

# **Indigenous Knowledge in Ethnoveterinary Medicine in Southwest Uganda**

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The authors



## Preface

This volume is on 'Indigenous knowledge in Ethnoveterinary Medicine in the Bahima Pastoral Area of Southwest Uganda'. It is a result of a survey conducted by Dryland Husbandry Project (DHP) - Uganda. The main objective of the survey is to identify and record ethnoveterinary medicinal plants and practices used by pastoralists and agro-pastoralists in Kazo County, Mbarara District. The Faculty of Veterinary Medicine, Makerere University, conducted the survey. DHP promotes indigenous knowledge. One of the ways of promoting indigenous knowledge is through identification and recording of local knowledge in ethnoveterinary medicine. Local knowledge that exists at the local level must be recorded and passed to coming generations.

Societies and cultures have traditional ways of healing people and animals. For many centuries in the past, pastoralists used indigenous knowledge in traditional medicine to control animal diseases. Traditional medicine is also useful to pastoralists because it is cheap and available. Although the demand for modern veterinary service exists in the pastoral area, it is expensive and not readily available. Hence, pastoralists have continued to rely on traditional medicine.

The medicinal plants in this book are presented with methods of preparation, administration and application. The traditional medicinal plants are written in the local language along with their scientific names. One would also find in the Appendix that there are some traditional medicinal plants where scientific names have not yet been associated. This is one way where traditional medicine starts to dialogue with modern medicine.

The involvement of professionals/veterinarians from Makerere University in the identification and recording of traditional medicine will inform the formal sector what local knowledge in ethnoveterinary medicine is about. It brings in new light and new



dimensions to the formal training and research institutions. It informs the researchers and the students about ethnoveterinary medicine in pastoral areas, as it is the case here. This is one way of learning from people at the grassroots. The more the studies in ethnoveterinary medicine, the better knowledge and understanding we will have in traditional medicine and ethnovet technologies. The more we distribute the research results on traditional medicine, the better attention it will get by the formal sector. It is such kind of activities that will put pressure on the modern sector to evaluate and standardise ethnoveterinary medicine through laboratory tests and other experiments. These processes could also encourage the formal sector to look for new innovations in ethnoveterinary medicine that could be packaged and bottled and could start to compete with modern medicine for the benefit of people at the local level.

The identification and recording of medicinal plants will provide a database to government organisations and NGOs. The database could be used for any initiative in the promotion of ethnoveterinary medicine. Moreover, the information could help in the creation of an ethnoveterinary unit within the veterinary department of a national government. Traditional medicinal healers could also serve as part of the extension system in the pastoral area.

This publication on ethnoveterinary medicine may be one small addition to the available information and it may invite more researchers to engage in the study of indigenous knowledge in pastoral areas. The more we know on what we have on the ground, the greater will be our understanding and knowledge on indigenous knowledge and the stronger the confidence and self-reliance that we build at the grassroots level.

Tegegne Teka  
Regional Co-ordinator, DHP



# 1. INTRODUCTION

Animal disease is a major constraint to livestock production in sub-Saharan Africa. Modern veterinary inputs and services are often not readily available and are unsustainable under local conditions in the course of time. They are either too difficult to obtain or too expensive for the poor farmers and pastoralists.

Under these conditions, traditional animal health care practices, also called "ethnoveterinary medicine", provide a readily available, low cost alternative (Intermediate Technology Development Group and International Institute of Rural Reconstruction, 1996). It has been practised in East Africa for many years, and is still being practised even today though with a downward trend (Kokwaro, 1993). Even in industrialised nations, the uses and beliefs of folk medicines have been preserved, often traditional medical practices being used alongside the so called Western medicine, and some times even replacing it completely (De Feo et al., 1991).

The use of plants for the treatment of various diseases, as a specific antidote against magic, and for religious ceremonies is universal. It is also true, that these people, together with their domestic animals, from time to time feel sick or injured under their existing environmental conditions. It is common practice among pastoralists to use herbal preparations along western medicine in the treatment of various conditions. Some of the plants used for direct or specific treatment of particular diseases are worth further investigation in order to determine their chemical composition and their action on diseases in question. The therapeutic or medicinal properties of plants are normally dependent upon the presence of certain active principles. The plants may also contain other rare substances that vary from plant to plant and from one environment to another and their influence when administered to animals may also be varied.



In Uganda, claims to the effectiveness of traditional medicines in treating various diseases are numerous and there are unconfirmed reports of widespread use of traditional methods in the treatment of animal diseases. This suggests that the use of veterinary herbal remedies may be widespread among the rural populace and is frequently the first choice of treatment for common ailments and, in most cases, it is the only available source of medicament (Bhattarai 1992). Examples of healers documented as regularly and successfully treating animal diseases include historical cattle keepers like the Maasai, Luo, Luhya, and the Wakamba of Kenya and the Dinka of Southern Sudan. However, there are similar knowledgeable cattle keeper groups in Uganda, namely the Bahima, the Karamajong and the Itesot though not well documented. It has been reported that some of these cattle keepers have prescriptions used to treat ailments ranging from minor injuries and burns, to fevers, pains, gastric ailments, bone fractures, obstetric complaints and many others (Bhattarai, 1992). Some have prescriptions for letting milk down, preventing impending abortion and others that can hasten the expulsion of the placenta. There are also claims of cure of diseases like helminthosis, trypanosomosis and East Coast fever.

The National chemotherapeutic center, in its effort to collect data related to the use of traditional medicines, has also observed that the most common source of such knowledge are cattle keepers who use them on their animals and depending on their activities, recommend them for use in human beings. This is another clear evidence that traditional methods of animal health care are in use but have not been documented. There is negligence on this rich and often fast disappearing body of local knowledge as reported by McCorkle (1989) though there is increasing interest among many people to use medicinal plants largely because the so called western drugs are very expensive and in many instances not available to them. Although the



local people have long survived on herbal control of various animal diseases, its importance had not been given due respect because only a handful of people knows its value.

This scientifically indefensible one's own knowledge is normally passed on orally from one generation to the next when the father or medicine man is getting old or just about to die to first born sons or to other trustworthy persons. The inheriting person often takes an oath of secrecy. A lot of valuable information can be lost or distorted whenever a medicine man dies without revealing his knowledge. A major problem for the medicine man is to keep the knowledge secret and confidential (Kokwaro 1993).

Most botanists and ecologists today believe that about 20 to 25% of higher plant species currently in existence will become extinct before the end of this century (Principe, 1985). Therefore, it is essential to carefully document the local knowledge of disease management for possible use in future as the use of local medicinal plants varies among species, places, tribes, diseases and even among individuals. There are, of course, many similarities in the utilization of the plants as well.

Stem (1996) noted that ethnoveterinary studies can make important technical inputs to livestock development initiatives via the discovery of traditional techniques of disease treatment or prevention that may approximate, equal or surpass those of their western counterparts in a given situation.

While leaders are discouraging the use of local plants and advise people to use modern medical facilities, one would appeal to modern scientists not to ignore the whole field of local drug plants. It would be most appropriate and rewarding if modern chemical analyses



would be applied in order to detect the medicinal values of those plants reported to be of use.

In a broad perspective, this study aimed at documenting ethnoveterinary knowledge and practices among the Kazo pastoral community of Uganda. More specifically, it focused on collecting and identifying the medicinal plant voucher specimens used by the Kazo cattle keepers and retrieving and documenting other ethnoveterinary practices by the Kazo pastoral communities.

## **2. MATERIALS AND METHODS**

The research area was Kazo County, Mbarara district, South Western Uganda. A pre study visit was made to the study area during which the investigators held an informal discussion with the community including the local councillors, veterinary staff, pastoral leaders, a few selected community members and the Dryland Husbandry Project officer who earlier had mobilized the community for the meeting. The investigators briefed the members about the intended research, its objectives and the methods to be used for information collection.

Participatory Rural Appraisal (PRA) methods (informal conversation, direct observation, ranking and a semi-structured interview) (Rudqvist and Tobisson, 1991; Chambers, 1992; Nabasa et al. 1995; Waters-Bayer and Bayer, 1994; Natural Resources Institute (NRI), 1996) were employed to obtain information on ethnoveterinary knowledge and practices by Kazo pastoral communities. Interviews were carried out using a semi-structured questionnaire.

Direct observations and field excursions were carried out during which the reported medicinal plants were collected for pressing and



preservation and the photography of some specimens were taken. The pressed voucher specimens were later identified in the herbarium.

A list of reported medicinal plants were recorded together with the corresponding animal diseases they treat, plant part(s) used, method of preparation, dose and dosage rates where applicable were put down.

Pair-wise and preference ranking of medicinal plants and method of treatment against specific diseases were done. Reasons for preference were also solicited.

### **3. SURVEY RESULTS**

#### **Traditional disease Management**

According to Kazo pastoralists, in the past, they would move with their livestock in search of pastures, water and avoidance of some disease calamities in case of outbreaks. This was a good practice as it assured herds' survival. However, recently, herd movements have been restricted and people have settled. This is perceived as good but also have bad results like forcing herd size reduction and more mortality in case of natural disasters like drought and disease epidemics. Traditionally, these herders used traditional medicine to treat and/or prevent livestock specific diseases/conditions, a practice that has now been surpassed by the introduction of modern veterinary services. The following information has been gathered from the herders' visited and interviewed.



## **Part of the plant used**

According to Kazo herders, this varies from species to species and also depends upon the structures of the plant. For trees and shrubs, the common practice is to use barks, leaves or roots and less commonly used in this group are the flowers while fruits are rarely used. Among the herbaceous plants, the use of grasses for medicinal purposes is very rare. With the herbaceous plants, generally, there is tendency to uproot and use the whole plant. For the succulents, the leaves and whole stems are commonly used, especially in cases where the treatment requires a poultice.

## **Preparation of the drug**

The herders reported several methods by which the drug plants or their parts are prepared before they are given to the patient. One of the common methods is by boiling plant parts. The roots and bark of the trees are commonly boiled and the resulting concoction used either internally (orally) or externally. Leaves are generally pounded and then soaked in cold or warm water and then used either internally (orally) or externally (topically). The third method is by burning the whole plant or just the useful plant part to ash. The common practice here is to dry the plants before burning. The resulting ash may be used in several ways. Pounding is a procedure that normally precedes other methods like boiling, soaking or burning. In some cases, however, the plant or its part may be pounded and applied directly as a paste. Such preparations are commonly used externally, as in case of fractures, wounds, boils, and other skin diseases like ringworm. In this case the concoction is mixed with some kind of cream like ghee or vaseline and covered with bandage. Another quick method is by chewing, commonly used with leaves and roots. Leaves, roots or bark are frequently chewed as quick treatments for snake bites, eye



injuries, or stomach problems for humans (emergency).

### **Application of Drugs**

The herders revealed that there are many methods of applying and administering the prepared drugs to the patient and these depend largely on the particular disease to be treated. The application also follows closely the method by which the drug has been prepared. Juice from boiled stuff is frequently drenched for internal ailments or systemic treatments, or drenched and at the same time used to wash the patient. The same methods are used in applying soaked drugs. Pounded stuff unless further boiled or soaked, is commonly mixed with ghee and simply rubbed on the affected area/part. Alternatively, it may not be mixed with ghee but simply rubbed or tied with bandage to support it at the affected area. Sometimes, the affected part of the body is cut open with a razor blade, and then the medicine is rubbed in small incisions. The main purpose of chewing a drug is to extract juice, which can be swallowed, spat on the wound or simply retained in the mouth for mouth affections. Ash from burnt drugs is commonly licked for internal ailments, applied directly on the wounds if open or small cuts deliberately made by a razor blade, or rarely soaked in water and drenched. In most cases, the ash is mixed with salt or ghee. Quite often, the drugs are mixed with food/feeds and eaten, as for drugs used for increasing milk production.

Though there is a popular belief that traditional medicine has ceased due to invasion of modern medicine, many (6.8%) Kazo herders still have strong faith in the use of traditional medicine and they always consider it the first aid of livestock disease treatment as they wait for modern veterinary services. The Kazo herders further acknowledge that modern treatments are very expensive in terms of cost and



accessibility compared to traditional treatments. They also acknowledge that, not all people who use traditional medicine have expertise in all health conditions. Therefore, there are specific people with expertise in some conditions like dystocia correction, fetotomy, and fracture repair. To perform some of these practices, the expert charges between ten thousand Shillings (equivalent of 5 USD) and fifty thousand shillings (25USD) while for repair of a severe fracture, they charge the equivalent of a bull (150 USD).

Though traditional medicine is still treasured by majority (92%) of the aged (>60 years old), very few of the young generations, know and use traditional treatments. This is probably due to being influenced by western technology and/or the aged people may have informed them less about the use of traditional medicine as they consider it confidential. This may be particularly true, as it is a source of income for some people. Most knowledgeable/resource persons have disappeared from the community and therefore the young generations know little about traditional knowledge of livestock disease management.

To conserve indigenous knowledge, the community advises that both the young and the old people should be mobilized to a common place and they exchange or pass on the knowledge to those who do not know with eventual book writing for documentation.

Furthermore, they suggest that, traditional knowledge should be fairly modernized through research centers although modern technology and education has led to decline in the use of traditional knowledge in favor of western technology.



#### 4. COMMON DISEASES AND CONDITIONS OF MANAGEMENT

##### **East Coast Fever, bovine theileriosis (Amashuyo)**

For most herders (77%), East Coast fever (ECF) is the most frequent and economically important disease. It is fatal to calves and exotic or improved cattle breeds. The majority of the pastoralists (58%) believe the ticks are the cause of the disease while others (42%) think it may be due to suckling of too much milk. The herders describe the clinical signs as hypertrophy of the lymph nodes (86%), lack of appetite, hair standing up, diarrhoea, cough and sometimes dysentery.

The first line of treatment of this disease by most herders (59%) is to cauterize or cut open the swollen lymph nodes. After burning or making small incisions on the lymph nodes, they rub into the sap/juice from *Euphorbia candelabrum* or *E. teke* or "Bwomi" roots or some times the juice from *S. incanum* fruits. Others burn the scales of snakes to get ash that they rub in the incisions. In addition to this procedure, they administer herbal medicine in form of oral drench and the following medicinal plants are used. *Phytolacca dodecandra*, *Vernonia amygdalina*, *Crassocephalum bojeri*, *Indigofera arrecta* leaves, "Nyabwenyi", *Rhectophyllum mirabile* leaves, *Rytgynia beniensis*, *Helinus mystacinus*, *Clerodendrum rotundifolium*, *Leonotis nepetifolia*, *Solanum aculeastrum*, *Clerodendrum myricoides*, *Cannabis sativa*, and *Achyranthes aspera*. They may be administered alone or mixed with either cow urine, whey, water or milk before they are drenched to the sick animal. Some medicine is extracted by pounding the plant parts to get juice that is administered as nasal or ear drops as in case of *Cannabis sativa*. Other herders vaccinate the animal with the scales of a snake that they burn to ash and the ash is smeared into small incisions made on a cow that has



not yet suffered from ECF. With this vaccination, the herders claim the animal will never suffer from the disease.

### **Babesiosis/Red water disease (Omutsito)**

This disease seems to be very rare in the area as very few people (22%) mentioned it. It appears mostly in the rainy season and affects cattle of over three months of age. Majority of stock owners note presence of ticks when the disease is prevalent while other said the cause is unknown, some few believe the herd's bull is the cause of the disease so they recommend sell or slaughter of the bull.

The herders in Kazo said the trouble begins with loss of appetite, fatigue and sensitivity to heat, running nostrils and eyes. The progressive worsening of the main symptom, jaundice, is accompanied by coughing and drooling of saliva. The generalized jaundice also affects urine and oral mucous membranes. Blood in urine is the main sign of the disease as observed by Kazo herders.

Once the disease is suspected, they treat the affected animals by using the leaves of *Parvonia* sp, or *P.dodecandra* plus *Maerua triphylla* plus *Tagetes minuta* which they pound and dissolve in water, then drench the patient. They drench the adult animal with one litre and the calves with half litre. Others use the leaves from "omugiti omuhango" which they boil and drench any unspecified amount. Some herders cauterize the sick animal by making three lines on both sides of the body parallel to the hypochondrial region.

### **Anaplasmosis, gall sickness, galsiekte (Kashanku)**

The disease called Kashanku by Kazo herders may be Anaplasmosis. According to the herders, an animal suffering from the disease fails to



eat, eyes run, and mouth become dry, and cracks appear on the nose. The animal's faeces become very dry. When the animal dies the omasum is found to be very dry.

To relieve the animal, a number of medicinal plants are used some of which are given as oral drenches while others are given as enemas. Those given as drench include roots of *Cymphostema quadrangularis*, *Leonotis nepetifolia*, *Chenopodium opulifolium*, *Senna didymobotrya*, "omugango", elephant dung, ruminal content of goats, leaves of *Rhus natalensis*, leaves of *P. dodeccandra*, *Senecio subessile* leaves, sweat potato vines, leaves of 'omucuura', *Euphorbia teke*, mixture of *Caspiscum frutescens* fruits with *Legnaria sphaerica* and *Clerodendrum rotundifolium* leaves; Omo soap as enema, *Parvonias* sp leaves and *Houslundia opposita* leaves. The mixture of *V. amygdalina* and *Basella alba* leaves are given as enema followed by manual removal of the hard faeces. The mixture of *Solanum incanum* leaves, leaves of *Hibiscus fuscus*, and leaves of *Indigofera arrecta* are pound into paste and put in the mouth of the animal to eat. There is no general agreed dose/dosage to these preparations but it ranges from half a litre to 20 litres drench. Some people inject 10 ml of Salamia® intramuscularly.

### **Heart water (Omutsimagiro)**

The disease is said to cause the affected animal to move in circles with head pressing on objects. Some herders (48%) also believe that it is due to untreated tick disease though unable to define the specific tick involved. It is explained that the disease is treated using different medicinal plants as described below.

The leaves of "ebikwatsi" mixed with *Cannabis sativa* are pounded and added to water and sieved to get extract. The animal is drenched



with one liter of this extract. The animal is also drenched with extract from a preparation from *Tephrosia vogelli* and *Withania somnifera* leaves. Other medicinal plants used include *Sesbania sesban* leaves, *Rhus natalensis* leaves, *Achyranthes aspera*, *Cymbopogon (nardus) afrionardus*, *V. amygdalina*, ash. These are prepared individually or in combination and are administered without prior boiling. The following medicinal plants are administered after boiling and cooling: *P. dodecandra* leaves, *Rytgynia beniensis* leaves, and *Legnaria sphaerica*, while, the extract from leaves of *Markhamia lutea* is dissolved in alcohol before drenching. Other plants used include "omujumbajumba" *Caspiscum frutescens* fruits, and, *Tetradenia riparia*, *Cassia kirkii*, *Cynadon dactylon*, "entungwabashaija" and "omubwera". To either of the extracts they add salt or ghee before drenching.

Some "expert" pastoralists inject the calf with 10 ml of the dams fresh milk intra- muscularly. Some people administer urine from a menopasal woman that they mix with milk and drench about half litre while others administer quarter litre of local gin (waragi). Others cauterize the neck with hot iron.

### **Ephemeral fever/ Three-day sickness (Kagara/Kabohe/Kagarura)**

The pastoralists acknowledged that cattle suffering from ephemeral fever are ill for about 3-5 days but usually recover completely. The disease is common during the rainy season and animals rarely die of the disease. Once the disease is recognized, they administer medicinal plants to treat the animal. The commonly used medicinal plant in this disease is *Cassia kirkii* whose leaves are pounded and mixed with water or soured milk and given as oral drench (half to 10 litres). Other medicinal plants used as oral drench include "omufwairungu"



leaves, *Capparis tomentosa* roots, *Houslundia opposita*, burnt ash of ekicunga, and *C. quadrangularis* roots. Other people drench the animal with soil from anthill or where *Capparis tomentosa* is growing which is dissolved in water and drenched to the animal. They also boil wings of grasshoppers and drench them while others are tied to the limbs of the animal. Other plants and materials drenched include *Cassia kirkii*, mushrooms, *Abrus precatoris*, ekicunga, *C. dactylon*, *Vernonia lasiopus*, 'emperere' plus coffee berries, *Houslundia opposita*, girl's urine, *Clerodendrum rotundifolium*, *Phytolacca dodecandra*, *Leonotis nepetifolia*, *Casipiscum frutescens* and *Tragia brevipes*. Some people beat the animal with 'amatojo' and tie 'obuhungye' around the neck while others feed the animal with an insect-'mufuirungu'. Another common practice is bleeding the animal from the jugular vein, as they believe that the disease is associated with excess blood.

### **Rinderpest (Omubyamo)**

The Bahima believe that this disease is very dangerous and does not have an effective treatment. All the efforts made are towards preventing this disease from occurring, though they acknowledged that the disease has not occurred in the area for very many decades. Long time ago when the disease used to threaten the area, the pastoralist used to try preventive measures where they would use 'orubyamira', beddings of 'enuma' and dog's hair tied them together and hang in a compound tree for five days and cite: I have also hanged rinderpest here.

### **Foot and Mouth Disease (Ejwa)**

Foot and mouth disease is a highly contagious and infectious disease. The disease is very common in the area and mainly occurs during the



dry season and it normally lasts about a month. The younger animals often die once affected and almost all animals are said to contract the disease if no vaccination or other preventive measures are taken. Herders reported the main signs of the disease as high fever, inter-digital lesions, mouth wounds and hyper-salivation. The disease causes production losses and, normally, if an animal recovers from the disease it develops poor hair coat referred to as "okumera".

The Kazo herders believe that some materials both plants and non-plants can prevent the occurrence of the disease into their herds. The preventive materials are rapped and put in the drinking trough or burnt in the kraal. Those tied include "ekijukyakemire", *Chameleon*/"enyabumba", tied with *Brachiaria platyriota*, and dung or bone of a hippopotamus. These are just rapped and put in drinking trough. Some people lay sticks obtained from "*Bersama abyssinica*" across the kraal entrance. Other materials are smoked in kraal and are a bone of a dog and *Oxygonum sinuatum*. Other materials are prepared for oral drench for the already sick animals and they include skin of hippopotamus in 'orutungatungwe', *Pavetta gandeniiifolia*, *Rhus natalensis*, *Phyllanthus gulneensis* leaves, male part of the *Musa sp* (omukankana) and mud fish soup. Others are rubbed on the hooves of the cow like "Nyakwehumburika" (insect).

### **Growth of rough hair coat after foot and mouth disease/Ebimere**

It is common practice for the animals that have just recovered from Foot and mouth disease (FMD) to develop a stairly hair coat with rough skin. To prevent this condition, some Bahima drench the animal with boiled mad fish at night for some days while others drench the animal with extract from *Helinus mystacinus*. Other people rub the animal with leaves of "emotsa".



## **Helminthosis (Enjoka zomunda)**

This is the second common and economically significant disease in the area as ranked by the herders. It mainly occurs during the rainy season and mainly affects calves and young animals. The herders say that an animal suffering from worm infestation loses weight, coughs, develops diarrhoea, some times pass out worms in faeces and it develops a rough hair coat. They also report that it takes about two weeks to realise the animal is suffering from helminthosis. The commonly used medicinal plant for this disease is *Cymphostema quadrangularis*. The roots are pounded in large amount and added to water and administered as a drench. The calves are given half litres while the adults are given 10 - 20 litres. Toxicity has not been reported with varying dosages. *Phytolacca dodecandra* leaves are boiled in water with some salt for a short time and the animal is drenched with 5 to 10 liters or the animal is allowed to drink freely.

*Vernonia amygdalina* and *Chenopodium opulifolium* or *Clerodendrum rotundifolium* leaves are pounded and mixed with water to get an extract that is drenched to the animal (3-10 liters) depending on the age of the animal. The leaves of "emperere" plus roots and/or leaves of *Monochia subsessile* are pounded and mixed with water for the oral drench. Other medicinal plants used include *Cassia occidenallis*, *Senna didymobotrya*, *Leonotis nepetifolia*, "omusa" (bark), *Microglosa angolense* (leaves) *Legnaria sphaerica* (leaves or fruits) *E. candelabrum* (ash from bark/dry wood).

Note: There is a great variation in dosage rates among individuals, though no cases of over dose had been reported.



### **Thelazia/eye worms (Enjoka z'omumumaisho/eminyoro)**

The herders say that an animal with worms in the eyes develops running eyes and on opening the eyelids, thin worms are seen on the cornea. Most of the medicine used is chewed/pound to extract the juice so that it is administered as eye drops while others are burnt to produce smoke to fumigate the eyes.

The commonly used medicine is smoke or juice of tobacco followed by *Pseudothria hookeri* leaves whereby juice is squeezed from 3-4 leaves of tobacco and 3 drops are put into the eyes twice a day for about three days. Other plants used include: roots of "Ishamwe", *S. incanum* fruit juice, *Parvania sp* leaves, *Ocimum suave*, *Lantana trifolia* leaves, *Rhus natalensis*, *Leucas nepatifolia*, *Phasealus lunatus*, a tick, "omunyobora" and/or blood of cattle. Some people clean the eyes with drops of paraffin mixed with water while others dissolve salt and put the solution into the affected eye.

### **Liver Disease of goats (Okurwara ekine)**

While this condition is not well described, the Bahima administer the suspected goat with a concoction from the pounded leaves of *Rubus cordyolia* after mixing it with water and drench a quarter liter of extract.

### **Anthrax (Kotto)**

The pastoralists believe that the disease comes from the hot soil/ground. They also believe that hot soil predisposes the animal to the disease. For the Kazo herders the disease is peracute and the animal is found dead without prior warning. Most pastoralists have a problem differentiating between black quarter and anthrax and



therefore there is no separation in the treatment of the two diseases. Some people pound leaves of *Capparis tomentosa* and add water and drench 20 liters, thereafter the residues are rubbed into four small cuts made on the body. Others inject 1-2 milliliters of Salaria<sup>®</sup> syrup. Some people cauterize the body of the animal using warmed twigs of *Albizia coriaria*. Other medicinal plant preparations administered as drench include *A. coriaria*, *C. quadrangularis*, *P. dodecandra*, *Rhus natalensis*, *Erythrina abyssinica*, *Legnaria sphaerica* and *Microglosa angolense*. Some people burn to ash the horn of a dog and add salt to the ash after which they dissolve in water and administer as an oral drench.

### **Blackquarter (Obuzimba)**

The disease is considered a very dangerous one. The herders treat the affected animal by making small incisions on swollen parts of the animal to drain excess blood after which, they smear paraffin. In addition they commonly administer a plant medicinal concoction from *Capparis tomentosa* leaves, or *Rhus natalensis* leaves and/or extract from *C. quadrangularis* roots while others smear the affected parts with a paste prepared from *Phyllanthus fischeri* leaves. The herders also carry out a form of vaccination whereby they feed non affected cattle with cow dung from an affected animal while others put blood of a dog into the herds' drinking water.

### **Abortion (Brucellosis/Hygromas/Obutorogye)**

According to the pastoralists, the disease is characterised by hygromas on joints and stiffness. If they are pricked a black and very sticky liquid flows out and there is a characteristic abortion or birth of weak calves.



Abortion is said to occur if the cow passes out the immature fetus before full time. It is diagnosed when they find blood at the vulva, see aborted fetus, see hanging placental parts, or see her straining in pain with vaginal discharge. The herders said that a bull causes abortion if it mounts a pregnant cow and the dry season is also incriminated among the causes. Others say that the cow has the habit of aborting. However, the Kazo herders could not differentiate abortions due to brucellosis and other causes though they could give characteristic signs that could tentatively give clues on the cause like development of hygromas, delivery of weak calves accompanied by increased placental retention rates.

Once the cow is diagnosed with the problem, the treatment consists of cauterising the hygromas and other parts of the body with bursitis and administration of medicinal plant extracts. The medicinal plants used include among others; *Dracaena fragrans* which they boil and drench all cows in the morning, a concoction from either, *V. amygdalina* leaves, "oruhega" leaves, *Cissua quadrangularis*, *Rubus keniensis* root, *Cymbopogon afronardus*, plus salt. The animals are drenched or allowed to drink freely. If it is assumed a habit, then, they drain the cow of excess blood when she is about three months pregnant, as this is believed to reduce the body temperature.

### **Hygromas (Ebiiga/ebigoye)**

To treat hygromas, the herders use the ash from burnt *S. incunum* fruit though the commonest practice is to cauterize the swelling with a hot iron. They make small incisions from which they smear this ash. Other plants/materials used include *Monochia subsessile*, *L. Sphaerica*, *E. candelabrum*, *phytolacca dodecandra*, jecko, tobacco, and chameleon. All these are dried and burnt to ash that is smeared in



the small incisions made around the hygroma. Smearing of ash proceeds draining of the hygroma.

### **Contagious Bovine pleura pneumonia (CBPP) (Kihaha)**

This disease is believed to be foreign in the area and it is expected to have been introduced from north-eastern Uganda during 1980s. The disease caused a lot of deaths, as it has no definitive treatment. However, once recognized in the area, the Bahima use the roots of “Kyakuyamabaki” which they rap in a bark cloth together with “orucwamba” and the bundle is placed in the drinking trough where it stays for four days. This is done to prevent the disease from attacking the herd. Others drench 10 liters of the boiled roots of “omunyinya”.

### **Lumpy skin disease (ekifuruuto)**

The Kazo herders acknowledge this is as a very dangerous disease that once an animal gets it, it can loose the whole skin, and production tremendously goes down. It is characterized by very high temperature. Not much medicine is known to treat this disease. They acknowledge that the disease can only be prevented through modern vaccination. They also said that the effect of the disease can go on for about six months and the pregnant animals normally abort. Sometimes mortality is very high. The sick animal develops lumps/swellings on the skin that would later beome open wounds. The animal may develop lameness and they keep hiding under shade of trees/bushes. The incubation period is said to be four days according to herders. Once the animal is diagnosed sick, the first line of treatment is to drain the blood so as to reduce on viraemia and temperature. Other medicinal plants used include “Iyazi”, *Asparagus africanus*, and *Solanum aculeostrum*. The leaves of these plants are ground and mixed with water for the oral drench.



However, they acknowledge that once it occurs, they can inject 2ml of Salamia<sup>®</sup>, or drench extract from *Senna didymobotrya*. Once wounds have been formed they pound the fruits of *Solanum incunum* and pour extract on the animal to prevent contamination and nuisance flies and or other ectoparasites.

### **Trypanosomosis (Rwakimpumpuri)**

It is reported that the disease has been eradicated in the area. Its characteristics are described as severe emaciation, cough and diarrhoea. They also acknowledge that the tsetse fly is the transmitter agent. During the time of existence of the disease, the herders used to administer an extract from leaves of *Cannabis sativa* and the bark of *Albizia coriaria* after boiling. Some times they would burn an anthill soil and mix it with salt and water and drench the animal.

### **Tuberculosis/Cough (Orukororo)**

The differential diagnosis of tuberculosis from other causes of cough seems to be difficult. However, once an animal develops cough the following medicinal plants are administered: *Crassocephallum mavini* leaves, *Cissus quadrangularis* leaves and *Strychnos* sp leaves. They are first boiled or steamed on charcoal before they are administered. Some people administered *C. quadrangular* roots after pounding it and added to water while others administer bee honey to sooth the cough. Some people have reported use of a bird - "ekishamututu" which is boiled and its soup drenched in the morning. Other materials used include *L.sphaerica*, *Cucumis aculeatus*, "entonyangwa water", *Crassocephallum bojeri*, "omubwera", goat's urine, *S. incanum* with ghee. Others cauterize the ribs.



## **Orf (Ebihata)**

Once this condition has occurred, the Bahima scratch them with rock salt and *Cymbopogon afronardus* leaves and thereafter smear the wounds with yellow banana, chicken droppings or cow dung after cleaning with urine. Others mix urine with salt and smear it to the wounds while some use peeled unripe beer banana to smear the wounds. The following medicinal plants are also used: omuruku to drench the animal with a quarter litter of extract. A paste from *A.siebeiriana* leaves is also smeared to the wounds.

## **Colibacillosis (Encugura y'enyana)**

This is believed to be white diarrhoea in calves of less than three months. Colibacillosis is probably the most common form of diarrhoea in young animals according to herders. As described by herders, it presents with profuse watery whitish diarrhoea, the calf looks weak, there is little or no fever, and affected calf cannot suckle. The new borns may die. Despite their ability to describe the clinical signs, the herders have little knowledge about the causes of the condition though they believe it is due to drinking too much milk.

The herders acknowledged use of some medicinal plants to treat the condition successfully and among which they include: *Paulinia pinnata*, *Cannabis sativa*, *Parvonias* sp, *Thunbergia alata*, *Ficus* sp, *V. amygdalina*, and *Pseudantria hookeri*. The leaves of these plants are pound and added to soured milk or water and drenched to the calf. The dosage ranging from half litre to one litre and is repeated 2 to 3 days. Some people believe that if the anus is burnt with a hot iron the diarrhoea stops.



### **Liver flukes (Emishundo)**

The herders acknowledge that the disease affects the liver and that live parasites are seen in the liver pipes when the animal is slaughtered. They treat the disease using a number of plants depending on individuals. Some burn "empikye/oruhega" together with *E. candelabrum* to get ash that is mixed with pounded *Cissua quadrangularis* leaves, *V. amygdalina* leaves, salt and dissolved in water to obtain the extract which is sieved ready for the oral drench. Others pound *Cympostema quadrangularis* roots and mix it with water to get extract that is drenched to the animal at a rate of 5-10 liters in a single dose.

### **Headache (Okuteerwa omutwe)**

The first line of treatment in this condition involves cauterization of the face and/or draining of blood from the frontal vein above the nose. Others use flowers of tobacco which they pound, boil, cool and sieve and put one drop in each nose in the morning. Others use *Cannabis sativa* which they squeeze the leaf juice into the left nose and right ear. Other farmers put a drop of paraffin in one ear and nose. The roots of "efuha" are boiled with juice of the *S. incanum* and a drop of the extract is put in the nose in the morning. The head of a bird called "enkomangwa" is tied on the head of a cow. Others use *A. pedunculata* leaves and roots plus whey after incubating them under the sun and put 25 mls in each nose.

### **"Heart disease" of Cattle (Ente kurwaara omutima)**

This condition is also not well understood though pastoralists claim it is the heart disease. The herders administer the concoction prepared



from pound roots of "efumbatwa" and thereafter drench half liter of extract.

### **Coccidiosis (murangaro)**

Herders only diagnose the disease in poultry as it was not mentioned in ruminants. Once poultry are observed sick, they administer ash dissolved in water, or pound the Chilli pepper fruits and mix it with water and give birds to drink. It is important to note that due to mobility of pastoral livestock, coccidiosis is not common among their livestock herds.

### **Diarrhoea (Encugura)**

Diarrhoea to pastoralist means expulsion of uncontrolled watery faeces by the animal. A number of medicinal plants are used to combat diarrhoea in livestock and humans and they include: buds of *Pseudathria hookeri*, *Thunbergia alata* leaves, "Omuhororogwensi" leaves, terminal, *Asparagus tuberosum*, *Rhynchosia resinosa*, *Paulinia pinnata* leaves, *Pseudantria hookeri* and *Parvoniasp* leaves. These are pound and added to water to prepare an oral drench either singly or in combination depending on the individual. Others cauterize the outlet of the anus.

### **Opthalamitis (Non specific eye infection)-Amaisho**

Almost all medicines for this condition are given intra-ocular where the plant parts are either used fresh or first steamed under fire and later the juice squeezed in the eyes. The commonly used are *Erythrina abyssinicanigorani*, and *Asparagus africanus*. The following plants are used to treat the disease: *Asystasia gangetica*, *Biden pilosa*, *Ocimum suave*, *Crassocephallum bojeri*, *Sporobolus*



*sp*, tobacco, *Oldenadia capensis*, *Scutia myrtina*, akayenje akomwishwa, *Melanthera scandens*, *Parvonia sp*, *Capparis tomentosa*, "enyansi", *Acacia hockii*, 'omunyambiriko', "omuturashoongi", *Sporobolus sp*, *Rhus natalensis*, entakara, *L. martinicensis*, eshamwe, *Lantana trifolia*, flower of *Erythrina abyssinica*, *Oldenadia capensis*. All the mentioned plants are pound and the juice is applied as eye drops.

### **Bloody Diarrhoea (Kyamba)**

The patient presents with blood in faeces that may be much or as spots according to herders. The cause is unknown. The herders use both plant and non-plants to treat the condition. The medicinal plants commonly used in order of preference include *Parvonia sp*, *E. abyssinica*, *Paulinia pinnata*, *Ranunculus multifidus*, *Pseudantria hookeri*, *Abutilon mauritianum*, *Cannabis sativa empikye*, *Monochia subsessile*, goats pellets, *H. opposita*, *Cassia occidenatlis*, *Helinus mystacinus*, *G. similis*, *Phyllanthus gulneensis*, *Vernonia amygdalina*, "enyansi ", *Tinnea aethiopica*, *Cymbopogon (nardus) afrionardus*, "Nyakabugu" *Erythrina abyssinica*, Nyabwenyi, *Rhynchosia resinosa*, and *Agave sisalina*. These plants are either pound fresh and drenched after mixing with water or soured milk or they are first boiled and cooled. The dosage is between half liter to one liter for about three days. The non-medicinal plants include cement, blood, goats' pellets and "empikye". Others boil stones in water and drench the animal with the water after cooling it over night.

### **Fracture**

Animals suffer from broken bones for many reasons. The pastoralists ascribe fractures of limbs to falling down on slippery or steep slopes, fighting or being beaten with a stick or stone deliberately and



predators. Bones can break in the middle or at the joints and it may involve a single break (simple fractures) or the bone may break in several places (compound fractures).

An animal with a fracture will present with lameness, crackling sound when the affected bones are moved, swelling of the area around the break, the animal lies down with reduced appetite, in pain, some times there is an open wound at the fracture site.

An affected animal is treated by using either *Indigofera arrecta*, *Solanum aculeostrum*, *Cynadon dactylon*, *kaguru kamwe*, *ebikwatsi*, *Sida rhomifolia*, *S. incanum*, *obweyerezo/Indigifera spicata*, *Cymbopogon (nardus) afrionardus*, *Mangifera indica*, *Strychnos sp roots*, *omubwera*, *Hibiscus fuscus*; *anthill* soil and always with ghee. The plant parts are pounded and mixed with ghee and/or anthill soil, they use this paste to massage the fracture site and there after carry out proper alignment and apply the splint to support the fragments. The splint is changed every five days. In some cases the paste that is tied at the site is changed every three days till the fracture heals.

### **Mastitis (Effumbe/ okuzimba omuhako)**

Most preparations are given topically where the medicine is ground and smeared to the painful udder. Some are given singly while others are given in combination. The medicinal plants used include among others: *P. dodeccandra* mixed with “oburimbato” and “ekicunga” plus ash; *Capparis tomentosa*, *Asparagus africanus*, *Crassocephallum bojeri*, *A. siebeiriana*, *Scutia myrtina*, *akangayonza* leaves, *empunda*, *Phyllanthus fischeri* leaves, *E. candelabrum sap*, *E.teke* "omutegansi" roots, "omuyonza", *Rumes usambarensis*, "ebikwatsi", *Plectranthus barbatus* and *Phyllanthus fischeri* and salt. The paste from these plants is smeared on the udder. Other materials



used include beak of crawl, “empikye”, shell of snail, soil from anthill, mad fish and a horn. Into these materials you strip the sick teat directly into the mad fish or crawl beak or the shell of the snail.

### **Retained Placenta (Okucwera ebizimu)**

The herders acknowledge that they get concerned if the after birth (placenta) does not come out within about 12 hours after parturition and a small piece of the after birth hangs out from the vulva, which smells and is rotten. They attribute the cause to certain disease and giving birth to premature. To relieve the animal of the problem, some herders gently pull on the hanging piece, while the other hand gently peels the after birth off the inside of the uterine wall. Others administer a variety of medicinal plants either in combination or individually to relieve the condition.

The following plants are used as oral drench: *Basella alba* (the commonest), *Adenia gummifera*, *Helinus mystacinus*, *Vernonia amygdalina*, *Solanum terminale*, *Adhatoda* sp, "ekimenyamenya", *Leonotis nepetifolia*, cow dung, *Ricinus communis*, *Helinus mystacinus*, rotten *Musa* sp stem, *Senna didymobotrya*, *Ricinus communis*, *Rhus natalensis*, *Sesamum angustifolium*, *Phyllanthus gulneensis*, *Leonotis nepetifolia*, roots of *Asparagus tuberosum*, *S. incanum*, ash from *E. candelabrum*, milk and salt. *E. teke*, *Cissua quadrangularis*, *Senecio subessile* "akarandarugo" *Parvonia* sp. *A.conaria*, *P. dodecandra*, *Senna didymobotrya*. Others drench the dam with her own milk. When *Basella alba* is boiled with *E. teke* and administered to the cow with a retained placenta, it develops severe diarrhoea that also causes the placenta to come out. The dose of oral drench depends on an individual but generally range from 2 litres to 20 litres. *Brachiaria platyriota* leaves is chewed and blown into the vagina. Others are burnt to ash and added to ghee and smeared to the



cervix and they include *Eulophia stretopetala*, *E. candelabrum*, and *ekicunga*.

### **Low milk let-down (Okugonesa)**

A cow is considered to have low milk let down when after calving down she cannot produce enough milk for the calf and/or the family. To boost milk production a number of medicinal plants are used as either oral drench or as feeds. The plants include *Basella alba* (the mostly used medicine), *Helinus mystacinus* leaves, *Cucumis filifolius* roots, “orweyezya” roots, Bee combs (ebishashara byenjoki), *Artocarpa heterophylla* fruit, *Adenia gummifera* leaves, *A. sieberiana*, *Portulaca grandiflora*-bwomurutokye, *Sesbania sesban*, *Corchoris olitoris*, “omugiti”, “akongo”, *Maerua triphylla*, *Abrus precatoris*, *Corchoris olitoris*, *Kalankhoe glaucescens* “kyasharukamwa”, “akarandarugo”, *Leucas martinicensis*, skin of enuuma, *Abrus precatoris*, ekijukyakemeire, “akongo (akaho)”, “orukamisa” roots, “ebishorobwa”, “orutungatungwe”, *Houslunia opposita*, “emiyonza”, “kashenyanku”, “omwanigwensi”, *Musa* sp (yellow bananas), red ash/soil from fire place, banana juice, *Opuntia* sp, pineapple juice, “emikoma”, “entonyangwa”, “eizinga”. Most of these are pound and mixed with water and are given as drench after adding little salt while few others are boiled and drenched. The dosage range from 1 litre to 20 litres. Some pastoralists drench the cow with millet porridge.

### **Low milk let down (Ente kubura amate).**

A number of plants are available that increase milk let down. Some are given as oral drench or feeds while others would be smeared on the udder and or administered as pessaries. Those given as drench include *Basella alba* leaves, “oburimbato” leaves,