

# The Role of Ethno Veterinary Practices on Livestock Diseases at Balcad District in Middle Shabelle, Somalia

Mohamed Ali Yusuf-Isleged\*, Omar Mohamud Salah, Bashir Osman Mohamed

Veterinary Medicine, Faculty of Agriculture and Veterinary Science, University of Somalia (UNISO), Mogadishu, Somalia

## Email address:

m.aliyusuf@uniso.edu.so (Mohamed Ali Yusuf-Isleged), Omar.mohamud@snu.edu.so (Omar Mohamud Salah), Bashkash106b@gmail.com (Bashir Osman Mohamed)

\*Corresponding author

## To cite this article:

Mohamed Ali Yusuf-Isleged, Omar Mohamud Salah, Bashir Osman Mohamed. The Role of Ethno Veterinary Practices on Livestock Diseases at Balcad District in Middle Shabelle, Somalia. *Animal and Veterinary Sciences*. Vol. 10, No. 4, 2022, pp. 109-118.

doi: 10.11648/j.avs.20221004.15

**Received:** May 16, 2022; **Accepted:** July 12, 2022; **Published:** August 29, 2022

---

**Abstract:** A cross-sectional study was conducted from January 2020 to July 2020 in Balcad district which was based on questionnaire and interview of the livestock diseases and specialists of traditional knowledge. The aim of this study was to assess the traditional knowledge of major livestock diseases and their medicinal plants used to treatments in Balcad district. The study found out that the majority of animal owners use medicinal plants 93% as traditional treatment and only 5% were used to burn as treatment of some animal disease. In the current study it was found and recorded many types of plants used as traditional treatment were most (12%) of animal owners used *Cordia alliodora* (Gogobbo), for mange (Cadho) treatment, 10% of the respondents used *Aloe vera* (Dacar) for cattle trypanosomiasis, 7% of the respondents used *Acacia senegal* (Gumar) for FMD (Cabeeb) treatment, another 7% of the respondents mentioned they use Dhiti for nasal inflammation (san boor) treatment, 6% use *Acacia tortilis* (Qurac) for skin scar (Nabraha jirka) treatment, 5% use *Terminalia prunioides* (Hareeri) for ear inflammation, 5% use *Sesamum portulacastrum* (Salaamac/Saleemac) for wrapped fractures, 4% use *Acacia senegal* (Cadaad) for pneumonia treatment, 3% use *Dogbera glabra* (Garas) for placental retention treatment of animals, 3% use *Commiphora erithraea* (Hadi) for treatment of diarrhea in animal. The study also revealed that all different parts of the medicinal plants have been used except the flower part and also different methods of preparation and modes of application were used for remedy preparation, however the widely used plant parts in the preparation of remedies in the study area were root, followed by leaf. Several methods of administration of traditional remedies were also found out by the study which depends on the particular disease to be treated. Crushing of plant parts, fumigation, Wrapping, were the common methods of preparation in the study area. However, crushing was found to be the most common method of preparations in the area as the respondents reveal. Regarding routes of remedy administration, the commonly used route for the administration of traditional medicine in the study area were oral, topical, nasal drop, injection and Ear drop routes were also used at lower levels. Therefore, it is extremely necessary to document and disseminate indigenous knowledge in order to help and share the different uses of plants as animal health care and to promote different conservation measures.

**Keywords:** Ethnoveterinary, Livestock Diseases, Indigenous Knowledge, Traditional Medicinal Plants, Balcad, Somalia

---

## 1. Introduction

Ethno-veterinary medicine, the scientific term for traditional animal health care, provides lower cost alternatives to allopathic drugs. Research into ethno-veterinary medicine is often undertaken as part of a community-based approach that serves to improve animal health and provide basic veterinary services in rural areas [7]. In addition to its focus on

botanicals, ethno-veterinary medicine covers people's knowledge, skills, methods, practices, and beliefs about the care of their animals [6]. Ethno-veterinary medicine is frequently used for treating animal as well as human diseases by many different people around the world. According to the World Health Organization, at least 80% of people in developing countries depend largely on indigenous practices for the control and treatment of various diseases affecting both

human beings and their animals [19].

Livestock is vital for many economies in developing countries. Even though the livestock sub-sector contributes much to the national economies of sub-Saharan African countries, its development is hampered by different constraints [11]. These include rampant animal diseases, which result in loss of livestock and farm productivity, reduction in market opportunity, and impairment of human welfare. The impact of animal diseases is particularly severe for poor communities that, although relying heavily on livestock, have limited access to modern veterinary services.

Despite the increasing use of modern veterinary services to cater for livestock healthcare needs, traditional remedy remains a prominent complementary medical practice, as recorded in some sub-Saharan African countries such as Angola [14], Botswana [15], Cameroon [16], Ethiopia [17], Kenya [18], Nigeria [20], Namibia [25], South Africa [26], Tanzania [27], Zambia [28], and Zimbabwe [29]. According to Worku [30], this traditional healing comprises belief, knowledge, practices, and skills pertaining to healthcare and management of livestock.

Millions of people around the world have an intimate relationship with their livestock. Animals provide them with food, cloth, labor, fertilizers, cash and act as a store of wealth and a medium of exchange [4]. Livestock remains the traditional repository of household wealth in Somalia, the largest export, and an important source of livelihood for a large part of the population. The main production systems are nomadic pastoralism and agro-pastoralism, but large livestock-rearing operations with dairy animals (mostly camels) have been on the rise in settled mixed farming. The sector has shown remarkable resilience, although the stock of animals, the health and welfare of surviving animals, and livestock products have suffered severely from the most recent drought [5]. Somali pastoralists currently occupy countries where veterinary privatization programs are underway. The application of traditional medicines to veterinary medicine has been termed as ethno veterinary medicine. Ethno veterinary practice enhances economic sustainability, not only includes treatments but also includes people's ideas about disease causation, transmission including zoonosis, religious and cultural attitudes, beliefs and rituals, husbandry operations for overall good health, people's perception of relationship between environment and animal health care, and social organizations having know how about animal health care are also associated with it. Ethno veterinary also provides information, practices, tools and technologies, breeds and human resources like knowledgeable farmers, herders and local healers to share their knowledge [41]. The knowledge varies from region to region and from community to community [21].

Ethno-veterinary medicine provides valuable alternatives to and complements western-style veterinary medicine. Ethno-veterinary remedies are accessible and easy to prepare and administer, at little or no cost to the farmer [19]. In many poor rural areas, ethno-veterinary medicine can play an important role in animal production and livelihood

development, and often becomes the only available means for farmers treat ill animals [1].

In East Africa generally and in particular Somalia, rapid socio-economic and outward rural migrations, and paucity of research on ethno-veterinary uses of medicinal plants in treating livestock diseases further undermines its relevance [22-24, 3]. There is, thus, an urgent need for documentation, preservation and protection of ethno-veterinary practices and medicinal plant resources for future generations in Somalia as whole.

The traditional knowledge on ethnoveterinary practices by local healers who are knowledgeable and experienced in traditional systems of treatment is important, but their knowledge are not documented and is dwindling fast [9]. And it has not yet been well documented, promoted, conserved and much effort is needed in research and integration activities in the country. There is an extensive gap in our knowledge about ethno veterinary data and information from a range of parts of Somalia although the country is rich and there are diverse ethno linguistic groups throughout the country.

Therefore, the aim of this paper was to assess the traditional knowledge of major livestock diseases and their medicinal plants used to treat.

## 2. Literature Review

Ethno-veterinary medicine (EVM) provides alternatives for controlling both internal and external parasites in livestock production systems that are environmentally friendly, relatively cheap and not prone to development of resistant parasitic strains.

Ethnoveterinary practices are more common in developing countries due to different socioeconomic factors Teixidor-Toneu and D'Ambrosio [12]. This is especially so in areas of rural sub-Saharan Africa, where livestock diseases are rampant and modern veterinary services are insufficient Katerere and Luseba [13]. Despite the increasing use of modern veterinary services to cater for livestock healthcare needs, traditional remedy remains a prominent complementary medical practice, as recorded in some sub-Saharan African countries such as Angola [14], Botswana [15], Cameroon [16], Ethiopia [17], Kenya [18], Nigeria [20], Namibia [25], South Africa [26], Tanzania [27], Zambia [28], and Zimbabwe [29]. According to Worku [30], this traditional healing comprises belief, knowledge, practices, and skills pertaining to healthcare and management of livestock. According to the World Health Organization, at least 80% of people in developing countries rely mainly on indigenous practices for the control and treatment of numerous diseases affecting both human beings and their animals [31]. Ethnoveterinary practices have retained their popularity in countries of the developing world, and their use is rapidly spreading in sub-Saharan Africa [32].

Indigenous knowledge refers to the accumulation of knowledge, rule, standards, skill, and mental sets, which are possessed by local people and practices pertaining to the health care of animals [39]. Perhaps of more importance is the

fact that herbal remedies are known to be broad spectrum and therefore may be a future answer to resistance development of pathogens to conventional drugs [2].

Ethno veterinary medicine knowledge varies from region to region as well as between and within communities. Documentation of this traditional knowledge is limited in many developing countries including Zimbabwe. Storage of this knowledge is solely depended on the collective memory of just a few entrusted persons within communities for it is just not common 'knowledge' for everybody. It has been transmitted across generations by an oral tradition which according to Matekaire T and Bwakura TM [3] is in danger of extinction.

## 2.1. Importance of Ethno-Veterinary Medicine

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

To keep animals healthy, traditional healing practices have been applied for centuries and have been passed down orally from generation to generation. Before the introduction of western medicine, all livestock keepers relied on these traditional practices. According to the World Health Organization, at the moment, at least 80% of people in developing countries depend largely on these practices for the control and treatment of various diseases that affect both animals and humans. These traditional healing practices are called ethno veterinary medicine'. In this booklet we often use the abbreviation ethno vet. Ethno vet medicine is: Accessible. Easy to prepare and administer, low cost or even free [8].

## 2.2. Uses of Ethno-Veterinary Medicine

### 2.2.1. Drenching

Drenching is the oral administration of ethno veterinary drugs in a liquid form. After measuring the liquid, it is given to the animals using bottles, kettles or calabash spoons. This is easily done by raising the animal's mouth upwards and inserting the bottle or spoon sideways into the mouth. Inserting two fingers on the other side of the mouth to press the tongue downwards, helps to hold the mouth open. Pour the liquid gently at intervals, without removing the drenching instrument, to give the animal enough time to swallow [8].

### 2.2.2. Salt and Mineral Lick

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

Bath Washing the animal with a decoction, an infusion or another non-plant mixture is a common and widely used ethno vet method. It is used in the treatment of ectoparasites such as lice, and some infectious diseases such as heart water (cowdriosis) and haemorrhagic septicaemia [8].

### 2.2.3. Fumigation

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

Spray although spraying is not a very common practice in ethno vet medicine, it is sometimes applied by experienced ethno vets. Injections are not often used in ethno vet medicine. Only a few very experienced ethno vet healers administer ethno vet drugs by injection, mostly in the muscles [8].

### 2.2.4. Topical Application

Ethno veterinary remedies in the form of paste or powder are often used to treat skin lesions and eye diseases. A paste is made by grinding the ingredients to a powder and adding a small amount of water. A powdered remedy can be applied directly to the affected area, e.g. to treat wounds or eye problems [8].

## 2.3. Threats to Ethnoveterinary Medicine

Ethnoveterinary medicinal materials are rarely stored except for finely crushed materials whose powder is kept and used within a month [35]. Van der Merwe [36] attributed the diminishing ethnoveterinary knowledge to the death of elderly knowledgeable members of society since the documentation of most herbal remedies is handled by the elderly. [33] Pointed to the rapid socio-economic, ecological, and technological changes in peoples' lifestyles as factors leading to the disuse or total loss of traditional knowledge. The lack of official recognition of the role played by ethnoveterinary practitioners in the prevention, control, and treatment of livestock diseases in some countries is another factor making young people reluctant to maintain traditional morals of the society [34]. In addition, environmental degradation, agricultural expansion, deforestation, and urban development are factors leading to a loss of habitats and ethnobotanical species [37]. Harvesting firewood for charcoal, drought, agriculture, and trade are other factors posing a threat to medicinal plants [37].

## 3. Methodology

### 3.1. Study Area

The middle Shebelle Region is located in southern Somalia and consists of six districts: Jowhar (the regional capital), Balad, Adale, Warsheikh, Mahaday, Run nirgood, and AdenYabal. Middle Shabelle is named after the Shabelle River which passes through the region for 150 kilometers. It borders Galgaduud to the North, Hiraan to the West, Lower Shebelle and Banadir region to the South and the Indian Ocean to the East. The study was conducted in Balcad District which is located about 36 kilometers northeast of the capital city of Mogadishu. The District lies a latitude between latitude 2.43538° N and longitude 45.46736° E.

### 3.2. Study Design

A survey was conducted in Balcad District from January to

July 2020, in order to investigate the importance of ethno-veterinary practices. The study area was visited, who provided information on key resource persons in the field of ethno veterinary medicinal plants, and other traditional plants. The research was a crosssectional quantitative in design by which questionnaire was used as a study technique.

### 3.3. Sample Size

Sample size of the study is the process of selecting some elements from the target population of study. So the sample size of this study was 100 respondents from 66 of animal knowledge experts, 30 animal owners and 4 students from Balcad district, and these selected respondents were the sample size of the research study and contributed the necessary information to this study. To select the sample size of the study the researcher was guided the Slovene's formula.

$$n = N / 1 + N (e^2)$$

$$133 / 1 + 133(0.0025) = 100 \text{ respondents}$$

Where

n = number of sample;

N = total population;

e = level of significance 0.05.

### 3.4. Sampling Procedure

In this study the researcher was used for the purposive sampling to meet the required respondents of this research. The researcher selected the respondents judiciously.

### 3.5. Data Collection

Questionnaire was basically the instrument which was used. It was self-administered that collected the data during this study.

The researcher travelled to the Balcad District to collect information using this questionnaire and data collected in 4 days. Questionnaire consists of open questions to get reliable

information and distributed to the 100 respondents. The researcher explains the questions by illiterate, language barrier and misunderstanding respondents to provide key information of traditional of animal treatment and then fill the questionnaire papers.

### 3.6. Data Analysis

Data generated from respondents was recorded in Microsoft word 2007, the data was then analyzed using SPSS version 20.0, a descriptive statistic was used in the study.

## 4. Results

### 4.1. Demographic Data

Table 1. Gender.

Gender		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	18	18.0	18.0	18.0
	Male	82	82.0	82.0	82.0
	Total	100	100.0	100.0	100.0

Source: Primary Data.

According to the above table the respondents 82 (82.0%) where male, while 18 (18.0%) were female. This shows that the most of respondents was male.

Table 2. Age.

Age		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20-30	13	13.0	13.0	13.0
	30-40	14	14.0	14.0	27.0
	Above 40	73	73.0	73.0	73.0
	Total	100	100.0	100.0	

Source: Primary Data.

The above table shows that the most of respondents were 13 (13.0%) 20-30 years, 14 (14.0) 30-40 years, 73 (73.0%) above 40 years.

The majority of respondents were above 40 years of age.

Table 3. Marital status.

Marital Status		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Married	93	93.0	93.0	15.0
	Single	7	7.0	7.0	100.0
	Total	100	100.0	100.0	100.0

Source: Primary Data.

As shown this table the majority of respondents were married 93 (93.0%).

Table 4. Educational level.

Education level		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bachelor	4	4.0	4.0	4.0
	Illiterate	46	46.0	46.0	46.0
	informal education	50	50.0	50.0	50.0
	Total	100	100.0	100.0	

Source: Primary Data.

According above table the respondents had 50 (50.0%) informal education, 46 (46.0%) were illiterate and only 4 (4.0%) had bachelor degree. As the table shown the educational level of most respondents was informal education.

#### 4.2. The Traditional Knowledge of Major Livestock Diseases

*Table 5. Main livestock diseases.*

Diseases	Frequency	Percent	Valid Percent	Cumulative Percent
Valid				
Tick infestation	2	2.0	2.0	2.0
Skin scar	6	6.0	6.0	8.0
Diarrhea	8	8.0	8.0	16.0
Fracture	6	6.0	6.0	22.0
Trypanosome	11	11.0	11.0	33.0
Foot and mouth disease	5	5.0	5.0	38.0
Mange	9	9.0	9.0	47.0
Mayoonge	1	1.0	1.0	48.0
Sambab (CCPP \$ CBPP)	3	3.0	3.0	51.0
Ulcer	4	4.0	4.0	55.0
Enjery animal	2	2.0	2.0	57.0
Dhabaroow	1	1.0	1.0	58.0
Worms	3	3.0	3.0	61.0
Ear inflammation	5	5.0	5.0	66.0
Cough	4	4.0	4.0	70.0
Eye scar	4	4.0	4.0	74.0
Rarebit	2	2.0	2.0	76.0
Gland swelling	1	1.0	1.0	77.0
Anaplasmosis	1	1.0	1.0	78.0
Mastitis	1	1.0	1.0	79.0
Tumor with abscess	3	3.0	3.0	82.0
Spleen problem	1	1.0	1.0	83.0
Camel Trypanosomes	1	1.0	1.0	84.0
Caal (Helmenthiasis)	1	1.0	1.0	85.0
Injury of esophagus	1	1.0	1.0	86.0
Poultry disease	1	1.0	1.0	87.0
Haad	2	2.0	2.0	89.0
Placent retention	5	5.0	5.0	94.0
Nasal inflammation	6	6.0	6.0	100.0
Total	100	100.0	100.0	

Source: Primary Data.

This table shows that there is a variation of respondents about main livestock diseases.

#### 4.3. The Uses of Ethno-Veterinary Treatment on Animal Disease and How It Practiced

*Table 6. What is the most traditional treatment.*

Most traditional treatment	Frequency	Percent	Valid Percent	Cumulative Percent
Valid				
Plants	93	93.0	93.0	93.0
Burn	5	5.0	5.0	98.0
Oil	1	1.0	1.0	99.0
Cashirs	1	1.0	1.0	100.0
Total	100	100.0	100.0	

Source: Primary Data.

Table 6 shows that the majority of respondents used most traditional treatment were plants 93 (93%).

*Table 7. Type of plant.*

Local Name	Scientific name	Frequency	Percent	Parts are used	Indication	Administration
Qabiib		1	1.0	Glue	Skin scar	Topical
Hadi	Commiphora Erethraea	3	3.0	Glue	Diarrhea	Oral
Qansax	Acacia Miseravatke (Aca cia reficiens)	2	2.0	Fiber	Fracture	On the leg
Dacar	Aloevero	10	10.0	Brunch	Trypanosome	Injection
Qabo	Euphorbia longspina	2	2.0	Stem	FMD	Topical on the lips
Diinsi (Like)	Balanophoraceae	1	1.0	Diinsi	Ulcer	Topical
Sarmaan		2	2.0	Fiber	Fracture	On the leg

Local Name	Scientific name	Frequency	Percent	Parts are used	Indication	Administration
Goosay		1	1.0	Fiber	Fracture	On the leg
Gummar	Acacianubica benth	7	7.0	Fiber	FMD	Emulsified on the
Diir hule		1	1.0	Fiber	Hule	Oral
Xarar (carar)	Terminalia spinosa	1	1.0	Fiber	Dhabaroow	Oral
Dhiti		7	7.0	Fiber and Root	Nasal inflammation	Nasal drop
Dhunkaal		1	1.0	Glue	Ear Inflammation	Ear drop
Qurac	Acacia tortilis	6	6.0	Fiber	Skin scar	Topical
Cadaad	Acacia senegsl	4	4.0	Glue	Pneumonia	Oral
Neef u Dhintay		1	1.0	Piece of lung	Sambab (CC PP&CBPP)	Piece of lung are inserting nasal area
Sambab						
Tuugaar	Acacia nilotica	1	1.0	Leave	Eye scar	Eye drop
Dhagayare	Synzygium aromaticam	1	1.0	Cloves	Ear Inflammation N	Ear drop
Cashiris		1	1.0	Qur'aank a kariimka	All diseases	Oral
Garas	Dogbera glabra	3	3.0	Leave	Placenta Retention	Oral
Hanboohi	Aereva javanuce	2	2.0	Root	Eye scar	Eye drop
Reexaan	Ocimum basilcum	1	1.0	Leave	Pneumonia	Nasal drop
Hareeri	Terminalia prunioides	5	5.0	Leave and stem	Ear Inflammation N	Ear drop
Geed hindi	Azadirachta indica	2	2.0	Leave	Neefka oo Garira	Oral
Aluundo		2	2.0	Leave	Nasal irritant	Nasal drop
Xangeeg		1	1.0	Leave	Anaplasmosi s	Topical and oral
Saliid	Oil	1	1.0	Oil	Mastitis	Emulsified On The udder
Dhaddin	Commiphora myrrha	1	1.0	Glue	Tumor With abscess	Oral and emulsified on the tomor
Qarare	Sterculia Africana	1	1.0	Root	Pneumonia	Oral
Gogobbo	Cadia purpura	12	12.0	Root	Mange	Topical
Mareer	Cordia sinensis	1	1.0	Root	Placenta retention	Oral and emulsified on the pelvic
Xarmale	Crotalaria emerginella vatke	1	1.0	Root	Placenta retention	Oral
Waambe		1	1.0	Root	Spleen problem	Oral
Xamur	Ziziphus hamur eng	1	1.0	Root	Tick	Topical
Saleemac	Cadia purpura	5	5.0	Fiber and Root	Fracture	On the leg
Dharkayn	Euphorbia rebechii	1	1.0	Root	Mange	Topical
Dhiigtaar	Dicrostachys cinerea	3	3.0	Root	Tumor with abscess	Emulsified On The tumor
Caday	Salvadora persica	1	1.0	Root	Esophagus injury	Oral
Moringe	Moringa olieifera	1	1.0	Root	Trypanosome	Oral
Toobaako	Nicotiana glauca	1	1.0	Tobacco	Nasal irritant	Nasal drop
Total		100	100			

Source: Primary Data.

This table shows that there is a variation of respondents about type of plans are used.

**Table 8.** Which traditional part is use and how to prepare?

Part	Frequency	Percent	Valid percent	Cumulative percent	Preparation method
Brunch	14	14.0	14.0	14.0	Brunch are the produce Sap
Stick	2	2.0	2.0	16.0	Stick are close on the fracture Leg
Leave	18	18.0	18.0	34.0	Leave are crushed and adding little water
Stem	6	6.0	6.0	40.0	Stem are break then produce sap
Fiber	11	11.0	11.0	51.0	Fiber are wrapped plants with fiber and then closed fracture Leg
Root	35	35.0	35.0	86.0	Root are crushed and mixing with warm water
Glue	10	10.0	10.0	96.0	Glue are adding some water then shake well
Tobacco	1	1.0	1.0	97.0	Tobacco are crushed and put little water
Cloves	1	1.0	1.0	98	Cloves are crushed and adding with little water
Myrra	1	1.0	1.0	99	Myrra are mixing some water
Piece of lung from Died animal	1	1.0	1.0	100	Piece of lung are deduct with died animal

Source: Primary Data.

This table shows that there is a variation of respondents about part of plant they used and their applications.

**Table 9.** Which type of treatment do you believe is more effective?

	Frequency	Percent	Valid Percent	Cumulative Percent
Modern treatment	70	70.0	70.0	70.0
Valid Traditional treatment	30	30.0	30.0	100.0
Total	100	100.0	100.0	

According to the above table the majority of respondents 70 (70.0%) believe that the modern treatment is more effective than traditional.

## 5. Discussions

The demographic characteristics of all the respondents selected for the present study such as age, gender, level of education, animal and traditional knowledge on animal diseases have been collected. 73% of the respondents were the ages of above 40 years, 14% were between 30-40 while 13% were between 20-30 years because the traditional knowledge is mostly available to older people. These findings support the findings of other researchers who found that knowledge of ethnoveterinary medicine is mostly limited to the old people in communities [43, 44]. On the other hand, 82% of the respondents were male because livestock are reared by males, while only 18% were females. Similarly most respondents 50% had informal education because they live in remote areas, 4% of them had some formal education while 46% were illiterate.

The respondents were asked whether they use traditional treatment against livestock diseases or they adopted using modern medicines to know the extent to which ethnoveterinary medicine is practiced. The present study finds 93% of respondents use traditional treatments because it's effective, readily available and easy to administer and animal herders are familiar with medicinal plants to treat diseased livestock. Another reason for their choice could be the fact that animals are usually kept in remote areas where the availability of veterinary services and drugs is limited. This result has an agreement with study carried by Miara MD. Et al, [45] who reported that the rural people they still rely on traditional herbs to prevent diseases in their livestock and poultry, this also have support for study carried by Hailu, F, et al. [46] who reported in Ethiopia about 80% of the population use traditional medicine (TM) due to the cultural acceptability of healers and local pharmacopeias, the relatively low cost of traditional medicine, and the difficulty of accessing modern health facilities.

In current study the pastoral people mostly 70% believed that the modern treatment is the most effective, but their access was limited as there are no veterinary clinics and animal health workers in the study area or the cost of veterinary services is unaffordable.

In the study area, internal parasites were the most frequent disease in animals as reported by the respondents. This may be because the internal parasitic infestation was routinely and/or mostly during the whole year. The second most common disease reported by the interviewees was ectoparasites parasite as mentioned by the respondents. This could be due to the nature of geographical location in the study area in which the Shabelle River crosses. This is followed by skin scar, ulcer, Pneumonia, eye scar and ear inflammation respectively.

The study found that the majority of animal owners use medicinal plants 93% as traditional treatment and only 5% were used to burn as treatment of some animal disease.

In the current study found type of plants used as traditional treatment were most of animal owners Gogobbo (*Cordia alliodora*), 12% used for mange (*Cadho*) treatment, Dacar (*Aloe vera*) 10% used for cattle trypanosomiasis, Gumar (*Acacia senegal*) 7% used for FMD (Cabeeb) treatment, Dhiti 7% used for nasal inflammation (san boor) treatment, 6% Qurac (*Acacia tortilis*) used for skin scar (nabraha jirka) treatment, 5% Hareeri (*Terminalia prunioides*) used for ear inflammation, 5% Salaamac/Saleemac (*Sesamothamnus busseanus* Engl) used for wrapped fractures, 4% Cadaad (*Acacia senegal*) used for pneumonic treatment, 3% Garas (*Dogbera glabra*) used for placenta retention treatment of animals, 3% Hadi (*Commiphora erithraea*) used for diarrhea treatment of livestock diseases.

The study revealed that different parts of medicinal plants of veterinary use have been used except flower part and also different methods of preparation and modes of application were used for remedy preparation, however the widely used plant parts in the preparation of remedies in the study area were root, followed by leaf. The widely utilization of root and leaf parts of medicinal plants in the community might be due to the anti illness effects of their potential for different ailments similarly root (35%) and Leaf (18%) reported that the findings of root and leaf to be the most harvested plant parts used for ethno veterinary remedy preparation might be associated with traditional beliefs, about a powerful therapeutic effect or anti illness effects of leaf and root parts for treating various ailments. This closely related study reported Birhanu T and Abera D [42] in which roots were reported to be the most often-requested resources. However, the findings of this study contrast those of a study conducted by Tizazu Worku, [38] that Leaf was the most frequently sought plant part followed by root this also reported by Gabalebatse M. et al. [15] that leaves (71%) were the most used plant materials.

However, completely flower part of the plants was not practiced in the locality for medicinal value, it might be due to that beliefs, flower parts of the plants do not contain anti illness potential for ailments and it might be that the local community is not adapted culturally or not experienced or inherited from previous senior indigenous knowledge experienced persons. Leaves were frequently used as part of the ethno veterinary medicinal plants in Balcad district. [18]

Several methods of applications or administration of traditional remedies depending on the particular disease to be treated was adapted. Crushing, o, fumigation, Wrapping, were methods of preparation in the study area. However crushing is the best method of preparation in the area as the respondents revealed.

Regarding routes of remedy administration, the commonly used routes or administration of traditional medicine in the study area were oral, topical, nasal drop, injection and Ear drop routes were also used at lower levels. Those findings of oral route followed by topical route were consistent with other studies like [40] reported most of medicinal plants used through oral route followed by topical route. The drug is

usually drunk for internal conditions or applied topically for external infection. The current study revealed that there were different dosage forms for the preparation of different remedies, however liquid preparation was the most common dosage form in the study area. Another study by Teferi D and Sundara R. [10] in Ethiopia revealed that liquid preparation was reported to be the predominant dosage form of traditional remedy preparation.

## 6. Conclusion

This study revealed common traditional treatment of livestock diseases practices in Balcad district. The study involved finding out the common traditional treatment used against livestock diseases. As the investigation indicated in Balcad district, diseases affecting Animals are the major health constraints. Therefore the documentation of the ethno veterinary practices was necessary before this precious knowledge was lost forever. This study suggested that traditional medicine knowledgeable livestock owners of the study area have sound ethno veterinary knowledge and practices. Accordingly, the study enabled us to document about 40 medicinal plants and more than 9 non-plant traditional remedies that have been used against 29 types of livestock diseases in the study area, so far. In general, available traditional medicines, plant parts, methods of preparation, non-dosage forms and drawbacks and challenges of those traditional medicines were also elaborately presented. Traditional remedies of Medicinal plants of veterinary importance might not be well protected, as a result can be threatened and lost due to droughts, fire, deforestation and overgrazing. Conservational activities of medicinal plants, governmental encouragements of traditional healers as well as training activity of those traditional healers were not strictly well addressed.

## 7. Recommendations

- 1) Indigenous knowledge and practices of the study area communities should be supplemented by scientific methods to evaluate the safety, efficacy and dosage of the common medicinal plants through photochemical and antimicrobial experimentation to determine appropriate mode of delivery, drug development and dosage in pharmacological laboratory while the plants is potentially toxic when used consecutively for a long period of time, further work will focus on the pharmacological properties.
- 2) Awareness creation among the traditional healers and community at large are important measures to preserve their indigenous medicinal plant species knowledge. This is because medicinal plants are facing extinction, indicating that conservation may be the only way out.
- 3) The government should identify and organize those indigenous knowledgeable persons and their golden knowledge should be used for the country development as well as training of those healers should be addressed.

- 4) A national campaign is urgently required to identify, collect and document important traditional remedies of veterinary used plants; those should be evaluated to provide reliable information on most useful plants to be conserved.
- 5) Establishment of a green line of medicinal plants with particular reference to those under extinction and Genetic improvement of medicinal plants to increase their quality and quantity should be required.
- 6) Formulation of a national drug policy for herbal medicines should be addressed and develop legislative protocols that facilitate use of ethno veterinary medicine.
- 7) Traditional healers should be given some incentive, such as being appointed as veterinary scouts and valuable information, an association of traditional healers should be structured. Such an initiative would also expose traditional practitioners to training in modern veterinary medicine, and would narrow the differences and reduce the bias between the two approaches, leading to better integration.

## References

- [1] Tamboura HH, Sawadogo LL, Kaboré H, Yameogo SM (2000). Ethnoveterinary medicine and indigenous pharmacopoeia of Passoré Province in Burkina Faso. *Ann N Y Acad Sci.*; 916: 259–264.
- [2] Mwale M, Bhebhe E, Chimonyo M, Halimani TE (2005). Use of herbal plants in poultry health management in the Mushagashe small-scale commercial farming area in Zimbabwe. *Int J Appl Res Vet Med.* 2005; 3: 163–170.
- [3] Matekaire T, Bwakura TM (2004). Ethnoveterinary medicine: A potential alternative to orthodox animal health delivery in Zimbabwe. *Int J Appl Res Vet Med.*; 2 (4): 269–273.
- [4] Ngeh JT, Jacob, Nuwanyakpa M, Djang S (2007). Ethno veterinary medicine, a practical approach to the treatment of cattle diseases in sub-Saharan Africa, Agromisa Foundation and CTA, Wageningen, Nigeria. *Research Journal of Agricultural and Environmental Management.* 1: 25-33.
- [5] FOA, 2018, Rebuilding Resilient and Sustainable Agriculture in Somalia Somalia Country Economic Memorandum • Rebuilding Resilient and Sustainable Agriculture in Somalia. V1.
- [6] Maine VAC, Livia ETM, José SM, Rômulo RNA (2009). Animals to heal animals: ethnoveterinary practices in semiarid region, Northeastern Brazil. *Journal of Ethnobiology and Ethnomedicine.* 5: 37. doi: 10.1186/1746-4269-5-37.
- [7] Shicai, S., Andreas, W., & Vernooy, R. (2010). The Importance of Ethnoveterinary Treat-ments for Pig Illnesses In Poor, Ethnic Mi-nority Communities: A Case Study of Nu People in Yunnan, China. *International Journal of Applied Research in Veterinary Medicine*, 8 (1), 53-59.
- [8] Dharani N, Yenesew A, Aynekulu E, Tuei B, Jamnadass R (2015) Traditional ethnoveterinary medicine in East Africa: a manual on the use of medicinal plants. Dawson IK ed. The World Agroforestry Centre (ICRAF), Nairobi, Kenya.



- [9] Bekele, E. (2007): Actual Situation of Medicinal Plants in Ethiopia. Prepared for Japan Association for International Collaboration of Agriculture and Forestry (JAICAF). Available from: <http://www.endashaw.com>. [Accessed on 2017 Jul 30].
- [10] Teferi D, Sundara R. Demand for traditional health care services in rural Ethiopia. *Middle East J Sci Res.* 2013; 13: 01–10.
- [11] Perry B., Grace D. The impacts of livestock diseases and their control on growth and development processes that are pro-poor. *Philos. Trans. R. Soc. B. Bio. Sci.* 2009; 364: 2643–2655.
- [12] Teixidor-Toneu I., Elhajjam A., D'Ambrosio U. Ethnoveterinary Practices in the Maghreb. *Ethnovet. Med.* 2020; 285–310.
- [13] Katerere D. R., Luseba D., editors. *Ethnoveterinary Botanical Medicine: Herbal Medicines for Animal Health*. 1st ed. CRC Press; Boca Raton, FL, USA: 2010. p. 115.
- [14] Bruschi P., Urso V., Solazzo D., Tonini M., Signorini M. A. Traditional knowledge on ethno-veterinary and fodder plants in South Angola: An ethnobotanical field survey in Mopane woodlands in Bibala, Namibe province. *J. Agric. Environ. Int. Dev. (JAEID)* 2017; 111: 105–121.
- [15] Gabalebatse M., Ngwenya B. N., Teketay D., Kolawole O. D. Ethno-veterinary practices amongst livestock farmers in Ngamiland District, Botswana. *Afr. J. Tradit. Complement. Altern. Med.* 2013; 10: 490–502.
- [16] Dzoyem J. P., Tchuenteu R. T., Mbarawa K., Keza A., Roland A., Njouendou A. J., Assob J. C. N. *Ethnoveterinary Medicine*. Springer; Cham, Switzerland: 2020. *Ethnoveterinary Medicine and Medicinal Plants Used in the Treatment of Livestock Diseases in Cameroon*; pp. 175–209.
- [17] Abera B. Medicinal plants used in traditional medicine by Oromo people, Ghimbi District, Southwest Ethiopia. *J. Ethnobiol. Ethnomed.* 2014; 10: 40. doi: 10.1186/1746-4269-10-40.
- [18] Gakuubi M. M., Wanzala W. A survey of plants and plant products traditionally used in livestock health management in Buuri district, Meru County, Kenya. *J. Ethnobiol. Ethnomed.* 2012; 8: 39. doi: 10.1186/1746-4269-8-39.
- [19] Iqbal Z, Jabbar A, Akhtar MS, Muhammad G, Lateef M. (2005). Possible role of ethnoveterinary medicine in poverty reduction in Pakistan: use of botanical anthelmintics as an example. *J Agric Soc Sci.* 1: 187–95.
- [20] Alhaji N. B., Babalobi O. O. Participatory epidemiology of ethnoveterinary practices Fulani pastoralists used to manage contagious bovine pleuropneumonia and other cattle ailments in Niger State, Nigeria. *J. Vet. Med.* 2015 doi: 10.1155/2015/460408.
- [21] Fekadu Fullas (2010): Ethiopian Medicinal Plants in Veterinary Healthcare A Mini-Review, Ethiopian e-journal for Research and Innovation foresight. Vol 2, No 1 (2010) - Health Issue pp (48-58).
- [22] Maphosa V, Tshisikhawe P, Thembo K, Masika P (2010). Ethnoveterinary in Southern Africa. In: Katerere, D. R. and Luseba, D. (Eds) *Ethno veterinary Botanical Medicine Herbal Medicines for Animal Health*, pp. 257-288.
- [23] Masika PJ, Van Averbeke W, Sonandi A (2000): Use of herbal remedies by small-scale farmers to treat livestock diseases in the Eastern Cape Province, South Africa. *J S Afri Vet Ass* 71: 87–91.
- [24] Moreki, J., Poroga, B., Dikeme, R., & Seabo, D. (2010). Ethnoveterinary medicine and health management in poultry in Southern and Western Districts, Botswana. *Age*, 15 (60), 26.
- [25] Chinsebu K. C., Negumbo J., Likando M., Mbangu A. (2014) An ethnobotanical study of medicinal plants used to treat livestock diseases in Onayena and Katima Mulilo, Namibia. *S. Afri. J. Bot.* 94: 101–107.
- [26] Moichwanetse B. I., Ndhlovu P. T., Sedupane G., Aremu A. O. (2020) Ethno-veterinary plants used for the treatment of retained placenta and associated diseases in cattle among Dinokana communities, North West Province, South Africa. *S. Afr. J. Bot.* 132: 108–116. doi: 10.1016/j.sajb.2020.04.005.
- [27] Tomeka T. O., Mremi R., Machumu A. K., Sanya J., Kisingo A. W. (2020) *Ethnoveterinary Plants Used by Tribal People in the Northern Tanzania*. *Res. Sq.* doi: 10.21203/rs.3.rs-100745/v1. preprint.
- [28] Syakalima M., Simuunza M., Zulu V. C. (2018). Ethnoveterinary treatments for common cattle diseases in four districts of the Southern Province, Zambia. *Vet. World.* 11: 141. doi: 10.14202/vetworld.2018.141-145.
- [29] Jambwa P., Nyahangare E. T. *Ethnoveterinary Medicine*. Springer; Cham, Switzerland: (2020). *Ethnoveterinary Medicine: A Zimbabwean Perspective*; pp. 269–283.
- [30] Worku T. (2018) Review on Importance of Ethnoveterinary practices in pastoral Areas of Ethiopia. *Int. J. Res. Stud. Biosci.*; 6: 16–27.
- [31] Kitata G., Abdeta D., Amante M. (2017). Ethnoknowledge of plants used in veterinary practices in Midakegn district, west showa of Oromia region, Ethiopia. *J. Med. Plants Stud.*; 5: 282–288.
- [32] Oyda S. (2017). Review on traditional Ethno-veterinary medicine and medicinal plants used by indigenous people in ethiopia: Practice and application system. *Int. J. Res.-Granthaalayah.*; 5: 109–119.
- [33] Woldu F. A. Master's Thesis. Animal and Range Sciences, Hawassa University; Hawassa, Ethiopia: (2016). *Indigenous Livestock Husbandry and Ethno Veterinary Practices in Endamohoni District of Tigray Region, Ethiopia*.
- [34] Odongo E., Mungai N., Mutai P., Karumi E., Mwangi J., Omale J. (2018). Ethnobotanical survey of the medicinal plants used in Kakamega County, Western Kenya. *Appl. Med. Res.*; 4: 22. doi: 10.5455/amr.20180315095706.
- [35] Feyera T., Mekonnen E., Wakayo B. U., Assefa S. (2017). Botanical ethnoveterinary therapies used by agro-pastoralists of Fafan zone, Eastern Ethiopia. *BMC Vet. Res.*; 13: 232.
- [36] Van der Merwe D. (2010). Master's Thesis. University of Pretoria; Pretoria, South Africa. *Use of Ethnoveterinary Medicinal Plants in Cattle by Setswana-Speaking People in the Madikwe Area of the North West Province*.
- [37] Verma R. K. (2014). An ethnobotanical study of plants used for the treatment of livestock diseases in Tikamgarh District of Bundelkhand, Central India. *Asian Pac. J. Trop. Biomed.* 4: S460–S467.

- [38] Tizazu Worku, (2018), Review on Importance of Ethnoveterinary Practices in Pastoral Areas Of Ethiopia Kindokoysha woreda Animal and fishery office, Volume 6, Issue 9, PP 16-27 ISSN No. (Online) 2349-036.
- [39] Esmail HM. (2012), Status and prospectes on common animal health therapeutic practice in and around Bahird Dar. University of Gondar, Faculty of veterinary medicine. Gondar Ethiopia. 4: 33-35.
- [40] Sori, T., M. Bekana, G. Adugna and E. Kelbessa, (2004): Medicinal plants in the ethno veterinary practices of Borana pastoralists, Southern Ethiopia. *Int J Appl Res Vet Med.*, 2: 220-225.
- [41] Ethno-Veterinary (2003), complementary and low cost treatment and management of working animals, UK, World Association for Transport Animal Welfare and Studies.
- [42] Birhanu T, Abera D (2015). Survey of ethno-veterinary medicinal plants at selected horro gudurru districts, Western Ethiopia. *Afr J Plant Sci.* 9: 185–92. 10.5897/AJPS2014.1229.
- [43] Bartha SG, Quave CL, Balogh L, Papp N. Ethnoveterinary practices of covasna county, transylvania, Romania. *Ethnobiol Ethnomed.* (2015) 11: 35. 10.1186/s13002-015-0020-8.
- [44] Menale B, Muoio R. Use of medicinal plants in the southeastern area of the partenio regional park (Campania, Southern Italy). *J Ethnopharmacol.* (2014) 153: 297–307. 10.1016/j.jep.2014.02.039.
- [45] Miara MD, Bendif H, Ouabed A, Rebbas K, Hammou MA, Amirat M, Greene A, Teixidor-Toneu I. Ethnoveterinary remedies used in the Algerian steppe: Exploring the relationship with traditional human herbal medicine. *J Ethnopharmacol.* 2019; 244: 112164.
- [46] Hailu, F., Cherie, A., Gebreyohannis, T., & Hailu, R. (2020). Determinants of traditional medicine utilization for children: a parental level study in Tole District, Oromia, Ethiopia. *BMC complementary medicine and therapies*, 20 (1), 1-11.