

Ethnoveterinary Practices And Use Value Analysis Of Medicinal Plants Used For Cattle In Lelekaa Village, Wolasi District, South Konawe Regency

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ABSTRACT

Ethnoveterinary knowledge is an important component of local community knowledge concerning the use of plant resources to help manage livestock health problems. This study aimed to describe ethnoveterinary practices among cattle farmers and analyze the Use Value (UV) of plants utilized by the community in Lelekaa Village, Wolasi District, South Konawe Regency. The study employed a descriptive-exploratory approach combining qualitative and quantitative data. A total of 35 informants were selected through total sampling based on their involvement in cattle husbandry and knowledge of medicinal plant use. Data were collected through semi-structured interviews, observation, and documentation. Qualitative data were analyzed through data reduction, data display, and conclusion drawing, while quantitative analysis used the Use Value index. The results showed that the community managed several groups of livestock health problems, including eye diseases (11 cases), oral cavity diseases (9 cases), digestive disorders and parasitic infections (8 cases), and skin diseases (7 cases). Five plant species were documented: Piper betle, Curcuma longa, Zingiber officinale, Alpinia galanga, and Annona muricata. The plant parts used were leaves and rhizomes, with preparation methods including boiling, crushing, squeezing, and mixing with feed, followed by oral or topical administration. The highest UV was recorded for Zingiber officinale (0.77), followed by Piper betle (0.69), Alpinia galanga (0.57), Annona muricata (0.49), and Curcuma longa (0.46). UV values indicate the relative level of utilization based on informant reports and do not constitute evidence of pharmacological effectiveness. Documenting this local ethnoveterinary knowledge is important as a foundation for further research on the safety and therapeutic effectiveness of medicinal plants used in cattle health management.

Keywords: Ethnoveterinary; Cattle; Medicinal Plants; Local Knowledge; Use Value

INTRODUCTION

Plants are biological resources that provide diverse benefits to human communities, including as food, medicine, animal feed, spices, and materials associated with social and cultural practices. The use of plants has developed through people's experiences in recognizing and utilizing biological resources available in their surroundings, with this knowledge being passed down from one generation to the next. Over time, knowledge of plant utilization has extended beyond human health to include the maintenance of livestock health. Such practices form part of ethnoveterinary medicine, which represents the relationship between local knowledge, plant resources, and animal health management. Studies from various regions have shown that plants remain an important component of livestock healthcare practices in rural communities. Eshetu et al. (2015) documented the use of medicinal plants, including their preparation methods and applications, to treat various animal diseases in Ethiopia, while Suroowan et al. (2017) identified 276 plant species from 95 families used in the management of various animal diseases in South Asia. These findings indicate that ethnoveterinary plant knowledge represents an important form of community-based knowledge that varies according to ecological conditions, livestock systems, and local cultural practices.

Ethnoveterinary knowledge encompasses community-based knowledge and skills in identifying plant species, determining the parts to be used, processing plant materials, and administering remedies to livestock based on accumulated experience. Such practices are particularly important in rural communities that have strong connections with the natural resources surrounding them. Eshetu et al. (2015) demonstrated that medicinal plants used in ethnoveterinary practices can be processed through various methods depending on the type of disease and the availability of plant materials. A similar pattern was reported by Syakalima et al. (2018), who documented the use of traditional treatments for various cattle diseases in four districts of Zambia. The existence of these practices indicates that local knowledge of livestock health constitutes an important strategy through which rural communities maintain the health and productivity of their cattle. However, the persistence of such knowledge does not necessarily indicate scientifically confirmed therapeutic effectiveness, making systematic documentation an important first step toward further validation.

Cattle are among the livestock species that play an important role in the economic lives of rural communities because they can serve as sources of income, household assets, and economically valuable commodities. Cattle production is also closely associated with farmers' ability to maintain animal health so that growth and productivity can be sustained optimally. In this context, the use of medicinal plants represents an important form of local knowledge that warrants scientific investigation. Pratama et al. (2021), for example, identified 41 plant species used by farmers to treat cattle health problems in Bojonegoro Regency, East Java, with digestive disorders among the conditions commonly treated using medicinal plants. This finding is further supported by Bhat et al. (2023), who documented the use of medicinal plants to treat various

cattle diseases in East Khasi Hills, Meghalaya, India. Nevertheless, differences in species availability, livestock management, local experience, and cultural practices mean that findings from other regions cannot be directly assumed to represent ethnoveterinary practices in Lelekaa Village.

The use of plants in livestock healthcare also demonstrates considerable diversity in plant species, plant parts, preparation methods, and routes of administration, all of which are influenced by environmental conditions and community experience. Leaves, roots, bark, seeds, fruits, and other plant parts may be used according to the intended therapeutic purpose. McGaw et al. (2020), in a review of ethnoveterinary research in South Africa, documented 139 plants from 50 families used to treat 21 animal diseases and health conditions, with leaves, roots, and bark among the most frequently utilized plant parts. Meanwhile, Madisha and McGaw (2023) reported that rural communities in Limpopo use various plants to address respiratory and dermatological disorders in livestock. This diversity demonstrates that medicinal plant knowledge for livestock healthcare is context-specific and should therefore be documented according to the characteristics of particular communities and regions. Accordingly, documenting not only the plant species but also the plant parts, preparation methods, administration routes, and reported health conditions is necessary to obtain a more complete representation of local ethnoveterinary practices.

Ethnoveterinary documentation is important because local knowledge regarding the use of plants can change as livestock production systems, environmental conditions, and patterns of intergenerational knowledge transmission evolve. Research on ethnoveterinary practices in various regions has demonstrated that communities possess diverse knowledge regarding the use of plants to maintain livestock health. Chaachouay et al. (2022) identified approximately 300 plant species used in animal healthcare by communities in the Rif region of Morocco, while a systematic review by Mayer et al. (2014) identified 590 plant species from 102 families reported in European ethnoveterinary research. The large number of documented plant species demonstrates that local knowledge represents an important source of information regarding biological resources used in livestock healthcare while also highlighting the need for research in communities that remain insufficiently documented. In particular, community-level studies are needed to capture local variations that may be overlooked by broader regional or systematic studies.

Identifying plant species alone is insufficient to describe the relative importance of each species within a community's knowledge system. A quantitative approach is therefore needed to provide an indication of which species are most frequently used or cited by informants. One approach that can be applied is Use Value (UV^{***}). Albuquerque et al. (2006) explained that Use Value can be used to evaluate the relative importance of a species based on information about its uses reported by community members. The use of this index must be interpreted carefully because UV is influenced by the frequency with which a species is mentioned and the number of uses reported for that species. Zenderland et al. (2019) demonstrated that citation

frequency has an important influence on UV and that the index may be subject to certain biases; therefore, its interpretation should be adapted to the specific context of the study. In this study, UV is used specifically to describe the relative level of reported use of medicinal plant species among cattle farmers, rather than to indicate pharmacological efficacy, safety, or clinically proven therapeutic effectiveness.

Lelekaa Village, Wolasi District, South Konawe Regency, is an area where agriculture and livestock production form part of the community's livelihood activities. Cattle husbandry is associated with the availability of local resources that may be utilized to support livestock management and health. However, local knowledge concerning plant species used as cattle remedies, the plant parts utilized, preparation methods, diseases treated, and the relative importance of each plant species has not yet been systematically documented using a quantitative approach. This represents a local research gap because existing ethnoveterinary studies from other regions provide evidence of diverse medicinal plant practices, but they do not describe the specific knowledge system of cattle farmers in Lelekaa Village or quantify the relative use of the species reported by its community members. The novelty of this study lies in documenting the local ethnoveterinary practices of cattle farmers in Lelekaa and combining descriptive documentation with Use Value analysis to identify the relative use of each reported medicinal plant species.

This condition highlights the need to document the community's local knowledge while identifying plant species with relatively high use values. Therefore, this study aims to examine ethnoveterinary practices among cattle farmers in Lelekaa Village and analyze the Use Value (UV) of each plant species utilized. The scientific contribution of this study is to provide community-specific baseline data on medicinal plant species, plant parts, preparation methods, administration practices, reported livestock health conditions, and their relative use values. The findings are expected to provide scientific documentation of local knowledge and serve as baseline information for further ethnoveterinary research and the sustainable utilization of plant resources. The findings may also support future pharmacological, phytochemical, safety, and dosage studies, without assuming that the reported traditional uses have been clinically validated.

METHODS

This study employed a descriptive-exploratory research design using both qualitative and quantitative approaches. The qualitative approach was used to explore and describe community knowledge regarding ethnoveterinary practices for cattle, including the types of diseases treated, medicinal plant species used, plant parts utilized, preparation methods, administration methods, and sources of plant materials. The quantitative approach was used to determine the relative importance of each plant species based on its Use Value (UV). The combination of these approaches was selected to address the research objectives, which required both an exploration of local knowledge and a quantitative assessment of plant-use data (Creswell & Creswell, 2023). The qualitative component provided contextual information on how medicinal plants were used,

whereas the quantitative component summarized the reported use of each plant species using the UV index.

The study was conducted in September 2025 in Lelekkaa Village, Wolasi District, South Konawe Regency, Southeast Sulawesi, Indonesia. The study site was purposively selected based on the consideration that the local community raises cattle and possesses knowledge regarding the use of plants as traditional medicinal materials. The study population consisted of all cattle farmers in Lelekkaa Village. Informants were selected using a total sampling technique, whereby all population members who met the predetermined criteria were included as informants. A total of 35 informants participated in the study. The inclusion criteria were cattle farmers who were actively involved in cattle management, were residents of Lelekkaa Village, and had knowledge or experience regarding the use of medicinal plants for cattle. The total sampling approach was applied because the eligible population was relatively small and all eligible members could be included in the study. This approach enabled the study to obtain comprehensive information from a relatively small population that was directly relevant to the research objectives.

Data were collected through semi-structured interviews, observation, and documentation. Interviews were conducted using an open-ended interview guide to obtain information regarding livestock diseases, local names and plant species, plant parts utilized, preparation methods, administration methods, and sources of medicinal plants. Observations were conducted to examine the surrounding environment, the availability of medicinal plants, and preparation practices when these activities could be directly observed. Documentation was used to record plant species, plant parts used, preparation processes, and field conditions. Information on plant identity was recorded based on local names and field characteristics, and botanical identification was conducted using available botanical references and verification of the observed plant characteristics. The use of multiple data collection techniques enabled the information obtained from different sources to be systematically cross-checked.

Qualitative data were analyzed interactively through the stages of data condensation, data display, and conclusion drawing and verification. Miles et al. (2019) explained that qualitative data analysis involves an interactive process of data condensation, data display, and conclusion drawing and verification. Quantitative data were analyzed using the Use Value (UV) index with the formula $UV = \Sigma U/N$, where UV represents the use value of a plant species, ΣU represents the total number of use reports for a species, and N represents the total number of informants. In this study, a use report referred to a reported use of a particular plant species for cattle health based on information provided by an informant. Each reported use was recorded systematically according to the plant species and its stated application. A higher UV indicates a greater frequency of reported use and, operationally, reflects the relative importance of a plant species within the community's ethnoveterinary knowledge system. The UV values were interpreted only as indicators of relative reported utilization and were not considered evidence of pharmacological efficacy, safety, dosage, or clinically confirmed therapeutic effectiveness.

Data trustworthiness was established through source triangulation and technique triangulation by comparing information obtained from different informants and cross-checking interview findings with observations and documentation. Verification was conducted to identify the consistency of information concerning plant species, livestock diseases, plant parts utilized, and treatment methods. Where differences in information occurred, the information was reviewed by comparing responses across informants and available field observations or documentation before being included in the final dataset. The study also adhered to ethical principles by obtaining research permission, explaining the purpose of the study to informants, obtaining informed consent prior to interviews, maintaining the confidentiality of informants' identities, and respecting the values and local knowledge of the community. All stages of the research were conducted to produce scientifically accountable ethnoveterinary documentation while respecting the community that serves as the source of the knowledge.

RESULTS AND DISCUSSION

Research Results

4.1 General Description of the Study Area

The study was conducted in Lelekaa Village, Wolasi District, South Konawe Regency, Southeast Sulawesi, Indonesia. The area is characterized by community activities closely associated with agriculture and livestock production. Portions of the village are used for agricultural and plantation activities, while cattle raising is one of the main livestock activities practiced by the community. The cattle production systems observed in the study were relatively simple and included grazing and semi-intensive management systems. The surrounding environment provides various plant resources that are utilized by community members in traditional cattle healthcare practices.

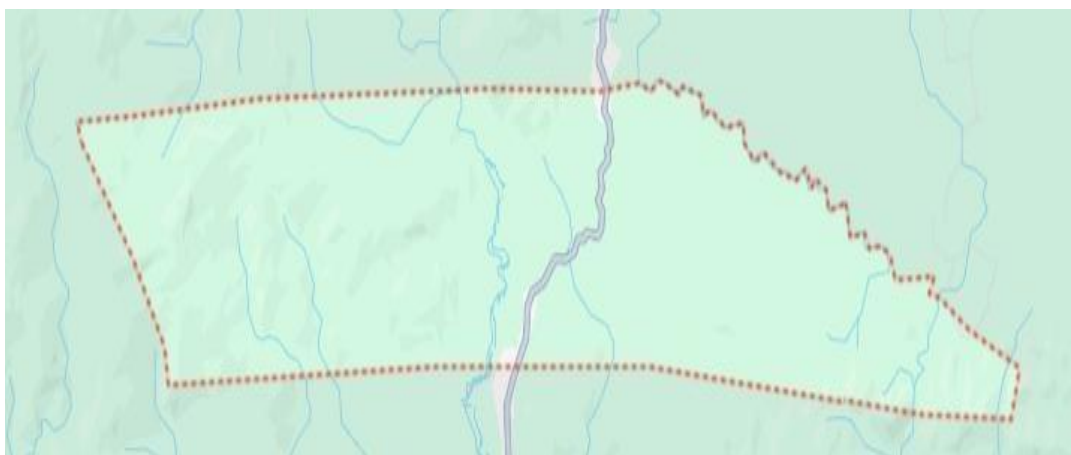


Figure 1. Map of the Study Location in Lelekaa Village, Wolasi District, South Konawe Regency

The map indicates that the study was centered in Lelekaa Village as the area for observing and collecting information on ethnoveterinary practices. The location was selected because

community members raise cattle and continue to use local knowledge in managing livestock health problems. The village environment consists of agricultural land, plantations, household yards, and open areas that provide access to various plant species used in traditional cattle treatment. These environmental conditions constitute an important setting for the ethnoveterinary practices documented during the study.

4.2 Characteristics of Informants

The study involved 35 informants, all of whom were cattle farmers in Lelekaa Village. The informants were selected because they had experience in cattle husbandry and knowledge of traditional treatments used for livestock. In terms of sex, 18 informants were male (51.43%) and 17 were female (48.57%). This distribution shows that knowledge concerning the use of plants for cattle treatment was reported by both male and female farmers participating in the study.

The study involved 35 informants, all of whom were cattle farmers in Lelekaa Village. The informants were selected because they had experience in cattle husbandry and knowledge of traditional treatments used for livestock. The informants included cattle farmers who were actively involved in cattle husbandry and had knowledge or experience in using traditional plant-based treatments for cattle. In terms of sex, 18 informants were male (51.43%) and 17 were female (48.57%). This distribution shows that knowledge concerning the use of plants for cattle treatment was reported by both male and female farmers participating in the study.

Table 1. Characteristics of Research Informants

Characteristic	Category	Number (persons)	Percentage (%)
Sex	Male	18	51.43
	Female	17	48.57
Age	20–30 years	4	11.43
	31–40 years	8	22.86
	41–50 years	13	37.14
	>50 years	10	28.57
Cattle-raising experience	<5 years	4	11.43
	5–10 years	10	28.57
	>10 years	21	60.00

Source: Research data, 2025.

4.3 Types of Diseases Affecting Cattle

The interviews and observations identified several categories of health problems affecting cattle in Lelekaa Village that were reportedly treated using plants. The health problems were grouped into eye diseases, oral cavity diseases, digestive and parasitic diseases, and skin diseases. The classification was based on information provided by informants concerning the symptoms and conditions of cattle they had encountered. The number of reported cases varied among the disease categories.

Eye diseases represented the category with the highest number of reported cases, with 11 cases. This was followed by oral cavity diseases with 9 cases, digestive and parasitic diseases

with 8 cases, and skin diseases with 7 cases. These figures refer to reported occurrences or health problems mentioned by informants and should not be interpreted as clinically confirmed cases. The differences in the number of reported cases indicate that the health problems addressed through ethnoveterinary practices were not equally frequent among the cattle reported by the informants.

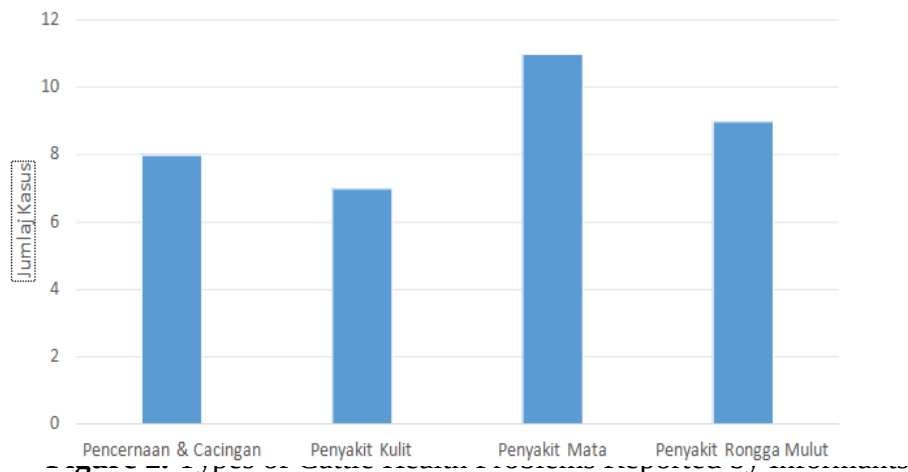


Table 2. Distribution of Diseases Affecting Cattle

No.	Disease Category	Number of Cases
1	Eye diseases	11
2	Oral cavity diseases	9
3	Digestive and parasitic diseases	8
4	Skin diseases	7
Total		35

Source: Research data, 2025.

The reported case numbers represent information provided by the informants and are intended to describe the health problems encountered within the study population. The categories were based on local descriptions and observed symptoms reported by informants rather than veterinary or laboratory diagnoses. They do not represent clinical diagnoses or laboratory-confirmed disease cases.

4.4 Medicinal Plant Species Used

The inventory identified five plant species used by the community of Lelekaa Village in ethnoveterinary practices for cattle. The species were betel leaf (*Piper betle*), turmeric (*Curcuma longa*), ginger (*Zingiber officinale*), galangal (*Alpinia galanga*), and soursop leaf (*Annona muricata*). These five species belonged to three families: *Piperaceae*, *Zingiberaceae*, and *Annonaceae*. *Zingiberaceae* was the most represented family, with three species: turmeric, ginger, and galangal. Plant identification was based on the local names and morphological characteristics documented during the field observations and compared with relevant botanical references.

Table 3. Medicinal Plant Species Used in Ethnoveterinary Practices

No.	Local Name	Scientific Name	Family	Plant Part Used	Reported Use
1	Betel leaf	<i>Piper betle</i>	Piperaceae	Leaf	Wounds, infections, oral diseases
2	Turmeric	<i>Curcuma longa</i>	Zingiberaceae	Rhizome	Inflammation, digestive disorders
3	Ginger	<i>Zingiber officinale</i>	Zingiberaceae	Rhizome	Digestive disorders
4	Galangal	<i>Alpinia galanga</i>	Zingiberaceae	Rhizome	Skin diseases
5	Soursop leaf	<i>Annona muricata</i>	Annonaceae	Leaf	Skin diseases

Source: Research data, 2025.

As shown in Table 3, each plant species had different reported uses based on information provided by the informants. Betel leaf was reported for the treatment of wounds, infections, and oral diseases. Turmeric was reported for conditions associated with inflammation and digestive disorders, while ginger was used for digestive disorders. Galangal and soursop leaf were primarily reported for skin diseases. Thus, the reported uses varied according to the plant species and the health conditions identified by the informants.

4.5 Plant Parts and Preparation Methods

The plant parts utilized in ethnoveterinary practices consisted primarily of leaves and rhizomes. Leaves were used from betel and soursop, whereas rhizomes were used from turmeric, ginger, and galangal. Interview findings indicated that the selection of plant parts was associated with the plants available to the community and the local knowledge concerning which parts were traditionally used. Leaves and rhizomes were also readily accessible within the surrounding environment.

The medicinal plants were processed using several methods, including boiling, crushing, squeezing, and mixing with cattle feed. Plant materials intended for oral administration could be boiled, after which the resulting liquid was administered to cattle or mixed with feed. Plant materials intended for external application were crushed or squeezed before being applied to the affected body area. These preparation methods varied according to the reported use of each plant.

The administration of traditional preparations was categorized into oral and topical administration. Oral administration involved giving the preparation directly to the cattle or mixing it with feed. Topical administration involved applying the preparation directly to the affected body part. Oral administration was primarily reported for internal health problems, particularly digestive disorders, whereas topical administration was reported for external conditions such as wounds and skin problems.

4.6 Use Value of Medicinal Plants

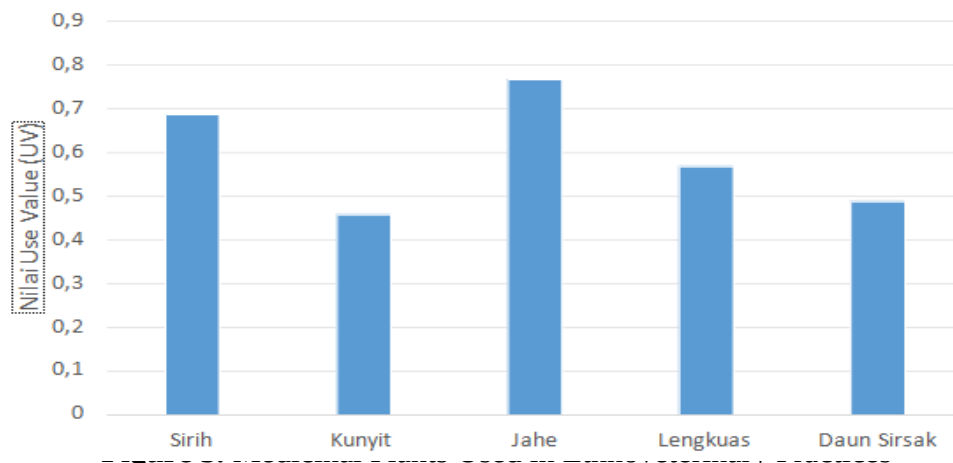
The Use Value (UV) analysis was conducted to determine the relative level of utilization of each plant species based on the use reports provided by the informants. In this study, use reports refer to the uses of each plant species reported by the informants for cattle health problems. The analysis showed that the five identified species had different UV values.

Table 4. Use Value of Medicinal Plants

No.	Local Name	Scientific Name	Use Value (UV)
1	Ginger	<i>Zingiber officinale</i>	0.77
2	Betel leaf	<i>Piper betle</i>	0.69
3	Galangal	<i>Alpinia galanga</i>	0.57
4	Soursop leaf	<i>Annona muricata</i>	0.49
5	Turmeric	<i>Curcuma longa</i>	0.46

Source: Research data, 2025.

Based on the UV values, ginger (*Zingiber officinale*) had the highest Use Value, whereas turmeric (*Curcuma longa*) had the lowest value among the five documented species. The UV values describe the relative level of reported plant utilization within the study data. A higher UV represents a greater number of reported uses for a species among the informants. Therefore, the UV values in this study are presented as indicators of the relative importance of plant species within the community's ethnoveterinary knowledge and are not interpreted as measures of pharmacological effectiveness or safety.



Therefore, the UV values in this study are presented as indicators of the relative importance of plant species within the community's ethnoveterinary knowledge based on reported use, and not as indicators of pharmacological efficacy, safety, dosage, or clinically confirmed therapeutic effectiveness.

Discussion

5.1 Ethnoveterinary Knowledge and Informant Characteristics

The characteristics of the informants provide important context for understanding the development of ethnoveterinary knowledge in Lelekaa Village. Most cattle farmers in the study had more than 10 years of experience in cattle husbandry. Such experience provides an important context for the development of ethnoveterinary knowledge because long-term interaction with livestock enables farmers to recognize various health problems and the methods used to manage them. Mathibela et al. (2022) showed that ethnoveterinary knowledge among livestock-keeping communities develops through direct experience in dealing with livestock diseases and the use of plant resources available in the surrounding environment. Thus, cattle-raising experience represents an important contextual factor in the existence and maintenance of traditional livestock healthcare knowledge.

Knowledge of traditional livestock treatment is not developed solely through individual experience but also through learning and communication within the community. Information concerning plant species, plant parts, preparation methods, and administration methods can be transmitted through interactions among family members and other community members. Wanzala et al. (2005) demonstrated that ethnoveterinary knowledge is closely associated with practical experience and local knowledge systems used to recognize and manage livestock health problems. This condition indicates that experienced cattle farmers in Lelekaa Village represent an important source of information for documenting locally developed ethnoveterinary knowledge.

5.2 Livestock Health Problems Addressed by the Community

The findings indicate that the community of Lelekaa Village primarily recognizes livestock health problems based on directly observable symptoms. The reported conditions included problems affecting the eyes, oral cavity, digestive system and parasitic infections, as well as the skin. Recognition based on observable symptoms forms part of the decision-making process in traditional treatment practices, as community members draw on previous experiences to associate particular signs with treatments considered appropriate. Wanzala et al. (2005) found that community knowledge of livestock diseases can be constructed from observable signs and symptoms, meaning that local disease classifications do not necessarily correspond directly to clinical veterinary diagnoses.

Eye diseases were the most frequently reported health problems, with 11 cases, followed by oral cavity disorders with 9 cases, digestive and parasitic disorders with 8 cases, and skin diseases with 7 cases. This pattern indicates that the community encounters various livestock health problems at different frequencies. Mathibela et al. (2022) also documented considerable diversity in the types of cattle diseases recognized by local communities and the use of specific plants to address these conditions. Nevertheless, the findings from Lelekaa Village should be understood as information based on informant reports and observations rather than as results of clinical diagnosis or laboratory examination.

5.3 Diversity of Medicinal Plants Used

The study identified five plant species used in ethnoveterinary practices for cattle: betel leaf (*Piper betle*), turmeric (*Curcuma longa*), ginger (*Zingiber officinale*), galangal (*Alpinia galanga*), and soursop leaf (*Annona muricata*). The presence of these five species indicates that the community utilizes plant resources that are available and familiar within its everyday environment. Mokgobi et al. (2021) reported that livestock-keeping communities use various plant species to address animal diseases, with utilization patterns influenced by plant availability and local knowledge. The findings from Lelekaa Village show a similar pattern at the community level.

The Zingiberaceae family was the most represented botanical family in this study because it included three species: turmeric, ginger, and galangal. This representation indicates that rhizomatous plants have an important position in the traditional healthcare knowledge documented in Lelekaa Village. Mathibela et al. (2022) showed that communities use plants from various botanical families to address cattle diseases and that patterns of plant utilization can differ between regions. Therefore, the predominance of Zingiberaceae in this study should not be considered a universal pattern but rather a characteristic of local knowledge shaped by community experience, plant availability, and local healthcare needs.

The finding of five species should also be interpreted within the scope of the study. These species represent the plants reported by the 35 informants during the study period and should not be interpreted as representing the total medicinal plant diversity in Lelekaa Village. This number represents the medicinal plants documented based on information obtained from 35 informants during the research period and does not necessarily represent the total diversity of medicinal plants that may exist in Lelekaa Village.

5.4 Plant Parts and Preparation Methods

Leaves and rhizomes were the plant parts utilized in the ethnoveterinary practices documented in Lelekaa Village. Leaves were used from betel and soursop, whereas rhizomes were used from turmeric, ginger, and galangal. The selection of these plant parts was associated with plant availability and community knowledge concerning which parts were traditionally used for particular purposes. Mokgobi et al. (2021) reported that ethnoveterinary practices involve the utilization of different plant parts and various preparation methods. This finding indicates that knowledge concerning the selection of plant parts represents an important component of traditional livestock healthcare practices that should be systematically documented.

The preparation methods identified in the study included boiling, crushing, squeezing, and mixing plant materials with cattle feed. These variations indicate that community members adapt plant preparation methods according to their intended use and the manner in which the preparation is administered to cattle. Sopian and Puji (2026) reported that plant preparation methods in local knowledge systems may vary and can include boiling and other simple processing techniques before administration. In Lelekaa Village, these methods represent

practical knowledge developed through community experience and should not be equated with standardized pharmaceutical extraction or drug formulation procedures.

The administration of medicinal plants involved both oral and topical routes. Oral administration was carried out by giving the plant preparation directly to cattle or mixing it with feed, whereas topical administration involved applying the plant preparation to affected body areas. This variation indicates an association between the location of the health problem and the method of administration. Romha et al. (2015), in an ethnoveterinary study, also documented variations in the routes of administration of medicinal plants for livestock, including oral administration and application to specific body parts. Such practices demonstrate the presence of practical knowledge concerning the use and application of medicinal plants.

5.5 Use Value of Plants in Ethnoveterinary Practices

The analysis showed that the Use Value (UV) of the medicinal plants used by the community of Lelekaa Village varied among species. Ginger had a UV of 0.77, betel leaf 0.69, galangal 0.57, soursop leaf 0.49, and turmeric 0.46. These differences indicate variation in the number of use reports for each species provided by the informants. Mathibela et al. (2022) used a quantitative approach in ethnoveterinary research to describe the relative importance of plants based on community use information. In the present study, UV was applied according to the same general principle, namely as an indicator of the relative utilization pattern of plants based on informant reports rather than as a direct measure of therapeutic effectiveness.

Ginger had the highest UV, at 0.77, making it the species with the highest relative frequency of reported use among the five identified plants. This value indicates that ginger occupies an important position in plant-use practices based on the experiences reported by the informants. Santos et al. (2022) emphasized that quantitative indices in ethnobotanical research should be interpreted carefully because such indices describe patterns of community knowledge and use and do not automatically demonstrate the pharmacological activity of a plant. Therefore, the high UV of ginger cannot be used as evidence that ginger is the most effective plant for treating cattle diseases.

Betel leaf had a UV of 0.69 and ranked second after ginger. According to the informants, betel leaf was primarily used to address wounds, infections, and oral cavity disorders. Its relatively high UV indicates that the use of betel leaf was frequently reported within the ethnoveterinary knowledge documented in Lelekaa Village. Mathibela et al. (2022) demonstrated that the level of plant utilization within a community may vary according to the diseases being treated, user experience, and plant availability. Therefore, the position of betel leaf in this study reflects its relative importance within local knowledge rather than a measure of clinical treatment success.

Galangal, soursop leaf, and turmeric had UV values of 0.57, 0.49, and 0.46, respectively. These values indicate that all three plants remain part of the community's ethnoveterinary practices, although their reported use was lower than that of ginger and betel leaf. Differences in UV values may reflect variation in frequency of use, the types of health problems addressed, or

the distribution of knowledge about particular plants among informants. Santos et al. (2022) explained that quantitative ethnobotanical indices should be interpreted alongside the social and qualitative context of plant use. Therefore, a plant with a lower UV should not automatically be considered unimportant to the community.

Overall, ethnoveterinary practices in Lelekaa Village demonstrate an interconnected relationship between farmers' experience, plant resources, recognition of livestock health problems, and knowledge of plant preparation and administration. These components form a locally developed knowledge system. Wanzala et al. (2005) showed that community knowledge of livestock health develops through the interaction of husbandry experience, symptom recognition, and treatment practices transmitted within the community. This finding indicates that ethnoveterinary documentation should not be limited to recording plant names but should also include the context of their use and the knowledge associated with them.

The application of Use Value in this study provides quantitative information that complements the qualitative findings concerning medicinal plant use. The index can assist in identifying plants that are most frequently reported by community members and can therefore provide a basis for selecting plant species for further investigation. However, UV should be interpreted together with information concerning the diseases treated, plant parts used, preparation methods, routes of administration, and informant experiences. Through this integrated approach, the study provides not only an inventory of five medicinal plant species but also documentation of their utilization patterns within the ethnoveterinary knowledge system of the Lelekaa Village community. Further research is needed to investigate the chemical constituents, appropriate dosage, safety, and biological activities of the plant species frequently used by the community.

CONCLUSION AND IMPLICATIONS

The study of ethnoveterinary practices among cattle farmers in Lelekaa Village, Wolasi District, South Konawe Regency, shows that the community continues to maintain and utilize local knowledge of plants for managing various livestock health problems. This knowledge is closely associated with farmers' livestock-raising experience, as 60.00% of the informants had more than 10 years of experience raising cattle. The reported health problems included eye diseases, with 11 reported cases, followed by oral cavity diseases with 9 cases, digestive disorders and parasitic infections with 8 cases, and skin diseases with 7 cases. These health problems represent conditions reported by informants and are not clinical or laboratory-confirmed diagnoses.

Five plant species were documented as being used in ethnoveterinary practices: betel leaf (*Piper betle*), turmeric (*Curcuma longa*), ginger (*Zingiber officinale*), galangal (*Alpinia galanga*), and soursop leaf (*Annona muricata*). The family Zingiberaceae was the most represented family, comprising three species. The plant parts used consisted primarily of leaves and rhizomes, while

preparation methods included boiling, crushing, squeezing, and mixing with feed. The plants were administered orally or topically depending on their intended use.

Based on the Use Value (UV) analysis, ginger (*Zingiber officinale*) had the highest UV (0.77), followed by betel leaf (*Piper betle*) (0.69), galangal (*Alpinia galanga*) (0.57), soursop leaf (*Annona muricata*) (0.49), and turmeric (*Curcuma longa*) (0.46). These UV values indicate the relative level of plant utilization based on informant reports and should not be interpreted as measures of pharmacological effectiveness or safety. The findings are limited to the ethnoveterinary knowledge reported by the 35 informants during the study period and do not represent the total medicinal plant diversity or clinically established effectiveness of the reported treatments. The findings highlight the importance of documenting local ethnoveterinary knowledge in Lelekaa Village as a valuable source of community-based information and as a basis for further research on the active compounds, appropriate dosage, safety, biological activity, and therapeutic effectiveness of medicinal plants used in cattle health management. Future studies should therefore combine ethnoveterinary documentation with botanical verification, pharmacological and toxicity testing, and, where appropriate, clinical evaluation to validate the reported uses and establish safe and appropriate applications.

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