



# **Agrodok 44**

## **Ethnoveterinary medicine**

a practical approach to the treatment of cattle diseases  
in sub-Saharan Africa

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# Foreword

Ethnoveterinary medicine is the name given to the way in which most livestock keepers in Cameroon and other countries treat animal health problems. Ethnovet practices are important because they are easily available, inexpensive and effective, especially in rural areas where veterinary services are absent or irregular and expensive. At this level, indigenous animal health systems are used for emergency purposes.

Until 1989, ethnovet practices were mostly carried out at individual level, with little coordination. In 1989 the Cameroon Ethnovet Council was founded. This council has about 300 members, all practising ethnovets. Bringing ethnovets together allows members to share ideas and work together, for example creating ethnovet gardens, doing research and gathering knowledge.

This manual has been compiled from information contributed by members of the ethnovet council in Cameroon and pastoralists in Kenya. It describes ethnovet practices in Cameroon and Kenya, but these practices are valid for other East and West African countries as well.

You will find examples of plants and materials used in ethnovet practices, formulations, as well as the dosages and treatments for a selected number of cattle diseases. The examples illustrate how African healers have used locally-available substances to combat animal diseases and other adverse conditions for centuries.

By recording ethnovet knowledge in a book, the knowledge can be shared for posterity. We recommend this book to Africans who do not have access to outside sources of animal healthcare, schools, researchers and research institutes and to information lovers in general.

The Cameroon Ethnovet Council

## **Alhaji Eggi Sule**

Alhaji Eggi Sule is President of the Cameroon Ethnoveterinary Council. Born into a Fulani family in 1942, Alhaji Eggi followed in his father's footsteps, observing and assisting him in the collection, processing, storage and use of medicinal plants for treating animal diseases. Until his death at over 100 years of age, Alhaji Modibo Sheifu was an adviser to the Cameroon Ethnovet Council and principal mentor to his son.



Alhaji Eggi's dynamism as a leader is well known amongst his fellow Ethnovets and the Fulani community at large. He

was one of the first Ethnovets to set up a medicinal plant garden in the early 1990s in an attempt to improve access to medicinal plants and to conserve rare species. His knowledge of medicinal plants reaches beyond the borders of Cameroon as some of his plants come from other countries, particularly Nigeria. It is not uncommon to see Alhaji Eggi on horseback going to assist other herders with animal health problems using ethnovet or basic conventional techniques acquired through paraveterinary training.

## **Acknowledgements**

The idea for this publication was presented to Agromisa in 2002 by the director of Heifer, The Netherlands, Joep van Mierlo. Since that date many activities have been undertaken and different people and organizations have been involved in the creation of this booklet. First we would like to thank all the active EthnoVet member practitioners

of the Cameroon EthnoVet Council who were involved in this publication. It is their knowledge and experience that we now share with all readers and users of this booklet.

The four co-authors work at different levels and in different parts of Africa, but they proved they were able to share their insights and together they found a way to develop and check the contents of this publication.

We would also like to thank the editor, Hanneke Mertens of DIO, the Dutch branch of Vets without Borders, who kept this long process going.

Last but not least we would like to thank Macmillan Education and IIRR from Kenya for their permission to use several illustrations from their publications.

In response to a preliminary restricted edition of 2005 of this book, we received useful comments from many peer readers on the text, tables, illustrations and layout. These comments have been incorporated into this second and improved edition, which will also be translated into at least three languages like all other Agrodok publications. We invite all readers to send their comments on the content and the way they use this book so we can continue to learn from each other.

Wageningen, May 2007

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# 1 Introduction

Ethnoveterinary medicine deals with people's knowledge, skills, methods, practices and beliefs about the care of their animals (McCorkle 1986). Ethnoveterinary knowledge is acquired through practical experience and has traditionally been passed down orally from generation to generation. Widespread interest in documenting and validating ethnoveterinary practices arose in the early 1980s. Since then, several studies have been carried out, many reports written and numerous conferences and workshops held. These activities have saved ethnoveterinary knowledge from extinction: most knowledge resided with elderly community members and disappeared as they died. The introduction of modern practices also made it difficult for the younger generations to appreciate and use the beliefs and practices of their forefathers. Despite recent efforts to promote the use of ethnoveterinary knowledge worldwide, much information is only documented in field reports and scientific publications. Few practical manuals have been written to help animal healthcare workers, farmer leaders and farmers to actively train others in the use of effective and validated ethnoveterinary practices. This manual is intended to fill that void.

The aim of this booklet is to help livestock agents and farmers' leaders integrate and promote the use of ethnoveterinary medicine practices in animal healthcare, focusing on cattle diseases. According to the World Health Organization, at least 80% of people in developing countries depend largely on indigenous practices for the control and treatment of various diseases affecting both human beings and their animals. Ethnoveterinary remedies are accessible, easy to prepare and administer, at little or no cost at all to the farmer. These age-old practice cover every area of veterinary specialization and all livestock species. The ethnoveterinary techniques include treatment and prevention of disease, extensive materia-medica preparation, ecto- and endo-parasite control, fertility enhancement, bone setting and poor mothering management. The materia-medica consists mainly of plants in addition to

other components such as earth and minerals, and animal parts. The potential contributions of a well-developed ethnoveterinary scheme as illustrated by the practices above cannot be overemphasized. Suggestions are provided on how to document, assess and promote effective ethnoveterinary practices. The appendix contains information on further reading, a list of useful contacts and websites, and lists of medical plants and diseases.

# Part I: Ethnoveterinary medicine

Millions of people around the world have an intimate relationship with their livestock. Many people depend on their livestock: animals provide them with food, clothing, labour, fertilizers and cash, and act as a store of wealth and a medium of exchange. Animals are a vital part of culture and in many societies are regarded as equal to humans.

To keep animals healthy, traditional healing practices have been applied for centuries and have been passed down orally from generation to generation. Before the introduction of western medicine, all livestock keepers relied on these traditional practices. According to the World Health Organization, at the moment, at least 80% of people in developing countries depend largely on these practices for the control and treatment of various diseases that affect both animals and humans.

These traditional healing practices are called ‘ethnoveterinary medicine’. In this booklet we often use the abbreviation ‘ethnovet’.

Ethnovet medicine is:

- Accessible
- Easy to prepare and administer
- Inexpensive: low cost or even free
- Part of one’s own traditional culture

Worldwide interest in documenting and validating ethnovet practices arose in the early 1980s, as people started to realize that ethnovet knowledge was disappearing. Elderly community members with this knowledge were dying and the introduction of modern practices made it difficult for the younger generations to appreciate and use the beliefs and practices of their ancestors.

Interest in ethnovet practices has grown recently because these practices are much less prone to drug resistance and have fewer damaging side-effects on the environment than conventional medicine.

## 2 Perception of health and disease

*“To treat four times: the man, the animals, the plants and the soil” – old African saying*

Many African cultures have a holistic perception of health and vitality. In a holistic view all living and non-living beings are connected with each other; nothing exists in isolation. This is also true for traditional healing practices, which are intertwined with the social, cultural and religious aspects of the community where they are found.

In this holistic perception five entities are important:

- Gods and spirits
- Superhuman and ancestral spirits
- Humankind
- Biological forms like animals and plants
- Natural phenomena such as wind and rain

These forces are included to some extent in traditional African healing practices.

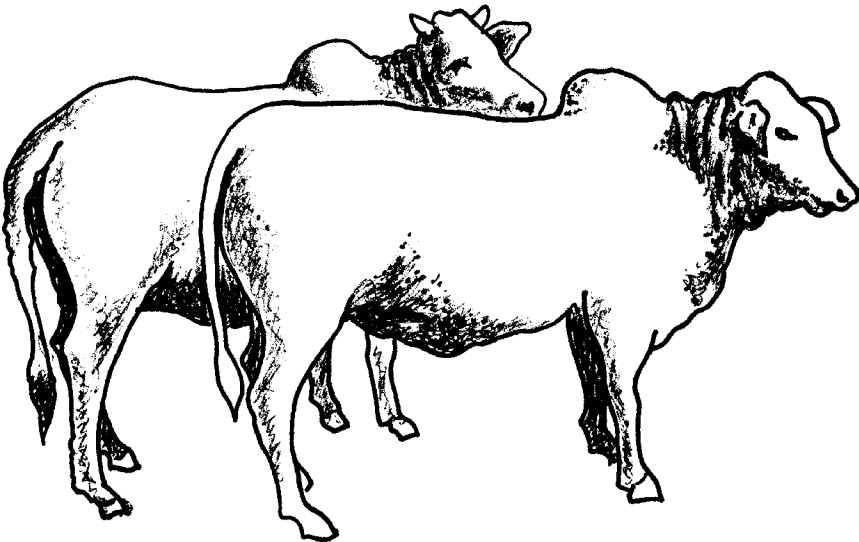
In addition to these entities, ‘vital life forces’ exist, which permeate the whole universe. Gods are the source of these vital forces and have ultimate control over them; the spirits have access to some of them. A few humans, such as traditional doctors, shamans and priests, have the ability to tap, manipulate and use the vital forces. The vital forces may be benevolent or malevolent and can be used in positive or negative ways. Because these forces are essential and present everywhere, they cannot be neglected in healing practices.

Health is considered to be the absence of both disease and intervention by evil spirits. Illness is seen as the result of a disturbance in the physiological equilibrium, and can be caused by natural and supernatural forces. Improper actions by humans cause relationships to be broken, and this allows these forces to cause disease.

### 3 Diagnosis of disease

General signs of health and disease are described below. Most livestock keepers spend a lot of time with their animals and therefore they easily detect early signs of disease.

Traditional African healers take a holistic view of their patients and search for the cause of a disease in the relationship between the patient and their social, natural and spiritual environment. Diagnosis is often carried out by using the senses: taste, touch, smell and sight. It can also involve supernatural methods such as consulting spirits, oracles or divination. Sometimes special animals are used for diagnosing disease.

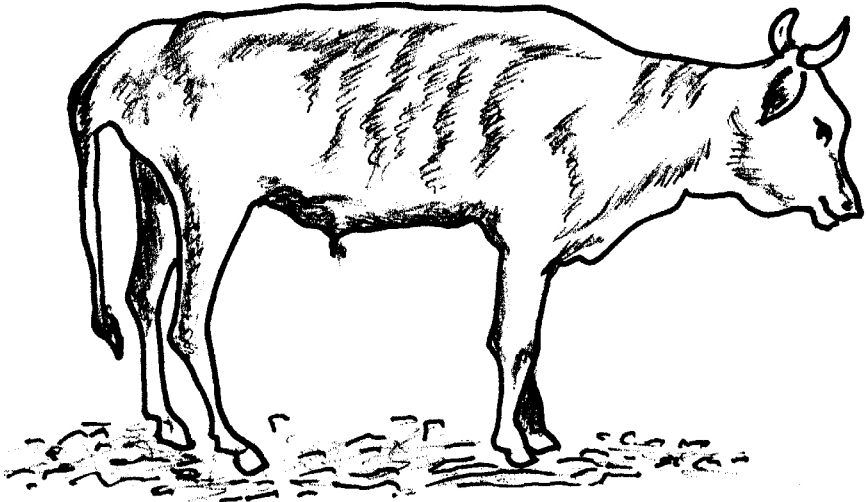


*Figure 1: Cows showing signs of good health*

#### **General signs of health**

- Smooth, shiny coat, smooth skin
- Bright and clear eyes
- Cold and moist muzzle and nostrils
- Breathing not too fast, not too slow and not too loud

- Normal movement, no limping, stiffness or reluctance to move
- Alert animals that are aware of surrounding events
- Good appetite. For example, a cow should spend up to 8 hours per day eating and grazing.
- Cud chewing (rumination) when the animal is resting. For example, a cow should spend up to 8 hours a day chewing her cud.
- Warm ears and feet
- No big changes in milk production unless feeding has been changed
- Normal appearance and colour of the milk
- Normal colour, consistency and amount of faeces and urine
- Regular reproductive heat periods in mature, non-pregnant females



*Figure 2: Cow showing signs of disease*

### **General signs of disease**

- Rough coat
- Any abnormal swellings or lumps on the body, skin or udder
- Eyes red, dull in appearance or running (lacrimation)
- Dry muzzle and nostrils
- Loud, rapid breathing or coughing
- Lameness, stiffness, reluctance to move

- Dull, lethargic attitude, no response to sharp sounds or quick movements
- Refusal to eat or drink
- Lack of normal cud chewing (rumination)
- High or low body temperature
- Rapid drop in milk yield
- Abnormal colour or thickening of milk
- Diarrhoea or constipation; bad smell, change in colour or consistency of faeces or urine; blood in faeces or urine
- Lack of normal reproductive heat periods in non-pregnant females
- Persistent coughing, hiccupping, shivering, heavy breathing or other unusual behaviour
- The animal may be over-excited, e.g. in the case of rabies

## 4 Ethnovet materia medica

### **Natural products and spiritual forces**

Traditional African healing practices make use of three important elements:

- application of natural products
- appeal to spiritual forces
- manipulation and surgery

Natural products used are:

- medicinal plants and by-products
- edible earth and minerals
- parts and products of animals
- other ingredients

### *Plants*

Plants are the most commonly used ingredients in the preparation of ethnovet medicines. All parts of the plants, including leaves, bark, fruits, flowers, seeds are used in medicinal preparations. At present over 35,000 plants are known to have healing properties.

### *Edible earth and minerals*

Edible earth, especially from termite and ant hills, is commonly used in ethnovet preparations. Limestone is a commonly used edible type of earth used in decoctions and concoctions.

### *Parts and products of animals*

Parts and products of animals, such as skin and hides, bones, milk, butter and even urine and dung are ingredients of ethnovet medicines.

### *Other ingredients*

Honey, vegetable oils and butters, and salt are used for their healing and preservative properties.

### *Spiritual forces*

Spiritual forces may be invoked by prayers during rituals. Rituals are important in the interaction between African livestock keepers and their animals. To ensure that the herd thrives, animal husbandry is strictly ritualized. Many different rituals are performed, such as invoking the gods through dance or the sacrifice of an animal. Other rituals involve writing a phrase from the Koran on a slate and washing it in a calabash. The liquid is then used to drench the sick animal.

Rituals, incantations and prayers are sometimes connected with particular plants and special ingredients. The collection and use of some medical plants may involve special practices like:

- Some plants are only collected and processed on special days at particular time, e.g. at sunrise on Sunday.
- Before and after harvesting particular plants, traditional healers will not speak to anybody until they have finished their activity.
- Specific rituals are performed when hunting or harvesting certain plants.
- There may be other requirements, such as a special initiation ceremony, a sacrifice or being naked.

### **Collection times of plants**

Ethnovet medicinal plants must be collected at the right time and in the right way. Knowledge is necessary of seasonal changes in flowering, blossom peaks and when plants yield their highest healing potential. Generally the best times to harvest are during the beginning or end of the dry season: at that time the weather is favourable and most plants start to blossom.

Harvesting is usually best done on a warm sunny morning, because the plants have to be dry when they are harvested. Medicinal plants must never be cut when the days are wet or when they are covered with rain or moisture. These plants will be affected by mould, which causes changes in flavour or scent and may affect the efficacy of the plants.

Underground storage organs like bulbs, rhizomes and tuberous roots should be collected before flowering. Plants should be harvested in such a way that the mother plant is not killed after collection. For example: woody plants should be cut about 2cm above the base. This allows the plant to form new growth. Reproductive parts of the plant require different harvesting methods. Tender leaves and flowering shoots must be picked by hand; seeds should be harvested when the fruit is fully ripe or before the seeds are shed.

Many plants are fast becoming extinct as a result of human population increases, deforestation, unsustainable harvesting methods and other environmental problems. Therefore, ethnobotanical medicines should be collected with care and in a sustainable way.

### **Handling harvested plants**

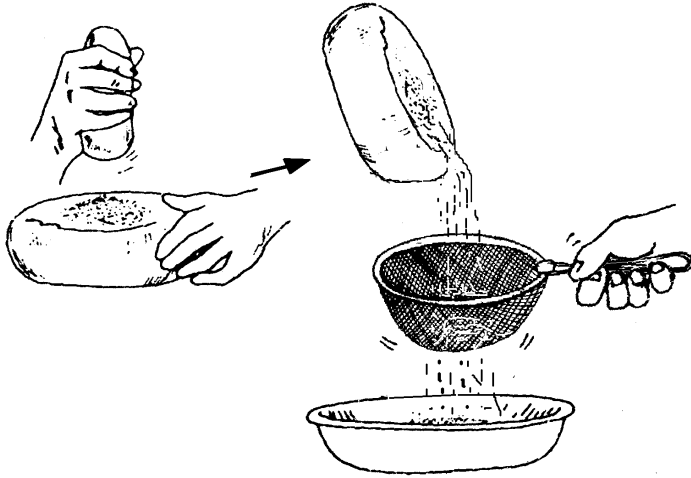
Medicinal plants must be handled very carefully after harvesting so that the active ingredients and chemical compounds that are responsible for their therapeutic activities are not lost. After harvesting, plant parts should not be exposed to the direct sun as this will cause rapid drying.

### **Ethnobotanical preparations**

The most common forms of ethnobotanical preparations are listed below.

#### *Powder*

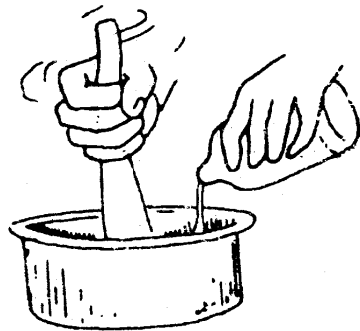
Barks, roots, leaves and entire plants are dried and pounded until they form a powder. If desired, the powder is sieved to make it finer. The powder can be fed to sick animals directly, mixed in salt or used in the preparation of decoctions and poultices.



*Figure 3: Making a powder*

#### *Poultice*

Adding just enough hot water to plant material, usually in powder form, makes a poultice or a paste. The paste is then applied on the affected area. Poultices are used on inflamed areas, bruises or to soothe irritations, as well as to withdraw pus, toxins and particles imbedded in the skin.



*Figure 4: Making a poultice*

#### *Ointment and cream*

An ointment is made by mixing finely powdered plant materials or extracts with butter or cooking oil. The ointment is applied to affected areas such as rashes or sprains.

### *Decoction*

This is one of the most commonly used preparations. One or several plant materials are chopped into small sizes and added to water. The water is boiled for 15-30 minutes. Use only clay or steel pots; no aluminium utensils should be used for this.

### *Infusion*

An infusion is made in the same way as tea. Boiling water is poured into a container in which powder or chopped plant parts have been put. The container is covered for 10-20 minutes until the medicinal components have been extracted. The water is filtered and given to the animal, cooled or warm.

### *Cold water extract*

Some active ingredients are easily destroyed by heat. Therefore a cold water extract can be made by soaking leaves and roots (cut in small pieces and pounded in a mortar) overnight in water. After filtering, the cold extract can be administered. The extract should be prepared fresh daily.

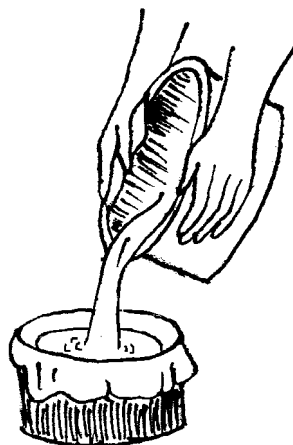


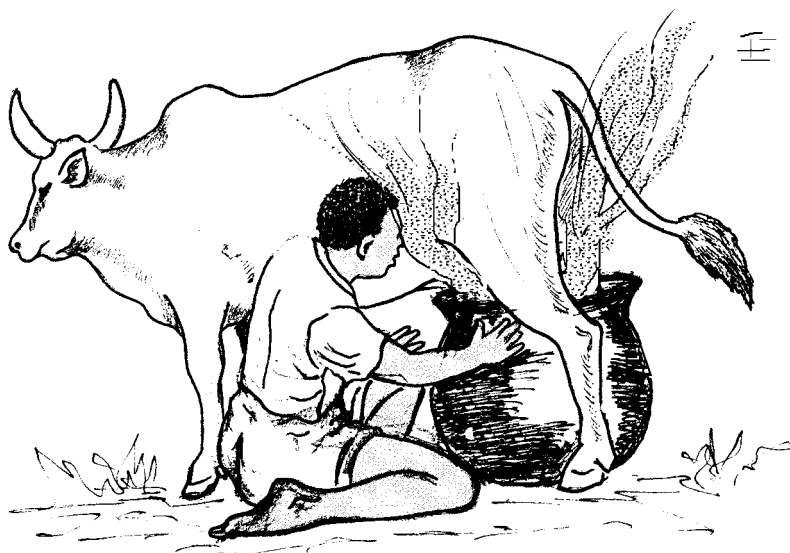
Figure 5: Filtering water

### *Tincture*

Mixing water (70-80%), alcohol (20-30%) and plant materials makes a tincture. The plant materials are left in the mixture for one to several days until the desired medicinal properties have been extracted. The tincture is filtered and used internally or externally .

### *Fumigation*

Dry or wet plant material is put in the fire and the smoke engulfs the animal. Fumigants are commonly used against ectoparasites such as tsetse flies.



*Figure 6: Fumigation*

### **Storage methods**

Two important ways of preserving ethnovet medicines are storing them in a dry form or in a liquid form as a decoction. If all the necessary steps have been taken for harvesting and processing, and the medicines are stored in the right way, dry medicines will remain active for several years. Liquid forms do not last for such a long time, although tinctures can be stored for at least 6 months.

#### *Dry form*

Ethnovet medicines based on plants are best stored in powder form. Adequately dried materials can be stored without further processing or can be ground into a powder. They should be put in a clean, dry cloth or a container with a tight cover. In this way they will remain active for two years. After pounding, fresh plant materials can be mixed with honey and stored in a clean container. Medicine stored in this way will remain active for a long time.

The type of container depends on the cultural background of the ethnobotanist and farmer. Commonly used containers are calabash, clay pots, Indian bamboo, plastic tins and bottles, glass bottles, animal horns, animal skin, pans, cloth materials, and polyethylene and paper bags. Containers must be closed tightly to avoid contamination of the contents and loss of activity.

### *Liquid form*

Decoctions can be preserved for a few months; tinctures can be stored for at least 6 months. To keep liquids for an extended time, it is very important to:

- Clean and boil the medicinal ingredients and the containers (pasteurisation);
- Use clean containers with good covers;
- Suspend containers in clean and dry places;
- Add preservatives such as castor oil or limestone.

### **Storage locations**

Ethnobotanical medicines should be stored in dry locations. They must not be kept on the ground but suspended inside the house, away from other people. Clay pots can be suspended by using a rope or placed above the ground on a three-stone stand.

### **Preservatives**

Preservatives are used to store ethnobotanical medicines longer. Some preservatives have their own medicinal properties.

Preservatives most commonly used by ethnobotanists include:

#### *Alligator pepper*

Alligator pepper (*Aframomum melegueta*) can activate ethnobotanical medicines and also act as a preservative.

#### *Butter oil*

Before powders are put in the storage containers, they can be thoroughly mixed with some melted butter. The butter should just be

enough to wet the powder without forming a paste. In general one part butter should be mixed with 10 parts powder by weight.

#### *Fat from cattle*

Powder from ethnobotanical plants can be preserved by mixing it with fat. Fat also helps plants to burn well for fumigation.

#### *Ginger*

Materials mixed with ginger can be stored longer.

#### *Honey*

Honey acts as a major medicinal component and preservative in fresh residues, decoctions and powders.

#### *Limestone*

Added to mixtures or decoctions, limestone helps to break down plant- and other ethnobotanical materials to release the active ingredients, making the medicinal drug more effective.

#### *Vegetable oils and butters*

Vegetable oils and butters can be added to a powder or decoction and then boiled with limestone. The limestone helps to mix the fat with the liquid.

#### *Wax from the *Daniella oliveri* plant*

The wax of this plant is burnt together with the medicinal powder in a container.

### **Traditional ways of measuring**

The most commonly used implements for measuring quantities in ethnobotanical medicine are calabash dishes and spoons, bottles, kettles, pans, clay pots, hand palms and finger pinches.

## 5 Administration methods

Ethnovet medicines can be administered in many different ways. Some of the most common methods of drug administration are described below.



*Figure 7: Drenching a cow*

### **Drenching**

Drenching is the oral administration of ethnovet drugs in a liquid form. After measuring the liquid, it is given to the animals using bottles, kettles or calabash spoons. This is easily done by raising the animal's mouth upwards and inserting the bottle or spoon sideways into the mouth. Inserting two fingers on the other side of the mouth to press the tongue downwards, helps to hold the mouth open. Pour the liquid gently at intervals, without removing the drenching instrument, to give the animal enough time to swallow.

## **Salt and mineral lick**

Ethnovet powders are usually administered in the form of salt and mineral licks. The medicines are mixed with salt or minerals, sand and cement in different proportions depending on the formula of the lick stone. Animals ingest the medicines by licking the lick stone.

## **Bath**

Washing the animal with a decoction, an infusion or another non-plant mixture is a common and widely used ethnovet method. It is used in the treatment of ectoparasites such as lice, and some infectious diseases such as heartwater (cowdriosis) and haemorrhagic septicaemia.

## **Fumigation**

Fumigation is a very common practice in ethnovet medicine. Dry powders or dry coarse materials are burnt in clay pots or on the ground so that the smoke engulfs the sick animal or the entire herd. Organisms on the animal, such as flies, mosquitoes and ticks are killed by the poisonous gas or smoke.

## **Spray**

Although spraying is not a very common practice in ethnovet medicine, it is sometimes applied by experienced ethnovets.

## **Injection**

Injections are not often used in ethnovet medicine. Only a few very experienced ethnovet healers administer ethnovet drugs by injection, mostly in the muscles.

## **Topical application**

Ethnoveterinary remedies in the form of paste or powder are often used to treat skin lesions and eye diseases. A paste is made by grinding the ingredients to a powder and adding a small amount of water. A powdered remedy can be applied directly to the affected area, e.g. to treat wounds or eye problems.

## 6 Validation of ethnoveterinary practices and medicines

Ethnovet practices have traditionally been passed down orally from generation to generation. Lack of documentation of ethnovet practices makes it difficult to know how long a particular remedy has been in use and whether the preparation or administration method has ever been altered or not. Unlike conventional medicines, which are only approved for public use after carefully planned laboratory research followed by field trials on animals both for toxicology and effectiveness, ethnovet medicines depend only on historical evidence of use as proof of safety and effectiveness.

Changing environmental factors have in some cases led to some important medicinal plants becoming scarce and to the emergence of new diseases. These developments have led to pressure on ethnovet treatments from time to time. In the face of these challenges, local cattle owners have often used the following criteria to validate the safety and effectiveness of ethnovet medicines:

### *Evidence of historical use*

Evidence based on historical use of a treatment is the most widely used criterion to determine whether a treatment is safe and effective or not. In most cases, ethnovets will try to find out how many other cattle owners use the same treatment: the more users, the higher the credibility of the treatment.

### *Farmer-run trials*

Farmers sometimes carry out trials in an attempt to find a treatment for a particular disease problem that might either not have a treatment at all or where current treatment might not be very effective. These trials are also used to determine the safety of a new remedy and are often carried out on dogs where safety is in doubt.

### *Self-medication by domestic or wild animals*

Ethnovets who observe their animals regularly for unusual behaviour often learn a lot from the animals themselves. Animals sometimes know which herbs to feed on when they have certain health problems. Some wild animals also self medicate and ethnovets that are also hunters can observe their behaviour. Alternatively, this information is brought back by hunters and shared with others.

### *Doctrine of signatures*

The doctrine of signatures is an ancient philosophy that holds that plants bearing parts that resemble human or animal body parts have useful relevancy to those parts. For example, plants that bear a lot of fruits are thought to have agents that promote fertility, plants that exude milk-like substances are thought to be able to improve milk yield, plants that produce red liquids are thought to be able to enhance blood, etc.

### *Documented research findings*

In the last few decades, there has been a rush to document ethnovet and other traditional remedies. Researchers have been surprised to discover that many of the ethnovet remedies used in Africa are also used in South America or Asia. Sometimes, the same plant remedy is used for different treatments. Whether structured conventional trials have been carried out or not on their effectiveness, these documented treatments can easily be accepted as alternatives to unavailable or high-cost conventional treatments.

## **Ayurveda and similarities to the practical approach to the treatment of cattle diseases in East and West Africa**

**By Dr. M.N.B. Nair**

**Foundation for Revitalisation of Local Health Traditions (FRLHT)  
Bangalore, India**

We have examined this publication on African traditional Ethnovet Practices at from the Ayurvedic point of view. Ayurveda is one of the most popular and widely practised traditional systems of medicine in India. The worldview of African Ethnoveterinarians is very similar to that of Ayurveda practitioners. The perception of treatment and diseases and diagnosis of disease parallel Ayurvedic understanding.

Of the 46 plants listed for their therapeutic uses at the back of this booklet, 15 are available in India and are used in similar ways in the Ayurvedic system.

Ayurveda has a separate branch of veterinary medicine, known as Mruga Ayurveda (Mruga means animals). In addition, the ethnoveterinary community in India has a strong tradition of veterinary practices, which have also not been fully documented. In this respect, we welcome this publication on ethnoveterinary practices in Africa.

One of the basic principles of Ayurveda as propounded by Acharya Vagbhat of 9th century A.D. is:

“...every geographical area is blessed by nature with plants and other natural resources needed for inhabitants of that area”.

# 7 Ethnoveterinary and conventional medicine

*“All cultures seek to understand nature, but there can be differences depending on the specific ways people use their senses and mind. It is ethnocentric to think that only one particular cultural experience is possible. Understanding the cosmovision of different cultures is a major challenge for the future”.*

## **Ethnovet medicine**

The advantages of ethnovet medicine:

- accessible
- easy to prepare and administer
- costs very little or nothing at all
- part of one’s own culture
- environmentally friendly

Ethnovet medicine also has drawbacks:

- risk of incorrect diagnosis
- imprecise dosages
- low hygiene standards
- secrecy of some healing practices
- absence of written records
- some treatments may be ineffective or harmful

## **Conventional medicine**

In the conventional western perception, health is defined as the absence of disease. Diseases are caused by micro-organisms and chemical imbalance, while genetic factors, nutritional deficiencies, pollution and stress also play a role. Conventional medicine is disease oriented: it focuses on the symptoms and causes of the disease and does not look at the living being in its totality, or in the context of its environment.

Many aspects of conventional medicine are not sustainable, for example:

- drug-resistance
- serious environmental effects
- conventional medicine is not accessible for the majority of poor rural people

### **Ethnovet and conventional medicine**

In many African societies both conventional and traditional healing practices exist alongside each other. Normally people consult both systems; the availability of a conventional veterinarian and the disease concerned are factors which determine whether an ethnovet or conventional treatment is chosen. For fractures and fertility problems, traditional practices are generally preferred. Respiratory diseases and fevers are believed to be best treated by conventional medicine. Infectious epidemic diseases can best be prevented by using conventional vaccines.

Although they are based on different points of view, both conventional, the intention of both western and traditional African healing practices is to cure patients and both have proved that they are able to do that. Both systems have their advantages and disadvantages. To reap the benefits of both health systems, a balance between the two has to be found. This still requires many steps:

- More research into the capacities of ethnovet medicine has to be done and the findings have to be documented;
- The negative attitude of conventional practitioners and NGOs towards ethnovet medicine has to change;
- Vets have to be trained in both conventional as well as ethnovet medicine;
- The indigenous knowledge of people and their animal breeds and plants have to be protected against bio-piracy as a result of intellectual property rights being claimed.

# Part II: Practical applications of ethnvet medicine

A number of diseases affecting cattle and their ethnvet treatments are described in the second part of this manual. It is by no means a complete list of all cattle diseases. Conventional treatments are not described, but should not be neglected: we encourage a balanced use of both ethnvet as conventional medicine.

## Languages

Diseases are described in the most common languages of East and West Africa: English, Fulfulde and Swahili. The Fulfulde and Swahili names are given for each disease in this chapter and in Appendix 1, at the end of this manual. Plants are referred to by their scientific name in this chapter; Appendix 1 contains the plant names in English, Fulfulde and Swahili.

## Abbreviations

The following abbreviations are used:

- {B} = Bark
- {CK} = Cake
- {F} = Fruit
- {L} = Leaf
- {N} = Nut
- {R} = Root
- {SD} = Seed
- {ST} = Stem
- {T} = Tuber
- {WP} = Whole plant

## 8 Eye diseases and problems

### 8.1 Pinkeye (keratoconjunctivitis)

Nyawu-gitte (Fulfulde), Jicho jekundu / Ugonjwa wa macho (Swahili)

This infectious eye disease affects cattle mostly in dry weather and dusty conditions. A risk factor is keeping animals in close confinement. Young animals are affected most frequently.

#### *Signs*

- one or two eyes are affected
- discharge from the eye, may be clear or grey/white
- the mucous membranes under the eyelid become red
- the animal avoids strong sunlight and blinks a lot
- a white spot may develop in the eye

#### *Cause*

Ethnovet: injuries, dust particles and germs

Conventional: bacteria, carried by flies and dust particles

#### *Treatment*

Materials:

- |        |               |
|--------|---------------|
| ➤ Milk | 250 ml        |
| ➤ Salt | 2 tablespoons |

Dissolve 2 tablespoons of salt in 1 cup (250ml) of fresh milk. Milk alone can also be used, especially if it is the first milk after birth (parturition).

Using a clean syringe (without a needle) wash the affected eye with the milk solution twice a day until the animal recovers.

## 8.2 Worms in the eye (thelazia)

Gilji-gitte (Fulfulde), Minyoo kwa jicho (Swahili)

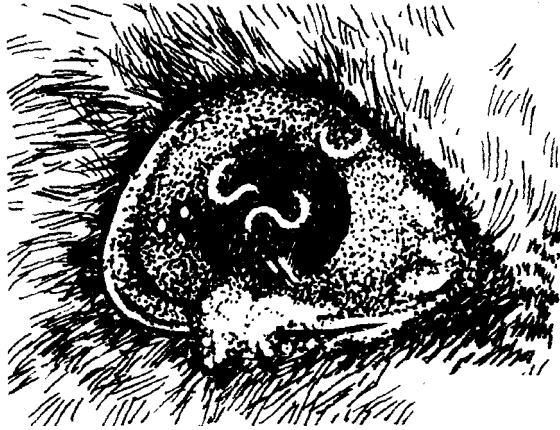


Figure 8: Worms in the eye

### Signs

➤ thin, white worms can be seen on the surface of the eye

### Cause

Ethnovet: eye worms are carried into the eye by dust, flies, worms or ticks

Conventional: parasites carried by flies, or from one animal to the other

### Treatment

Material:

➤ *Pilostigma thonningii* {B}      0.25 kg

Pound or chew the fresh fibrous bark of *Pilostigma thonningii*. Squeeze it and collect the liquid. Apply some of the liquid directly to the eye daily, continue for 3-7 days.

## 8.3 Poison in the eye

Tooke nder gitte (Fulfulde), Sumu kwa jicho (Swahili)

### *Signs*

- tears from the eye, which may be slimy or pus-like
- swollen red eye
- partially or totally closed eye
- animal is restless and shakes head frequently
- a white spot may develop later in the eye

### *Treatment*

Material:

- Fresh milk 3-5 drops

Using a syringe or your own mouth, put 3-5 drops of fresh milk into the eye every 2-3 hours until the pain disappears. The use of the syringe is highly recommended, as the syringe flushes the eye better.

# 9 Skin diseases and problems

## 9.1 Ectoparasites

Ectoparasites are organisms which live on the outside of another animal and take their nourishment at the expense of the host. Examples include varieties of flies, ticks, mites and lice. Many ectoparasites act as vectors and transmit diseases from one animal to another.

### *Signs*

- animal will scratch, rub, bite or lick the infested area
- rough hair coat
- local irritation and discomfort, leading to weight loss and lower production
- hair loss, wounds and bruises in severe cases
- wasting, restlessness and anaemia in extreme cases
- skin may become rough and scaly

### **Flies**

Bokkaje (flies), sufi (mosquitoes), buubi (tsetse flies) (Fulfulde), Nzi (Swahili)

Flies irritate the animals, suck their blood and can transmit diseases such as trypanosomiasis (sleeping sickness).

### *Treatment*

Materials:

- *Azadirachta indica* {SD}                      2 kg
- Water                                              250 ml

Pound the seeds of *Azadirachta indica* until they turn brown and sticky. Add a little water to make a paste. Squeeze the paste to remove all the oil out of the seeds.

Rub the oil on the animals to repel flies and other biting insects.

## Lice

Tendi (Fulfulde), Chawa (Swahili)

Lice are parasites which live on all species of animals, especially on young and weak or sick animals.

### Signs

- the animal scratches itself, is restless and irritated
- a calf may lick its coat, resulting in hairballs in its stomach, in turn causing digestion problems
- the animal is weak and produces less milk
- lice or nits (eggs of lice) can be seen, often at the base of the tail, neck and ears

### Cause

Ethnovet: poor hygiene and malnutrition

Conventional: dirty housing conditions of the animals, or the animals themselves are dirty. Lice are easily spread from one animal to another

### Treatment

Materials:

- |                                |      |
|--------------------------------|------|
| ➤ <i>Tephrosia vogelii</i> {L} | 5 kg |
| ➤ Wood ash                     | 2 kg |
| ➤ Cow urine                    | 1 l  |
| ➤ Water                        | 3 l  |

Collect and pound 5 kg *Tephrosia vogelii* leaves. Soak 2 kg wood ash in 3 litres of water and stir thoroughly. Filter and mix the pounded *Tephrosia vogelii* with the wood ash solution. Filter it and add 1 litre of urine. Bathe or spray the affected animal with the solution. Parasites will die within one day.

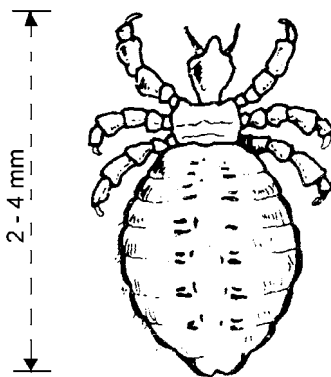


Figure 9: Picture of a lice

## Ticks

Kooti (Fulfulde), Kupe (Swahili)

Ticks are vectors of several diseases including heartwater, anaplasmosis and babesiosis. The types and number of ticks on the animals vary during the year.

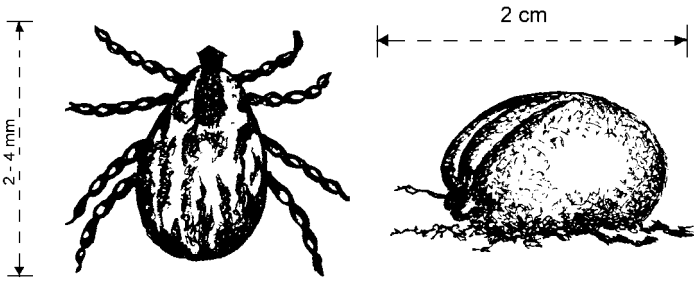


Figure 10: Pictures of a tick

### Signs

- ticks, mostly inside the ears, at base of tail and neck, between the legs
- local irritation and discomfort leading to weakness, weight loss and lower milk production
- pale colour of mucous membranes (anaemia)

### Treatment 1

Material:

- *Adenium obesum* {WP}                      1 plant

Crush *Adenium obesum* and mix it in water. Wash the affected animals with the preparation.

Caution: *Adenium obesum* is potentially very poisonous and must be handled with care. Avoid direct contact by always using gloves or covering your hands with plastic bags when handling it.

### *Treatment 2, for treating ticks and lice*

Materials:

- *Psorospermum febrifugum* {B} 1 kg
- *Tephrosia vogelii* {L} 3 kg
- *Nicotinia tabacum* {L} 2 kg
- Water 10 l

Pound the fresh plant parts and soak in 10 litres of hot water while stirring thoroughly until the colour changes. Filter. Spray the affected animals with the mixture. Adjust the quantity of material, according to the number of animals to be sprayed.

### *Treatment 3, for treating ticks and lice*

Materials:

- *Nicotinia tabacum* {L} 250 g
- Soap 250 g
- Water 4 L

Boil 250 grams of *Nicotinia tabacum* leaves in 4 litres of water. Add just enough soap to cause a little foaming. Wash or spray the affected animals with this liquid.

## **Ringworm**

Sanikoje (Fulfulde), Mashilingi (Swahili)

Ringworm manifests itself especially in calves. Healthy calves can catch the disease if they come in direct contact with infected animals.

### *Signs*

- round patches of hair loss
- patches spread slowly all over the body
- the head, neck and hindquarters are especially affected
- animal is restless and scratches itself

NOTE! Humans can get ringworm too. Do not touch the patches with your hands and wear gloves or plastic bags when you apply medicine

on the patches. Wash your hands well after being in contact with the affected animals.

*Cause*

Ethnovet: not known or mentioned anywhere

Conventional: fungus



*Figure 11: Animals affected by ringworm suffer from itch*

### *Treatment 1*

Materials:

- *Bridelia ferruginea* {B}                    2 kg
- Limestone                                    handful
- Water                                            3 l

Collect 2 kg of *Bridelia ferruginea* bark. Prepare a decoction by adding the bark to 3 litres of boiling water, which contains one handful of limestone. Boil the mixture for 10 minutes, cool and filter.

Drench animal with 0.5 litres twice a day for 1 week.

### *Treatment 2*

Materials:

- *Phaseolus vulgaris* {SD}                0.5 kg
- *Hemizygia welwitschii* {L}            0.5 kg
- Honey                                         0.5 kg
- Water                                         2 l

Collect 0.5 kg of *Phaseolus vulgaris* seeds and *Hemizygia welwitschii* leaves. Add these plants and 0.5 kg honey to 2 litres of water and boil for 30 minutes; cool and filter.

Drench each calf with 0.5 litres each morning and evening for 1 week. Animals will recover within 5-7 days.

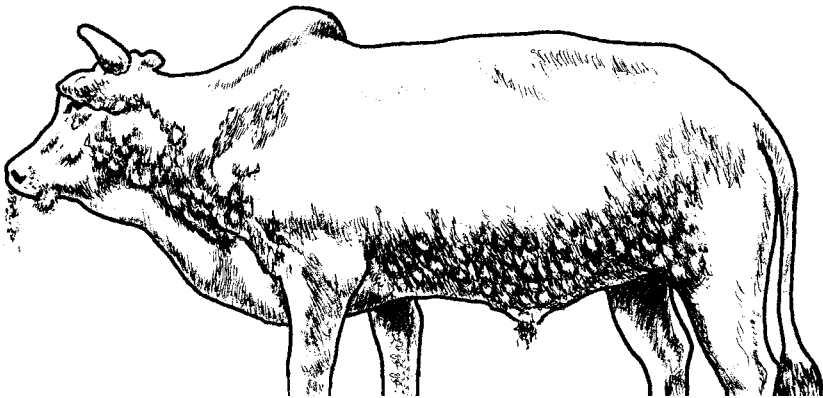
## 9.2 Streptothricosis (dermatophilosis)

Ngunya (Fulfulde), Upele kwa ngosi (Swahili)

This is a skin disease of cattle, especially prevalent in young animals. It is of economic importance because of the damage to the hide, loss of condition in chronically affected animals and occasional death.

### *Signs*

- skin lesions, mostly on the back, shoulder and hindquarters, around the ears, groin and between the legs. Papules, which leak serum, appear and form crusts
- a raw bleeding surface, beneath the crusts
- a seriously affected animal is emaciated and weak
- the end of humid and hot weather conditions often results in spontaneous recovery. However the disease may return again the following wet season. The severity of the disease depends on age, sex and breed of the animal.



*Figure 12: Skin lesions caused by Streptothricosis*

## Cause

Ethnovet: germs which are considered to be evil spirits

Conventional: bacteria. Factors such as prolonged wetting by rain, high humidity, high temperatures and various ectoparasites like ticks reduce the natural barriers of the skin and are risk factors in developing streptothricosis.

## Treatment 1

Materials:

- *Khaya anthoteca* {B} 1 kg
- *Psorospermum febrifugum* {B} 1 kg
- *Ricinus communis* {SD} 0.5 kg
- Limestone handful
- Butter 2 kg

Pound 1 kg each of the bark of *Khaya anthoteca* and *Psorospermum febrifugum* and add one handful of limestone powder. Roast 0.5 kg of *Ricinus communis* seeds and grind them to powder. Mix the powders and add butter to make a paste.

Remove any hard crusts from the skin of the affected animal. Apply the paste on the affected area daily for 3-7 days, depending on the severity of the infection. New crusts may appear but will fall off. New hair will grow on treated areas in about 2 weeks.

## Treatment 2

Material:

- *Solanum aculeastrum* {F} 5 or more fruits, depending on the surface area affected.

Roast the fruits of *Solanum aculeastrum* and slice them into halves.

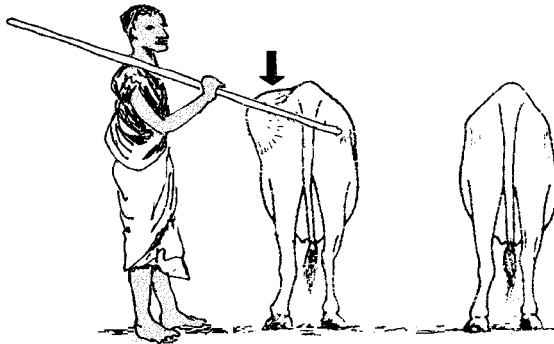
Tether the infected animal and remove the crusts before treatment. Thoroughly scrub the affected area for 1-3 days with the fruits. The crusts will fall off and new hair will start growing on the affected area.

# 10 Digestive diseases and problems

## 10.1 Bloat (tympany)

Guttel (Fulfulde) Kujaa tumbo / Kuvimba kwa tumbo (Swahili)

Bloat is the name given to the condition when the animal has too much gas and fluid in its stomach. Bloat is a life-threatening problem.



*Figure 13: The left cow is suffering from bloat: the abdomen is large on the left side*

### Signs

- the abdomen is large on the left side
- the animal stops eating and chewing cud
- the animal tries to urinate and defecate frequently
- difficult breathing
- protrusion of the tongue and extension of the head

### Cause

Ethnovet: eating in fresh succulent pastures

Conventional: after eating dry feed and there is no water or when the animal eats very succulent pastures high in nitrogenous compounds. The rumen compartment fills with gas and the animal suffocates from pressure on the chest.

### *Treatment 1*

Materials:

- *Khaya anthoteca* {B}                      0.5 kg
- Water                                              3 l

Boil the fresh bark of *Khaya anthoteca* in 3 litres of water for 30 minutes; filter.

Drench each animal with 2 litres of the liquid.

### *Treatment 2*

Material:

- Fresh milk                                      4 l

Collect 4 litres of fresh milk.

Drench 4 litres for adult cattle and 2 litres for calves. The animals will recover within 1-3 hours.

### *Treatment 3*

Keep the bloated animal running until it passes gas.

### *Treatment 4*

Material:

- any type of oil (edible, or even paraffin/kerosene!)

Drench the animal with the oil.

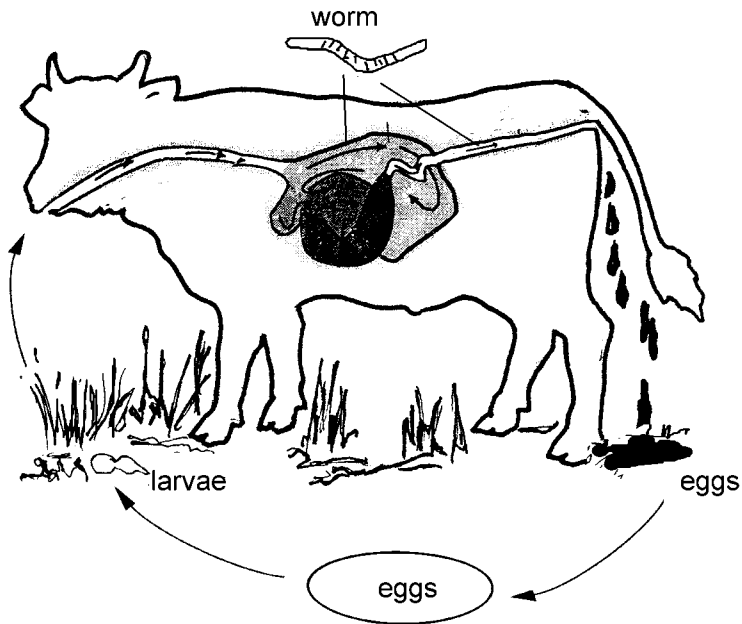
### *Prevention*

Feed dry fodder in the morning prior to letting animals graze succulent pastures; make sure that the animals do not eat too much of one type of grass; rotate grazing areas within the day; do not let animals go for long periods between grazing times; do not let animals get too hungry.

## 10.2 Stomach and intestinal worms

Bole/Gilji (Fulfulde), Minyoo (Swahili)

Stomach and intestinal worms are especially found in young, malnourished or lactating animals.



*Figure 14: Cycle of stomach and intestinal worms: eggs or larvae of worms enter the cow orally via contaminated grass; the larvae become adult worms inside the cow and affect the health of the cow; the worms produce eggs, which are excreted with the faeces and contaminate the grass.*

### Signs

- animal is thin and weak although it eats well
- rough hair coat
- enlarged belly or swelling at the throat (bottle jaw)
- diarrhoea

- pale mucous membranes (anaemia)
- worms may be seen in the faeces (though they are mostly not visible)
- on slaughter, worms can be visible (though they are very small and can also easily be missed)

### Cause

Ethnovet: animal get worms from pastures and milk

Conventional: animal get infected with worms by eating grass or drinking water which is contaminated with eggs or larvae of worms.

### Treatment 1

Materials:

- *Vernonia amygdalina* {L}            2 kg
- Limestone                                450 g
- Water                                        3 l

Burn the limestone; make a powder. Pound 2 kg of *Vernonia amygdalina* leaves and wash these in 3 litres of water to extract medicinal properties. Filter and add 450 g of limestone powder. Stir to dissolve the limestone.

Prevent the animals from drinking water the evening before treatment, so they will be thirsty.

To treat calves: drench 250 ml per calf the next morning. Do not allow calves to drink water until 6 hours after the treatment.

### Treatment 2

Materials:

- *Urelytrum digitatum* {R}            1 kg
- Limestone                                280 g
- Water                                        2 l

Collect about 1 kg of *Urelytrum digitatum* roots. Boil 2 litres of water with 280 g of limestone powder. When water starts boiling, add the *Urelytrum digitatum* roots and boil for 10 minutes; cool and filter.

To treat calves: drench 500 ml per calf a day, for 3-5 days.

### *Treatment 3*

Materials:

- |                               |        |
|-------------------------------|--------|
| ➤ <i>Carissa edulis</i> {R}   | 0.5 kg |
| ➤ <i>Curcubita maxima</i> {L} | 1.5 kg |
| ➤ Water                       | 2 l    |

Mix one part of the root of *Carissa edulis* with 3 parts of *Curcubita maxima* leaves. Boil these in a large pot of water for 45 minutes. Filter the decoction and cool it.

Drench 1 l twice a day. Repeat this treatment after 1 month.

## **10.3 Diarrhoea**

Saanol (Fulfulde), Kuharisha / Harisho (Swahili)

Diarrhoea is a common disease in newborn animals. Diarrhoea is also a symptom of other diseases such as rinderpest, heartwater and worm infestation. It is very important that animals with diarrhoea have enough water to drink, to prevent dehydration!

### *Signs*

- purging or frequent loss of stool
- a strange smell and colour of faeces
- faeces may contain blood or mucus
- animal is weak and has no appetite
- animal becomes dehydrated: skin is not elastic, eyes are sunken and the animal urinates less than normal

The signs of diarrhoea caused by heartwater or intestinal worms are described in Chapters 8.2. and 11.

Diarrhoea can persist for weeks and if not treated, the animal may die.

### Cause

Ethnovet: worms, changes in diet, poisons and dirt

Conventional: viruses, bacteria, protozoa, worms, changes in diet, poisons

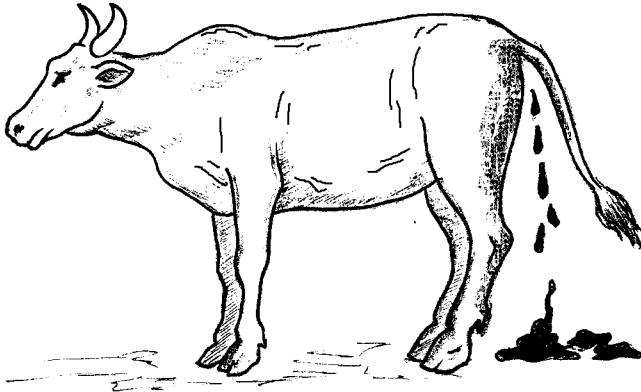


Figure 15: A cow with diarrhoea: the skin is not elastic, the eyes are sunken and the hindquarters are dirty, due to the diarrhoea

### Treatment 1

Materials:

- *Khaya anhoteca* {B}                      1 kg powder
- *Bridelia ferruginea* {B}                1 kg powder
- *Pilostigma* + *Anogeissus*            1kg of charcoal powder
- Water                                            250 ml

Make a powder of 1kg each of *Khaya anhoteca* {B} and *Bridelia ferruginea* {B}. Burn the fresh stems of *Pilostigma thonningii* {B} and *Anogeissus leiocarpus* {B} and grind the charcoal into powder. Mix 1 kg of the latter powder with the first powder.

To treat calves, prepare a mix of one spoon of powder per cup of water (250 ml); to treat adult cattle: two spoons of powder per 250 ml water. Administer this mixture twice a day to the animals, for 3-6 days, depending on the severity of the diarrhoea.

*Treatment 2, especially to treat bloody diarrhoea*

Materials:

- *Dissortis perkinsae* {R}            0.5 kg
- Water                                    1 l

Collect 0.5 kg of *Dissortis perkinsae* roots. Boil 1 litre of water and add the roots. Boil for 30 minutes, and then allow to cool and filter. Drench 250-500 ml per calf once.

*Treatment 3, to treat diarrhoea caused by intestinal worms*

Materials:

- *Psidium guajava* {L}            0.5 kg
- Ginger (*Zingiber officinale*)    50 g

Pound 50 g of ginger and 0.5 kg of tender leaves of *Psidium guajava* together and make one bolus of these materials. Make enough boluses for all animals to be treated. Give 5 or 6 boluses at a time to a calf.

To prevent and treat dehydration, drench calf with a large volume of water, mixed with salt, in the ratio of 250 ml (one cup) of salt to five litres of water. Drench half a litre, four times a day for 3-4 days.

*Treatment 4, to treat intestinal worms especially tapeworms*

Materials:

- *Myrsine africana* {L}            0.25 kg
- Water                                    0.5 l

Crush 0.25 kg of *Myrsine africana* leaves, mix with 0.5 l of water and drench. This is enough for an adult animal. Use half of this for calves.

# 11 Respiratory diseases and problems

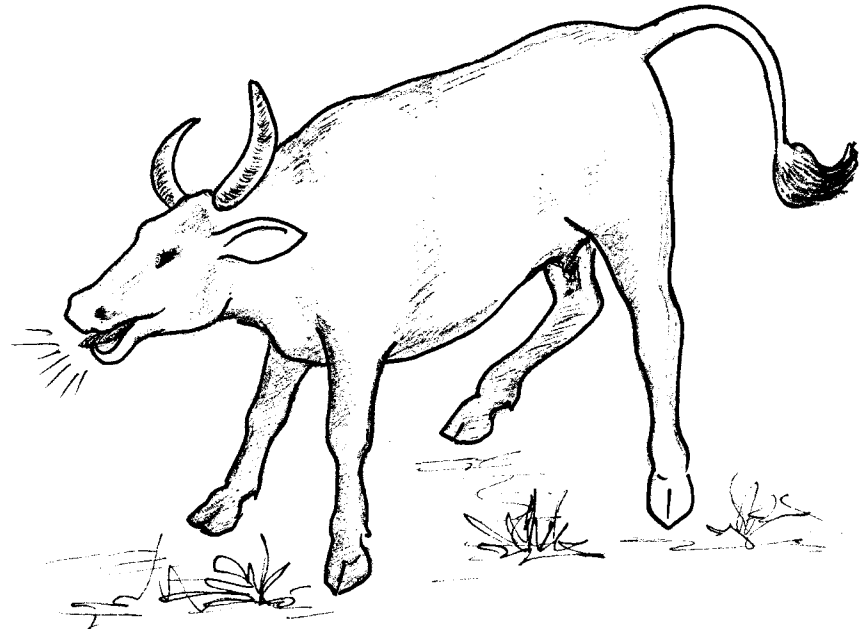
## 11.1 Lungworm

Bole fufu (Fulfulde), Minyoo ya mapafu (Swahili)

These worms live in the lungs of animals.

### *Signs*

- the animal has distressed breathing and cough
- the animal does not grow normally
- in a dead animal, worms can be found in the windpipe and lungs



*Figure 16: A cow with lungworm has distressed breathing*

### *Cause*

Ethnovet: animals get infected by feeding on infested pasture and drinking infested water, especially during the rainy season

Conventional: animals get infected by eating grass that is contaminated with lungworm larvae

### *Treatment*

Materials:

- *Lantana trifolia* {F}                      2 kg
- Water                                              1 l

Grind the fruits of *Lantana trifolia* into a fine powder. Mix 1 handful of this powder with 1 litre of water.

Drench the animals with this liquid: 1 litre for adult cattle and 250 ml for calves.

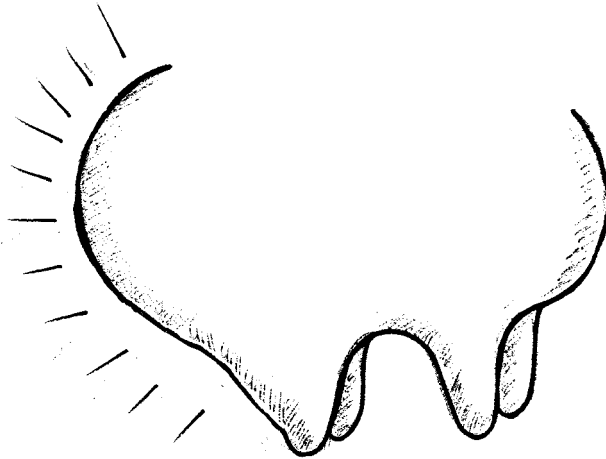
# 12 Reproductive diseases and problems

## 12.1 Inflammation of the udder (mastitis)

Felewre (Fulfulde), Ugonjwa wa mawele na matiti / Kititi (Swahili)

### *Signs*

- one or more quarters of the udder are firm to touch, painful and red
- abnormal colour and smell of the milk
- abnormal milk consistency: watery or with clots



*Figure 17: Mastitis: one or more quarters of the udder are firm to touch, swollen, painful and red*

### *Cause*

Ethnovet: teat injuries, sores, poor hygiene and sanitation, witches and wizards

Conventional: bacteria. Teat injuries, poor milking hygiene and faulty management predispose cows to mastitis

### *Treatment 1*

Materials:

- Hot wood ash 0.25 kg
- Water 0.5 l

Prepare fine wood ash powder of non-poisonous wood used for cooking, by sieving. Mix the wood ash with half a litre of water and stir until a paste is formed. Tether the affected cow and milk the cow before treatment. Apply the paste on the udder of the cow and massage the affected area.

### *Treatment 2*

Materials:

- *Clematis hirsute* {L} 0.5 kg
- *Schefflera abyssinica* {L} 0.5 kg
- Water 2 l

Pound half a kg of the leaves of *Clematis hirsute* and *Schefflera abyssinica*. Add them to water while stirring.

Milk the infected cow before treatment. Wash the udder of the cow with the prepared solution in the morning and evening for 2 days. Cow should recover during the 2 days of treatment.

### *Treatment 3*

Frequent sanitary milking of the affected quarter(s)

## 12.2 Reduced milk (agalactia)

Dakale (Fulfulde), Upungufu wa maziwa (Swahili)

Sometimes the mother has too little milk to feed her offspring.

### Cause

Ethnovet: poor feeding, disease

Conventional: poor feeding, weakness, disease, inflammation in the udder (mastitis)

### Treatment 1

Materials:

- *Crinum kirkii* {WP} 0.5 kg
- *Arachis hypogea* {N} 0.5 kg
- Water 2 l

Pound a whole *Crinum kirkii* plant and raw nuts of *Arachis hypogea*. Soak them in 2 litres of water while stirring.

Drench every morning and evening 0.5 litres at a time, for 5-7 days. The milk yield will increase in about 2 days.

### Treatment 2

Materials:

- *Carica papaya* {F} 1 whole fruit
- *Arachis hypogea* {N} 0.25 kg
- Palm wine 2 l

Grind a whole green *Carica papaya*, including seeds and peel. Add it to 2 litres of palm wine, together with 1 cup of raw nuts of *Arachis hypogea* and stir and filter.

Drench 2 litres once a day for one week. Within half a day the milk production will increase.

## 12.3 Brucellosis

Bakkale (Fulfulde), Ugonjwa wa kutoa mimba (Swahili)

Brucellosis is a contagious disease affecting cattle and other species of animals, characterized by abortion in females and infertility in both male and female animals. The most common route of introducing the disease in a herd is from an infected cow or bull. Aborted fetuses, foetal membranes, vaginal discharges, milk, colostrum, faeces and urine from infected animals are all likely sources of contamination and infection.

NOTE! People can also get brucellosis by drinking milk and blood of sick animals, and through blood or other body fluids from aborted animals. To protect yourself against infection: do not drink milk or blood from sick animals and wear gloves or plastic bags on your hands before touching the aborted foetus.

### *Signs*

- abortion after the fifth month of pregnancy
- birth of a dead calf at full term of pregnancy
- retained afterbirth
- swelling and hardening of the testes of the bull
- inflammation of joints of legs: swollen and warm joints

### *Cause*

Ethnovet: infected male or female during mating

Conventional: bacteria. Animals can get brucellosis from direct contact with the infected animal or from eating contaminated food. Food can be contaminated by aborted calves, placentas and discharges after abortion.

### *Treatment 1*

Materials:

- *Kigelia africana* {F}                      2 kg
- *Schefflera abyssinica* {B}                1 kg
- *Crossopteryx febrifuga* {B}               1 kg
- *Khaya anthoteca* {B}                      1 kg

- *Citrus aurantifolia* {B}                    0.5 kg
- Salt                                                    18 kg

Dry and pound all components into a fine powder. Add 0.5 kg of this powder to 18 kg of salt. Feed the affected animal once a day for 1 month. It should eat as much as it wants. The animal will discharge the excessive vaginal fluids in 1-2 days.

### *Treatment 2*

Materials:

- *Kigelia africana* {F}                    2 kg powder
- Horse bones                                    1 kg powder
- Salt                                                    18 kg

Pound or grind all components into a fine powder. Add 2 kg powder of *Kigelia africana* and 1 kg powder of horse bones to 18 kg salt.

Feed to affected animals once a day for 1 month. Let them eat as much as they want at any one time of feeding.

### *Treatment 3*

Materials:

- *Salvadora persica* {R}                    1 piece, 2 fingers long
- Water                                                5 l

Crush and boil a two-finger long piece of *Salvadora persica* root in 5 litres of water for 1 hour. Cool and filter the decoction.

Drench the animal that has aborted: use 2 litres to drench one cow. Drench once.

## 12.4 Poor mothering

Wanyoye (Fulfulde), Mama kuto tunza mtoto (Swahili)

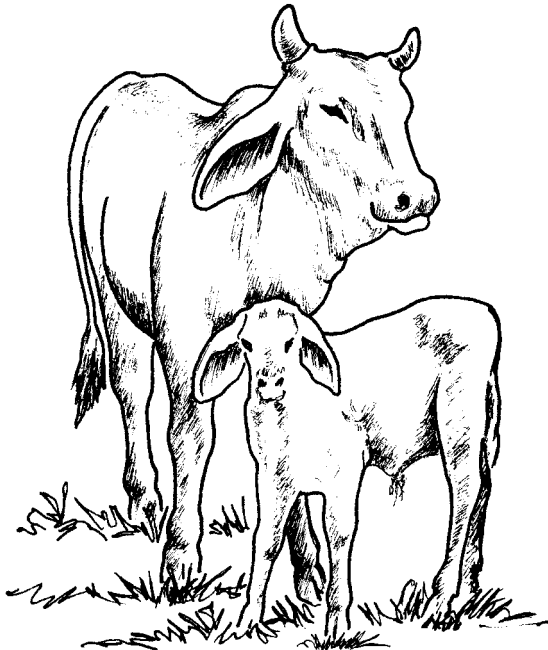
### *Signs*

- persistent negative reaction of the mother towards the calf
- the mother pays no attention to her calf
- the calf is not allowed to suckle

### *Cause*

Ethnovet: heredity, painful and difficult birth, inexperience

Conventional: heredity, painful and difficult birth, inexperience, the calf mingles with other animals and acquires a strange smell



*Figure 18: Bringing the calf, which has been sprinkled with a solution, in front of the mother cow, will stimulate the mother-calf bond.*

### Treatment 1

Materials:

- |                                |            |
|--------------------------------|------------|
| ➤ <i>Parkia biglobosa</i> {CK} | 100 g      |
| ➤ Sheep skin                   | 100 g      |
| ➤ Milk from mother             | 1 l        |
| ➤ Salt                         | 2 handfuls |
| ➤ Water                        | 1 l        |

Burn the sheep skin and grind it to powder. Mix 100 g of sheep powder with 100 g of *Parkia biglobosa* {CK}. Add salt, water and milk to the mixture.

Tether the mother and bring calf in front of her. Sprinkle the solution on the head, neck and back of the calf and on the muzzle of the mother. The mother will start licking its muzzle and later its calf. It will accept the calf.

### Treatment 2

Materials:

- |                                        |       |
|----------------------------------------|-------|
| ➤ <i>Parkia biglobosa</i> {CK}         | 100 g |
| ➤ <i>Clematopsis scabiosifolia</i> {L} | 100 g |
| ➤ Cow skin                             | 100 g |
| ➤ Salt                                 | 200 g |
| ➤ Fresh milk                           | 1L    |

Burn *Parkia biglobosa* {CK} and the skin of a cow and grind them to powder. Also grind the leaves of *Clematopsis scabiosifolia* into powder. Mix the powders with salt in 1 litre of fresh milk.

Tether the mother and bring the calf in front of her. Sprinkle the solution on the head, neck and back of the calf. Open the vulva of the mother and blow air into it and close tightly until the cow begins to be uncomfortable. Blowing air into the vulva causes the animal to feel as if it is about to calve. The mother will accept the calf, will start licking it and the milk production will increase. The mother may become aggressive after accepting the calf.

## 12.5 Retained afterbirth

Saggugo (Fulfulde), Kutokutoga kondo ya nyumba (Swahili)

### Signs

- the afterbirth (placenta) has not come out within 12 hours after giving birth
- a small piece of the afterbirth may hang out of the vulva and may look and smell rotten

If retained afterbirth is not treated, the animal will become sick and may die.

### Cause

Ethnovet: diseases such as brucellosis

Conventional: diseases such as brucellosis, a difficult birth, human assistance during the birth, dirty conditions, a lack of the mineral calcium

### Treatment 1

Materials:

- |                            |       |
|----------------------------|-------|
| ➤ <i>Vitex doniana</i> {B} | 2 kg  |
| ➤ Limestone                | 100 g |
| ➤ Water                    | 6 l   |

Cut 2 kg of *Vitex doniana* bark into small pieces and put it into 6 litres of boiling water with 100 g of limestone. Boil for 30 minutes. Cool and filter the decoction.

Drench 6 litres at once. The retained placenta will be expelled in less than a day.

### Treatment 2

Materials:

- |                                  |         |
|----------------------------------|---------|
| ➤ <i>Hibiscus esculentus</i> {F} | 0.25 kg |
| ➤ Water                          | 2 l     |

Pound the fruits of *Hibiscus esculentus* into powder. Put 2 handfuls of this powder into 2 litres of water.  
Drench 2 litres of the solution. The placenta should be expelled within a day.

### *Treatment 3*

Materials:

- *Carica papaya* {L}                      ten big leaves
- Water                                        2 l

Soften the leaves in 2 litres of water and filter.

Drench 1 litre in the morning and 1 litre in the evening. The next day, the placenta will be expelled.

### *Treatment 4*

Materials:

- *Salvadora persica* {R}                      one arm-length (250 g)
- Water                                        1 l

Use a knife or sharp stone to scrape the surface of an arm-long piece of *Salvadora persica* root. Crush the scrapings and soak them in a calabash (1 litre) of water for 12 hours. The water turns yellow and tastes bitter.

Drench the animal. Repeat the next day if the afterbirth does not come out.

## 12.6 Prolapsed uterus

Burtago Sare (Fulfulde), Kutoka kwa chupa (Swahili)

A prolapse is the protrusion of the female's womb (uterus) through the birth opening (vulva). Uterine prolapse usually occurs after giving birth, especially after a difficult calving. If the prolapse is not corrected, the uterus will dry out and get infected, which will kill the animal.

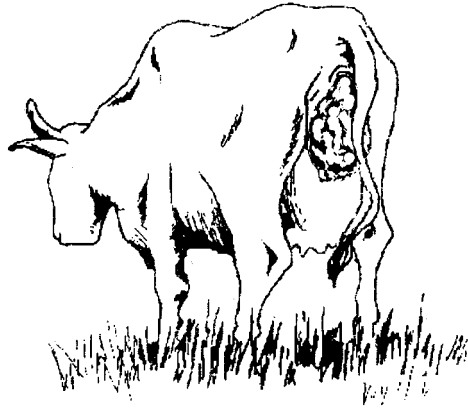


Figure 19: Prolapsed uterus

### Signs

- the uterus hangs out of the birth opening

### Cause

Ethnovet: a difficult birth, heredity

Conventional: a difficult birth, especially one that is assisted, heredity, in thin animals, especially during drought

### Treatment 1

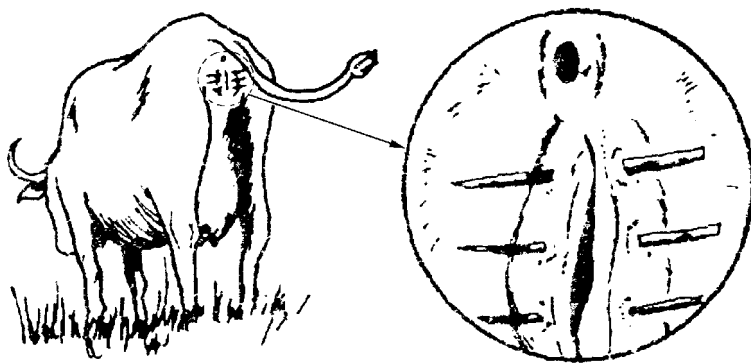
Materials:

- Soap
- Water
- Restraining rope
- A tray
- Safety pins or long thorns

The animal, either standing or recumbent, should be placed in a position so that the hindquarters are elevated. The protruding uterus should be cleaned carefully and washed with water..

The cleaned organ should be carefully placed in a tray and pushed gently back into the birth opening. Since there is no ethnivet antibiotic known, conventional antibiotics should be administered immediately.

Close the birth opening with safety pins or long thorns. The animal should be retained in a confined area or tethered for a few days, preferably standing with the hind legs higher than the front legs.



*Figure 20: The birth opening can be closed with safety pins or long thorns.*

### *Treatment 2*

Clean the prolapsed uterus with cold water and apply 1 kg dry sugar carefully to the outside of the prolapsed uterus before pushing it back into the birth opening. This helps to decrease the size of a swollen prolapsed uterus and has some antibiotic effect.

### *Prevention*

As uterine prolapse is hereditary, elimination of animals that have previously suffered from a prolapse, will reduce the incidence.

## 12.7 Infertility in cows

Rimare (Fulfulde), Utasa wa ng'ombe kike (Swahili)

Infertility problems in cattle are the inability or failure to produce offspring.

### *Signs*

- the cow does not come in heat
- the cow is irregular in heat
- the cow does not become pregnant
- the cow loses its foetus (abortion)

### *Cause*

Ethnovet: infected uterus, aberration of libido, vulva has two small openings which blocks penetration of penis

Conventional: infected uterus, aberration of libido, too little light (when animals are kept inside, in the darkness, they may not come in heat), lactation (lactating animals often do not come in heat), weakness or disease, weak legs or the vulva has two very small openings or blockage, chronic debilitating disease conditions such as worms.

### *Treatment 1*

Seek help to palpate ovaries and remove cysts by squeezing gently. This will often stimulate a cow into a heat cycle.

### *Treatment 2*

Materials:

- |                              |         |
|------------------------------|---------|
| ➤ <i>Arachis hypogea</i> {N} | 0.25 kg |
| ➤ Fresh milk                 | 1.5 l   |

Grind and mix the raw nuts of *Arachis hypogea* with the fresh milk. Drench the cow once a day, for 3-5 days.

## 12.8 Infertility in bulls

Tablingo (Fulfulde), Utasa we ng'ombe dume (Swahili)

Infertility in bulls means that the bull has problems in producing offspring.

### *Cause*

Ethnovet: anatomic/physiological problems of the bull

Conventional: anatomic/physiological problems of the bull, diseases such as brucellosis

### *Treatment*

Materials:

- *Salix subserrata* {L}                      2 kg
- Salt                                              18 kg

Mix 2 kg of *Salix subserrata* powder with 18 kg salt.

Feed the sterile animals once a day for 1 week.

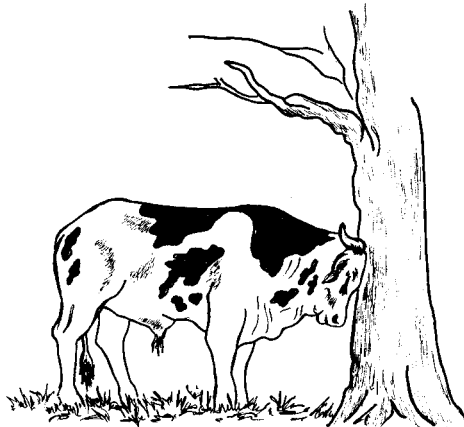
# 13 Behavioural diseases and problems

## 13.1 Heartwater (cowdriosis)

Nghabbu (Fulfulde), Maji kwenye roho (Swahili)

### *Signs*

- rise in temperature (fever)
- loss of appetite (anorexia)
- muscular tremors and continuous movement of the limbs, head, ears, eyes, tongue and jaw; circling movements and convulsions with rigidity of the neck
- tearing (lacrimation)
- occasional black diarrhoea
- swelling of the eyelids
- nasal discharge
- a lot of water around the heart, can be seen if the animal is slaughtered



*Figure 21: An animal can be seen pressing its head against objects when it has heartwater*

If there is no early treatment, the disease terminates in convulsions and death.

### **Cause**

Ethnovet: germs considered to be evil spirits

Conventional: a micro-organism, transmitted by ticks

### **Treatment 1**

Materials:

- *Paullinia pinnata* {ST, L}            1 kg
- *Satureja punctata* {ST, L}        1 kg
- Water                                        2 l

Pound 1kg of the stem and leaves of *Paullinia pinnata* and *Satureja punctata* plants. Soak the mixed plant materials in 2 litres of water and stir thoroughly to extract the medicinal components and filter. Drench 2 litres for adult cattle and 1 litre for calves 1-2 times a day for 3-4 days.

### **Treatment 2**

Materials:

- *Paullinia pinnata* {ST, L}            0.5 kg
- *Satureja punctata* {ST, L}        0.5 kg
- *Parkia biglobosa* {CK}                0.5 kg
- *Tarenna grandiflora* {L}            0.5 kg
- *Allium cepa* {B}                        0.5 kg
- Water                                        3 l

Mix *Paullinia pinnata* {ST, L}, *Satureja punctata* {ST, L}, *Parkia biglobosa* {CK}, *Tarenna grandiflora* {L} and *Allium cepa* {B} and water. Use half a kilogram of each of the above plants and add the mixture to 3 litres of water. Boil the ingredients for 30 minutes, cool and filter them.

Drench 1 litre for adult cattle and 0.5 litres for calves once a day for 2-4 days. Normally animals recover in 2-7 days.

# 14 Emergencies and simple operations

## 14.1 Wounds

Rawni (Fulfulde), Vidonda (Swahili)

### *Signs*

- loss of skin
- red and swollen skin around the wound
- bleeding, pus or crust
- dirt in the wound

### *Cause*

Ethnovet and conventional: physical injuries like accidents, bites from other animals or wounds inflicted by man

Both old and fresh wounds must be washed with clean water before applying the ethnovet treatment.

### *Treatment 1*

Materials:

- *Psorospermum febrifugum* {B} 1 handful
- Butter 5 tablespoons

Grind the bark of *Psorospermum febrifugum* into powder. Mix the powder with the butter to make an ointment.

Apply the ointment on the affected area until wound heals. This ointment also acts as an insecticide to repel flies and prevent them from depositing eggs in the wound.

### *Treatment 2, to treat a fresh wound*

Materials:

- *Emilia coccinea* {L}                      10 leaves
- *Aspilia africana* {L}                      10 leaves

Soften the leaves of the plants separately until they become fluid. Keep the liquids separate!

Squeeze the liquid from *Aspilia africana* into the wound to stop bleeding, followed by the liquid from *Emilia coccinea* for actual wound healing. Treat once a day for 3 days.

### *Treatment 3*

Materials:

- *Ricinus communis* {S or L}              0.25 kg

Crush the seeds of *Ricinus communis* and boil them to make oil. Dry leaves can also be used after being crushed into a powder.

Apply the oil or the leaf powder on the wound, completely covering the wound until it heals.

### *Treatment 4*

Material:

- *Aloe barbadensis* {L}                      1 leaf

Break a piece of a leaf of *Aloe barbadensis* so that the sap begins to drip.

Apply the sap on the wound. The leaf itself can also be crushed and applied.

## 14.2 Bone fractures

Yebre (Fulfulde), Kivinjo / Kuvinjiga kwa mifupa (Swahili)

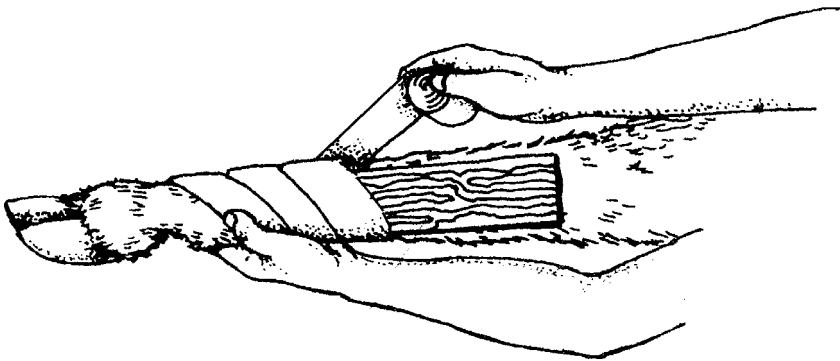
### *Signs*

- affected limb is painful
- the animal limps or lies down and is unwilling to get up or walk
- the fractured bone can be felt or cracking sounds can be heard when the bones are moved
- swelling of the area of the fracture

### *Cause*

Ethnovet and conventional: fall of the animal, fight between animals, accident, deliberate injury caused by humans or predator

NOTE! If the fracture is above the knee or elbow in cows, or it affects a joint, it is better to slaughter the animal.



*Figure 22: Treating a bone fracture: tie the splints gently with a bandage.*

For fractures below the knee or elbow:

*Treatment*

Materials:

- Butter
- Bandage or clean piece of cloth
- Splints

Collect the materials before restraining the animal.

Restrain the animal. If the skin is broken, wash the affected area with water and remove matted hair. Align bones back into their normal positions. Rub butter around the affected area.

Wrap a piece of cloth around the area to keep bones in position. Place splints around the broken bone area. Tie splints gently with the bandage, without restricting the blood flow.

Tether or retain the animal in a confined area. Provide high quality feed and water. Examine the fracture after 1 week. If the fracture has not healed, repeat the treatment and fix the bones for 2 weeks.

## 14.3 Broken horn

Tolol (Fulfulde), Kuvunjika kwa pembe (Swahili)

### *Signs*

- a part of the horn of a cow is broken

### *Cause*

Ethnovet and conventional: fall of the animal, fight between animals, accident, deliberate injury caused by humans or predator

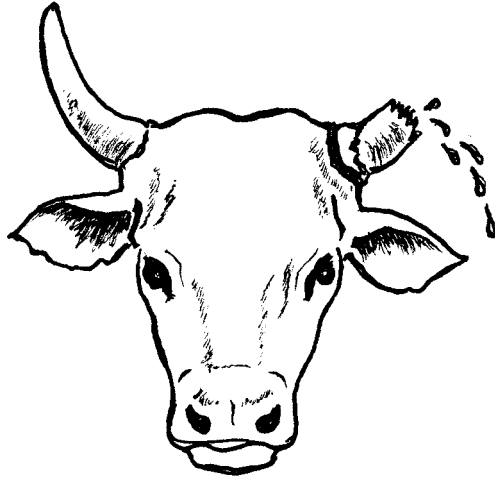
### *Treatment*

Materials:

- Clay soil 1 kg
- Clean water 2.5 l
- Bandage or any clean piece of cloth

Collect 1 kg of clay soil from a clean place. Add the soil to 2 litres of water and heat the solution until it boils. Remove excess water, so a paste is created. Boil the remaining 0.5 litre of water too, without adding soil.

Restrain the animal with the fractured horn. Cut off the broken half of the horn if it has not fallen off. Clean the area with the 0.5 litre of clean boiled water. Apply the clay soil paste to the broken horn stump. Form and press the clay around the stump, so it sticks to the stump. Tie a bandage around the whole stump.



*Figure 23: A cow with a broken horn: a bandage is tied around the stump*

Tether the animal for 1 week to be sure the clay does not fall off. Provide high quality feed and water. Take the bandage off, once clay has become hardened. It will take about 3-6 weeks for a full recovery.

## 14.4 Castration

Tappugo (Fulfulde), Uhasi (Swahili)

Whatever method is used, it is best to castrate animals at a young age.

### *Restraining the animal*

Tie the front and hind legs of the animal. A bull may stand or lie down. When lying down, one person has to hold the front legs and one person the hind legs.

There are two methods of castration: the open and closed method.

### *Closed method*

Pull the testicle down. Tie a string tightly around the upper part of the scrotum close to the animal's body. Remove the string after 3 weeks.

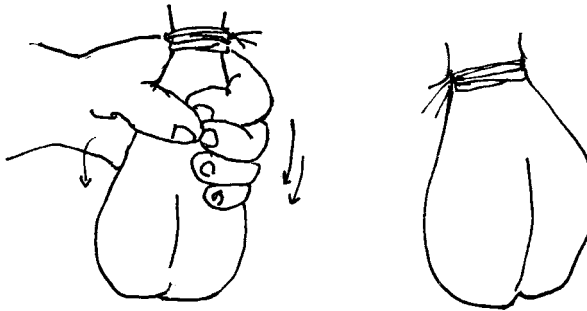


Figure 24: Castration: closed method

### *Open Method*

Disinfect a very sharp knife in a fire. Pull the testicles tightly downwards. Make a cut down the side or at the bottom of the scrotum, avoiding the blood vessels. Squeeze the testicle and it will come out. Push back the fatty membrane that covers the testicle and cut the spermatic cord. Or wind it around your finger and pull it until it snaps.

Repeat the procedure for the other testicle. Be sure that the incision is large enough to allow drainage of fluids.

### *Treatment for wound healing after castration*

Materials:

- *Aloe secundiflora*{L}                      1 leaf
- Ash

Cut a leaf of *Aloe secundiflora* and collect the juice. Apply one tea-spoon of the juice onto the wound and then dust it with ash.



*Figure 25: Castration: open method*

## 14.5 Snake bite

Memtiri (Fulfulde), Kuumwa na nyoka (Swahili)

Snakes bite all kinds of animals and some snake bites are poisonous. The signs start very suddenly:

### *Signs*

- the animal may run away on being bitten
- the animal stops grazing
- the animal is restless and lacks coordination
- inability to move; paralysis
- swelling at the site of the snake bite
- sweating
- foaming from the mouth; protruding tongue; difficult breathing
- bleeding, after being bitten by some snakes
- death

### *Treatment 1*

Materials:

- *Crinum glaucum* {WP}                    1 kg
- Water                                            3 l

Pound and soften a whole *Crinum glaucum* plant in 3 litres of water. After the plant is thoroughly softened, filter the solution. Drench 2 litres to adult cattle and 1 litre to calves for 3 days. Use some of the solution to wash the area of the snake bite.

### *Treatment 2*

Materials:

- *Mucuna pruriens* {L}                    1 kg
- *Aspilia africana* {L}                    1 kg
- *Emilia coccinea* {L}                    1 kg
- Water                                            5 l

Grind or pound and soak the leaves of all the plants in 5 litres of water. After thoroughly mixing, filter the solution.

Drench 2 litres twice a day over 2 days. Use the residue to apply on the area of the snake bite.

### *Treatment 3*

Materials:

- |                 |                    |
|-----------------|--------------------|
| ➤ 'Black stone' | 2-3 cm in diameter |
| ➤ Milk          | 50 ml              |
| ➤ Water         | 0.5 l              |

Press the black stone on a wound caused by a snakebite, and it will stick to the wound. The stone will fall off after a few hours or a day. After it falls off, soak the stone in milk overnight and clean it with water. Press it to the wound again for 5 minutes. If it falls off again, then all poison has been removed from the area of the snake bite.

### *Treatment 4*

Give electric shock (from cattle prod or car battery with wires) in area surrounding snake bite - many say that it neutralizes the poison; also effective for bee stings.

## 14.6 Poisoning

Tooke (Fulfulde), Sumu (Swahili)

Different poisons cause different symptoms. The symptoms can develop very fast or slowly. Any of the following signs may be the result of poisoning:

### *Signs*

- bloat, stomach pain
- groaning, bleating
- excitement, depression
- weakness, lack of coordination, stiffness
- abnormal movements such as running in circles, pressing the head against a wall or tree
- shivering, convulsions
- salivation or foaming from the mouth
- difficult breathing, sweating
- uncontrolled urination, diarrhoea
- coma and death

### *Cause*

Ethnovet and conventional: chemicals which have been used in the wrong way or in a too high concentration, eating or licking plants which have been treated with pesticides or herbicides, drinking or licking chemicals, eating poisonous plants, bites from snakes or other poisonous animals.

### *Treatment*

Materials:

- |              |      |
|--------------|------|
| ➤ Charcoal   | 1 kg |
| ➤ Fresh milk | 4 l  |
| ➤ Water      | 2 l  |

Grind the charcoal and mix it with 4 litres of fresh milk and 2 litres of water. Drench 6 litres of the mixture to adult cattle at one time and 3 litres to calves.

# 15 Prevention of disease

In addition to healing practices to cure a disease, a livestock keeper needs to know how to prevent and control diseases. Ethnovet and conventional medicine can be combined in the prevention of diseases.

Some key measures, practised by both ethnovets and conventional vets, that a livestock keeper should adopt are:

- Keep the animals' area clean.
- Keep the animals in small herds or flocks.
- Develop and practise a good feeding regime for livestock throughout the year.
- Regularly observe for signs of disease.
- Isolate new or sick animals until their health situation is assured.
- Vaccinate on a regular basis against contagious diseases such as rinderpest, anthrax, haemorrhagic septicaemia and contagious bovine pleuropneumonia.
- Control endo- and ectoparasites by de-worming, spraying and rotational grazing.
- Burn dead animals or bury them deep.

# Appendix 1: Medicinal plants and diseases

Table 1: Names of medicinal plants

Scientific name	Common name	Fulfulde name	Swahili name	Chapter
<i>Adenium obesum</i>	Desert rose		Mwandiga	9.1
<i>Allium cepa</i>	Red onion	Albassa	Kitunguu	13.1
<i>Aloe barbadensis</i>	Aloe	Njaboa	Mshubiri	14.1
<i>Aloe secundiflora</i>	Aloe		Mshubiri	14.4
<i>Anogeissus leiocarpus</i>	Chewstick tree	Kojoli		10.3
<i>Arachis hypogea</i>	Peanut	Biriji	Kalanga	12.2, 12.7
<i>Aspilia africana</i>	Wild sunflower	Sonyo-nai		14.1, 14.5
<i>Azadirachta indica</i>	Neem tree	Dogonyaro	Mwarubaini	9.1
<i>Bridelia ferruginea</i>		Buduudi	Mkayati	9.1, 10.3
<i>Carica papaya</i>	Pawpaw, papaya	Gondahi	Paipai	12.2, 12.5
<i>Carissa edulis</i>	Natal plum		Mtandambo	10.2
<i>Citrus aurantifolia</i>	Lime	Lemuihi	Ndimu	12.3
<i>Clematis hirsute</i>	Virgin bower	Pitanndewol		12.1
<i>Clematopsis scabiosifolia</i>		Mairero		12.4
<i>Crinum glaucum</i>		Gaadal		14.5
<i>Crinum kirkii</i>	Pajama lily	Gaddal Kossam		12.2
<i>Crossopteryx febrifuga</i>	Ordeal tree	Rimajogohi		12.3
<i>Curcubita maxima</i>	Pumpkin	Pumkin		10.2
<i>Dissortis perkinsae</i>		Bodehon		10.3
<i>Emilia coccinea</i>	Tassel flower	Ndanhora		14.1, 14.5
<i>Hemizygia welwitschii</i>		Dutalhi		9.1
<i>Hibiscus esculentus</i>	Okra	Kubeje	Bamia	12.5
<i>Khaya anthoteca</i>	African mahogany	Kahi	Mkangazi	9.2, 10, 10, 12.3

Scientific name	Common name	Fulfulde name	Swahili name	Chapter
<i>Kigelia africana</i>	Sausage tree	Jillahi	Mbungati	12.3
<i>Lantana trifolia</i>	Lavender pop-corn		Saamba	11.1, 12.5
<i>Mucuna pruriens</i>	Velvet bean	Kararawol	Mpupu	14.5
<i>Myrsine africana</i>				10.3
<i>Nicotinia tabacum</i>	Tobacco	Taaba	Tumbaku	9.1
<i>Parkia biglobosa</i>	African locust bean	Daddawa	Mnienze, mkunde	12.4, 13.1
<i>Paullinia pinnata</i>	Hippo cola	Shedewol	Mjafari	13.1
<i>Phaseolus vulgaris</i>	Common bean	Nyebbe	Mkunde	9.1
<i>Pilostigma thonningii</i>	Camel foot	Barkehi	Mwembe	8.2, 10
<i>Psidium guajava</i>	Guava	Goiva	Mapera	10
<i>Psorospermum febrifugum</i>		Sawoiki		9.1, 9, 14.1
<i>Ricinus communis</i>	Castor bean plant	Kolakolahi	Mbarika	9.2, 14.1
<i>Salix subserrata</i>		Keelehi		12.8
<i>Salvadora persica</i>	Mustard tree		Mswaki	12.3, 12.5
<i>Satureja punctata</i>	Lemon mint	Dutalhi		13.1
<i>Schefflera abyssinica</i>		Hoyaahi		12.1, 12.3
<i>Solanum aculeastrum</i>	Goat apple, bitter apple, poison apple	Gitte- nai		9.2
<i>Tarenna grandiflora</i>		Jagarabuehi		13.1
<i>Tephrosia vogelii</i>	Vogel's tephrosia	Yomji	Kibazi, utupa	9.1
<i>Urelytrum digitatum</i>		Nikiti		10.2
<i>Vernonia amygdalina</i>	Bitter leaf	Suwaaka	Chumvi kacheche	10.2
<i>Vitex doniana</i>	Meru oak	Bummehi	Mfuru	12.5
<i>Zingiber officinale</i>	Ginger	Sittakoolo	Tangawizi	10.3

*Table 2: Names of diseases*

<b>Common name</b>	<b>Scientific name</b>	<b>Fulfulde name</b>	<b>Swahili name</b>	<b>Chapter</b>
Bone fracture		Yebre	Kivinjo / Kuvinjiga kwa mifupa	12.2
Bloat	Tympany	Guttel	Kujaa tumbo / Kuvimba kwa tumbo	8.1
Broken horn		Tolol	Kuvunjika kwa pembe	12.3
Brucellosis	Brucellosis	Bakkale	Ugonjwa wakutoa mimba	10.3
Castration		Tappugo	Uhasi	12.4
Diarrhoea	Diarrhoea	Saaryl	Kuharisha / Harisho	8.3
Flies		Bokkaje	Nzi	7.1
Heartwater	Cowdriosis	Nghabbu	Maji kwenye roho	11.1
Infertility		Tablingo-bull Rimare-cow	Utasa wa ng'ombe kike / dume	10.7, 10.8
Inflammation of the udder	Mastitis	Felewre	Ugonjwa wa mawele na matiti	10.1
Kritchii	Streptothricosis	Ngunya	Upele kwangosi	7.2
Lice		Tendi	Chawa	7.1
Lung worms		Bole fufu	Minyoo yamapafu	9.1
Pink eye	Kerato-conjunctivitis	Nyawu-gitte	Jicho jekundu / Ugonjwa wamacho	6.1
Poison in the eye		Tooke nder gitte	Suma kwajicho	6.3
Poisoning		Tooke	Sumu	12.6
Poor mothering		Wanyoye	Mama kuto tunza mtoto	10.4
Prolapsed uterus		Burtingo Sare	Kutoka kwa chupa	10.6
Reduced milk	Agalactia	Dakale	Upungufu wa maziwa	10.1
Retained placenta		Saggugo	Kutokutonga kondo ya nyumba	10.5
Ring worm		Sanikoje	Mashilingi	7.1
Snake bite		Mentiri	Kuumwa nanyoka	12.5
Stomach and intestinal worms	Helminthiasis	Bole	Minyoo	8.2
Ticks		Kooti	Kupe	7.1
Worms in the eye	Thelazia	Gilji-gitte	Minyoo kwajicho	6.2
Wounds		Rawni	Vidoda	12.1

## Further reading

### **Bank on Hooves: your companion to holistic animal health care**

Ramdas S. R., Ghotge N.T.

Anthra, Pune, India, 2005, 236 p., ISBN 8190298909

This book takes the reader from participatory approaches to developing livestock programmes, to the essentials of livestock management, describing the complexity of its relationship with people's livelihoods and natural resources, in volume 1. In volume 2 the reader is presented with alternate approaches to animal disease management and health care.

### **Ethnoveterinary medicine in Asia: an information kit on traditional animal health care practices**

4 booklets, International Institute of Rural Reconstruction (IIRR), Philippines 1994, 400 p., ISBN 0-942-717-627

The four booklets in this kit contain details on herbal remedies and other ethnoveterinary practices used by stock raisers and healers in South and Southeast Asia.

### **Ethnoveterinary medicine in Kenya: a field manual on traditional animal health care practices**

International Institute of Rural Reconstruction (IIRR) and Intermediate Technology Development Group (ITDG) Kenya, 1996, 226 p.  
ISBN 9966-9606-2-7

This field guide is the first practical manual of traditional animal health care practices in Kenya. Compiled by a team of 40 veterinarians and traditional healers, the manual includes information on the indigenous livestock health care practices of many of Kenya's pastoral and farming communities. It covers more than 60 of the most important diseases and problems faced by livestock holders in camels, cattle, chickens, dogs, donkeys, goats and sheep

### **Ethnoveterinary medicine: an annotated bibliography of community animal health care**

Martin M., Mathias E., McCorkle C.M.

Intermediate Technology Development Group (ITDG) and International Institute of Rural Reconstruction (IIRR) Publishing, UK, 2001, 611 p., ISBN 1-85339-5226

Bibliography containing 700 abstracts of documents on ethnoveterinary medicine

### **Ethnoveterinary research and development**

McCorkle C.M., Mathias E., Schillhorn van Veen T.

Intermediate Technology Development Group (ITDG) and International Institute of Rural Reconstruction (IIRR) Publishing, 1996, 450 p., ISBN 1-85339-336-6

This volume presents reviews and case studies of traditional veterinary knowledge and practice, along with historical perspectives, theoretical discussions and research methodologies, covering nearly 100 diseases and over 300 medicinal plants and other traditional treatments.

### **Paraveterinary medicine: an information kit on low-cost health care practices**

4 booklets, International Institute of Rural Reconstruction (IIRR), Philippines 1996, 191 p., ISBN 0-942717-63-5

Based on intensive field experiences with small-scale livestock producers in the Philippines, this set of four manuals covers the essentials of keeping healthy livestock in the tropics. The manuals cover ruminants (cattle, buffaloes, sheep and goats), pigs and chickens.

# Useful addresses

## **Anthra**

The initial aim of the organization was to search for alternative systems for delivering livestock health and management practices to poor people, especially women in rural areas. Today, Anthra is a resource centre offering training, research and advocacy initiatives in the areas of livestock, biodiversity and people's livelihood.

Shop F Lantana Gardens, NDA Road, Bhavdhan, Pune- 411021, India  
A-21 Sainikpuri, Secunderabad- 500094, Andhra Pradesh, India

**[www.anthra.org](http://www.anthra.org)**

## **Centre for Indigenous Knowledge for Agriculture and Rural Development (CIKARD)**

The Centre for Indigenous Knowledge for Agriculture and Rural Development (CIKARD) at Iowa State University focuses its activities on preserving and using the local knowledge of farmers and other rural people around the globe. Its goal is to collect indigenous knowledge and make it available to development professionals and scientists.

CIKARD, 318 Curtiss Hall, Iowa State University, Ames, Iowa 50011, USA, **[www.ciesin.org/IC/cikard/CIKARD.html](http://www.ciesin.org/IC/cikard/CIKARD.html)**

## **Ethnovet Council Cameroon**

The ethnovet council is a group of about 300 Cameroon ethnoveterinarians. They come together twice a year. They collect and validate ethnovet practices and make this knowledge available for current and future generations as well. Founding Members of the Cameroon Ethnovet Council: Ardo Amadu Buba, Alhaji Eggi Sule, Ardo Bakari, Alhaji Haman Biruga, Alhaji Krumadjo, Wajiri Manu, Mallam Issa Belo, Yerima Jai, Adamu Also and Alhaji Budashi

The Cameroon Ethnovet Council, P.O. Box 467, Bamenda, Cameroon.

### **Foundation Diergeneeskunde in Ontwikkelingssamenwerking (DIO, Veterinary Medicine in Development Co-operation)**

Foundation DIO is a non-profit organization whose objectives include giving support and advice in the field of animal health and production to individuals and organizations in developing countries: healthy animals, healthy people. A participant in the Vétérinaires sans Frontières-Europa-network, DIO specializes in answering questions in the field of veterinary medicine, through the Veterinary Information Service.

### **International Livestock and Research Institute (ILRI)**

The International Livestock Research Institute (ILRI) works at the crossroads of livestock and poverty, bringing high-quality science and capacity-building to bear on poverty reduction and sustainable development for poor livestock keepers and their communities. ILRI works in the tropical developing regions of Africa, Asia and Latin America and the Caribbean.

Addresses of offices can be found at the website: [www.ilri.cgiar.org](http://www.ilri.cgiar.org)

### **Practical Action (former Intermediate Technology Development Group (ITDG))**

ITDG helps people to use technology in the fight against poverty. Keywords are: 'practical answers to poverty, sustainable solutions and people focused'. Addresses of offices can be found at the website:

[www.practicalaction.org](http://www.practicalaction.org)

## Recommended websites

### [www.ansci.cornell.edu/plants/medicinal/](http://www.ansci.cornell.edu/plants/medicinal/)

A website of medical plants, both beneficial and toxic, which can be used for livestock.

### [www.cape-ibar.org/](http://www.cape-ibar.org/)

Website of the Institutional and Policy Support Team (IPST), the successor to the 'Community-based Animal Health and Participatory Epidemiology (CAPE) Unit' in the African Union. The Institutional and Policy Support Team focuses on primary animal health care in Africa and key policy issues affecting the livestock sub-sector.

### [www.eldis.org/index.htm](http://www.eldis.org/index.htm)

Eldis gateway to development information.

### [www.ethnovetweb.com](http://www.ethnovetweb.com)

A website about ethnoveterinary medicine, about how people around the world keep their animals healthy and productive and about how development can be built on this information. This website contains information resources, publications on ethnoveterinary medicine and links to other websites on ethnoveterinary medicine and livestock development.

### [www.leisa.info](http://www.leisa.info)

ILEIA, the Centre for Information on Low External Input and Sustainable Agriculture promotes exchange of information for small scale farmers in the South through identifying promising technologies involving no or only marginal external inputs, but building on local knowledge and traditional technologies and the involvement of the farmers themselves in development.

Information about these technologies is exchanged mainly through the LEISA Magazines in English, French, Portuguese, Spanish, Indonesian and Chinese.

**[www.lifeinitiative.net](http://www.lifeinitiative.net)**

LIFE is a group of organizations and individuals who promote community-based conservation and development of indigenous livestock breeds and species. Their People and Livestock newsletter, which focuses on people-centred livestock development, can be read on the website.

**[www.metafro.be/prelude](http://www.metafro.be/prelude)**

Prelude medical plants database.

**[www.nuffic.nl/ik-pages/](http://www.nuffic.nl/ik-pages/)**

Indigenous Knowledge Pages. Gateway to indigenous knowledge.

**[www.pastoralpeoples.org](http://www.pastoralpeoples.org), [evelyn@mamud.com](mailto:evelyn@mamud.com)**

Dr Evelyn Mathias, League for Pastoral Peoples and Endogenous Livestock Development

**[www.tanzaniagateway.org/ik](http://www.tanzaniagateway.org/ik)**

Website of the Tanzania Development Gateway: Tanzania indigenous knowledge database.

**[www.worldbank.org/afr/ik/iknotes.htm](http://www.worldbank.org/afr/ik/iknotes.htm)**

Indigenous Knowledge Database, kept by the World bank, provides the users with quick access to a collection of indigenous/traditional practices and the possibility to contribute new cases and to comment.

# About Heifer

Stichting Heifer Nederland was established on the first of July 1999 and devotes itself to development cooperation in the form of sustainable animal husbandry projects in Africa and Eastern Europe.

Heifer is a non-profit, humanitarian organization dedicated to ending world hunger and saving the earth by providing livestock, trees, training and other resources to help poor families become self-reliant.

Animals from Heifer provide milk, eggs, plowing power and other benefits that for families across the planet can mean improved nutrition, education for children, health care, improved housing and literally a new way of life.

What makes Heifer unique is the practice known as “passing on the gift.” Families receiving animals agree to pass on the first offspring – or an appropriate equivalent – to another family in need, starting a chain of giving that often touches thousands of lives.

But Heifer’s most striking qualities are its simplicity and effectiveness. In short, Heifer’s common sense approach to sustainable development works – one family at a time.

Heifer Nederland is a member of the Heifer International network. Since the work of Heifer International began in 1944, Heifer has worked directly with 7 million families in more than 125 countries world wide.

Contact info:

Heifer Nederland

Kade 23, 4703 GA Roosendaal

The Netherlands

T: +31-(0)165-520123, E: [info@heifer.nl](mailto:info@heifer.nl) ,

W: [www.heifer.nl](http://www.heifer.nl) (in Dutch), [www.heifer.org](http://www.heifer.org) (in English)



