastern Cape Province provides agricultural inputs to the Nkonkobe Local Municipality. Its aim is to provide a framework for agricultural development initiatives within the District and to give specific focus to local economic development and poverty relief work within the agricultural sector. A situational analysis and review of the agricultural sector within the District reveals a number of issues that impact significantly on agricultural development. (Nkonkobe Draft IDP Review 2009/10)

Among the issues facing the Amathole District Municipality is the limited potential for agricultural growth due to the diversity in use and ownership of land. Thus transformation of the organogram of the Agricultural Department in the Province needs to be aligned with agricultural development. Additionally, agriculture in communal areas faces unique constraints and challenges. Hence, the development of agriculture in an area such as that of Middledrift needs interventions different from those required for commercial livestock production. In essence, there is an overall

need for a careful balancing of economic development, sustainable use of resources and the protection of natural resources.

The Eastern Cape Department of Agriculture is aware of the livestock diseases prevalent in the different areas of the Province (Eastern Cape Department of Agriculture Annual report, 2003). It has a record of the diseases and the frequency of their occurrence in the different areas. Among the diseases are babesiosis, tuberculosis, lumpy skin, mad cow, anaplasmosis, brucellosis and pulpy kidney. The Middledrift area is particularly affected by heartwater, babesiosis, anaplasmosis, red water, anthrax and sheep scab. When a disease occurs, for instance anthrax, in any area, agricultural officers are expected to provide assistance. ( Eastern Cape Province Annual Report, 31 March 2003). When a disease breaks out within the Amathole District Municipality, the Department of Agriculture allocates funds needed to deal with the problems the farmers encounter. Diseases do not break out every year. In some years, as in 2003, diseases occurred repeatedly. In 2003, most outbreaks were due to the *Anaplasma marjmale*. The vaccinations to fight it were administered as part of the annual vaccination programmes to counter anthrax. Consequently, fewer cases were reported thanks to the Department's control efforts (see Table 1).

Table 1. Achievements of the Department of Agriculture in the Eastern Cape  
in 2003 per District Municipalities

<b>Livestock Diseases</b>	<b>Performance Measurements</b>	<b>Amathole</b>	<b>Chris Hani</b>	<b>Alfred Nzo</b>	<b>OR Tambo</b>	<b>Western Districts Port Elizabeth and Grahamstown</b>	<b>Ukhahlamba</b>	<b>Total</b>
Canine Babesiosis	No. of outbreaks	96	-	-	-	-	-	96
	No. vaccinated	185	-	-	-	-	-	185
	No. treated		-	-	-	-	-	
Mastitis (630)	No. of outbreaks	32	6	-	-	4	-	44
	No. treated	73	23	-	-	19	-	115
	No. vaccinated	76	23	-	-	19	-	118
Ophthalmia (C703)	No. of outbreaks	15	15	-	-	-	-	30
	No. treated	4	2	-	-	-	-	6
Anaplasmosis (B101)	No. of outbreaks	90	19	4		22	-	167
	No. treated	35	13	28	8	19	-	71
	No. vaccinated	390	379	933				1702
Blackleg Blackquarter (C614)	No. of outbreaks	45	-	-	-	-		45
	No. treated	12	-	-	-	-		12
	No. vaccinated	118331	185172	151297	575739			
Bovine Malignant Catarrh (B 114)	No. of outbreaks	-		-	-	4	-	5
	No. treated	-	1	-	-	-	-	1
	No. vaccinated	50	1	-	-	-	-	50

Source: Eastern Cape Department of Agriculture Veterinary Services – Annual Report, January – December 2003

The Eastern Cape Provincial Agriculture Department's Annual Report for the Year ending 31 March 2005 noted that it embarked on a livestock protection campaign by setting up community based dipping structures and providing dipping materials to curb ticks and diseases associated with their infestation. It also encouraged inoculation campaign using suitable vaccines. The Department also operated a livestock improvement scheme in order to improve the genetic quality of livestock, particularly in the rural areas. During the 2004/05 Financial Year the Department's budget allocation for dip and vaccines was 20 million Rand. Extension officers also provided services at various times. For example, cattle were dipped fortnightly in areas along the coast because of the spreading of disease while it was suspended inland. A total of one million cattle were dipped eighteen times in the Province in 2004-2005.

The Eastern Cape Provincial Agriculture Department's report for the Year 2005/2006 noted that an anthrax vaccination programme was rolled out so that some 1,506,785 cattle were vaccinated against anthrax and blackwater. Additionally, according to the Report, 105,279 and 72,330 cattle were tested for tuberculosis (TB) and contagious abortion (CA) respectively. In addition, a sub-programme called Animal Health was established to facilitate the provision of animal disease services and to protect the animal population against highly infectious diseases. Table 2 shows that the Department largely succeeded in meeting set targets in providing services to farmers.

Many unconfirmed cases of cattle diseases were reported during 2003-2004.

Salmonellosis was noticed in a calf from Alexandria with the signs of winter-mitte diarrhoea. Black quarter tests were conducted on smears from a bovine carcass

originating from Queenstown. Clostridia was identified in a blood smear prepared from the dead calf which bled through eyes and nostrils. Corynebacteria was

diagnosed in a dead bovine from Bathurst. The postmortem of the heifer revealed multiple abscesses of the heart muscle, pneumonia and abcessation of the lungs.

Colibacillosis was identified in a test performed from the mesenteric lymph nodes of a calf from Queenstown. (National Department of Agriculture,

[www.nda.agric.za/publications](http://www.nda.agric.za/publications)).

Table 2. Objectives (Target Outputs) and Actual Outputs related to Livestock in the Eastern Cape Department of Agriculture

Name of disease and objective	Performance measure	Target output 2005/06	Actual output 2005/06	Deviation from target units
Anthrax and Black Quarter - To control zoonotic diseases	Number of cattle treated	1600000	1596786	-3215
Sheep scab - To prevent animals against disease that have a negative impact on production and economy	Number of sheep treated	3600000	4529687	929689
Tuberculosis - To control zoonotic diseases	Number of cattle tested	99750	105279	5529
Brucellosis - To control zoonotic diseases	Number of cattle tested	61000	91251	11330
Cattle dipping - To protect animals against diseases that have a negative impact on production and economy	Number of cattle dipped	1900000	1695123	253500

Source: Eastern Cape Department of Agriculture Annual Report 2005/2006

Mastitis is caused by staphylococcus aureus and was confirmed in milk samples from Barkley East and Mqanduli and most cases of this disease were treated purely on clinical suspicion. Trichomoniasis was diagnosed in sheath wash samples of bulls from Cathcart. Sporadic cases were encountered from a total of 1 085 samples examined in the Province. Pasteurellosis and cases of pasteurella pneumonia were diagnosed from the lung tissue of a jersey calf from Middleburg. The postmortem revealed acute pneumonia with a fibrinous pleumitus. Two other outbreaks of pneumonia in Friesland calves were investigated in Grahamstown.

Campylobacteriosis is from the camphylobacter foetus and was isolated during routine fertility testing from two bovine samples from a farm in Aliwal North.

The Eastern Cape Department of Agriculture's Report for the Year 2007/08 noted that an outbreak of anthrax in Lesotho necessitated an intensive vaccination. The campaign succeeded in preventing a spill-over of the disease into the Eastern Cape. During the Year 2007/8, 1 738 788 cattle were vaccinated in the Province against anthrax and blackwater diseases. In addition 75 893 and 48 107 cattle were tested for TB and CA respectively, while 1226 were also vaccinated against Brucellosis.

The Eastern Cape Department of Agriculture's Annual Report for the Year 2008/09 indicated that R134 623 was allocated to combat animal diseases and improve animal health. Table 3 indicates the distribution of veterinary services provided for

the protection of animals against highly infectious diseases across the various district municipalities in terms of the numbers of animals vaccinated.

Table 3. Eastern Cape - Vaccination numbers of Cattle and Sheep (2008/09)

Number of Livestock Vaccinated		
District	Cattle	Sheep
Alfred Nzo	136 091	224 040
Amathole	324 804	803 465
Chris Hani	403 547	1 262 805
O.R. Tambo	230 322	1 596 366
Ukhahlamba	153 059	456 408
Western District and surroundings	12 606	9 480
Total	1 260 429	4 352 564
Cost	R16 637 663	R8 705 128

Source: Eastern Department of Agriculture Veterinary Services-Annual Report 2008/2009

Figure 2 shows the number of cattle in the Eastern Cape Province in the Year 2003-2007. Drought conditions that were experienced during years 2005-2006 resulted in the infertility of cattle. Fertile and rich grazing areas in the Eastern Cape Province including the Nkonkobe Municipality were under attack and invaded by unproductive and destructive weeds that also reduced the productivity and value of livestock in the Eastern Cape Province during the same years. There was also an outbreak of



Tuberculosis in several farms in Tsitsikama and around the Karoo region especially in Cradock.

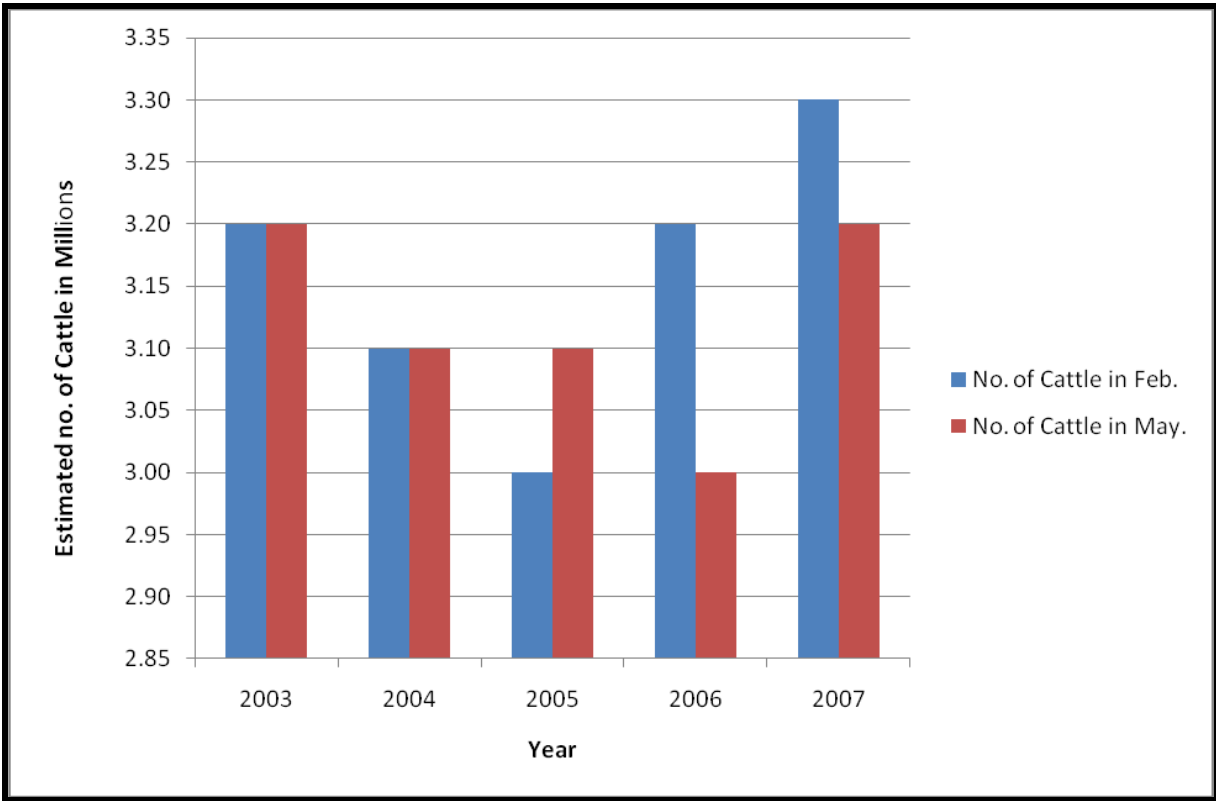


Figure 2. Estimated number of Cattle in the Eastern Cape Province, 2003-2007

Source: Eastern Cape Department of Agriculture 2003-2007

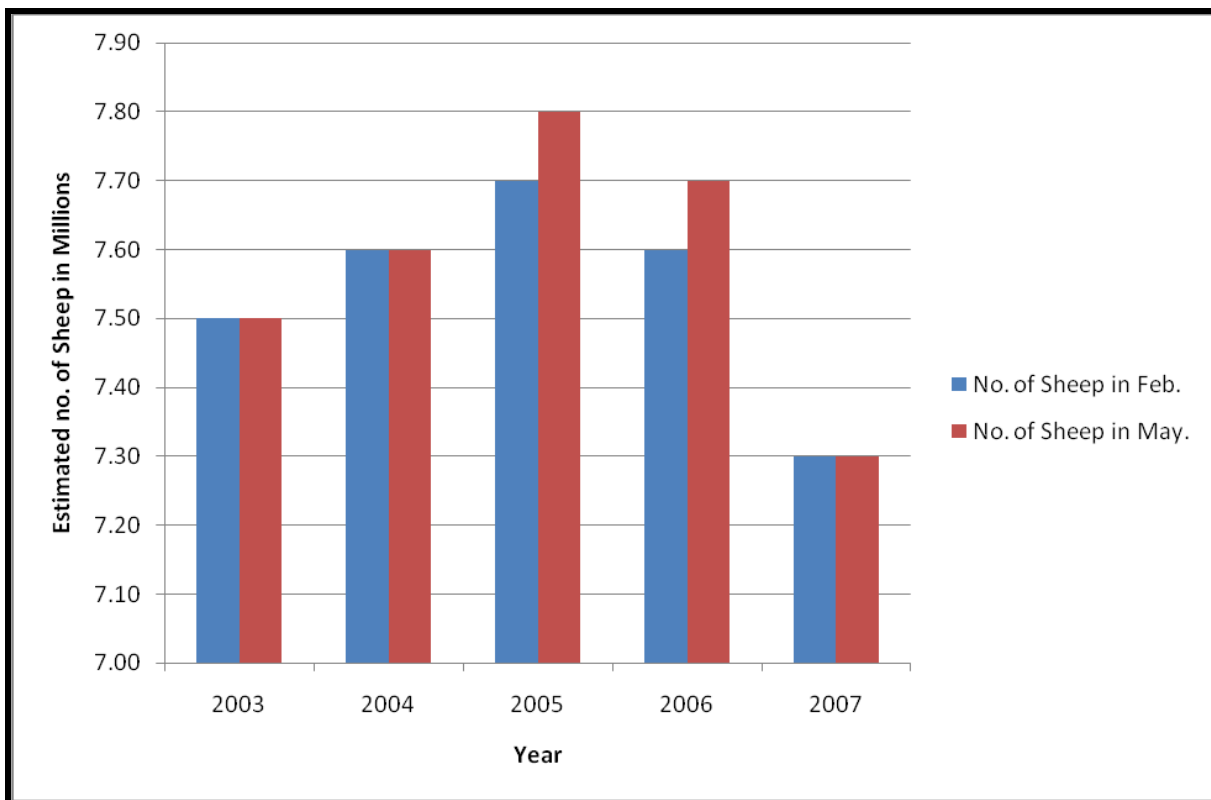


Figure 3. Number of Sheep in the Eastern Cape Province - Year 2003/2007

Source. Eastern Cape Department of Agriculture 2003-2007

During 2003/04, the annual contagious abortion in goats and sheep scab campaign was disturbed by the outbreak of the classical swine fever especially in the former Transkei region. Animal Health Technicians were withdrawn from their normal programmes and assisted with the eradication of the highly infectious diseases.

Figure 3 shows the number of sheep in the Eastern Cape Province Year 2003/2007 and figure 4 shows the number of goats in the Eastern Cape Province Year 2003/2007.

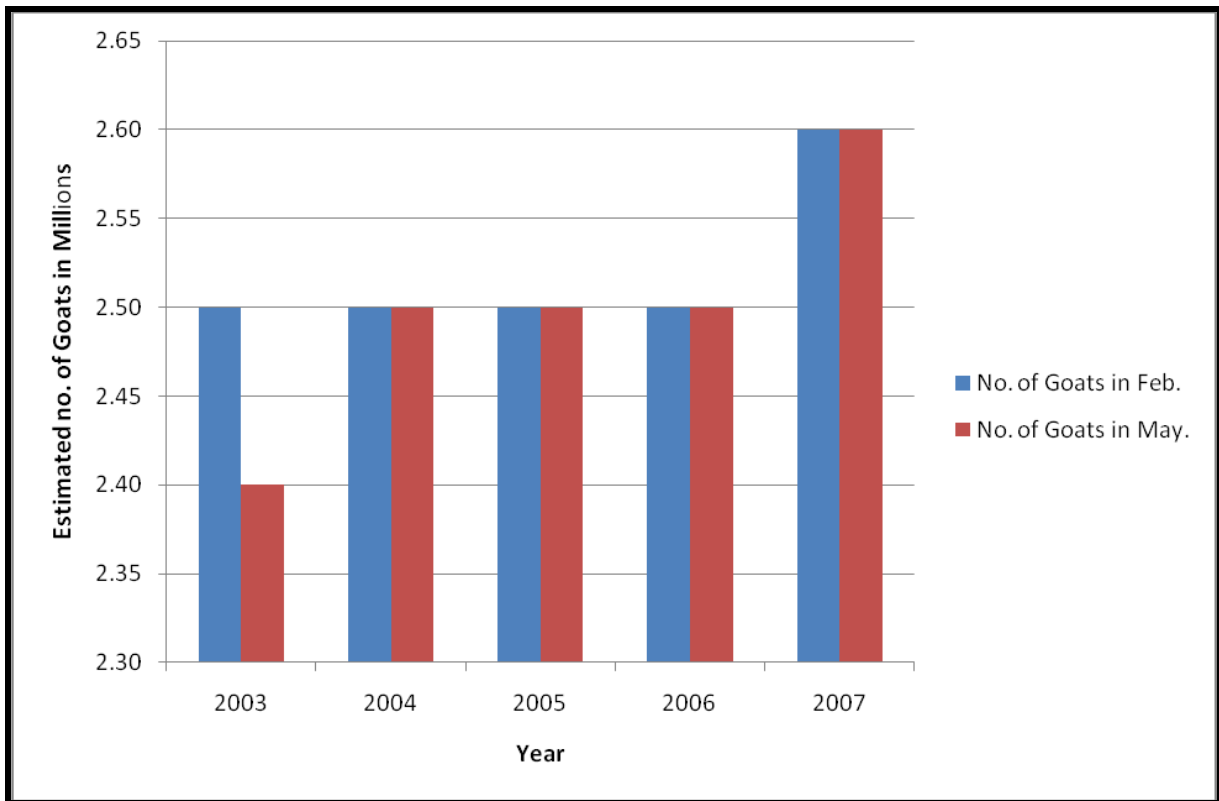


Figure 4. Estimated number of Goats in the Eastern Cape Province, 2003-2007

Source: Eastern Cape Department of Agriculture 2003-2007

The Eastern Cape of Agriculture's information for the Year 2009/2010 revealed that vaccine for TB and CA was supplied during the second half of the reporting period because many farmers failed to attend the dipping sessions. The poor condition of dipping tanks resulted in cattle leaving the site without being dipped and vaccinated against anthrax and black water disease. The farmers' reluctance to cooperate was due to poor vaccination and abortions experienced before. Furthermore, the Year 2009/10 saw a shortage in the supply of timberline used in testing for tuberculosis.

Given the above review of the Eastern Cape Department of Agriculture's efforts to combat infectious diseases throughout various District Municipalities in the Province, one may ask how the Middledrift area, of which Debe Marela is a part, is positioned. In this regard Almaral, the service manager for veterinary services in the Amathole District Municipality disclosed that Middledrift was not entitled to receive its own funds for veterinary services. The state veterinarian must simply order from suppliers as the needs require and submit invoices to the Amathole District Office. This District allocates a budget for veterinary services in Middledrift area. The amount allocated for the years (2008/09) is reflected in figure 3. The next section deals with the administrative structure of veterinary services in the Eastern Province.

#### State Intervention and Support to Stock Farmers at Debe Marela in the Middledrift Area

During the late 1990s the Department of Agriculture in cooperation with the Land Affairs Department developed various programmes meant to assist the establishment of agricultural projects on land newly acquired for the purpose. As a result a number of projects such as poultry, piggeries and small stock enterprises were started. Unfortunately production inputs (feed and medicines) were not provided to support these undertakings. Hence, some 80% of these projects failed and were vandalized. Despite the good intent, small stock farming experienced no lasting benefit from these programmes.

In the Eastern Cape Province, statistics for stock farming up to 2007 indicated that in the Eastern Cape Province, the cattle population of 3 182,280 was larger than that of any other South African province, yet most largely small scale stock farmers in this Province are poor (<http://www.samic.co.za.SAMIC/downloads.htm>). The challenge facing stock farmers in the Eastern Cape Province, at least those in rural communities like Debe Marela, is to raise the income of stock farmers even as they proudly maintain their traditional livestock practices. Only a few AmaXhosa have successfully ventured into commercial farming. Traditionally, stock farmers are loathe to market cattle as they are a treasured possession. Aware of this state of affairs, the Department of Agriculture has resorted to building rural abattoirs to nudge communal farmers towards marketing their beef cattle (S. Hashe, personal communication, July 19, 2009). This represents a move to be welcomed.

The Eastern Cape Department of Agriculture also runs an annual vaccination programme to counteract disease such as anthrax rabies, blackquarter and tuberculosis (V. Rozani, personal communication, September 20, 2009). Additionally, all livestock animals were tested for tuberculosis and brucellosis. Small stock, such as sheep were inoculated against scab to improve wool quality. All these services were provided free of cost to the stock farmers and at the expense of the Department. Furthermore, the Department of Agriculture approached companies to persuade stock owners to register their animals so that they could be catered for in the Department's budget. Vaccination programmes were decentralized, the District Municipalities bringing them to the local levels. During periods of disease outbreak, the services of extension officers were secured to assist Animal Health Technicians

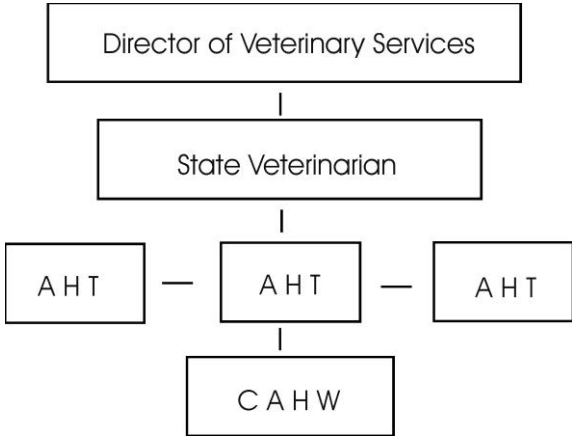
even though the former concentrated on crop production (Department of Agriculture Animal report 2005/06). The Department of Agriculture also established centres such as the Dohne Centre for Veterinary Services and Development in Stutterheim and Debe Neck Training Centre in Middledrift where seminars and workshops are conducted annually for emerging farmers. On the instructions of the state veterinarians, the animal Health Technicians communicated information about the workshops on animal disease control and the dates on which the state veterinarian could be consulted in terms of the animal Disease Act of 1984. During 2009/10, vaccinations against Anthrax and black quarter were administered to cattle throughout the Eastern Cape Province. These cost the Department of Agriculture R46, 314.00. The same year saw the Department of Agriculture roll out a vaccination programme for sheep to prevent scab. At a cost of R22, 331.00, some 31,901 sheep were vaccinated. The Middledrift area and Debe Marela too, benefited from the dipping programme supervised and paid for by the Province Department of Agriculture during 2009/10. Gone are the days when some herders and livestock owners strayed away from the dipping sessions in the belief that the powdered dip was not good enough. During 2009/10, 159,600 kg of dip was used at 532 successful dipping sessions at a cost of R258, 552.00.

## The Administrative Structure of Veterinary Services in the Eastern Cape Province

At the Dohne Centre for the development of veterinary services, I interviewed (L. Iga, personal communication, July 30, 2009) the head of export control and animal disease surveillance unit. His role was to co-ordinate activities in terms of diseases control, and to mitigate threats if any outbreak of diseases was imminent. He joined the veterinary services in the early 1980s and previously served in both the Ciskei and Transkei homelands. He noted that during the apartheid era, his unit had autonomy in its work activities and it had its own budget. He attended meetings on a quarterly basis with his counterparts from the other homelands and with the National Department of Agriculture in Pretoria.

After 1994, the export control and animal disease surveillance units were restructured and operated like a Federation where there was one general manager who accounted to the National Department of Agriculture. When the Transkei, Bophuthatswana, Venda and Ciskei (TBVC) states were incorporated within the Republic of South Africa (R.S.A.) the Departments of Agriculture in the Bantustans were brought under the control of the National Department. Consequently, the Ciskei Veterinary Services unit lost the autonomy it previously enjoyed during the Bantustan period. This new structure meant that the veterinary services in each province had to first consult with the National Department of Agriculture, even in the event of the outbreak of diseases in their areas of jurisdiction. Another senior veterinary surgeon at Dohne Centre reported that persons responsible for planning of administrative

services in the Provincial Office shared little or no interest in veterinary services. Sometimes, people who had no knowledge and passion for veterinary services were responsible for the planning and the coordination of the veterinary service activities. Under the new structure, systems of community support collapsed, rotational grazing was abandoned, fences were cut off and vandalized, and livestock grazed everywhere. What worried them most was that community support used to help in livestock disease and control strategies had now disintegrated. The Eastern Cape Directorate of Veterinary Services and Agriculture Development, however, have the structure shown in figure 5.



**LEGEND**  
 AHT = Animal Health Technician  
 CAHW = Community Animal Health Worker

Figure 5. Organogram for the Eastern Cape Directorate of Veterinary services and Agriculture Development

The Amathole District Municipality, which also controls the Nkonkobe Local Municipality, was responsible for implementing and managing veterinary services



including public health services. The Veterinary Services sub division of the Amathole District Municipality, had the following organogram for the Year 2009/2010:

One Manager	Level 12
One Assistant Manager	Level 9
One State Vet	Level 11
One Control Meat Inspector	Level 9
Three Meat Inspectors	Level 8
One Admin Clerk	Level 4

In conclusion, it is clear that the provision of veterinary services to farmers in the Eastern Cape Province has yet to improve with time. In particular, dipping and vaccination on a large scale have become effective in checking the outbreaks of animal diseases. This is in no small measure due to the establishment and development of veterinary research centres, laboratories, and other facilities at Onderstepoort and Dohne, and the government's commitment to the provision of veterinary services. The Eastern Cape Province's 2009/2010 record unfortunately suggested a reduction in the efficiency with which veterinary services have been provided in that Year. This situation needs to be addressed so that farmers, especially in rural areas, are not hard hit by losses of cattle due to the outbreaks of infectious diseases. The information presented in this chapter takes little cognizance of the role of herbal and traditional treatments of animal diseases in the context of subsistence farming. The next chapter, which presents the data gained through participatory research and interviews, will suggest that these too need to be explored for their commensurability with science-based veterinary medicine.

## CHAPTER IV

### DATA PRESENTATION

#### Introduction

This chapter presents the findings derived from interviews. These findings concern the system of indigenous livestock farming that is practised in Debe Marela villages. The chapter begins, however, with an overview of the demographic characteristics of the respondents in the study area.

#### Socio – Economic Characteristics of Respondents in the Study Area

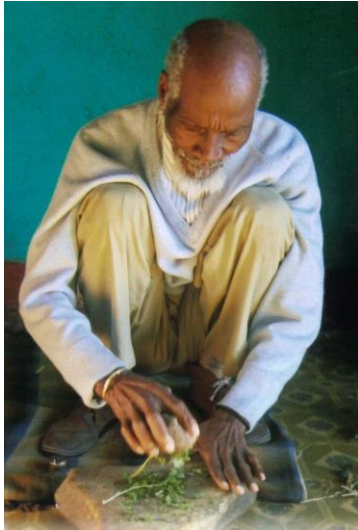
Interviews were conducted with eighteen participants from Debe Marela village. Sixteen of the interviewees were male and two were females. The ages of the participants ranged from thirty to ninety-one years (see Table 4). These eighteen participants were taken to constitute a sufficiently representative sample of the total target group of 240 small stock owners in the study village. All stock farmers contended that they practice livestock farming because they are passionate about it. When asked about the land reform programme, they stated that they only heard about reforms in the media and never benefited from that programme as they inherited land from their forefathers. Together, the eighteen stock owners own a total of some 3 000 livestock, an average of 13 per stock owner, whereas the total of the livestock in the village is 8 441 (N. Stemele, personal communication July, 20 2010). The female herders in the village were either widowed or their husbands worked

away from the village, mostly in South African mines outside the Eastern Cape Province. These “absentee husbands” visited their families two or three times per year. The household sizes ranged from four to nine members, and three to five children in the households were of school-going age. The oldest person interviewed, Mr. Machule Vitsha, aged 91, was included because of his wide-ranging experience with stock rearing practices in the area of research. He is a traditional healer and a retired dipping foreman who also worked in all the neighbouring villages (see plate 1). Herbal medicines in Debe Marela village were used to a large extent especially as the prices were affordable. Traditional healers believed in preparing the mixtures themselves and did not divulge all the information about the herbs and trees used for fear of using their business.

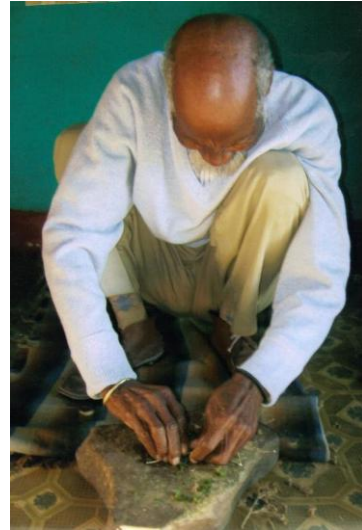
Before we present the findings from the interviews meant to describe the system of stock farming in Debe Marela, the educational level of the participants are discussed. Almost all the individuals interviewed attended school and proceeded as far as Grade 10. Two interviewees were professional educators who practised live stock farming to supplement their income. The traditional healer/dipping foreman ranked amongst the highly educated in the group. The Debe Marela village community has been fortunate in that it boasts of a preprimary, primary, and a high school. For members of the community who were less fortunate, the Eastern Cape Department of Education made Adult Basic Education (ABET) available. Consequently, the level of literacy in the area was high. The information about the farmers and herders’ type of livestock is explained in the subsequent sections.

Table 4. Debe Marela Village, Eastern Cape – Livestock Herders, farmers and Livestock type (2010)

Sex	Age	Status	Type of Livestock		
			Sheep	Goats	Cattle
Male	91	Owner	80	61	42
Male	82	Owner	51	17	-
Male	77	Owner	25	14	08
Male	59	Owner	18	12	-
Male	54	Owner	28	-	12
Female	39	Owner	17	16	-
Female	48	Owner	10	-	08
Male	35	Herder	11	05	04
Male	52	Herder	10	04	05
Male	60	Herder	15	07	-
Male	49	Owner	14	10	08
Male	53	Owner	-	16	04
Male	46	Owner	-	12	06
Male	49	Owner	10	-	05
Male	62	Owner	-	14	07
Male	47	Owner	06	-	08
Male	50	Owner	12	08	10
Male	53	Owner	52	16	27



(a)



(c)



(b)



(d)

Plate 1. Debe Marela – Traditional Healer preparing Indigenous Medicines for Livestock (2010)

A respondent contended that it was advisable that livestock should not be driven to the veld early in the morning as that could cause foot rot between hooves (Plate 2).



Plate 2. Cattle kept in the camp

Some of the small stock farmers did understand proper farming methods even though they did not have means to compete with the commercial farmers, for example, animals were allowed to lick supplements in the basin (see Plate 3).



Plate 3. Debe Marela village, Eastern Cape – Cattle in enclosure (September, 2009)

During the apartheid era, managers were employed to look after the camps and to oversee the destruction of forests. In the post apartheid era thieves had the upper hand and vandalized fences that prevented the livestock from crossing the roads (Plate 4).



Plate 4. Cattle crossing the road

On dipping days Livestock/cattle were brought home the previous day. Herders or livestock owners led them to the dip tank and the processes of dipping were followed. Dipping dates of livestock in the village were also honoured as failure to do so would lead to a penalty charge.



Plate 5. Cattle going through Dipping Process (2009)



Plate 6. Cattle emerging from dipping area (2009)

In most cases when the livestock suffered from a contagious disease, it was isolated from the rest of livestock until it recovered fully (see Plate 7).



Plate 7. Bull isolated due to tuberculosis (2009)



### Indigenous Livestock Farming Practices in Debe Marela

Debe Marela's livestock owners generally take responsibility for their animals themselves and do not rely on the extension officers to any great extent. They find themselves near forests so they have ready access to traditional herbal plants for the treatment of their animals. Consequently all the livestock owners and herders interviewed reported that they did to a significant extent resort to herbal medicines for the treatment of their livestock. Not only did the livestock farmers find themselves near sources of traditional medicinal plants but they also had a sound knowledge of these plants. The respondents reported that they were trained in the use of aloes, ukrongxina, river onions, mimosa and other plants, and were likely to administer the correct medicine for any particular disease. The interviewees reported heart water, red water, gall sickness, anthrax, lumpy skin and black quarter to be among the most prevalent diseases. The local environment was indeed suitable for livestock farming and the type of veld was mixed.

There were two fenced-in grazing areas in Debe Marela area that were provided with plenty of shrubs, forests and running water. In recent years some residents had removed part of the fencing that enclosed the livestock grazing areas. Consequently, the livestock at times roamed the streets and damaged cultivated crops. This, unfortunately also affected the long practiced custom of rotational grazing. For decades rotational grazing had worked well, and nested camps developed a good grass cover. The poor behaviour on the part of some farmers who allowed their livestock to enter the well grassed camps at dawn also contributed to the decline of

rotational grazing in Debe Marela. Interviewees reported that the rotational grazing system had worked well before, especially in times of drought, and that given the cooperation of all stock owners, the system could still work well in the future.

Burning of the veld, especially in the winter months, was a measure long used to control the spread of tick-borne diseases. Unfortunately, the fires consumed the dry grass, ticks and fencing poles.

The livestock farmers were accustomed to bringing their animals back to the homesteads in the afternoons for milking and also to protect them from animals who preyed on them. For dipping and vaccination purposes, the cattle were normally brought home, perhaps once or twice a month. The regular practice was for herders to collect all the animals, irrespective of who owned them, without expecting compensation for doing so. On the other hand, goats and sheep tended to stay and graze near the village, thus finding protection from predators such as jackals and hyenas. The respondents agreed that a liquid dip was more effective than the powdered dip but unfortunately only those livestock farmers who are financially better off were able to buy a liquid dip which was available at co-operatives. Mr.

Nombayeka, a teacher, observed that ticks were more resistant to a powdered dip and the stock farmers accepted the powdered dip from the Department of Agriculture as it was provided free of charge. Very few livestock owners relied on herders and most stock farmers took care of their animals themselves. At the time of the study in 2009/10 only stockowners employed in the public sector made use of herders. These

herders were paid between R300.00-R450.00 per month depending on the number of livestock they cared for.

### Livestock Diseases in Debe Marela

Among the most common livestock diseases in Debe Marela at the time of the study in 2009/10 were foot-and-mouth disease, brucellosis, gall sickness, heartwater, anthrax, tuberculosis and black quarter. Foot and Mouth Disease (FMD) is a highly contagious disease caused by the spread of the foot and mouth virus. It attacks a variety of animals including cattle, water buffalo, sheep, goats and pigs. This disease is characterized by high fever which lasts for two to three days. The animals develop blisters inside the mouth, resulting in excessive secretion of foamy saliva, as well as on the feet so as to possibly result in lame legs. Adult animals may lose weight over several months. Male animals may develop swollen testicles while cows may show a loss in milk production. This disease has the potential to wreck havoc in the economy since it occasions the slaughter of untold numbers of animals. Most of the interviewees expressed the belief that Foot and Mouth Disease was caused by the animals trampling through dewy grass as they were driven into the veld early in the morning, before eight o' clock. This was the reason that symptoms first showed near the hooves, where subsequently white corpuscles were squeezed out.

Brucellosis is a very contagious animal disease. Cattle normally contracted this disease from contaminated food or water, or after licking contaminated substances such as their own after-births or new-born calves. One unfortunate aspect of this

disease was that it caused cows to lose their unborn calves after about seven months of pregnancy. Also, male animals with brucellosis were usually sterile. People may also be affected when they drink unpasteurised milk from infected cows. Amongst human beings, the disease is easily treated in hospitals, but when left undiagnosed and untreated too long, may cause complications ([www.n.d.agric.za/vetweb/](http://www.n.d.agric.za/vetweb/)). A 43-year old school teacher attributed the disease to carelessness on the part of livestock farmers who allowed their animals to lick contaminated basins when given feed, or who did not keep their lucerne in the sheds long enough before feeding it to their animals (J. Nombayeka, personal communication, 18 July, 2009). Other respondents also agreed with what Mr. Nombayeka had observed.

Gall sickness was reported to be a disease that commonly occurred in the area. This sickness resulted from the consumption of plenty of fresh, green grass and caused the animals to suffer from a persistent diarrhoea and difficulty in passing urine. It has also been identified as a tick borne disease (Eastern Cape Department of Agriculture, Resource Centre, 2009). Symptoms accompanying the disease include dizziness, stooping ears, falling and foam in the mouth. The majority of those interviewed contended that the consumption of green grass following heavy rains especially during the summer months when the animals have become used to eating dry grass was the cause of gall-sickness.

Heartwater was also reported to be among the diseases that occurred in the area. It is an infectious rickettsia disease affecting both domestic and wild animals. The

rickettsia causes the blood vessels “to leak” giving rise to fluid around the heart. This disease is common in Africa, but also in the Caribbean Islands. The disease is primarily transmitted by ticks of the genus *Amblyomma*. Symptoms indicative of the disease were loss of appetite, depression, fever and respiratory distress. While most respondents reported no knowledge as to what gave rise to heartwater, one of the teachers observed that livestock, being hosts to ticks, carried tick borne diseases internally. Eggs and larvae develop inside the animal thus making a clear distinction between heartwater and red water rather difficult. Animals affected by red water showed symptoms such as nervousness, loss of appetite, fever, muscle cramps, yellow eyeballs, red urine and dullness. Usually when the animals failed to eat it loses its ability to stand on its own feet and will fall. Pregnant animals may lose the foetus just before birth or lose their calves shortly after their birth (J. Nombayeka, personal communication, 18 July, 2009).

Tuberculosis was another infectious disease that infected livestock on a large scale. This disease can be transmitted from animals to humans through the consumption of milk from bacterially infected cows. It normally begins in the lungs, subsequently extending to other organs, producing cavities. Symptomatically, animals like human beings, start to cough when affected. One of the respondents expressed the belief that tuberculosis resulted in the rotting of internal organs. Fortunately, tuberculosis, if detected and treated early was cured quickly.

Anthrax was another highly contagious disease that can strike all warm blooded animals and humans. The bacteria that cause anthrax survive in grazing areas and in

feeds for considerable time. Hence, livestock become infected through grazing in contaminated areas. This disease causes sudden dark discharges from the nose and ears. It may also be accompanied by high fever and coughing, and results in sudden deaths (Eastern Cape Department of Agriculture, Resource Centre, 2009). The respondents did not know what caused anthrax. However, the traditional healer in Debe Marela associated anthrax with the drinking of contaminated water. The respondents also observed that muscle vibrations are symptomatic for animals suffering from anthrax. However, the traditional healer in Debe Marela has associated anthrax with the drinking of contaminated water. This respondent also observed that muscle vibrations were symptomatic for animals suffering from anthrax. He further warned that people must not eat the meat of infected animals (M. Vitsha, personal communication, 17 September, 2009).

Black quarter too was known to be a livestock killer disease in Debe Marela. It tended to affect young animals in good condition more than older animals that have developed resistance against the disease. This disease is caused by a germ called clostridium charcoal. Animals become affected through grazing in contaminated areas. Unhygienic wound conditions, for instance, due to castration also resulted in black quarter. The bacterial germs settle in the muscle tissue and in opportune conditions multiply and give rise to the outbreak of the disease (Eastern Cape Department of Agriculture, Resource Centre, 2009). In the next section, the livestock farmers justify the use of conventional veterinary medicines.

### Conventional Veterinary Medicine

Livestock farmers made use of conventional as well as ethno-veterinary medicines for the treatment of livestock diseases. The use of conventional veterinary medicine according to the Manager of the Umtiza Farmers Cooperative in King Williams Town was indiscriminate. Most farmers from Debe Marela, according to him, tended to rely on Terramycin Long Acting (LA) as a blanket cure for any disease. Other medicines used, but to a lesser extent were Terramycin 120, Hitet 120, Deadline penicillin and Doxymycin. A selected range of medicines that the Umtiza Farmers Cooperative in King Williams Town provided to livestock farmers is presented in Table 5. In addition, a local pharmacy supplied Penicillin to the livestock farmers. Livestock farmers in Debe Marela purchased medication from Umtiza in King Williams Town on a regular basis. The farmers from Amathole District Municipality frequent the area approximately twice per month.

### Combined Use of Indigenous and Conventional Medicinal Practices in Debe Marela

Stock farmers from Debe Marela use conventional and ethno-veterinary medicines to treat the same livestock diseases. Most of the respondents during the interviews agreed that they could not do without conventional medicines such as Terramycin (LA), Deadline and Penicillin (B. Ntsangani, personal communication, 17 September 2009). Their remarks in this regard confirmed the Umtiza Store Manager's report.

According to them, Terramycin stood out as a good antibiotic suitable for the treatment of all the infections.

Table 5. Selected Livestock Medications supplied by the Umtiza Farmers' Cooperative, King Williams Town (2010).

Description of medicine	Quantity	Price	Seller
Terramycin LA	100 ml	R208.60	Umtiza
Hi-tet 120	100 ml	R 50.90	
Doxymycin Injection	50 ml	R180.00	
Dizene – CTI	100 ml	R135.90	
Imizol Tick Injection	40 ml	R341.20	
Berenil RTU	100 ml	R162.80	
Deadline	200 ml	R135.00	
Detomax	50 ml	R300.00	

Source: Store Manager Umtiza King Williams Town, personal communication, 1 March 2010.

Some individual livestock owners and herders' experiences are worth nothing. One male farmer used a Doxymycin instead of the Hitet 120 injection for his cow with a bloated stomach. The animal did not recover and died a few days later (M. Mtyeku, personal communication, 23 August 2009). A female stock farmer complained that the local animal health technician, despite always promising to assist in cases of animal diseases, but often did not come. When she went to the Umtiza Farmers' Cooperative for help and described the symptoms of a sick animal, she was advised



to administer Hitet 120 injection since it appeared to be useful for all kinds of diseases (N. Marela, personal communication, 20 September 2009). An elderly traditional healer stated that he was content to use herbal medicines for the treatment of his livestock and proudly boasted that he owned 42 cattle more than anybody else in the village. He also claimed to have the best ethnoveterinary medicines available in the area. He added that he also used conventional medicines but only to a limited extent. He sometimes mixed his herbal medicines with permanganate of potash and sulphur depending on the seriousness of the illness. He said he would make use of Doxymycin if an animal's lungs were affected and if it began to limp (due to maggots between the hooves or was beset by ticks).

If parasites such as bont ticks were all over the animal, an elderly respondent said that he used a pair of scissors to cut them in half, leaving the animal's skin undamaged. In his opinion, the falling off of wool sores and blisters with sheep were best treated through dipping and using paraffin. For such problems other respondents recommended diesel, petrol and engine oil for the affected areas. One male respondent reported that the risk of livestock newly introduced into the area eating and dying from poisonous plants such as ukrongxina could be greatly reduced by frying or boiling the poisonous plant for 150ml of its extract and giving the dosage to the animal (N. Magele, personal communication, 20 September 2009). The same respondent claimed that a bottle of hot water mixed with chimney soot, after cooling, served well to help a cow release its placenta following calving.

The consensus among the respondents was that gall sickness affected their cattle more often than any other disease. For its treatment they agreed that aloe was recommended as the number one remedial agent, although it may be variously administered. Fortunately there was an abundance of aloe in Debe Marela.



Plate 8. An aloe plant in Debe Marela, Eastern Cape

Some cattle farmers and herders prepared a juicy mush of aloe and mixed it with water and administered it in 200-250ml bottles. Others dried and crushed the aloe into a fine powder and mixed this with Epsom salts and administered it to the sick livestock. Given the nature of gall disease, the heavy reliance on aloe was related to its purgative effects. Aloes were generally recommended for the preparation of indigenous medicines. One type of aloe called ingcelwane often found in abandoned kraals was considered particularly useful. Its leaves were crushed and mixed with permanganate of potash and administered to livestock in volumes of 750ml, particularly to livestock affected by an unknown disease. It is commonly regarded as a multi-purpose herbal medicine.

This also applied to those who administered a mixture of brown sugar and vinegar. One male respondent stated that one of the reasons they used indigenous medicines was the affordability of prices, for example, a 750ml of prepared medicine would cost R25.00 – R30.00.

For the treatment of broken limbs, the preferred traditional treatment prescribed a herbal mixture of 375ml of *Eucomis Autumnalis* (Umathinga) to be given to young animals. Older animals were given twice the dosage (750ml). Another method of treatment that some livestock farmers preferred was to treat the wound by applying fresh mimosa bark to it with the aid of a bandage. Ms N. Marela claimed that a mixture of aloe and *clivia niniata* (Ubuhlungu benamba) was excellent treatment against internal parasites such as worms. She further contended that *clivia niniata* and *Itswele lomlambo* (river onion) finely crushed and mixed with salt effectively countered heartwater when administered from a 750ml bottle. River onion planted near the kraal was also effective, she claimed, in keeping snakes away because of its pungent odour. It was a common belief among the AmaXhosa that the presence of snakes near livestock, especially at night, was likely to cause animals to limp and walk with difficulty.

One male respondent recommended a herbal mixture called Ubuhlungu benamba for the treatment of partially blind eyes in animals. It was administered in small drops three times daily, until the animal showed signs of improvement. A 55-year old respondent asserted that when animals miscarried or aborted they were given a mixture of crushed umgxube roots and peach leaves (750ml bottle). For red water or

umbendeni, which caused animals difficulty with urination and turned the urine sticky and red, some recommended the administration of a 750ml lukewarm mixture of umnyanzi plant leaves and uzifozonke (permanganate of potash). A cup or more of the mixture also served for people who eat meat of livestock that have died from red water disease.

The respondents' perceptions about these diseases were that if stock farmers could exercise a bit of caution when dealing with wounds especially after castration, there would be no harm to their animals. Some believed in applying ashes to the wound and ignored the bacterial germs that might be contracted in the process.

Unfortunately though, the Nkonkobe Municipality which incorporates 24 villages had only one state veterinary surgeon. All the villages depended on him for his service. Veterinary services in the Province have an annual programme to vaccinate for anthrax, black quarter and rabies. They inoculate for sheep scab to improve wool quality and test for tuberculosis and brucellosis. It was not always easy for the state veterinary surgeon to render services to places where he was needed most. As a result, wealthier families resorted to the private sector like the Society for Prevention of Cruelty to Animals (SPCA) in town for quick assistance. The 24 villages have six field extension officers which meant that each field extension officer serviced four villages. They were expected to be visible to the communities. Mostly, they assisted the state veterinarian in the inoculation of the livestock especially when there were outbreaks of the diseases in the area. One of the major duties as field workers was to organize the dip facilities for the communities. They were also expected to supervise the dipping process including the cleaning of the dip tanks. In the year

plan, they visited for dipping purposes once per week during summer and fortnightly during winter. Dipping and inoculation facilities were all free of charge from the Department of Agriculture. Veterinarians, animal health technicians (ATHs) and field extension officers were responsible for carrying out of these on-going programmes and campaigns. Primary animal health work was carried out by veterinarians and animal health technicians at the veterinary clinics and in the field (S.Garde, personal communication, December 2010). There was also a paper budget allocated for the municipalities. They were expected to order medicines when there was a need and submit the list to the Department of Agriculture which in turn provided for their needs. The state veterinarian also mentioned that the stock census was held once in three years in the Province for budget purposes. It was also observed that farmers' cooperatives worked in collaboration with the Department of Agriculture even though they were in the private sector because the Department of Agriculture sometimes held workshops with them. Unfortunately, the Department of Agriculture did not supply feed for livestock during drought periods and livestock owners had to find ways and means for the survival of their livestock. The Department of Agriculture only intervened when there was a national disaster and organized some form of compensation.

### Conclusion

The participants in the research project comprised both males and females. The participants also ranged from young to middle aged women and old men. The respondents have realized that tick borne diseases especially red water, heartwater

and gall sickness had enforced the use of modern veterinary medicines. Slowly, communal farmers or subsistence farmers have learnt that their traditional methods have not always worked against new diseases. As a result a lot of money has been spent to buy dips in order to relieve livestock deaths.

Most respondents contended that herbal medicines are easily accessible to everyone to treat livestock. They also had a sound knowledge of these plants. The respondents also lamented the fact that the Department of Agriculture services were limited and not available when needed most. The non-cooperation of livestock farmers and the poor management of camps also contributed to the decline of the livestock and farming in Debe Marela. In conclusion, the majority of the stock farmers contended that they used ethnoveterinary medicines because of their availability but also used conventional medicines to a greater extent. Moreover, conventional medicines were more effective than the indigenous medicines. This brings us to the conclusion of this chapter and a transition to discussion of the findings in the next chapter.

## CHAPTER V

### DISCUSSION OF FINDINGS

#### Introduction

The interviews conducted in Debe Marela leave no doubt about the importance of stock farming in the area. Sixty percent of the interviews said they were passionate about it. This explains why they were prepared to make more use of both conventional and ethnoveterinary medicines. It must be remembered, however, that the interviews represented a sample of a population consisting of subsistence stock farmers. Given that all the farmers interviewed had been educated to at least Grade 10, except for one traditional healer, they were aware of the great strides made in animal disease treatment by way of veterinary science, and also of the role of the state and agencies in enabling South African farmers to benefit from the development of veterinary science and conventional medicines. All the interviewees said they were prepared to make use of both conventional and ethnoveterinary medicines.

The findings indicate however that conventional medicine have by no means replaced the use of ethnoveterinary medicine in the treatment of animal disease. Traditional practices die hard. In a rural community such as Debe Marela, stock raising has been practised for many generations according to traditional methods

and has been developed, making use of local environment conditions (Dold and Cocks, 2001; Masika, Sonandi and Van Averbek, 1997).

Prior to the introduction of democracy in 1994, the South African government's involvement with farmers in our research area has been of varying but overall growing intensity, especially in the area of disease prevention and control. The findings confirmed that stock farmers and herders in Debe Marela were aware of some of the benefits that came with state involvement. Indeed, it was found that they were also aware of the fact that some of the measures were no longer in place. For example, they referred to the state of disrepair of fencing, as well as to the fact that they were no dipping officers anymore, and that Animal Health Technicians were not available to assist them when needed, as they used to be. These findings suggest that a closer look at the role of the state and its agencies with respect to livestock farming in the Debe Marela area is called for, given its present circumstances and possible enhancement. This chapter, following a brief consideration of specific Debe Marela conditions, will outline the present livestock management practices and the role of both the state and the environment as these affect stock farming in the area.

### Livestock Farming in Debe Marela

The Debe Marela area, being semi-arid, does not lend its self to successful crop production. The terrain is not level and rainfall is unreliable and unpredictable. The soil in the area is only marginally arable. Climate, water, soil and topographical conditions combined to restrict farming to purposes of subsistence. In Debe Marela,



subsistence farming rather than crop cultivation is the prevailing mode of farming activity. Goats, sheep and cattle can at least forage and survive on the plants, bushes and trees indigenous to the area and provide a measure of household income and support. This research revealed that stock farmers at Debe Marela owned a greater number of sheep and goats than cattle. They were aware that owning cattle provided a better income than goats and sheep and that they were not as likely to fall prey to predators such as jackals and hyenas. It should be remembered that cattle had, for centuries, and hence traditionally, constituted the mainstay of the amaXhosa's socio-economic lifestyle.

This helps to explain why vaccination campaigns targeted cattle rather than goats and sheep. Goats and sheep grazed near the homesteads while the cattle foraged far away in the forests. They could not be kept at the homesteads because lucerne, like other crops, could not be cultivated there while the cost of fodder was prohibitive, given that most stock owners were not otherwise employed, and therefore lacked the funds this would require. In short, the small stock farmers under consideration depended mainly on pension and state grants to supplement their small-scale livestock activities. It should, however, not be thought that these livestock activities are of secondary or little importance. The sale of a head generated three to five thousand Rand and this income is of crucial importance to those who must otherwise live solely from state grants. It is of the utmost importance, therefore, that livestock farmers be as well informed as possible about the proper management of their livestock.

## Livestock Management

The findings obtained during the interviews suggested that the knowledge of stock management and stock diseases and their treatment leaves much to be desired. It was found that some respondents actually ate from carcasses of animals that had died of an unknown disease, unaware of the dangers this posed to their own health. Others indicated that they had buried such carcasses rather than burn them.

One respondent thought gall sickness was caused by the cattle's grazing on green grass lands following heavy rains. The findings confirm, Masika's et al. (1997b) observation that black stock farmers still act on the basis of opinions today known to be erroneous. Clearly there is a knowledge gap that is only gradually being narrowed. State agencies, including its animal health technicians and extension officers must play a prominent part in eradicating such erroneous opinions and bad practices. Among the findings obtained during interviews is the fact that a number of good practices put in place by the previous authorities have been allowed to lapse, to the detriment of good livestock management.

Respondents for example, mentioned the disrepair in the state of fencing. Why should good fencing not be required today to keep animals from grazing alongside public roads, thus posing a public hazard and risk to the animals themselves?

Government did not, as it should, effectively prevent and act against the theft of fencing. Similarly, and perhaps more seriously, there are no longer dip foremen (onombembe) to supervise and prepare the dips for treatment against ticks.

Livestock owners at times made life very difficult for the dip foreman as they argued

about whose animals should be dipped first. This was because the dipping tank was adequately activated only after the first five to ten animals had passed through it and back again. Superstition and witchcraft caused them to upset the regular order and procedure. As did McCorkle and Mathias (2001), the findings from the interviews of this study showed that superstition and witchcraft played their part in the thinking of some of the stock owners at Debe Marela. The interviewees admitted that they got rid of the onombembe to their own detriment. Since then, the cattle have again become infested with ticks and tick borne diseases have increased. Surely this situation must be remedied. Dipping is so important to stock farming and disease control that it deserves to be examined in greater detail.

#### Other Issues of Concern in view of the Research Findings

One issue of concern raised by some of the interviewees is their claim that Health Technicians, Field Extension Officers and state Veterinarians were not available when they were needed. Another relates to the allegation by some that the Department of Agriculture, in response to their appeal for support and financial assistance, told them that they did not qualify for assistance as they were not commercial farmers. Yet another complaint by some respondents was that the Department did not supply sufficient quantities of chemicals for dipping during outbreaks of cattle illnesses. In such cases they had no other option but to buy these medicines from farmers' cooperatives such as Umtiza. In view of the fact that farmers in Debe Marela continued to rely on traditional stock management and treatment practices to a considerable degree, it is a further matter of concern that the

preparation of traditional medicine from local plants is largely the preserve of traditional healers who tended not to share their expertise for the fear of losing their business. If such expertise was shared, systemized and recorded, stock farmers could access these sources of medicines (plants) and prepare these themselves. Presently such plants are not grown in the homestead gardens, as they could be. Only the river onion (itswele lomlambo) is grown in gardens and near the kraals to prevent snakes from biting livestock.

A further matter of concern apparent from the findings is that a number of factors militate against stock farmers using patented medicines for the treatment and control of diseases other than those provided by the government in its vaccination programmes, not least among them being the prohibitive cost of these medicines. Subsistence farmers simply do not have funds to purchase medicines and their procurement may require traveling, involving further expenses. The current absence of rotational grazing, due to the disappearance of proper fencing is another matter of concern alluded to by the interviewees. When the cattle grazed in camps stock owners could keep an eye on their cattle. Instead, their cattle roam freely, at considerable distance from the homesteads. In view of the findings, it may be concluded that the use of neither traditional nor modern stock farming methods is most favorable in Debe Marela, while optimal use of both is required to ensure the viability of subsistence stock farming at Debe Marela.

## Conclusion

The findings revealed that most stock farmers in Debe Marela still used both ethnoveterinary and conventional medicines. Although they have come to acknowledge that patented medicines were more effective in the treatment of animal diseases, this has not deterred them from using traditional methods. After all, the methods have been used for generations and importantly, are readily available in the vicinity at very little cost. At the same time, Debe Marela's stock farmers readily agree that the Department of Agriculture's interventions and vaccination programmes have been of immense benefit to them.

## CHAPTER VI

### CONCLUSIONS AND RECOMMENDATIONS

#### Introduction

The study confirmed that traditional stock management methods are by no means an abandoned thing of the past. Ethnoveterinary medicines and treatments continue to be used by all of the eighteen stock farmers interviewed for the purposes of the study. There is no doubt that the use of the medicines would decrease if conventional medicines were more readily, and less expensively available. Moreover, if such medicine is provided fully by present programmes of the Department of Agriculture in its efforts to prevent and treat outbreaks of animal diseases, there will be no such outbreaks. Both indigenous and conventional practices show prominently in the livestock management practices of subsistence stock farmers at Debe Marela, and are likely to continue to do so for some time to come. This study therefore concludes by making some recommendations in view of its findings, for the enhancement of the continued use of both traditional and conventional stock farming practices at Debe Marela.

#### Summary of Findings and Recommendations

The study has highlighted the great advances that have been made during the last century and a half in the study of the cause and treatment of animal diseases. These advances, although rooted in scientific discovery, have not remained “academic” but

have been championed and widely applied in practice through government support programmes.

This study has also shown how Debe Marela's stock farmers have benefited and continued to benefit from such government sponsored interventions. As a result, small scale stock farmers in Debe Marela have realized that as they continued to use ethnoveterinary medical treatments, the conventional practices, as introduced by the state in its inoculation and vaccination programmes, are of great benefit to them. For conditions not addressed by this programme however, the Debe Marela stock farmers continue with traditional treatment practices. For that reason these traditional methods should be scrutinized in terms of their medicinal efficacy and for treating the conditions for which there were used. In reality, too little is known about the properties of the plants used in the traditional treatment of animal diseases. It is recommended, therefore, that instead of ignoring the ethnoveterinary treatments being used by stock farmers, the Eastern Cape Department of Agriculture should take note of these treatments and should assess them to determine whether or not they were in fact the initial forms of treatment or not. Those that were proven to be of benefit are to be endorsed as such while little material used for the preparation of such medicines should be identified, protected, and, possibly grown in gardens at the stock farmer's homesteads.

It is recommended that traditional medicines not be ignored by government agencies, but instead should be researched for their possible benefit and for risks as used by small scale farmers. Again it is recommended that further study be conducted to

determine how the state and its agencies can enhance those aspects of traditional farming that are good and viable, and root out those elements that are not beneficial. In so doing, the state must be sensitive to the fact that traditional, small scale communal farming is crucial to the AmaXhosa way of life, a way of life that is under threat. Still, in conditions of hardship and poverty, stock farming serves as the strategy that helps people in rural areas to fight off poverty. As long as this is so, this way of life must enjoy state sponsored measures to maintain and enhance it. The small scale stock farmers should be treated respectfully by government agencies. Findings from the interviews suggest that in dealing with state agencies, small scale farmers face contempt instead of respect. Such is the case when they are simply dealt with as poor subsistence farmers, and when they are told that they do not qualify for requested assistance because they are not commercial farmers. In such cases these subsistence farmers rightly feel neglected and rejected. These farmers rightly complained that the state has not adequately protected them from thieves when their fencing disappeared. Surely rotational farming and grazing were a beneficial farming system that enhanced small scale stock farming. Successful commercial farmers could provide their own fencing unlike subsistence farmers. Ways and means must be found to ensure fencing for small scale farmers at Debe Marela.

The findings of the study suggest that small scale subsistence stock farming is essential to the livelihood of people living in rural areas and rural communities. Without it, many rural people who would find themselves in absolute poverty. Continued engagement and small scale stock farming also allows rural residents to



live a lifestyle intimately bound up with their ancestral heritage. Rural development is a matter of national interest, high on the agenda of the South African government. No rural development can successfully take place if the rural stock farming population is left on its own, and especially if the use of ethnoveterinary medicines is not taken into consideration. Hence, it is recommended that the state's budget set aside sufficient funds to cater for thorough research into the actual realities of small scale stock farmers so as to enhance their livelihood potential. To that end the state's inoculation and vaccination programmes were not sufficient, however, indispensable.

Finally, rural stock owners can continue to pursue a successful heritage based way of life with the ready assistance of government support through State Veterinarians, Extension Officers and Health Technicians who are very knowledgeable about both traditional stock farming including the traditional ethnoveterinary treatment of animal disease, and who will not deal with rural stock farmers as though they were commercial stock farmers. This would result in the realization of good farming when small scale rural stock farmers have parted with their tradition and heritage orientated lifestyle. When large scale, successful stock farming alone continues without any consent for traditional stock farming methods, this generation of budding farmers is doomed to fail if their endeavors to make a good livelihood are ignored. When a way of life, with its traditional practices, including herbal remedies, has been destroyed, along with the vegetation that once stood, small stock farmers in good stead will struggle to make ends meet. Another recommendation to be made is that small scale farmers continue to make use of herbal medicines. The state has a duty to see to it that the required plants for indigenous medicines continue to be available

and are not depleted, and that small scale farmers will be able to have access to the areas where important plants grow. Hopefully, this study would evoke further research into indigenous medicines.

## APPENDIX A

### INTERVIEW QUESTIONS FOR STATE VETERINARIAN

1. What are your duties in the veterinary services section?
2. (a) What services do the state veterinarians offer to the stock farmers?  
(b) How often are they offered?
3. Are there any workshops or road shows held to empower the emerging farmers?
4. How do you ensure that they are successful?
5. (a) Does the Department of Agriculture have vaccination programmes for livestock?  
(b) How are vaccinations programmes coordinated and implemented in the local communities?
6. (a) Does every village or area under your control have dipping tanks?  
(b) Who controls the dipping sessions in the villages?
7. (a) Do you ever hold a stock census in the Nkonkobe local Municipality?  
(b) If yes, what is the purpose of the stock census?
8. Do you work in collaboration with farmer's cooperatives?
9. (a) Are you aware of the use of the herbal medicines by small stock farmers?

## APPENDIX B

### INTERVIEW QUESTIONS FOR THE VETERINARY SERVICE MANAGER

1. What is the role of the veterinary service manager?
2. In terms of service delivery, were there any changes after the merging of former homelands with the Republic of South Africa?
3. How do you manage livestock problems in District Municipalities?
4. Do you give stock farmers the necessary support when they need it most?
5. How do you disseminate important information to stock farmers?
6. What precautionary measures do you have in place in case of the outbreak, and spread of livestock diseases like tuberculosis?
7. Is there any collaboration in terms of services between the Department of Agriculture and farmers cooperatives like Umtiza?
8. (a) Are you aware of any indigenous practices with regard to livestock treatment in the villages?  
  
(b) What is your response towards these practices?
9. (a) What is the major challenge facing the communal stock farmers?  
  
(b) Why and how do you help them overcome the challenge?

## APPENDIX C

### INTERVIEW QUESTIONS FOR STOCK FARMERS

1. Why are do you practice livestock farming?
2. How many livestock do you have?
  - (i) Cattle
  - (ii) Goats
  - (iii) Sheep
3. Did you benefit from the Government's land reform programme, and if so, how and why?
4. How long have you been in the Middledrift – Debe Marela area?
5. What diseases are prevalent among livestock in your area? List them.
6. Do animal health technicians respond in time when you call on them for help?
7. How do you prevent the spread of contagious diseases to other livestock?
8. (a) How often do you dip your livestock per month?  
(b) Are the number of dipping sessions in winter and summer the same?
9. Who is in charge of the dipping process in your area and does a committee exist for dipping purposes?
10. (a) What type of dip is used in your area (powdered or liquid)?  
(b) Is either better than the other?
11. (a) Do animal health officers provide assistance in regard to dipping in your area? How?
12. (a) What type of commercially purchased medication do you use?  
(b) Where do you purchase this medication from?
13. (a) Where do you sell your livestock?  
(b) What are the average prices paid for the different livestock that you sell or are sold in your area?

## APPENDIX D

### INTERVIEW QUESTIONS ON ENVIRONMENT

1. What environmental factors benefit you most as a livestock farmer?
2. What environmental factors are most constraining to you as a livestock farmer? (consider droughts, access to natural pasture, soil conditions i.e. poor soils, relief and topography).
3. Is your local pasturage suitable for livestock farming? [Yes or no]. Please explain your answer.
4. (a) Do you as small scale stock farmers in this area use indigenous medicines to treat your animals' diseases?  
  
(b) Do you prefer to use indigenous medicines to conventional medicines? Explain.
5. How do you treat each of the different diseases your livestock suffer and do you use different indigenous medicines for the different diseases?
6. What local plants and materials do you use in the preparation of the indigenous medication?
7. What quantities of medication do you administer to your livestock when they are ill and for each particular illness?
8. Do quantities of indigenous medication vary for different livestock and for animals depending on their age? Are the specialists in indigenous medicines for livestock paid for the services? Explain how you compensate them.

## APPENDIX E

### INTERVIEW QUESTIONS ON THE ROLE OF THE STATE

1. (a) Does the Department of Agriculture provide services to the livestock farmers in your area?  
  
(b) What are these services?
2. (a) Do animal health officers employed by the Department of Agriculture in your area assist you with your livestock farming?  
  
(b) How often do they visit the area?
3. What role do they play when there is an outbreak of livestock diseases in the area?
4. Does the state veterinarian for your local Municipality play any role in livestock farming in your area? If yes, what is his or her role?
5. What is the response of the local animal health technicians or field extension officers to local farmers who use indigenous medication for their livestock?

## REFERENCES

- Andrew, M. & Fox, R. (2003). Cultivation trends in the Transkei and Ciskei 1940-1996. Paper Presented at the Eastern Cape Historical legacies and new challenges conference. Retrieved from <http://www.fhiser.org.za/workingpapers/> 01 Andrew.pdf
- Anseeuw & Carstens, Makura, Modiselle and Van Rooyen (2005). S. Afr.Tydskr. Landbouwoorl./S.Afr.J.Agric.Ext. Vol 34 (2).
- Beinart, W. (2007a). Transhumance, animal disease and environment in the Cape, South Africa. *South African Historical Journal*, 58, 17- 41.
- Beinart, W. (2007b). Vets, viruses and environment at the Cape. In W. Beinart (Ed.), *The rise of conversation in South Africa: Settlers, livestock and the environment (1770-1950)*. Oxford University Press.
- Bryman, A. (1999). *A qualitative research*. London: SAGE Publications.
- Bwakura, M.S., Tafara Matekaine, M.S. & Taona, M. (2004). Potential alternative to orthodox animal health delivery in Zimbabwe. *Intern Journal Res Vet Med*. Vol.2 (4), pp 269 – 273.
- Dold, A.P & Cocks, M.L. (2001). Traditional veterinary medicine in the Alice District of the Eastern Cape Province, South Africa. *South African Journal of Science* 97. pp 375-379.
- Department of Agriculture. (2002). *Eastern Cape Province Annual Report for the year ended 31March 2002*.
- Department of Agriculture. (2003). *Eastern Cape Province Annual Report for the year ended 31March 2003*.
- Department of Agriculture. (2004). *Eastern Cape Province Annual Report for the year*



*ended 31March 2004.*

Department of Agriculture. (2005). *Eastern Cape Province Annual Report for the year ended 31March 2005.*

Department of Agriculture. (2006). *Eastern Cape Province Annual Report for the year ended 31March 2006.*

Department of Agriculture. (2007). *Eastern Cape Province Annual Report for the year ended 31March 2007.*

Department of Agriculture. (2008). *Eastern Cape Province Annual Report for the year ended 31March 2008*

Department of Agriculture. (2009). *Eastern Cape Province Annual Report for the year ended 31March 2009.*

Eastern Cape Department of Agriculture (2009). Revised Organogram March 2009

Flick, U., Von Kardorff, E. & Steinke, I. (2004). *Companion to qualitative research.* SAGE publications, London pp 68-71.

Flick, U. (2002). *An Introduction to qualitative research.* SAGE publications, London pp 88-92.

Getchell, J.K., Vatta, A.F., Motswatse, P.W., Krecek, R.C., Moarane, R., Pell, A.N, et al. (2002). Raising livestock in resource-poor communities in the North West Province of South Africa: A participatory rural appraisal study. *Journal of the South African veterinary Association*, 73 (4), pp 177-184.

Government Gazette of 27 Nov. 1998 Vol. 401 No. 19519, Cape Town RSA, pp 10-12

- Hofster, E. (2006). A practical guide to finishing a Masters, M.B.A or PhD on schedule. Constructing a good dissertation. E.P.E. publishers. pp 107-140
- Kamal, K.M., & Kumar, K.A. (2004). Ethnoveterinary practices among the Konda Reddi of East Godavari District of Andhra Pradesh. *Study of Tribes and Tribals*, 2 (1), pp 37- 44.
- Ladio, A.H., & Lozada, M. (in press). Human ecology, ethnobotany and traditionally practices in rural populations inhabiting the Monte region: resilience and ecological knowledge. *Journal of Arid Environments*, 35, pp 125-140
- Martin, M. (1998). Ethnoveterinary medicine. A 7049 (vol 2)
- Martin, M., McCorkle, C.M., & Mathias, E. (2001). *Ethnoveterinary medicine: An annotated bibliography of community animal healthcare*. United Kingdom: ITDG publishing.
- Masika, P.J., Sonandi, A. & van Averbeke, W. (1997a). Tick control by small scale cattle farmers in the Central Eastern Cape, South Africa. *Journal of the South African veterinary Association*, 68 (2), pp 45 - 48.
- Masika, P.J., Sonandi, A., & van Averbeke, W. (1997b). Perceived causes, diagnosis and treatment of babesiosis and anaplasmosis in cattle by livestock farmers in communal areas of the Central Eastern Cape Province, South Africa. *Journal of the South African Veterinary Association*, 68 (2), pp 40 - 44.
- Masika, P.J., Sonandi, A.S., & van Averbeke, W. (2000). Use of herbal remedies by small cattle farmers to treat livestock diseases. 0038-2809 S.A. *Afri. Vet*, 71 (21), pp 87 – 91.

Masika, P.J., & Afolayan, A.J. (2003). An ethnobotanical study of plants used for the treatment for livestock disease in the Eastern Cape Province, South Africa. *Pharmaceutical Biology Journal*, 41(1), pp 16-21

Matekaire, T., & Bwakura, T.M. (2004). Ethnoveterinary medicine: A potential alternative to orthodox animal health delivery in Zimbabwe. *International Journal of Applied res Veterinary Medicine*, 2 (4), pp 269 - 273.

Mathias, E. (2001). Introducing ethnoveterinary medicine. Retrieved July 10, 2008, from <http://www.ethnovetweb.com>

McCorkle, C.M., & Mathias-Mundy, E. (1992). Ethnoveterinary medicine in Africa. *Journal of the International African Institute*, 62(1), pp 59 - 93.

McCorkle, C.M., Mathias, E., & Schillhorn van Veen, T.W. (Eds.). (1996). *Ethnoveterinary research and development*. London: Intermediate Technology publications.

National Department of Agriculture Directorate Statistics. Retrieved January 5, 2011 from <http://www.samic.co.za>

Nkonkobe IDP Review 2009/10, pp 11-34

Pieroni, A., Giusti, M.E., de Pasquale, C., Lenzarini, C., Censorii, E., Gonzales-Tejero, M.R., et.al. (2006). Circum-Mediterranean culture heritage and medicinal plant uses in traditional animal healthcare: A field survey in eight selected areas within the RBIA Project. *Journal of Ethnobiology and Ethnomedicine*, 2 (16), pp 112-135

Research Interviewing Gillham Open University First Publications 2005

Schillhorn van Veen, T.W. (1997). *Veterinary parastology*, 7(1), pp 177-194.

- Struwig F.W & Stead G.B (2001). Planning, designing and reporting research. Maskew Miller Longman, Cape Town, South Africa, pp 10-20
- Switzer, L. (1993). *Power and resistance in an African Society: the Ciskei Xhosa and the making of South Africa*. Pietermaritzburg, South Africa: University of Natal Press.
- Valentine, G. (2005) Tell me about using Interviews as a Research Methodology. In Flowerdew R.A and Martin D, (Eds) *Methods in Human Geography Guide for Students Doing Research Projects*, Harlow, England, Prentice Hall. pp 110-129.
- Wagener, N.B. (1988). Political development in Ciskei in relation to a federation of States in Southern Africa. Unpublished masters' thesis. University of Fort Hare Alice. (<http://www.ciskei.com>)
- Xingwana (June 5, 2006a). Launch of Royal Agriculture College Fellowship Programme. [www.nda.agric.za/vetweb/Retrieved on 29/07/2008](http://www.nda.agric.za/vetweb/Retrieved%20on%2029/07/2008)  
Retrieved from  
<http://www.info.gov.za/speeches/2006/06060810451002.htm>