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Journal of Ethnopharmacology 88 (2003) 279–286
Journal of ETHNO-PHARMACOLOGY
www.elsevier.com/locate/jethpharm

# Ethnoveterinary medicines for cattle (*Bos indicus*) in Bulamogi county, Uganda: plant species and mode of use

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Received 11 October 2002; received in revised form 22 November 2002; accepted 9 July 2003

**Abstract**

In this paper, we present an inventory and the mode of use of plants to treat cattle. This study was carried out in Bulamogi county of Uganda, using methods consisting of semi-structured interviews employing a checklist of questions, questionnaires, direct observations, and biological inventories. Farmers employ both traditional and western medicine to treat their animals. The local people identified 33 different diseases, and had herbal treatments for nine of these. Some of the diseases mentioned by farmers indicated symptoms of diseases. Thus, the naming of diseases by local people when compared to the western veterinary medicine system, at times did not distinguish between diseases and symptoms of diseases. This is because the local disease nomenclature is based on symptoms of diseases, whereas under western veterinary science diseases are named according to aetiological information. As for traditional medicine, we report for the first time the use of 38 plant species, distributed in 37 genera and 28 families, to treat the common cattle diseases in Bulamogi. Most of these plants grow wild (76.3%), are indigenous (68.4%) and are shrubs (60.5%). The plant parts most frequently used for treating cattle are roots (37.5%) and leaves (27.5%). Medications are mostly prepared as infusions and seldom as decoctions. Topical application of some medicines is practised as well. The species used to treat cattle are also used to treat some human ailments and have some other uses as well. Most of the curative species reported here are directed at treating East Coast fever (ECF), a disease known to cause high fatalities in cattle.


*Keywords:* Ethnoveterinary medicine; Cattle diseases; Traditional knowledge; Uganda; Conservation

## 1. Introduction

Livestock rearing is a key economic activity of Uganda and contributes 7.3% of the Gross Domestic Product (World Bank, 1993; NEMA, 1998; MAAIF and MFPED, 2000). Of all the livestock that are raised in Uganda, cattle are the most important in terms of economic value (World Bank, 1993). The size of the cattle herd in Uganda is estimated to be growing (NEMA, 1998), but diseases seriously hamper production from cattle. Epidemic diseases such as rinderpest, and endemic ones like foot and mouth and tick borne diseases normally afflict cattle in Uganda. The clinical service of the public veterinary service is believed to be inefficient and seen to have minimal effect on animal health (World Bank, 1993).

In many developing countries, farmers and herders rely on ethnoveterinary medicine (EVM) to treat their livestock because the western-based veterinary healthcare system is inefficient due to poor staffing or because western veterinary drugs are expensive (McCorkle et al., 1996). EVM is a system of maintaining animal health and curing diseases of animals that is based on folk beliefs and traditional knowledge (TK), skills, methods and practices (Mathias-Mundy and McCorkle, 1989).

Ethnoveterinary medicine knowledge like all other TK systems is transmitted orally from generation to generation (e.g. McCorkle, 1986; Mathias-Mundy and McCorkle, 1989; McCorkle et al., 1996; Dold and Cocks, 2001; Ngoroi et al., 2001), and like the other TK systems, it is disappearing because of rapid socio-economic, environmental and technological changes. This means therefore, that local knowledge of ethnoveterinary healing must be documented and conserved through systematic studies before it is lost forever. To date there has been no systematic recording of veterinary cures in Uganda. Systematic studies on EVM in Uganda are justified for three important reasons, they can: (i) generate concise information which can be used to develop livestock

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doi:10.1016/S0378-8741(03)00265-4

healing practices and methods that are locally suited to Uganda, (ii) if developed systematically EVM can be a key veterinary resource, and (iii) can also add useful new drugs to the modern veterinary pharmacopoeia (see McCorkle, 1986; Dhillion et al., 2002). The main objective of this study was to document the plants used to treat cattle in Bulamogi county.

### 1.1. Study area and the people

Bulamogi county is found in Kamuli district of Uganda between 33°20′–33°38′E and 0°58′–1°18′N at an altitude of 1052–1098 m (Uganda Government, 1963). It covers an area of ca. 870 km$^2$. Within Bulamogi county are five subcounties, viz. Nawaikoke, Gadumire, Namwiwa, Bumanya and Namugongo. Within each subcounty are several parishes, each made up of a number of villages.

Bulamogi has four major land use categories: non-uniform small-scale farmland (67.4%), wetlands (16.4%) dominated by *Cyperus papyrus*, woodlands (3.6%) dominated by *Albizia zygia–Combretum* spp.*–Hyparrhenia rufa* association, and *Albizia zygia–Combretum gueinzii–Brachiaria decumbens* association, grasslands (2.6%) dominated by *Sorghastrum rigidifolium*. All other categories including bushlands take up less than 1% of the land area, and the remainder of the area is open water (Langdale-Brown, 1959; Forest Department, 1997).

The people of Bulamogi are an agricultural community who practise subsistence crop agriculture as their main livelihood (Anonymous, 2000). Livestock husbandry is very important in the community, and traditionally wealth has been assessed basing on the number of livestock, especially cattle, owned by an individual. Indeed tax assessment is still based on the number of domestic animals owned, although cash crops are increasingly forming the basis for tax assessment. More than 95% of the community rear livestock, and the cattle herd is estimated at 75,000 animals (Tabuti et al., in preparation). The cattle herd of Bulamogi comprises of indigenous short horned Zebu (*Bos indicus*). There are five western veterinary trained doctors, one in each subcounty.

## 2. Methods

Fieldwork for this study was carried out between June 2000 and June 2001. We used semi-structured interviews, questionnaires, and direct observations to collect the data (Martin, 1995). Prior to any contact with the local people, the study and its objectives were introduced to the County Officer—this introduction was always repeated when entering a new administrative area (e.g. a subcounty or a village).

Five key informants were interviewed using a semi-structured interview schedule consisting of a checklist of questions. Household respondents were chosen through stratified sampling. In each subcounty, a respondent was randomly chosen from at least one village from each parish in the subcounty. In this way, 126 household respondents were interviewed. We administered a questionnaire consisting of a mixture of open- and close-ended questions in face-to-face interviews. Some of the farmers were reluctant to show us their local methods of treating cattle. The questions asked focused on determining: (i) which cattle diseases are known in the community and (ii) how these diseases are treated. Interviews were conducted in the local language, the *Ki-lamogi*. The interviews were supplemented by direct observations. Plant voucher specimens were collected and are deposited at the Makerere University Herbarium.

Data from the field study were reviewed and all incomplete responses were excluded. This left 100 valid respondents. The data were then analysed both qualitatively and quantitatively; responses from open-ended questions were grouped into classes that expressed similar ideas while percentages, based on valid responses only, were calculated from close-ended questions.

## 3. Results and discussion

### 3.1. Plant species used to treat cattle

Thirty-eight plant species distributed in 37 genera and 28 families are used to treat cattle. Two species were unidentified (Table 1). Most of these plant families are dicotyledonous except Anthericaceae, Araceae, Asparagaceae, Bromeliaceae, and Musaceae. The families with the largest number of plant species used to treat cattle are Fabaceae with five species and Euphorbiaceae with three. The families Rubiaceae, Rutaceae, and Solanaceae are represented by two species each. The rest of the plant families have one species each. The two families Fabaceae and Euphorbiaceae have the highest diversity of species used to treat cattle diseases probably because they contain relatively more species than other plant families in the area.

The species *Vernonia amygdalina*, *Balanites aegyptiaca*, *Cannabis sativa*, *Chenopodium opulifolium*, *Senna occidentalis*, *Tephrosia vogelii*, *Musa* × *paradisiaca* and *Harrisonia abyssinica* are used to treat more than one cattle ailment. All plant species used as veterinary medicine except *Ananas comosus*, *Boerhavia diffusa*, *Musa* × *paradisiaca* L. var. *paradisiaca* and *Pistia stratiotes*, are also used to treat human diseases (see Tabuti et al., 2003). Use of similar plants to cure both animal and human diseases is common practice in traditional medicine (see Mathias-Mundy and McCorkle, 1989). Some of the plants inventoried here have other uses in the community; for example, some are used in human medicine, or as food, while others are used as firewood. Generally, efforts aimed at conserving plants can be improved if the species selected for conservation have many different uses, as multiple uses can motivate people to conserve species (Aguilar and Condit, 2001; Etkin, 2002).

The main attributes of the plants used to treat cattle are that the plants grow wild (76.3%), are indigenous to Africa

Table 1
Plant species used to treat cattle, their habit, status, disease treated, plant parts used, and mode of preparation and administration

| Family, species, local name, voucher no. | Habit[a] | Status[b] | Disease[c] | Part used[d] | Preparation and administration |
|---|---|---|---|---|---|
| (a) | | | | | |
| Anthericaceae, *Chlorophytum comosum* (Thunb.) Jacq., Nalwebe, JRST 31 | H | W, I | Lactation | B | Infusion. Add salt. |
| Apiaceae, *Steganotaenia araliacea* Hochst., Kibundubundu, JRST 442 | T | W, I | ECF | R | Infusion. Give calf 500 ml twice a day. |
| Aristolochiaceae, *Aristolochia elegans* Mast., Mukumya/Masanda, JRST 69, 320 | Li | W, Int | ECF | L | Infusion. |
| Asparagaceae, *Asparagus racemosus* Willd., Mukila gwango, JRST 12 | S | W, I | ECF | R | Infusion. Add salt and administer ca. 15 l |
| Balanitaceae, *Balanites aegyptiaca* (L.) Del., Mulugunyu, JRST 82, 138, 254 | T | W, I | Abdominal worms | R | Infusion. |
| Bromeliaceae, *Ananas comosus* (L.) Merr., Nanansi, JRST 510 | H | C, Int | ECF | F | Infusion. |
| Celastraceae, *Maytenus senegalensis* (Lam.) Exell, Muwaiswa, JRST 73, 305 | S/T | W, I | ECF | R | (1) Infusion; 125 ml given to calf twice a day. (2) Infusion made using *mata agokusubya*[e], 125 ml twice a day. |
| Euphorbiaceae, *Euphorbia tirucalli* L., Mukone, JRST 421 | S/T | SW, I | ECF | AP | Cut or burn swollen area and then have some sap dropped there. |
| Euphorbiaceae, *Synadenium grantii* Hook. f., Nandele, JRST 121 | T | SW, I | ECF | AP | Sap is smeared at the swollen parts of the calf/heifer; after ca. 7 days the swollen areas dry out and fall off. |
| Fabaceae—Faboideae, *Abrus precatorius* L., Kasitisiti, JRST 72 | S/Li | W, I | Cataract | S | Preparation not given. |
| Fabaceae—Faboideae, *Tephrosia vogelii* Hook. f., Muluku, JRST 220 | S | W, I | Skin disease '*lukuku*' | L | Rubbed on animal skin. |
| | | | Wounds | L | Sap applied to wounds. Very effective against maggot infested wounds. |
| Lamiaceae, *Tetradenia riparia* (Hochst.) Codd, Kiyongobela, JRST 180, 419 | S | W, I | ECF | L | Infusion to which salt is added and given to calf. |
| Meliaceae, *Azadirachta indica* A. Juss., Neem, JRST 518 | T | C, Int | Skin disease (itching) | L | Preparation not given. |
| Musaceae, *Musa* × *paradisiaca* L. var *paradisiaca*, Matooke/Bigogo, NC | H | C, Int | ECF | F | Prepared as a beer and given when warm. |
| | | | Measles | L | Infusion made from the leaves. To this potash (*Magadi*) and salt are added. |
| Nyctaginaceae, *Boerhavia diffusa* L., Jojokelo, JRST 11 | H | W, Int | ECF | AG | Infusion. |
| Rubiaceae, *Sarcocephalus latifolius* (Smith) Bruce, Mutamatama, JRST 279, 348 | S/T | W, I | Diarrhoea | R | Infusion. Give calf 500 ml of once a day. |
| Solanaceae, *Physalis peruviana* L., Ntuntunwe, JRST 504 | H | W, Int | ECF | L | Mixed with milk of the mother cow. |
| Solanaceae, *Solanum incanum* L., Ntonka, JRST 56 | S | W, I | Cataract | F | (1) Sap is mixed with powder from burnt snail shell and applied to eye. (2) Sap mix with salt and applied to eye. (3) Sap is mixed in cassava flour and applied to eye. |
| | | | Wounds on eye | F | Sap applied to eye. |
| Strychnaceae, *Strychnos innocua* Del., Muhondo, JRST 332 | S/T | W, I | ECF | R | Infusion 300–500 ml. |
| Verbenaceae, *Clerodendrum myricoides* (Hochst.) Vatke, Mukuza nyana, JRST 271, 383 | S/T | W, I | ECF | L | Infusion. |
| Unidentified, '*Kadekudeku*' | | | Measles | L | Infusion. |
| (b) | | | | | |
| Apocynaceae, *Carissa edulis* (Forssk.) Vahl, Mutwogwa, JRST 36, 299 | S | W, I | ECF | R | (1) Mix in warm banana beer and give calf. (2) Infusion prepared after adding *Acacia seyal* roots. |
| Araceae, *Pistia stratiotes* L., Pompo, NC | H | W, I | ECF | Wh | Infusion made after adding roots or leaves of *Oncoba spinosa*. |

Table 1 (*Continued*)

| Family, species, local name, voucher no. | Habit[a] | Status[b] | Disease[c] | Part used[d] | Preparation and administration |
|---|---|---|---|---|---|
| Asteraceae, *Vernonia amygdalina* Delile, Lubilili, JRST 81 | S | W, I | Cough | L | Infusion made after adding leaves of *Chenopodium opulifolium* and *Senna occidentalis*. |
| | | | Diarrhoea | R | See under *Senna occidentalis* and also *Harrisonia abyssinica*. |
| | | | Measles | L | (1) Infusion. Add salt and give calf. (2) See also *Chenopodium opulifolium*. |
| Balanitaceae, *Balanites aegyptiaca* (L.) Del., Mulugunyu, JRST 82, 138, 254 | T | W, I | ECF | R | Infusion made from mixture of roots of *Jatropha curcas* and *Gardenia ternifolia*. Give 500 ml once a day. |
| | | | Measles | R | Infusion made after adding leaves of *Chenopodium opulifolium* and *Cannabis sativa*. Add salt and give animal ca. 20 l for 4 days. |
| Cannabaceae, *Cannabis sativa* L., Njaye, JRST 490 | S | C, Int | ECF | L | (1) Decoction. (2) Infusion prepared after adding *Securidaca longipedunculata* roots. Give animal 125 ml a day. |
| | | | Measles | L | See *Chenopodium opulifolium*, and also under *Balanites aegyptiaca*, and *Lantana camara*. |
| Chenopodiaceae, *Chenopodium opulifolium* Koch and Ziz, Namuvu, JRST 454, 461 | H | W, I | Measles | L | (1) Infusion, add salt and give animal 500 ml twice a day for a week. (2) Infusion prepared after adding leaves of *Cannabis sativa*, and *Vernonia amygdalina*. Add salt and powder soap (OMO®) to infusion. (3) See also under *Balanites aegyptiaca* and *Lantana camara*. |
| | | | Cough | L | See *Vernonia amygdalina*. |
| | | | Diarrhoea | L | See *Senna occidentalis*. |
| Euphorbiaceae, *Jatropha curcas* L., Kilowa, JRST 458 | S/T | C, Int | ECF | R | See *Balanites aegyptiaca*. |
| Fabaceae—Caesalpinioideae, *Senna occidentalis* (L.) Link, Kasagalyansasi, JRST 3 | S | W, Int | Diarrhoea | L | See under *Vernonia amygdalina*. |
| | | | Cough | L | See under *Vernonia amygdalina*. |
| Fabaceae—Mimosoideae, *Acacia seyal* Del. var. *fistula* (Schweinf.) Oliv., Mufuwanduzi, JRST 20, 310 | T | W, I | ECF | R | See *Carissa edulis*. |
| Fabaceae—Mimosoideae, *Albizia coriaria* Oliv., Musita, JRST 484 | T | W, I | ECF | R | (1) Decoction/infusion given twice a day. (2) Decoction prepared from roots and concentrated milk. (3) Infusion made after adding *Oncoba spinosa* roots. (4) Infusion made after adding roots of *Milicia excelsa* and *Securidaca longipedunculata*. Give calf 500 ml every day. (5) Infusion made after adding *Clerodendrum myricoides*. Given to animal once a day in the morning. |
| Flacourtiaceae, *Oncoba spinosa* Forsk., Mubeye, JRST 443 | S/T | W, I | ECF | R, F | (1) Infusion. (2) Dried fruits tied around neck of calf to act as a prophylactic. (3) See also *Pistia stratiotes* and *Albizia coriaria*. |
| Moraceae, *Milicia excelsa* (Welw.) C.Berg, Mvule, JRST 500 | T | W, I | ECF | R | (1) Infusion made from young leaves (with swellings) and add salt. (2) See also *Albizia coriaria*. |
| Polygalaceae, *Securidaca longipedunculata* Fres., Mukondwa, JRST 93, 347 | S/T | W, I | ECF | R | (1) Infusion made from fresh material or pre-prepared powder. Add salt and give calf 75–1000 ml. (2) See also *Albizia coriaria* and *Cannabis sativa*. |
| Polygonaceae, *Oxygonum sinuatum* (Meisn.) Dammer, Nkenge, JRST 122 | H | W, I | ECF | AG | See *Harrisonia abyssinica*. |

Table 1 (*Continued*)

| Family, species, local name, voucher no. | Habit[a] | Status[b] | Disease[c] | Part used[d] | Preparation and administration |
|---|---|---|---|---|---|
| Rubiaceae, *Gardenia ternifolia* Schumach. & Thonn., Lukoole, JRST 74, 202, 255 | S/T | W, I | ECF | R | See *Balanites aegyptiaca*. |
| Rutaceae, *Citrus limon* (L.) Burm.f., Niimu, JRST 520 | S/T | SW, Int | ECF | F | Mixed with other *Citrus* spp. To make a decoction given as a prophylactic. |
| Rutaceae, *Citrus* sp., Buniimu, NC | S/T | SW, Int | ECF | F | See *Citrus limon*. |
| Simaroubaceae, *Harrisonia abyssinica* Oliv., Lushaike, JRST 64, 88 | S | W, I | ECF | R | (1) Infusion. (2) Decoction prepared after adding above ground parts of *Oxygonum sinuatum*. Give ca. 200 ml, three times a day for 5 days. |
| | | | Diarrhoea | R | Infusion prepared after adding roots of *Vernonia amygdalina* and '*kalimi kambwa*'. Add salt and give animal ca. 20 l. |
| Verbenaceae, *Lantana camara* L., Kapanga, JRST 453 | S | W, Int | Measles | L | Infusion made after adding leaves of *Chenopodium opulifolium* and *Cannabis sativa*. Give animal 125 ml. |
| Verbenaceae, *Clerodendrum myricoides* (Hochst.) Vatke, Mukuza nyana, JRST 271, 383 | S/T | W, I | ECF | L | (1) Infusion. (2) See also *Albizia coriaria*. |
| Unidentified, '*kalimi kambwa*' | | | Diarrhoea | R | See *Harrisonia abyssinica*. |

Part (a) shows those species used singly for the treatment of cattle ailments and (b) shows the species used in mixtures.

[a] H: herb; Li: Liana; S: shrub; T: tree.

[b] C: cultivated; I: indigenous; Int: introduced; SW: semi-wild; W: wild.

[c] ECF: East coast fever '*makebe*'.

[d] AG: above ground parts; AP: any part; B: bulb; F: fruit; L: leaves; R: roots; S: seed; Wh: whole plant.

[e] Milk retained by cow for calf.

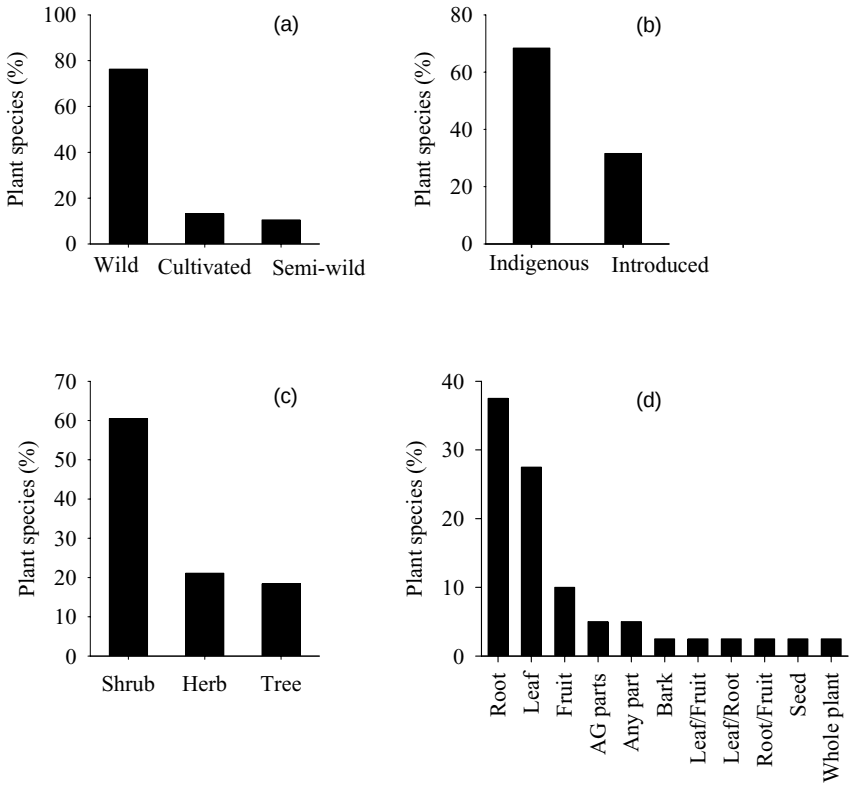


Fig. 1. Characteristics of the plants used as veterinary medicines in Bulamogi county ($n = 38$). (a) Management status, (b) status of origin, (c) growth habit, (d) plant part used. (AG parts = above ground parts.)

(68.4%) and are mainly shrubs (60.5%; Fig. 1). The most frequently employed plant parts are roots (37.5%) followed by leaves (27.5%). Fruits are also used to some extent (10.0%). The practice of exploiting perennial plant parts, such as roots of relatively slow growing woody species, can result in a decline in both, the size and distributions of populations of the exploited species, and ultimately result in the local extinction of these populations (Cunningham, 1993; Sheldon et al., 1997; Dhillion and Amundsen, 2000). Presently data on rates and patterns of plant harvesting are lacking for Bulamogi, and we cannot estimate the effect of exploitation on plant population.

### 3.2. Common cattle diseases and conditions

The local people identified 33 different diseases and conditions of cattle (Table 2). Respondents failed to mention some other cattle diseases, viz. Lumpy skin disease, Babesiosis (bloody urine), Orf (contagious exathema), scours (diarrhoea in calves), and Cowdriosis (heart water); and these were instead provided by Dr. Paul Mawadri, the Veterinary Doctor of Gadumire Subcounty. Some of the diseases mentioned by farmers in this study indicated symptoms of diseases. The naming of diseases by local people when compared to the western veterinary medicine system, at times did not distinguish between diseases and symptoms of diseases. This is because local disease nomenclature is based on symptoms of diseases, whereas under western veterinary science, diseases are named according to aetiological information (McCorkle, 1986; Delehanty, 1996; Mathias-Mundy and McCorkle, 1989). As a consequence, several uniquely named animal-health problems may allude to the same disease when defined by western veterinary science, or conversely, certain local terms may encompass several different diseases. For example, fever the first clinical sign for most diseases; anaemia a symptom of the diseases red water and anaplasmosis; or diarrhoea which is present in trypanosomiasis, rinderpest, anaplasmosis and heart water (Pratt and Gwynne, 1977) are regarded as distinct diseases by the local community of Bulamogi. For this reason the disease conditions provided by the above-mentioned veterinarian, Dr. Mawadri, may have been included under some other all over embracing local disease names.

East Coast fever (ECF; *Theileriosis*) is known among the stockowners of Bulamogi as the most debilitating disease of cattle, and 80% of the respondents reported it during the interviews (Table 2). This disease is endemic to east and southern Africa and is caused by the protozoan organism *Theileria parva* which is transmitted by the tick vector *Rhipicephalus appendiculatus* (see Msami, 2001). According to the farmers of Bulamogi ECF is a disease of calves, among which it causes high death rates. But results from research carried out in coastal Kenya show that ECF afflicts mature cattle too (Delehanty, 1996). Foot and mouth, and foot rot, which appear most frequently in the wet season, are also major complications in the area. The diseases: measles, diarrhoea, and cough were also reported frequently in interviews and had a corresponding high number of local treatments. Their high frequency of mention by the respondents could be related to the fact that they are also important symptoms of other diseases.

Table 2
Diseases of cattle of Bulamogi county

| English gloss | Local name | *f* |
|---|---|---|
| East Coast fever | *Makebe* | 80 |
| Measles | *Kawali/Lunkusense*[a] | 64 |
| Diarrhea | *Kidukano* | 53 |
| Tick disease | *Nkwodo* | 18 |
| Swollen lower leg (*Foot and mouth*) | *Bigele ku bimba* | 16 |
| Foot rot | *Sotoka/Bigele/Bigoye* | 15 |
| Abdominal worms | *Bihuuka byo mukida* | 14 |
| Cough | *Kikoholo* | 7 |
| Cataract | *Kifu/Ndezi* | 6 |
| Liver diseases | *Bulwaile bwa mani* | 5 |
| Running eyes | *Amaiso ga tonya amaliga* | 5 |
| Running nose | *Enindo gizwa eminyila* | 4 |
| Wounds | *Mabwa* | 4 |
| Swollen knees | *Bigoye* | 4 |
| Fever | *Musujja* | 3 |
| Dizziness[b] | *Kantoloze* | 3 |
| Itchy skin | *Lukamba/Lukuku* | 3 |
| Trypanosomiasis[c] | *Mongoota* | 3 |
| Sore mouth/wounds in mouth | *Mabwa omu munwa* | 3 |
| – | *Kalusu*[d] | 3 |
| Abdominal swellings | *Ekida okubimba* | 2 |
| Boils | *Bizimba* | 2 |
| Influenza | *Musujja* | 2 |
| Paralysis | *Lulalama* | 2 |
| Wounds in eye | *Mabwa oku maiso* | 2 |
| Anemia | *Kubulwa musahi* | 1 |
| Ears, septic | *Amatwi aga funya* | 1 |
| – | *Kawumpuli* | 1 |
| Running mouth | *Omunwa okutonya amatanta* | 1 |
| Swelling of neck | *Ebizimba oku ikoti* | 1 |
| Wounds on neck | *Mabwa oku ikoti* | 1 |
| Septic wounds on body | *Kunyomoka nyomoka* | 1 |
| Retained placenta | *Kuikya byenyuma* | 1 |

Frequency (*f*) refers to the number of respondents who reported the disease (total $n = 100$). (–): No description was offered by the stockowners from which to construct an English gloss.

[a] Described by respondents as an eruption on the skin of the animal.
[b] Anaplasmosis.
[c] Also known as *nagaana*.
[d] This term is usually used to refer to a disease known as New Castle disease in poultry. This conditions was described as an epidemic condition that takes time before affecting cattle. One respondent declared it a symptom of foot and mouth.

### 3.3. Treatment of cattle and some observations on animal health

The majority of the respondents interviewed (61%) employ herbal treatments as the first line of treatment. If the animals do not improve a veterinary worker is consulted. The other 39% seek the services of veterinary workers

exclusively when their cattle fall sick. Thus, the majority of the stockowners rely on EVM as the first line of defence in the treatment of their cattle. This may be because EVM is effective against many diseases, is free or locally available (Mathias-Mundy and McCorkle, 1989; McCorkle et al., 1996). The strategy by the stockowners of Bulamogi to employ a mixture of both ethnoveterinary and western veterinary medicine is a pragmatic one, because, EVM is locally suited to the treatment of cattle diseases. However, EVM is reportedly ineffective against epidemics and fatal endemic diseases such as Contagious Bovine Pleuropneumonia and rinderpest and for these, western veterinary medicine is more appropriate (Mathias-Mundy and McCorkle, 1989). Some farmers realising this take care to vaccinate their calves against ECF using western veterinary medicine.

Using plants the people of Bulamogi can treat nine cattle diseases/conditions namely ECF, cough, diarrhoea, measles, abdominal/intestinal worms, cataract, skin diseases, wounds, eye wounds, and also promote lactation in cattle (Table 1); most of the local EVM treatments and practices are directed towards the treatment of ECF and 73.7% of the species reported in this study are directed towards this disease (Table 1). The other diseases for which many plant species are employed are measles (18.4%), diarrhoea (15.8%), and cough (7.9%). The ethnoveterinary herbal practices reported here have not been recorded anywhere in the literature surveyed during the writing of this article.

Veterinary herbal medicines are prepared as infusions and seldom as decoctions. Preparations are normally administered by giving them to the animals to drink, but, in some cases medicines are applied topically, and this is the preferred form of administration for diseases of the skin (Table 1). Topical application is also used to treat ECF using the sap of *Synadenium grantii*. Concoctions of herbal medicines commonly consist of more than one plant (Table 1). Doses of concoctions are highly variable and range from 1/2 to 20 l, and the farmers appeared not to have exact knowledge about doses.

Farmers also employ material other than plants, e.g. powder soap and potash, as well as special methods, such as branding, massaging with hot water and making cuts on the skin to treat cattle (Table 3). Use of materials other than plants or standardised western drugs have also been recorded elsewhere. For example, the use of soap by herders in Nigeria (Alawa et al., 2002); motor oil in Kenya (Heffernan et al., 1996); or talc, iron rust and sulphur in Thailand (see Mathias-Mundy and McCorkle, 1989).

Cattle are known to eat the soil of swamps (*ngugo*); a soil type believed by the people to be salty. The people believe that the *ngugo* helps cattle to expel abdominal/intestinal worms, because after eating it, they pass a loose stool containing intestinal worms. Another observation by the people is that pregnant cows like to browse on leaves of *Vernonia amygdalina*.

Another health-related practice is that of weaning calves. Stockowners of Bulamogi manipulate a forked twig of *Gardenia ternifolia* Schumach. & Thonn. into the nostrils of the calf. This makes it painful for the calf to suckle and forces it to abandon suckling. This practice has also been observed among the herders of Mali (see Mathias-Mundy and McCorkle, 1989).

Table 3
Material other than plants, and other methods used to treat cattle

| Disease | Treatment |
|---|---|
| Bloat | Table salt given |
| Measles | A solution made of table salt, powder soap—OMO®, or potash '*magadi*' is given |
| Dizziness | Branding[a] on head of cattle |
| East Coast fever | Branding of swollen parts of calves; or the solution remaining in a cooking pot after steaming food is given to calf |
| Foot rot | Massaged with hot water |
| Cataract | A cut is made around the eye |
| *Lulalama* | Branding done over veins |

[a] Branding is the burning of cattle with a hot metal iron.

## 4. Conclusion

There is much TK concerning cattle diseases and their treatment within the community of Bulamogi. The people can identify 33 different cattle diseases. They can treat nine cattle diseases and improve lactation in cattle using herbal plants, and other materials and methods. This TK is reported in the literature for the first time. The purported treatments and practices reported in this study need to be validated in order to identify those which can be of practical advantage in agricultural development (Mathias-Mundy and McCorkle, 1989). Issues that should be addressed are efficacy, quality, safety and standardisation of doses. Models and guidelines to validate and develop human medicines have been developed, and these could probably be modified and applied to animals (see WHO, 2000; Diallo and Paulsen, 2000).

It appears that the exploitation of wild plants for EVM is unsustainable and might threaten the viability of local plant populations. We cannot however, make any firm predictions about the effects of harvesting in the absence of information on the abundance and distribution of plant species, as well as harvesting intensities. Studies to furnish these data need to be carried out. The community of Bulamogi is the owner of the information presented in this paper and any benefits that may arise from the use of this information must be shared with them.

## Acknowledgements

This project was supported by funds from NORAD and NUFU project 13/2002. The research is linked to that of the Management of Biodiversity, and TERG groups at SUM-University of Oslo and the Agricultural University of

Norway led by S.S. Dhillion. The Botany Department of Makerere University Uganda provided the local logistics. We thank Prof. R. Bukenya-Ziraba for his encouragement and advice, and J. Bradley Norman for comments. Also acknowledged are W.O. Maganyi, P. Rwaburindore, A.B. Katende and M. Namaganda for identifying the plant voucher specimens.

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