

## Use of herbal remedies by small-scale farmers to treat livestock diseases in central Eastern Cape Province, South Africa

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### ABSTRACT

The use of herbal remedies by African farmers in the treatment of livestock diseases was investigated using a range of methods, including group interviews, structured interviews, semi-structured interviews and participant observation. The study was concerned mainly with the 'why' and 'how' of herbal remedy use among African livestock holders farming on communally-owned land in central Eastern Cape Province. We found that the use of herbal remedies was still widespread because these remedies were cheap, locally available and convenient to administer. Farmers also used herbal remedies because they did not have knowledge of conventional remedies or found these too expensive and therefore used herbal remedies as a last resort. Most of the farmers interviewed (73%) had used some form of herbal remedy. A small number of farmers did not use herbal remedies at all. They rejected them because they had bad experiences in the past or because they considered the practice outdated and socially inferior. Often farmers used herbal remedies in combination with conventional ones, but a substantial number relied on herbal remedies only. Farmers obtained herbal remedies principally by preparing their own or by purchasing from herbalists. Different plant parts were used to prepare herbal remedies in the form of infusions, decoctions, powders, pastes, and juices from fresh plant material. Preparations were made from a single plant or from a range of plants. Application of a remedy was by different routes and methods, depending on the perceived cause of the disease condition. Topical applications were used for skin conditions, powders were rubbed into incisions, drenches were common in the treatment of systemic conditions, and drops to treat ears and eyes. We identified several aspects of herbal remedy utilisation that could be subject to improvement, which included the absence of standard dose regimes, the potential toxicity of certain compounds present in plants used, over-exploitation of the plant resource and a lack of interest by the youth to learn the art.

**Key words:** central Eastern Cape Province, herbal remedies, livestock diseases, small-scale farmers.

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### INTRODUCTION

The use of plants in the preparation of medicines is an age-old practice that remains common in many parts of the world<sup>1</sup>. For modern society, traditional plant uses and botanical knowledge are of more than academic or historical interest. They can be linked directly to the utilisation and conservation of plants<sup>13</sup> and continues to play an important role in the development of modern medicines. The art of healing with herbal remedies is empirical, and it is usually transferred directly by oral teaching from master (father) to apprentice (son). Written documentation

of the principles and practices of herbal therapy has been sporadic at best. In some areas, documenting the art and practice of herbalists is urgent because the knowledge is threatened with extinction.

Africans in the Eastern Cape have a long tradition of using plants in treating both human<sup>10</sup>, and animal<sup>14</sup> ailments. However, the effectiveness of the various herbal remedies remains controversial. Historically, cases where herbal remedies were effective in treating livestock diseases in the Eastern Cape have been reported. Smith<sup>18</sup> wrote in the late 19th century that, whenever herds sickened and died, the herbal preparations administered by African herdsmen produced results far in advance of European remedies of that time. A documented case involved the treatment of a horse with a cancer-like growth with *Euphorbia* sp. latex and a

plant of which samples sent to Germany revealed to be a new species of Asclepiad that was later used in the treatment of cancer patients<sup>12</sup>. Pharmacological research has demonstrated that many of the plants used by Africans in the Eastern Cape in the preparation of herbal remedies have some activity. For example, in a study by Fourie *et al.*<sup>6</sup>, at least 31% of 300 plants screened showed marked activity, 21% were considered inactive, and 48% moderately active. On the other hand, Brown<sup>4</sup> was of the opinion that plant remedies should be regarded with scepticism because the efficacy of many had not been proven.

The objective of this study was to record the reasons why contemporary African farmers in the central Eastern Cape Province used herbal remedies to treat livestock ailments, the plants and methods they used in preparing and administering herbal remedies, and the livestock ailments treated with these remedies.

### STUDY AREA AND PROCEDURE

The study was conducted during 1996 in 7 districts in the central part of the Eastern Cape Province, namely Victoria East, Keiskammahok, Middledrift, Zwelitsha, Mdantsane, Peddie and Stutterheim (Fig. 1). Information was collected from African livestock owners who produce cattle on communally managed rangeland and from traditional herbalists.

To conduct our investigation we made use of several methods, both qualitative and quantitative. In the preliminary phase of data collection, participatory research methods (matrix ranking, diagramming and group interviews) were used to elicit information from a total of 138 livestock owners, in 6 villages: Mnqaba-Kulile (Middledrift district), Gqumashe (Victoria East district), Gwaba (Zwelitsha district), Upper Gxulu (Keiskammahok district), Dongwe (Mdantsane district) and at Feni and Fair View (Peddie district), and 8 herbalists from Kubusi (Stutterheim district), Upper Gxulu (Keiskammahok district), Kwezana (Victoria East district) and Fair View (Peddie district). The data obtained during the preliminary phase were used

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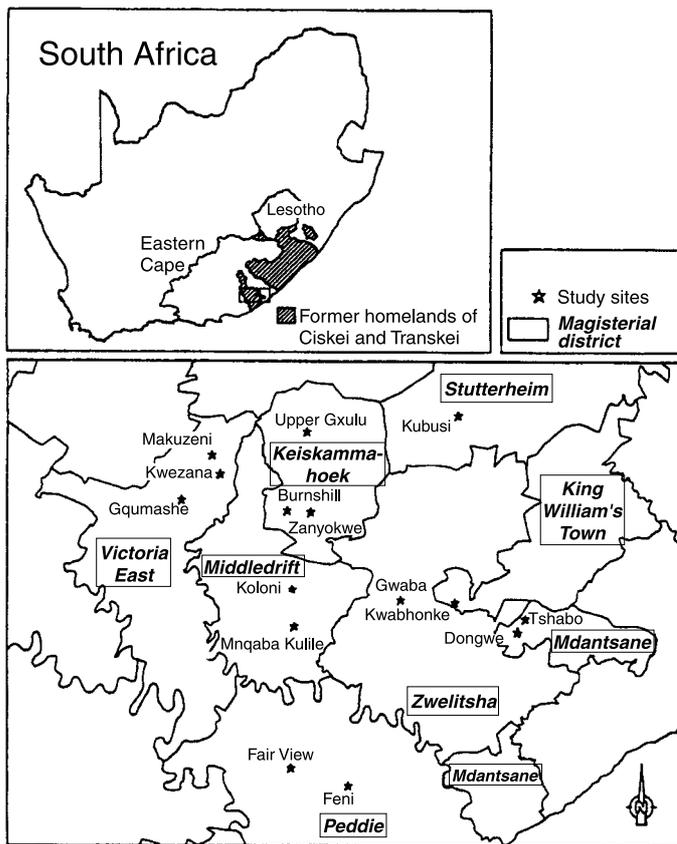


Fig 1: Maps of the Eastern Cape showing the former homelands of Transkei and Ciskei and the districts and locations in which the study was conducted.

to develop a questionnaire, which was pre-tested for content validity and reliability before it was presented to 60 individual livestock-keeping households at 5 sites consisting of 1 or 2 locations. The test sites were Makuzeni and Kwezana (Victoria East), Koloni (Middeldrift district), Zanyokwe and Burnshill (Keiskammahoek district), Kwabhonke (Zwelitsha district) and Tshabo (Mdanstane district). Potential respondents to the questionnaire were identified as being owners of high and densely-woven kraals, using convenience sampling. Experience had shown that such kraals were used almost exclusively for cattle. This enabled us to find out which farmers were still using herbal remedies in the treatment of livestock ailments and why. In order to obtain information on composition and methods of preparation of herbal remedies, survey results were complemented with in-depth semi-structured interviews and participant observation involving selected farmers and herbalists.

## RESULTS AND DISCUSSION

### Contemporary use of herbal remedies

Among African livestock farmers in central Eastern Cape the use of herbal remedies in the treatment of livestock ailments

remains common practice. Sixteen of the 60 responding farmers rejected their use outright. Nine of the 16 listed past stock losses when treating their animals with herbal remedies, herbal remedies being outdated and socially inferior, and 7 indicated lack of knowledge of which plants to use, and 'weakness' of herbal remedies, as the main reasons for their rejection. Among the 44 farmers who used herbal remedies, 20 stated the low cost of these remedies to be their primary reason for using them. Generally, the population of livestock farmers in the region consisted of old men (the average age of responding livestock owners was 58 years), and many of them relied heavily on state transfers in the form of old-age pensions for survival.

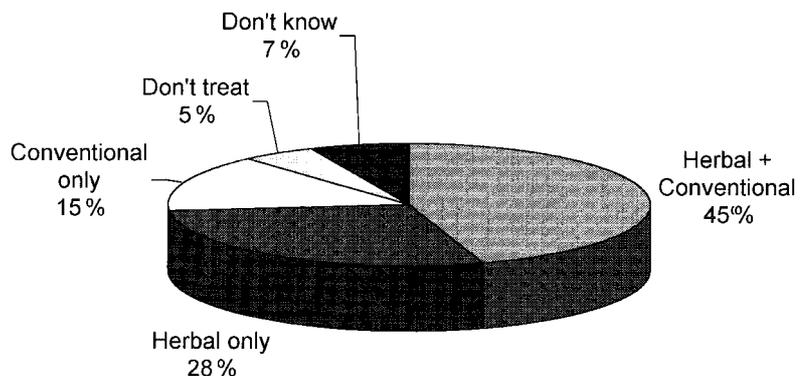


Fig 2: Relative proportions (%) of use of herbal and conventional remedies by small-scale farmers (sample size 60).

Limited financial means being the general condition of livestock farmers, they preferred the use of cheap and locally available herbal remedies instead of expensive conventional medicines available only in urban centres. Four of the 60 farmers stated that herbal remedies were the only option available, because they could not afford to purchase conventional medicines, even if they preferred to do so.

Knowledge of the plants used in the preparation of remedies was not in the public domain. On the contrary, we found that many treated this knowledge as a secret to be guarded closely. However, even when farmers did not have personal knowledge of how to prepare herbal remedies, they indicated that access to the remedies was easy, because in most villages there was a resident herbalist. Farmers also indicated that herbal remedies were convenient to administer, because they did not require the purchase and use of syringes and needles as was often the case with conventional medicines.

Four farmers stated that their lack of knowledge about conventional remedies was a reason why they still use herbal remedies. However, of the 44 responding farmers who used herbal remedies, 27 did so in combination with conventional medicines and only 17 relied solely on herbal preparations (Fig. 2). There was evidence that the choice between herbal and conventional medicines was influenced by the type of ailment. For example, in the treatment of redwater and gallsickness, 2 tick-borne diseases, the use or inclusion of herbal remedies in the treatment was very common. Thirty-nine of the 44 herbal remedy users included herbal remedies in the treatment of these 2 diseases. Twenty-six did so in combination with conventional remedies, while the other 13 relied on herbal remedies alone. This confirmed the results of an earlier study on the treatment of these 2 diseases in the central Eastern Cape<sup>14</sup>.

From our interviews with farmers, we understood that combination of herbal and conventional remedies was generally based on the belief that mixing the 2 types of remedies gave better results than sole use of either. Generally, farmers indicated that they preferred to administer conventional medicines 1st, followed by herbal remedies, but there were contrasting views. Some farmers questioned the benefit of combining the 2 types of remedies, and a few even attributed cases of livestock death to combining them. Surprisingly, 3 of the 60 farmers that were interviewed claimed that they had never treated their livestock for diseases. Successful livestock production in the absence of medical treatment is possible only when specific breeding practices that favour the use of indigenous breeds known to develop immunity against tick-borne diseases and ticks<sup>17</sup>, other ectoparasites, endoparasites and infectious diseases are applied<sup>19</sup>. However, we did not investigate this matter further. A small number of farmers (4 of 60) said that they had no knowledge at all about how to treat livestock diseases. They depended on assistance from neighbours or relatives to treat their livestock.

### Sources of herbal remedies

Farmers obtained herbal remedies in 2 ways, namely by preparing their own, or by purchasing them from herbalists. Forty-eight percent of the 44 farmers using herbal remedies prepared their own (Fig. 3). This indicated that knowledge about herbal remedies used in the treatment of livestock was not limited to herbalists only. Fourteen farmers lacked the knowledge needed to prepare herbal remedies, and relied entirely on remedies prepared by herbalists. The prices charged by herbalists for a preparation varied. At the time of the fieldwork (1996), prices ranged from R5 to R20, but often payment was in kind. Four farmers had limited knowledge of herbal preparations, and preferred to purchase their remedies from herbalists. However, at times they lacked the financial means to do so and

had to resort to making their own preparations. The remaining 5 users of herbal remedies were not willing to disclose the source of their preparations.

### Methods of medicinal preparation

Plant parts used to prepare herbal remedies included bulbs, bark, leaves, fruits, roots and flowers, as also recorded by Hutchings<sup>10,11</sup> and Brown<sup>4</sup>. These plant parts were used individually, or in combination with other plant parts (Table 1). Various methods were used to prepare herbal remedies. One method was preparation of infusions, where the plant parts were soaked in water, and left for some time to allow the active ingredients to infuse into the water. Another method involved the preparation of decoctions whereby the plant material was boiled in water. Other remedies were prepared in a powdered form by grinding dried or roasted plant material. Pastes were made by mashing fresh plant parts. Other medicines consisted of juices obtained by pressing the sap out of fresh leaves, stems, flowers and other plant parts.

Generally, herbal remedies contained material from more than one plant species. Mixing plants was believed to give the medicine 'more power'. Some commonly used multiple-plant remedies are shown in Table 1. On the other hand, some remedies were prepared from single plants. The most common single-plant remedies are summarised in Table 2.

### Routes and mode of application

Routes and mode of application of herbal remedies varied, depending on the perceived diagnosis<sup>16</sup>. Topical application of lotions and leaf/root paste was common practice in the treatment of skin conditions, such as wounds, sores, warts and cuts, as also recorded by Liengme<sup>13</sup> and Mzamane<sup>15</sup>. Remedies were in the form of drops for treatment of ear and eye conditions, but eye conditions were also treated with ointments obtained by the addition of glycerine. Mixes of several powders (*umhlabelo*) were used for treatment of skin and intra-dermal scarring. In some

cases powders were mixed in water, and dispensed as a drench, in a similar way to infusions and decoctions. Preparation of herbal remedies also involved mixing several concoctions of different plants, and plant parts, and at times animal parts were included in these preparations. In cases of spiritually-perceived causes of ailment, a dried plant part or powder was sprinkled into a fire, and the affected animal was made to inhale the smoke.

The perceived cause of a disease determined the type of medication and the route of its administration. Plants with purgative properties were often included in the remedies (Table 1). This needs to be understood in the context of Nguni people's perception that illness is a condition of internal corruption (accumulation of toxins) and 'uncleanliness'<sup>11</sup>. As a result, many herbal medicines were found to seek the cleansing of the inner system of the patient by inducing purging and vomiting. For example, all herbal preparations administered to animals thought to suffer from gallsickness and redwater contained plants to assist the removal of excess bile from the animal's body<sup>14</sup>.

In several instances conventional and herbal treatment of livestock diseases were similar in approach. For example, in conventional treatment of gallsickness, antibiotics are coupled with symptomatic treatment in the form of transfusions<sup>2</sup>, and laxatives (mild purgative)<sup>7</sup>. Herbal gallsickness remedies (Table 1) were found to contain plants with anti-microbial and purgative properties, whose efficacy against gallsickness-causing organisms (*Anaplasma* spp.) is yet to be demonstrated. Other plant constituents of the remedies were added to provide relief from fever and pain. Herbal treatment of retained placenta was by administration of plants with purgative properties, the assumption being that this will cause evacuation of the reproductive system in the same way as purgatives act on the digestive system. Retained placenta was also treated with plants that have anti-microbial activities to protect animals from acquiring metritis. Conventional treatment of retained placenta usually involves a similar approach<sup>27</sup>. Conventional treatment of 3-day stiff-sickness (epidemic fever), a viral disease, characterised by fever, stiffness, and lameness, employs anti-inflammatory drugs<sup>2</sup>. Treatment of this disease with herbal preparations (Table 1), made use of plants that had documented anti-inflammatory activities. In both approaches, anti-inflammatories are administered to reduce muscle stiffness that accompanies this ailment.

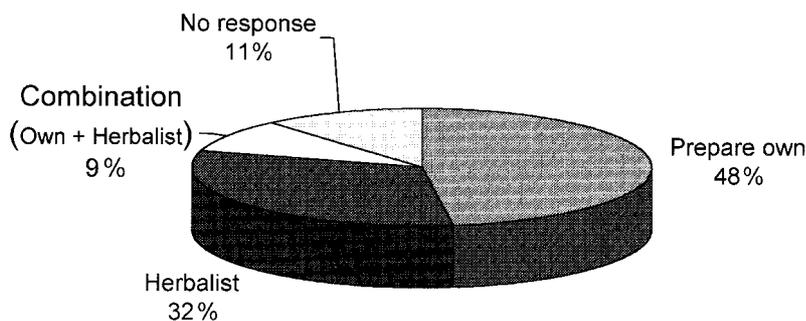


Fig 3: Relative proportions (%) of how small-scale farmers obtain herbal remedies (sample size 44).

**Table 1: Parts and documented activity of plants used in the preparation of multiple-plant remedies by small-scale farmers and herbalists to treat selected livestock ailments.**

Plant combinations treated	Plant part used	Documented activity	Condition
<i>Eucomis undulata</i>	Leaf	Purgative <sup>3</sup>	Anaplasmosis
<i>Kedrostis africana</i>	Bark	Purgative <sup>3,20</sup>	
<i>Plectranthus</i> spp.	Roots	Anti-microbial*	
<i>Hypoxis</i> spp.	Leaf and bulb	Purgative <sup>20</sup>	Anaplasmosis and babesiosis
<i>Salix capensis</i>	Bark	Antipyretic, laxative <sup>20</sup>	
<i>Rhoicissus</i> spp.	Bark	Anti-inflammatory*	3-day stiff-sickness
<i>Kedrostis africana</i>	Bark	Purgative <sup>3,20</sup>	
<i>Teucrium</i> spp.	Leaves	Purgative <sup>20</sup>	Retained placenta
<i>Plectranthus</i> spp.	Bark	Antimicrobial*	

\*T G Fourie, Noristan, pers. comm., 1995.

### Threats to the use of herbal remedies

The information collected indicated that dosing of herbal remedies usually involved 750 ml in cattle and 375 ml in small stock, irrespective of the concentration of the remedies. As a result, farmers applied herbal remedies in variable concentrations, and this, in turn, might provide variable results. On one hand, there was a possibility that application of a standard dose of very concentrated preparations could actually be toxic to animals. On the other hand, some preparations probably were too dilute to be effective, explaining why some farmers considered herbal remedies to be weak and ineffective.

Herbalists and selected farmers identified that commercialisation of herbal remedies had led to city-based herbalists using poorly-skilled people to collect plants in rural areas. According to the herbalists interviewed, this development

had caused over-exploitation of the plant resources. In some cases, the unsustainable exploitation of certain plants had led to the total extirpation of plants that were once found in the region. Examples were cited of individuals who removed up to 50 % of the bark of trees, cut down medicinal trees for firewood and building material, and uprooted young plants when more mature ones were no longer available. Typically, the 1st area to be stripped of useful plants was the land surrounding settlements, requiring collectors to travel longer distances to find certain plants. From our interactions with users we gained the impression that medicinal plant resources in central Eastern Cape were disappearing rapidly, and that there is a real threat that useful plants may become extinct before they can be conserved or known to science.

Over many centuries the Nguni people

in the Eastern Cape accumulated knowledge of medicinal plants and herbal remedies. Traditionally, this knowledge was transferred from generation to generation by oral means. Often the father, but in some cases also the mother, passed on the knowledge to other family members, usually the eldest son. Many of the farmers and herbalists we interviewed complained that contemporary youths were no longer interested in this knowledge, because they considered it to be outdated, backward and of questionable value. Many of those interviewed feared that they would take their knowledge with them when they died and welcomed our study as one way of preventing this from happening. Other authors have stated that indigenous knowledge of herbal remedies is disappearing at an alarming rate worldwide, owing to acculturation<sup>9</sup>. The results of our study suggest that documenting the vast body of indigenous knowledge held by herbal practitioners is an urgent task, because most of the present-day practitioners we spoke to appeared unable to find successors.

### CONCLUSIONS AND RECOMMENDATIONS

Our study showed that the use of herbal remedies in the treatment of livestock ailments was still common practice among small-scale livestock farmers in central Eastern Cape, mainly owing to low cost, convenience and ease of administration. Although the study did not seek to establish the effectiveness of the different remedies, we found evidence that plants used

**Table 2: Preparation, route of administration, dosage and documented activity of single-plant remedies used by small-scale farmers and herbalists to treat some livestock ailments.**

Plant name	Local name (Xhosa)	Condition	Preparation	Route	Dosage	Documented activity
<i>Acacia decurrens</i>	Indywabasi	Hastens oestrus	Bark decoction	<i>per os</i>	Cattle 750 ml	
<i>Aloe ferox</i>	Khalakhulu	Redwater	Juice from leaves	<i>per os</i>	<i>Ad libitum</i> in drinking water of chickens and pigs	Purgative <sup>5</sup>
<i>Combretum cafrum</i>	UmDubi	Intestinal worms	Leaf infusion			
		Conjunctivitis	Squeeze leaves	Eye drop	2 drops twice a day	None
			Drops used			
<i>Cussonia spicata</i>	UmSenge	Gallsickness	Bark decoction	<i>per os</i>	Cattle 750 ml	Anti-inflammatory*
<i>Heteromorpha trifoliata</i>	UmBangandlela	Redwater, Gallsickness	Root infusion	<i>per os</i>	Cattle 750 ml	Anti-inflammatory*
<i>Hibiscus malacospermus</i>	UmSongelwa	Retained afterbirth	Root decoction	<i>per os</i>	Cattle 750 ml	None
		Intestinal worms			Small stock 375 ml	
<i>Hippobromus pauciflorus</i>	Ulathile (uLwathile)	Eye inflammation	Leaf decoction	Eye wash	Twice a day	Analgesic*
<i>Leonotis leonurus</i>	UmFincafincane	Eye inflammation	Squeeze leaf	Eye drop	Once a day	Analgesic*
			Drops used			
<i>Pittosporum viridiflorum</i>	UmKwenkwe	Gallsickness	Bark decoction	<i>per os</i>	Cattle 750 ml	Emetic and enemata <sup>20</sup>
<i>Podocarpus latifolius</i>	UmKoba	Gallsickness	Bark decoction	<i>per os</i>	Cattle 750 ml	None
<i>Rhoicissus</i> spp.	Isaqoni	3-day stiff-sickness	Bark decoction	<i>per os</i>	Cattle 750 ml	Anti-inflammatory*
		Paratyphoid			Small stock 375 ml	
<i>Salix</i> spp.	UmNcunube	Retained placenta	Decoction or infusion	<i>per os</i>	Cattle 750 ml in evening, no grazing until morning	Antipyretic and laxative <sup>20</sup>

\*T G Fourie, Noristan, pers. comm., 1995.

in the preparation of remedies for specific ailments had documented activities that were similar to those of remedies used in the conventional treatment of these ailments. Laboratory and field experiments are indicated to determine the effectiveness of selected remedies and their constituents.

We also found a possible threat of herbal remedies being toxic. Research is needed into optimal dosing and concentrations of herbal remedies, as is the identification of possible side-effects of these remedies. Without such work the threat that animals may be exposed to toxic levels of certain compounds present in plants will remain. Toxins that are introduced may even affect human health, as some toxins are transferred to humans through the consumption of milk and meat.

We identified threats to medicinal plant resources and also to the indigenous knowledge of their utilisation. Conservation of medicinal plants is very important because of the high biodiversity value of these plants<sup>9</sup>. In order to safeguard medicinal plant resources, indiscriminate conversion of natural vegetation into other forms of land use must cease, and the over-exploitation of medicinal plants must be prevented<sup>9</sup>. Users of the plant resource (farmers, collectors and herbalists) and agencies protecting the interests of the public must devise ways to use medicinal plant resources in a more sustainable way. Conservation of plant communities and species is not possible without scientifically documenting what plants are used and for what purposes<sup>8</sup>, and we urge the intensification of such research. There is also a need to conduct agronomic research into growing herbal

plant gardens. Large- or small-scale cultivation of plant species, especially those extensively used in the herbal remedy sector, could reduce the pressure on the plant populations that remain in the wild in addition to providing a source of income. This particular option could receive support from user groups because we encountered some herbalists who were growing selected medicinal plants in their gardens.

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