

“Ekijukyankemeire”, *Sesbania sesban* leaves, “akarandarugo”, “emiyonza” roots, “akongo” fruit, *Maerua triphylla* leaves, maize flour, *Abrus precatoris* leaves, *Corchoris olitoris* leaves and obugando leaves. Some of these are given fresh while others are first boiled; and those boiled first include “ekijukyakemeire”, “akongo”, “emiyonza”, *Abrus precatoris* and “obugando”. The dose for oral drench ranges from 2 liters to 20 liters. The dosage depends on an individual and no history of over dosing was reported in any case. The medicines used as feeds include “kyasarukamwa” roots fed in the last term of pregnancy, *Artocarpa heterophylla* fruit and “akanekyenekye” leaves and stem fed immediately after parturition. Others are put intra- vagina and they include *Solanum incanum* fruit while *Phyllanthus gulneensis* leaves are pound and smeared on the udder and teats.

### **Uterine prolapse/Okumurika**

The Bahima acknowledge that prolapse may occur before, during or after parturition or can be a partial Prolapse. Before any treatment is done, the uterus is cleaned with warm salt water and protected on clean grass or skin. A number of medicinal plants are employed to return the prolapse. Most of the medicinal plants are prepared and poured or sprinkled/smeared on the Prolapse. They include: *B. longipes*, *omumuri*, *jasmine eminii*, *Dicrocephalia integrifolia*, *akabogore akakye*, *Brachiaria brizantha*, *Erythrina abyssinica*, “*P.dodecandra*” *Chenopodium opulifolium*, *H opposita*, *S. incanum*, *Ruella patula*, *Slug shell*, *Capparis tomentosa*, *L. sphaerica*, *akati katirwe enkuba*, *Cyperus articulatusba*, *Solanecio cydoniifolius*, *obwishwa*, *Grewia similis*. Also a tribe called “abanyamafundo” who spit on it and it returns back. Those given as drench include *Senecio subessile*, *Melanthera scandens*, *Phytolacca dodecandra*, *Canthium schimperionum*, *Leonotis nepetifolia*, *L.sphaerica*, *Sesbania sesban*.



Some plants are only prepared and tied to the animal and they include root of *Withania somnifera*, Akatsis. Also in use is the ash obtained by burning the slug shell or use it alive. The slug is smeared on the prolapse and this causes retraction of the prolapse or the burnt ash is smeared on prolapse after mixing it with ghee. Some plants are burnt to produce the smoke that is directed to the prolapse as in "omumuri". Some specialists first drain the prolapse of excess blood by using warm iron then push the prolapse and stick the vulva or put a purse string to prevent further prolapse. This is conducted in "very hygienic" conditions.

#### **Closed cervix at parturition (Enda kukwata)**

Kazo herders report that some times the cervix of the cow fails to open during parturition and as the cow pushes, the calf cannot pass out. The herders use some plants to cause the cervix to open among which are "empara", *Caspiscum frutescens* (Chilli) and/or *Eulophia stretopetala* in addition to water. The chilli is pound and added to ash and ghee and smeared onto the cervix, while *Eulophia stretopetala* roots are dried and ground to powder after which are smeared in small incisions made at the labia majors. "Empara" roots are chewed and blown into the vagina or one may blow the water into the vagina.

#### **Change of sex of off-springs**

Some animals may keep producing off-springs of one sex which may be undesirable to the owner. However, cattle keepers believe they can cause the cow to change the sex of off-springs. The following plants are used: Pounding the leaves of *Justicia insielaris* and drenching the cow. Others claim that if nine seeds of "omwenyi" or five fruits of *Hibiscus fuscus* are tied in "ejubwe" and fed to the cows four days after service, this will cause the cow to change the sex of the fetus



while others administer four seed/fruits from “omunyobora” at mating for eating. Some herders burn to ash the female cowary shell four days after mating and dissolve the ash into water that is drenched to the cow or drench the cow with soil from where the bitch has urinated. Others drench the cow with extract from pounded leaves of “ekinyabaishiki” and thereafter let a young girl pass between the legs of the cow or urine of a young girl in the evening. Others use *Rhipsalis baccifera* (grows on other trees- parasite), Cut this plant and tie it with a rope and drag it, thereafter pound it and mix in 20 litres of water and give the extract for drinking in their drinking trough in the evening. Others drench the cow with half liter of a bitch's urine while others administer nine seeds of “obuziibira” shortly after calving. Other herders drench the animal with extract from *Dombeya burgessae* bark after mixing it with whey. The residues of the extract are rubbed at the bark of the breeding bull beginning from his hamp to down his switch.

### **Dystocia (Okukiika kw'encwamutwe/okuremwa kuzaara)**

Some times the calf is poorly/wrongly presented or the calf is too big for the pelvic cavity for normal delivery as explained by the Bahima. However some pastoralists have expertise in dystocia correction of performing the fetotomy. They acknowledge that the operation has to be done under clean hygiene though no anaesthesia is given. By using a small knife and ropes a fetus is cut into small pieces till all the parts are removed in case of the fetal oversize. If it is poor presentation, the experts gently pushes the arm smeared with ghee into the vagina/uterus to locate the fetal parts as he relocates them into the normal presentation and thereafter the fore limbs are tied with ropes to assist pull it as the head is being guided. They also acknowledge that they have to pull at the time when the cow strains. After successful delivery the cow is drenched with concoction from



*Viamygdalina* leaves or “omumemeno” leaf extract. An extract from *Erythrina abyssinica* (mankazi) is used to wash the dam.

### **Snake or dog / bite/poisoning (Okurumuura Enjoka/Embwa)**

According to the herders in Kazo, an animal bitten gives a long moo when bitten, the area becomes black and the cattle sweat profusely around the nose and salivates. The most importantly used plant preparations are given orally and splashed on the wound. The following plant preparations: *Mimosa pigra*, *Rubus steuneri*, and *Capparis tomentosa* are commonly used. These have been considered highly effective in combating any kind of poisoning resulting from animal bites. The bark of the roots of the first two and the leaves of *Capparis tomentosa* are pounded to get juice that is used to wash the bitten site and others is mixed in water to administer as oral drench. The residues are also tied at the site to further attract the poison from the body. Other plants used are *Asclepia pedunculata*:, *Microglosa angolense*, *Sesbania sesban*, *P.dodecandra*, *Jasmina eminii*, "Kyabyesigirwoha", *Maerua triphyla*, "omumemena", *C. dactylon*, tobacco and cow dung. These are either pound, mixed with water for oral drench or are boiled to scrub the site. They also report that there is a Bantu tribe- "Abaishikatwa" specialized in treating snake bite using herbal medicine.

The roots of *Rubus kenjesis* are pounded mixed with water and drenched to the animal while the residues are rubbed at the bitten site while the cow dung of affected animal are burnt to ash and smeared to the body of the animal. The leaves of *Asclepia pedunculata* or *Microglosa angolense* are also pounded and dissolved in water to extract juice. The animal is drenched about six litres of juice and repeats the treatment with one litre after an hour. The residues are tied at the bitten site. The bark of *A. coriaria* is also ground to make



powder that is rubbed into the small incisions made in the body. Alternatively, other people use a stick of *Maerua triphyl/a/"omumemena"* and "*Erica kingaensisi*" and then tie the stick to the bitten site.

### **Indigestion**

This is associated with worm infestation though other people claim it to be a habit in some animals. The condition is treated with "Omumara" which they pound the leaves and mix it with milk to drench the animal.

### **Poor mothering/calf refusal (Rwiira)**

A cow is said to have refused the calf if after parturition she does not lick the calf or the amniotic fluids or if later she refuses the calf to suckle and instead begins to fight it. Bahima believe that there is a line associated with this behaviour and or some times they believe that the parturition exercise was very painful thus causing the cow to refuse the calf. However these pastoralists have treatment for such disease. The following medicinal plants are used to cause irritation to the vulva/vagina of the cow/heifer with consequence induction of the mother love for her calf. They are: *Cissua quardrangularis*, *Solanum incanum* fruit juice, *P. dodecandra* leaves, *Ricinus communis* leaves, "obutakuri bwiishwa", *Adenia gummifera* roots, *Cymbopogon (nardus) afrionardus*, *Brachiaria platyriota*, *C. quadrangularis*, *Vernonia lasiopus* and "emboreera". The pound paste of either of these is rapped into a clean cloth and pushed in the vagina where it releases its juice slowly causing irritation to the mucous membranes of the vagina. The presence of this material causes irritation thus inducing the motherly factor with consequential acceptance of the calf. Other pastoralists beat the animal with thorny



plants notably; *Asparagus africanus*, and/or *Acanthus pubescens* while some tie roots of *Vernonia lasiopus* on the head of the cow while pregnant. Others feed the animal with *Thunbergia alatata* and/or an egg of "enturature" when pregnant. Other medicinal plants are pound and their juice is put in the nose and ear as drops and these include *Erythrina abyssinica* and *Erythrococca bongensis*. Some herders drench the animal with sheep milk.

### **Prevention of animals from going away (Okuzinga ente obutagyenda)**

This is done to prevent animals from being stolen by thieves or running back to wherever it might have been bought. The procedure seems to be a myth in its effectiveness. Different people perform a number of procedures.

A stick from *Erythrina abyssinica* or *Grewia similis* is passed between the legs of the animal followed by citation of the following words: I have tied "Siina" and "Kasina" never to leave this area. Thereafter, this stick is tied to another stick and left in situ.

The leaves of *Datura stramonium* are rubbed at the back of the animal while *Eulophia stretopetala* is tied at the animal to remain for some time. Others use the tail hairs from that animal and give it to the woman to lie under her bedding.

'Get a piece of cloth and let a woman that had never divorced tie in her waist and thereafter she ties it around the neck of the animal, remove it and tie it around the calabash/gourd for ghee storage'.



### **Preventing Bulls in a herd from fighting**

Bahima acknowledge that it is a common habit for mature bulls in a herd to fight. The fight can result into fractures or wounds. However, pastoralists can prevent this habit by collecting urine from one bull and drenching it to the other and vice versa

### **Clitodectomy (Okushra akatingi)**

Sometimes heifers have overgrown clitoris with wart-like tissues and as a result refuse to be mounted. As a treatment to this condition the herders reduce this size by using rock salt and ghee to scrub the clitoris and vulva till the warts bleed and falloff.

### **Phimosis (Okushohora)**

The condition is said to present with a penis that does not protrude out side the protrude resulting in failure to penetrate into the vagina. Once the condition occurs, a fruit from *Solanum aculeostrum* is warmed on fire and pushed into the rectum just at the base of the penis. The presence of the warm fruit causes the penis to come out of the prepuce with eventual vagina penetration.

### **Foot Rot/ebyara/Empuuru**

According to the herders, the disease appears when animals stay in mud and dirt for a long time and is common in the wet conditions. The sick animal limps due to splinters or wounds in their hooves. The wounds are due to lodging stones or pieces of wood. The sick hoof develops a whitish, rotting tissue and pus in interdigital spaces. The Kazo herders use the medicinal plants/other materials to treat the condition and commonly used is *Asparagus africanus* where the



leaves are put into the inter-digital space and burnt with "omubundura", or *Acacia.sieberiana*. These are pound and the paste is tied at the sick site after debridement of the foul smelling material. Some people use chicken droppings to smear the site. However, before any procedure the hoof is scrubbed and cleansed with cattle urine. Some "experts" practice hoof amputation if it fails to heal. The herders also practice hoof trimming on their animals.

### **Mange (Omukuuru)**

According to herders, the disease is described as follows:, it starts with itching around the head and with hair standing on end and falling out. The animal sweats a lot and its hide gets sore, skin buds form and the animal scratches madly against objects. If no treatment is given, the hide thickens becoming fissured, callous and scabby. Hair on hide becomes shabby and sparce.

The herders use the following remedies to treat the condition: An ointment made from rancid butter and berries of *S. incanum*, is spread on affected parts. The crushed leaves of tobacco and/or *Tephrosia vogelli* or sisal. The paste is mixed with water to get extract that is used to wash/scrub the animal.

Some herders use a paste obtained from pounding and mixing "Ekyagana", urine and ghee, which they use to scrap the skin of the animal and then smear the whole body with the paste. Others use *Cymbopogon afronardus* leaves and ghee after scraping off the scales. While some people acknowledged use of fire to mildly burn the whole body though this sounds strange.



### **Colic of calves/Ebiruma**

The leaves of empeerere and *Monochia subsessile* are pound, mixed with water and drenched to the calves.

### **"Omubura gwente"**

They use *Maerua triphylla* leaves which they pound and mix with water and drench the animal for four days while pregnant.

### **"Omuze/Kahano"**

As described by pastoralists, the mortality rate of calves from a particular cow is very high to the extent that it is termed a habit. This could be a possibility of Brucellosis but herders generally do not know the cause of the condition. To treat the condition, the herders chew the roots of tobacco and spit drops in the nose while others boil roots of *V. amyglaina* and drench the cow before it begins suckling the calf. Other medicinal plants used include: *Cymphostema quadrangularis*, *Tephrosia vogelli*, *Tetradenia riparia*, *O. suave*, *Solanum aculeastrum*, *Phytolacca dodecandra* and urine of goats.

### **Cancer (Enkana)**

According to herders, an animal suffering from this condition presents with a swelling around the neck that causes coughing. On palpation of the swelling they feel a hard mass though with little pain. Therefore the condition is likely to be a kind of tumour. The herders administer the extracts from the following plants either as oral drench or as nasal drops to treat the condition: *Solanum aculeostrum* fruit, *Capparis tomentosa*, "enyantsi", *Sorghum incanum*, *Cissus*



*quadrangularis*, *Cucumis.aculeatus* and *sporobolus sp.* Other herders acknowledged that they cauterize the swelling.

### **Ulcer (embwa disease/ekishega)**

The herders acknowledged that an animal suffering from this condition presents with a non-healing wound possibly indicating an ulcer. The wound is also said to bleed regularly.

Though acknowledged the presence of the condition, they were to report it is a rare condition in the area. To treat the wound the herders first clean it by debriding it of the bad material and then cauterized it 4 to 5 times. Some herders apply the paste of the following plants to the cleaned wound; *Solanum aculeostrum* fruit, *Capparis tomentosa*, "enyantsi", *C. quadrangularis*, *Sorghum bicolor*, *Tobaccum nicotiana*, *Sporobolus sp*, "mukyucukye" roots, *E. candelabra* sap, "akanzironziro", roots, *Erythrina abyssinica* "omukorokombe" roots and *May tenus senegalensis* roots. Others use non plant materials to dress the wound and they include: chicken droppings, hyena dung, ant hill soils, the ash from dog bones. The *Legnaria sphaerica* fruit is used to provide a warm fermentation to the wound.

### **Lack of heat/ causing the cow to conceive after service (Okugarura/Okugana)**

According to herders, this condition is said to be either due to poor feeding, overweight or long term diseases like trypanosomosis and tuberculosis. To treat the condition normally the first line of treatment is to drain the animal of excess blood using the jugular vein popularly known as "okurasha". To perform this, they restrain the animal and tie a rope around the neck tightly enough so that the thick vein stands out. Then they use an arrow or spear to puncture the vein. However,



in most cases this would be followed by use of other medicinal plants which would either be chewed or blown into the vagina or would be prepared into an oral drench. Some of these medicines would be mixed with blood obtained from the same animal. The following plants are blown into vagina: leaves of *Erythrococca bongensis*, and the roots of “empara” and/or leaves of “obwomi”. Others are mixed with blood like the roots and leaves of *Vernonia lasiopus* and roots of *Rubus cordyolia*. The extract of *Ruella patula*, *Chenopodium opulifolium*, “kyasharukamwa” is used for oral drench of which they administer one liter the day after service. A paste of *V lasiopus* is rapped in a clean cloth and pushed in vagina as pessary.

The chilli pepper fruits are smashed and mixed with ash and the resultant mixture is smeared on the abdomen of the cow. Other herders use either the roots of *Eulophia stretopetala* or *Solanum aculeastrum*, *Erythrococca bongensis*, that they crash, dry and grind to make powder, and eventually they rub in small incisions made on the labia major. Sometimes they chew the roots of “empara” or *Vigna parkeri* and blow the extract into the vagina of the heifer or cow after proper restraint.

### **Bloat (Obwigute/Omubambiro)**

The condition is said to be frequent at the start of the rains and the herders note that when the grass springs up again after the first rains, cattle tend to over eat and bloat. The animal swells up suddenly and drools saliva. To relieve the animal of the problem the herders let out the gas by puncturing the rumen with a spear in addition to using a number of medicinal plant extract and other materials as oral drench. They include; the ruminal content of goats or the dung of elephant, *Sesbania sesban* leaves, *Vernonia lasiopus* leaves, *Eurphobia teke* leaves after boiling, *Cucumis aculeatus* leaves, *P. dodecandra*,



*Solanum incanum* leaves or *Legnaria sphaerica* fruit. Others boil a chick of a hen and thereafter boiling the stomach content to get juice that they drench the animal in the morning. Some people would go beyond medicinal treatment and carry out trocharisation of the rumen to release the ruminal gas from the left upper lumber quarter, as they believe this is where the rumen lies.

### **Open wound (Ebironda)**

The herders describe the condition as injuries that cause breaks in the skin and are said to be caused by fights, whipping by herders, falling on sharp objects, bites from predators, ticks and other biting insects, sun burns and/or skin infections like lumpy skin disease.

After cleaning the wound they tie the paste from *Capparis tomentosa* or *Craterispermum schweinfurthii* leaves, the most preferred plants at the site. Other plants used include *Bidens pilosa*, *Melanthera scandens* leaves, *A. siebeiriana*, leaves, *Withania somnifera* leaves, *S. incanum*, *Plectranthus barbatus*, roots, *Craterispermum schweinfurthii*, *Phytolacca dodecandra*, *Leonotis nepetifolia*, *Scutia myrtina*, "akakangayonja", 'omutatsya' omukorokombe, and ekyomoro.

### **“Obukomangwa”**

In this condition herders say that the animal is seen hitting the horns on wood. Some times the horns break with resultant wound. To treat the condition, they burn the sticks of *Crotalaria aculeate* to fumigate the kraal. The broken wound is treated as an open wound using “emikorokombe” roots and sorghum.



### **Epilepsy of cattle (Entsimbo)**

Livestock are also said to suffer from fits as reported by the herders. Once they suffer the disease, the herders administer *Legnaria sphaerica* fruit. The internal parts of the fruit are removed to create a container. In this container they add water which they let to stay for a day. Then they drench the animal with this water. The treatment is repeated after one month.

### **Impotent Bulls**

The herders acknowledged that cattle also suffer from impotence. They diagnose the animal to be impotent if it cannot successfully mount a cow on heat. They also said that sometimes the penis could not come out of the prepuce though it may show interest in the cow. If a bull is seen with such problem(s), the herder bums two fruits of *So/anum acu/eastrum* and push them into the rectum while still worm. The presence of warm fruits is said to cause the penis to erect and protrude out side the prepuce with resultant intromission into the vagina. They also make two small incisions at either side of the anus.

### **Closed cervix at parturition (enda ekwatsire encwamutwe)**

The Kazo herders acknowledge that sometimes the cervix fails to relax during labour and this may result into death of either the dam calf or both if it goes uncorrected. To relieve the condition, they use the ash mixed with chilli pepper and ghee that they smear at the opening of the cervix. The cervix responds by relaxing with the resultant calf expulsion. The animal is also drenched with five litres of the extract from the leaves of *Leonotis nepetifolia* or *Cymphostema quadrangularis*.



### **Blocked teats (Okwigara-amabeere)**

Sometimes, some teats on the udder may have blind end. This is diagnosed when the heifer calves down and there is no milk flow upon stripping the teats or some times the udder is seen heavily engorged with milk but no flow, or the calf may be seen very hungry and mowing all the time.

To open the teats, the Bahima burn the human hair to ash and mix it with ghee. They get a fresh grass which they lubricate with the above mixture and gently time the supposed location of the opening and break the covering membrane. Leave the grass in place till night when you remove it to milk the cow or for the calf to suckle.

### **Photosensitization/Akanyamutinda**

The herders acknowledge that some animals develop a narcotising wound that appears with dry cracks on surface. This wound has little tendency to heal and the common site are the white patches on the back or udder and sometimes at the belly. The cause seems unknown to herders though they attribute it to tick bites. They use the following materials to treat the condition; Ghee, chicken droppings ash and millet flour. These they mix them and smear the site after debridement. Some herders crush the *Solanum aculeastrum* fruit mix it with *P. dodecandra* and warm them and after which smear the site.

### **Corneal opacity/Amaisho againe akaaho**

Some animals develop corneal opacity and are believed to be blind. The herder prepares juice extract from *Asystasia gangetica* leaves that they mix with milk and put drops of the mixture into the eyes for seven days.



### **"Ente eyangire kugyenda"**

If an animal refuses to move when it is being driven away to somewhere, the leaves of "ebibaabi byensi" are pound and the juice is squeezed into the right nose and left ear. It will immediately begin moving to wherever you direct it.

### **Booting cow/bull (Okuzibira ente okucumita)**

The Bahima use the female Rabbit hair coat to stop an animal from booting. The hair coats are collected and smeared to the whole body of the affected animal every morning for a week. Others smear the animal with immature/fresh ghee at the frontal area of the head.

### **Various ectoparasites and parasitic disease control and treatment (tick and fly)**

All herders are in a habit of fumigating the kraals with cow dung especially in the morning and evening when milking is taking place. This is aimed at whisking away the flies and other flying insects. They also increase the frequency of fumigation during the rainy season when the fly population is high. Some plants are said to burn with an irritating smoke and they are used as fumigants to keep insects away from domestic animals. The juice of *Nicotiana tabaccum* is used externally against various parasitic diseases.

Some herders (12%) acknowledged having improvised a local "acaricide" for spraying their herds and the following is the procedure of its preparation. To prepare a cattle wash extract, the Bahima use 20 litres of urine, 1 kg of rock salt, 2 tumpeco of chilli pepper fruits, 20 fruits of *Solanum aculeastrum*, 2 handful of *P. dodecandra* leaves, 2 tumpeco cups of ash obtained from burnt *Cymbopogon afronardus*



grass, and 2 handful of tobacco leaves. All these measurements are put in a jerrican and stopped and allowed to ferment for 6-7 days and thereafter they are strained through a sieve to obtain extract. This extract is used to wash/spray the animals. However the informer does not indicate any dilution factor during spraying or report any case of poisoning. This requires further investigation. Other farmers acknowledged use of *Solanum aculeastrum* alone, which they burn and squeeze to obtain juice that they smear the whole body of the animal.

## **5. CONCLUSIONS AND RECOMMENDATIONS**

Traditional knowledge of natural resource management and utilization has been recognized as an important tool in the improvement and development of land use systems in the world. The status of ethnoveterinary phytomedicine among the pastoral Bahima was examined. The ethnoveterinary practice by which the pastoral Bahima of Uganda used to survive has been retrieved and documented for the first time. The study highlighted the significant amount of ecological indigenous knowledge harbored within the culture of pastoral Bahima and its observed application in ethnoveterinary phytomedicine. Concurrently, the medicinal plants that were used by pastoral Bahima to treat their livestock were also documented. In addition, methods of preparation, administration and application were highlighted.

From this piece of work, rich indigenous knowledge was found to be still available and valuable as the use of this knowledge on livestock helminths control was found to reduce the worm burden. The plant extracts significantly reduced the epg when compared with the control. When compared with *albendazole*, a commercial anthelmintic, the plant anthelmintic extracts were able to reduce the