

# Assessment of Animal Health and Production Constraints: The Case of Three Districts

Jiregna Dugassa (✉ [Jiregna.dugassa@aau.edu.et](mailto:Jiregna.dugassa@aau.edu.et))

Addis Ababa University

Abraham Kebede

Wollega University

Yobsan Tamiru

Wollega University

---

## Research Article

**Keywords:** Animal Health and Production, Districts, Gida Ayana, Jimma Arjo, Sibbu Sire

**Posted Date:** February 4th, 2021

**DOI:** <https://doi.org/10.21203/rs.3.rs-152226/v1>

**License:** © ⓘ This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

---

## **Abstract**

## **Background**

Animal production is an important tool for improving the standard of living of humans and is the backbone of Ethiopia's agricultural development. The country is known for its high reproductive potential, but it is not consumed by various factors.

## **Objectives**

The overall objective of the study is to assess the key issues related to animal health and performance.

## **Methods**

In addition to case-observation studies at the District Veterinary Clinic, cross-sectional study design using well-designed and structured questionnaire surveys.

## **Results**

The evaluation was carried out in three intentionally selected districts, namely: Gidda Ayana, Sibu Sire and Jimma Arjo. As a result, 200, 145 and 165 respondents were sampled among the animal owners in the districts of Gidda Ayana, Sibu Sire and Jimma Arjo, respectively. In all districts, infectious and non-infectious diseases common in the regions were also assessed and classified. In addition, feeds, management systems, water sources, and reproductive status of animals were also assessed. According to the majority of respondents, natural pastures and breeding are the main sources of food and livestock genetic improvement systems, which they rely on to improve their animal production.

## **Conclusion and Recommendations:**

In the present study, the barriers to livestock health and productivity in districts are high in quality and their number. These include animal feeding, poor animal management, limited ability to use genetics, high prevalence of infectious diseases, and animal husbandry systems. Thus, it is important to increase the veterinary services, extension services and alternative sources of animal feed besides provision of training and capacity building on rational use, reproduction, prevention and control of animal diseases for local farmers.

## **1. Introduction**

Animal production is an important tool for improving the standard of living of humans and is the backbone of Ethiopia's agricultural development and most of sub-Saharan Africa [1]. Ethiopia is known for its large livestock population, which ranks first in Africa and 10th in the world. According to recent estimates of the livestock population, there are approximately 52.1 million cattle, 24.2 million sheep, 22.6 million goats and 44.9 million chickens in the country [2]. Despite the country is known for its high reproductive potential, but it is not consumed by various factors [3]. This is mainly due to the high prevalence of infectious and non-communicable diseases, low genetic potential of native breeds, improper handling and poor nutrition. [4].

In tropical and sub temperate areas of Ethiopia including Oromia, there are numerous livestock health problems due to poor animal health services resulting high prevalence and incidence of diseases in these areas is related with weak animal health services [5, 6]. Despite the wide spread of different animal health problems in the countries, specific information on animal health and production constraints has never gotten a focus of research [7]. However, depth knowledge on the major animal health and production constraints are very indispensable for veterinarians, researchers, animal production experts and other stake holders to select economically feasible prevention interventions that will ultimately increase animal production and productivity of animals there by contributing sustainable growth and development of the country through alleviation of poverty. Therefore, the overall objective of this particular study is:

- To assess the key issues related to animal health and performance.

## **2. Materials And Methods**

### **2.1. Study area**

The study was conducted between October 2009 and February 2010 on three deliberately selected districts in the East Wollega Zone: Gidda Ayana, Jimma Arjo and Sibbu Sire, Western Oromia. Administratively, the Zone has 17 districts. Nekemte town is located at a distance of 364 km from Addis Ababa, capital city of the Ethiopia (Fig. 1). Astronomically, this zone lies between 8<sup>0</sup>27'N to 10<sup>0</sup>13'N latitudes and 36<sup>0</sup>08'E to 37<sup>0</sup>38'E longitudes. Geographically East wollega zone is bordered by: West Shoa and Horro Guduru wollega in the east, West wollega zone and Benishangul Gumuz Regional state in the west, Parts of Benishangul Gumuz Regional and Amhara Regional state in the north, Illubabor and Jimma Zones in the south. The climate is divided into three categories. Namely: highland (28.6%), midland (50.9%) and lowland (20.5 %). Annual temperature is between 14<sup>0</sup>c to 26<sup>0</sup>c and annual rain fall is between 1000 to 2400mm. The livestock population of the area includes 40,056 cattle, 27,814 sheep, 64,785 goats, 2,224 equines, 13,786 chickens and 14,639 traditional, transitional and modern beehives respectively [8].

These districts share similar farming system but different in agrological locations. They have also different ranges of livestock population.

#### **2.1. 1. Gidda Ayana District**

Gidda Ayana is a town of the district and has about 27 peasant associations. During the study period, five peasant associations namely (Ayana 01 & 02, lalise, Arele waja and Ejere) were selected based on the accessibility and proximity of the nearby clinic as well as huge livestock potential. The district is located in the North Eastern part of East wollega Zone at a distance of 112km from Nekemte town, the town of the zone. It is bounded by Gidda Kiramu district in the North East, Ibantu district in the North, Limu district in South West and Guto Gidda district in South East and has a total area of 998.6 Km<sup>2</sup>. Most part of the land has an elevation above 1300 meters and characterized by low land (49%) and highland (51%) agro climatic condition with a mean annual temperature between 15 and 20<sup>0</sup>c and mean annual rainfall of 1000 to 1600mm. The district has high livestock potential with 180,334 Cattle, 20,476 Ovine, 25,241Caprine, 5210 Equine, and Poultry 70,144and 25,600 Bee Colonies [10].

## **2.1.2. Jimma Arjo District**

The area is located about 48 km south of the city of Nekemte in an area of 780 km<sup>2</sup>. This area covers almost 3.05% of the total area of the zone and is delimited by the Nunu Kumba area in the east, Guto Wayu and Leka Dulecha in the north and the Bunno Bedele zone in the south and northwest. During the study, six peasant associations, namely Arjo 01 and 02, Hara, Wayu kiltu, Lalo and Tibe chafe, were specially selected for their proximity to the veterinary clinic and infrastructure, as well as their enormous livestock potential. The area is divided into three distinct agro-ecological zones: highlands (25%), middle lands (51%), and lowlands (24%). Regarding the altitude range, the altitude varies from 1260 to 2520 meters. The mean annual temperature ranges from 15<sup>0</sup>C to 20<sup>0</sup>C, while the mean annual precipitation is 1400 to 000 mm. The region has a high population: around 108,000 head of cattle, 24,124 sheep, 31,126 goats, 5,383 horses, 20,000 head of poultry [11].

## **2.1.3. Sibu Sire District**

The area is bordered by Gobu seyo to the east, Guto wayu to the west, Guto wayu and Gudeya Bila to the northwest, Wama boneya to the south, and is adjacent to part of Guto wayu to the southwest. During the study, four farmer associations, Sire 01 & 02, Chari and Lalissa, were selected based on their proximity to nearby veterinary clinics and the availability of infrastructure. The district is divided into three different geographic areas with different proportions. That is, 7.53% of the highlands, 74.2% of the central part and 18.27% of the lower part, which are very small parts of the district. Topographic features of predominantly rugged terrain, mountain ranges, and plains. Many large and small rivers drained throughout the year analyze the rugged terrain of the area. The altitude varies from 1300 to 3020 meters above sea level. As a result, the average annual temperature in the region is 15<sup>0</sup>C to 20<sup>0</sup>C and the average annual rainfall is 1600 to 2000 mm. The total cattle population in this area is 172,941. Of these, cow 126,500, sheep 25,276, goat 32,773, mule 874, horses 180 and donkeys 8700 [12].

## **2.2. Study design and population**

A detailed questionnaire survey was used to conduct a cross-sectional survey on the assessment of key barriers to animal health and production in each study area. District veterinarians representing ownership

of homes with various health problems Gida Ayana, Sibbu Sayer, Jimma Arjo District veterinarians include animal owners, different age groups and animal breeds (cows, goats, sheep, lambs), And various varieties of both varieties are included. During the research period, all species of animals (bovines, caprines, ovines, horses) kept under different management systems were used.

## **2.3. Sampling and Data Collection Method**

In addition to case-observation studies at the Districts' Veterinary Clinics, cross-sectional study design using well-designed and structured questionnaire surveys. All three districts were selected on the basis of lack of access to information on accessibility, livestock population capacity, animal health and livestock development. The animals in the study have been distributed by selected districts and farmers' associations. Three Farmers Associations (PAs) from each district were deliberately selected with the consent of relevant experts in animal health and production from the Fisheries and Livestock Resource Development Offices.

### ***2.3.1. Questionnaire survey***

A detailed and systematic questionnaire was developed in an effort to obtain baseline information with a special focus on livestock health and productivity. The questionnaire was designed to provide farmers with fresh and easy-to-remember information, and was completed by interviewing exclusively selected livestock owners from various protected areas in the area concerned. Informal panel discussions were also held with veterinary staff to obtain information on animal health issues in the study area.

### ***2.3.2. Case Observational Study***

Cases from various animals (cattle, sheep, goats and horses) were brought to the District Veterinary Clinics and diagnosed based on history, clinical findings and laboratory visualizations used to diagnose and treat common clinical diseases affecting livestock production.

## **2.4. Ethics Approval and Consent to Participate**

Wollega University Research Ethics Review Committee (WUREC) approved this research before actual data collection. A consent sheet was prepared in English and attached to the tool on separate page regarding the purpose, description, anticipated benefits, other relevant aspects of the study and signed informed consent was taken from all respondents prior to data collection for respondents of above 18 years of age. Thus, authors declare that all methods were performed in accordance with the relevant guidelines and regulations.

## **3. Data Management And Analysis**

The data were collected, recorded, coded and entered with appropriate variables in Microsoft Excel spread sheet. Data analysis was made using Statistical Package for Social Science (SPSS), version 22.0 software and analyzed by descriptive statistical analysis technique. The data were presented by percentages, tables and bar graphs.

## 4. Results

The evaluation was carried out in three intentionally selected districts, namely: Gidda Ayana, Sibum Sire and Jimma Arjo. As a result, 200, 145 and 165 respondents were sampled among the animal owners in the districts of Gidda Ayana, Sibum Sire and Jimma Arjo, respectively.

### 4.1. Demographic data of Respondents

Most of the respondents in Gidda ayana were men (73.5%) and the remaining women (26.5%) had maximum and minimum age of 54 and 14 years. But with regard to educational background status, 58% of the respondents were literate and 42% were illiterate. Similarly, the majority of respondents Jimma Arjo and Sibum Sire Districts were male followed by female percentages as summarized in Table 1.

Table 1  
Demographic Summary of Respondents across Districts

Variables Name of Districts	Gidda Ayana	Jimma Arjo	Sibum Sire
<b>Sex (%)</b>	73.5	81.21	83.07
Male	26.5	18.79	16.93
Female			
<b>Age (years)</b>	14	15	9
Min.	54	63	49
Max.			
<b>Educational status (%)</b>	58	56.13	47.09
Literate	42	43.87	52.91
Illiterate			

### 4.2. Livestock Herd Size and Composition

According to the majority of district respondents, cattle comprise the largest proportion, followed by descending order of goats, sheep and equals (donkeys and mules) respectively, except in Jimma Arjo where the number of goats is higher in sheep. Among the study areas, the bulls of Jimma Arjo, Gidda Ayana and Sibum Sire were 40.08%, 38.88% and 34.01% respectively. Approximately (38.22%) and (22.9%) the cattle herds of Gidda Ayana are composed of cows and calves, respectively, while the composition of the herds of small ruminants represents mainly 67.85% and that of goats and sheep 64.43%. The female is from animals. The proportion of cattle, sheep and goats in all districts was present in Fig. 2.

The majority of herds for both small animals and cattle are between 1–7 (78.62%) and 5–15 (82.36%). In Jimma Arjo and Sibum Sire, the animal population is about 61.03% and 58.09%, respectively. The number

of goats in Sibumire is also higher than the number of sheep, which is 51.01% and 48.9% respectively. In contrast, the proportion of sheep (53.98%) is higher than that of goats (46.02%) in Jama Arjo District.

### **4.3. Farming system and Livestock Management**

Mixed farming systems exist in all districts, and most of the respondents raising their animals on a large scale. Therefore, approximately 97.89%, 95.68 and 94.9% of the respondents handle animals with extensive management in the districts of Gidda Ayana, Jimma Arjo and Sibumire, respectively, while 2.11%, 4.32% and 5.09% respectively were managed semi-intensively. The district-wide animal management system is represented and rendered as shown in Fig. 3.

Regarding habitat and segregation of animals during grazing, most respondents from Jimma Arjo district housed their animals in groups (96.61%) in simple byre, which does not protect the animals from sun/cold/rain while the respondents from Sibumire district (43.87%) of the respondent's house animals (cattle, small ruminants and equines) near to their house such as by tying with ropes with pegs. According to the majority of respondents, the majority of animals grazing in the three districts move in groups of 58.13% without distinction of age, physical condition, species and purpose (beef, draught and milk production). In all districts, reproductive status of animals was also assessed. According to the majority of respondents, natural breeding is the main livestock genetic improvement system, which they rely on to improve their animal production. Specifically, with regarding to cattle breeding, 90.79%, 86.3%, 95.69% of the respondents use uncontrolled natural breeding in Gidda Ayana, Jimma Arjo and Sibumire respectively while the rest were used in the form of artificial insemination (AI) as shown in Fig. 4.

### **4.4. Watering and watering source**

In the Gidda Ayana district, the main water sources cited by animal owners were the river (97.34%), followed by tap water (2.66%). According to the respondents, the majority of the owners give their animals to drink once a day (81.9%) followed by twice a day (18.1%) in the district. Also, the majority of respondents from Jimma Arjo districts use the river (91.95%) while the rest (8.05%) use tap water and temporarily stored water. Although the majority of Sibumire respondents use river water as a source, as in other districts, there is a shortage of water for their animals from January to May, where most animals are at risk.

### **4.5. Feeding and its source**

In all districts, feeds, management systems, and water sources were also assessed. According to the majority of respondents, natural pastures are the main sources of food. According to the respondents, the majority use natural grasses. Gidda Ayana (98.1%), Jimma Arjo (97.21%) and Sibumire (98.9%) for their animal feed, and the rest with concentrate (Fig. 5). During food shortages and dry spells, the majority of respondents generally rely on agricultural waste (89.35%), such as cereal straw and complementary feed (10.65%), as their main source of food, especially from March to May in all districts

### **4.6. Veterinary Service and Animal production expert**

According to the majority of respondents, both experts are limited in number and most of them were available near the districts' town. The majority of animal health and production experts serve three nearby peasant associations. According to the respondents, about 58.1%, 56.31% and 60.97% have an access to governmental veterinary services in Gidda Ayana, Jimma Arjo and Sibbu Sire districts respectively while the rest respective percentages have not. Majority of respondents argued that as there is inadequate and imbalance of man power (both Animal Health and Livestock Production expert) for each peasant association as compared to livestock population potential each districts in general and peasant associations in particular in addition to inaccessibility to veterinary clinics in nearby. Thus where veterinary services are limited, the owners rely mainly on private veterinary services and the percentages of coverage in both forms were presented as in Fig. 6.

## **4.7. Treatment and Prevention**

With regard to modern veterinary treatment, 82.6%, 80.39% and 79% of the respondents from Gidda Ayana, Jimma Arjo and Sibbu Sire use modern treatment respectively while the rest respective percentages use traditional treatment to cure/ treat diseased animals. In all districts, majority of the respondents prevent and control livestock diseases, specially infectious and parasitic diseases through vaccination. Similarly, in Sibbu Sire district, 79.3%, 1.59%, 11.5% and 7.61% of the respondents vaccinate, slaughter, quarantine, use other options like deworming or do nothing, respectively for control and prevention of the live stock disease.

## **4.8. Major Constraints of Livestock Sector of the Areas**

According to respondents the major constraints of the animal production and health of the all three districts is inaccessibility of modern, governmental veterinary service in quantity as per peasant associations with effective service and customer satisfaction, in availability of feeds (in quality as well as in quantity) and high prevalence of the diseases as summarized in Table 2.

Table 2  
Major constraints of livestock production and developments in the districts

Districts				Overall (%)
Major Constraints Gidda Ayana (%)		Jimma Arjo (%)	Sibu Sire (%)	
Limitation of animal feed and prevalence of different animal diseases of animals	41.07	43.24	35.29	<b>39.87</b>
Inaccessibility of veterinary services	33.09	37.32	38.9	<b>36.43</b>
Lack of adequate animal production and health expert	27.33	29.36	31.59	<b>29.43</b>
Lack of sustainable and structured modern live stock market	25.94	21.31	19.80	<b>22.35</b>
Miscellaneous problems	14.38	12.13	15.97	<b>14.16</b>
<b>Over all total (%)</b>	<b>28.36</b>	<b>28.71</b>	<b>28.31</b>	<b>28.45</b>

The above table (2) shows that the most constraints of the districts are limitation of animal feeds both in quantity and quality followed by inaccessibility of veterinary services. The result also showed that various constraints of animal health and production constraints were recorded highest in Jimma Arjo district (28.71%) followed by but least in Sibu Sire District (28.31%).

## 4.9. Major Diseases of Livestock and Case Observational Study

In all districts, infectious and non-infectious diseases common in the regions were also assessed and classified. During the study, a total of 1476 sick animals (973 bovines, 181 kg, 109 ovines, and 213 equines) of different age groups and sex were diagnosed based on clinical and laboratory examinations from various farmers' associations in the Gidda Ayana district. Respondents complained that many infectious and diverse diseases are the main health problems of livestock development, decreased production and even a variable degree of death. They also indicated that the dynamics of the disease are also sometimes increased by many factors such as food shortages, inadequate veterinary service, seasonal cycles and agricultural ecology. Respondents confirmed that livestock disease is one of the main barriers to their livestock production. The most prevalent diseases that affect cattle are CBPP (43.47%), followed by trypanosomosis (9.25%), but in sheep, fasciolosis (22.01%) is the main disease that is mainly observed in goats and sheep. It is the main disease. Trypanosomosis (47.88%) is by far the most common disease followed by various types of gastrointestinal parasites (38.96%). Furthermore, mastitis is one of the diseases that challenge female cattle, sheep and goats, as summarized in Table 3.

Table 3  
Common diseases of the livestock in Gidda Ayana district

Name Common Diseases of The Area	Animal species(n = 1476)				Ranks
	Bovine	Caprine	Ovine	Equine	
Anthrax	69(7.09)	-	-	-	9
Contagious Bovine Pleuropneumoniae (CBPP)	423(43.47)	-	-	-	2
Lumpyskin Disease(LSD)	21(2.15)	-	-	-	8
Pasteurellosis	61(6.26)	122(67.40)	28(25.69)	-	4
Fasciolosis	87(8.94)	-	24(22.01)	-	5
Mastitis	50(5.13)	5(2.76)	8(7.33)	3(1.40)	
Other Gastrointestinal parasitism	79(8.12)	12(6.62)	26(23.85)	83(38.96)	3
External parasitism	80(8.22)	10(5.52)	13(11.92)	25(11.73)	6
Orf	13(1.34)	15(8.28)	7(6.42)	-	7
Trypanosomosis	90(9.25)	17(9.39)	3(2.75)	102(47.88)	1
<b>Total</b>	<b>973(65.92)</b>	<b>181(12.29)</b>	<b>109(7.39)</b>	<b>213(14.43)</b>	

Likewise, a total of 1412 animals of various types of livestock (cattle (684), goats (280), sheep (285), and equines (173)) were diagnosed at the Jimma Arjo District Veterinary Clinic for various diseases.

Therefore, gastrointestinal parasites predominate. As shown in Table 4, trypanosome disease (22.95%) is an important part of the area, followed by bovine ectoparasite disease (13.74%).

Table 4  
Common animal diseases of Jimma Arjo district

Name Common Diseases of the Area	Animal species(n = 1412)				Ranks
	Bovine	Caprine	Ovine	Equine	
Anthrax	37(5.40)	-	-	-	10
Black leg	51(7.46)	-	-	-	9
FMD	24(3.51)	-	-	-	11
Lumpy skin Disease(LSD)	18(2.63)	-	-	-	12
Pasteurellosis	57(8.33)	77(27.5)	99(36)	-	2
Dermatophillosis	43(6.28)	10(3.57)	5(1.82)	-	8
Mastitis	51(7.45)	17(6.07)	12(4.36)	-	6
Gastrointestinal parasitism	87(12.72)	53(18.93)	60(21.82)	97(56.06)	1
External parasitism	94(13.74)	57(20.36)	50(18.18)	40(23.12)	3
Orf	15(2.19)	31(11.07)	21(7.63)	-	5
Trypanosomosis	157(22.95)	18(6.43)	15(5.45)	36(20.80)	4
Bloat	50(7.31)	17(6.07)	10(3.63)	-	7
<b>Total (%)</b>	<b>684(48.44)</b>	<b>280(19.83)</b>	<b>275(19.83)</b>	<b>173(12.25)</b>	

Similarly, the main disease in animals (total = 1223) diagnosed in Sibule districts was analyzed and is as follows. The highest and lowest percentages of disease recorded in cattle were gastrointestinal parasites (25.49%) and nodular dermatitis (1.80%). Similarly, pasteurellosis accounting on ovine and caprine (14.73%) and (24.39%) is one of the main problems described in Table 5, respectively:

Table 5  
The common animal diseases of Sibu sire district

Name Common Diseases of the Area	Animal species(n = 1223)				Ranks
	Bovine	Caprine	Ovine	Equine	
Anthrax	11(1.98)	-	-	-	9
Black leg	25(4.52)	-	-	-	7
FMD	19(3.43)	-	-	-	8
Lumpy skin Disease(LSD)	10(1.80)	-	-	-	10
Pasteurellosis	69(12.47)	70(24.39)	38(14.73)	-	5
Mastitis	33(5.96)	15(5.22)	-	-	6
Gastrointestinal parasitism	141(25.49)	65(22.64)	100(38.76)	33(26.4)	1
External parasitism	94(16.99)	45(15.67)	42(16.28)	31(24.8)	2
Trypanosomosis	107(19.35)	23(8.01)	23(8.91)	23(18.4)	4
Miscellanious diseases	44(7.95)	54(18.81)	55(21.32)	21(16.8)	3
<b>Total (%)</b>	<b>553(45.22)</b>	<b>287(23.47)</b>	<b>258(21.09)</b>	<b>125(10.22)</b>	

## 5. Discussion

The study revealed that the agricultural system in all districts was a mixed animal production system, with herds dominated by cattle, goats and sheep. Unless there is a shortage of feed that animals depend on, the main feed for livestock is primarily natural grass. This was similar to the author's results [3] in the Ray Armachewo district in the northwestern part of the Tigray region, Ethiopia. Livestock play an important role in the livelihoods of farmers in the region and are used as a major source of income and food sources in addition to agricultural production. Despite these benefits, feed / pasture shortages and health problems with living animals are the aforementioned cattle problems. Infectious diseases are one of the major problems and constraints on livestock development in the study area. For example, anthrax and black legs are one of the common infections diagnosed during investigations in their respective districts. The importance of Anthrax and Blackleg was also reported by author [13] in the Ginchi watershed area. Not only are these but also lumpy skin disease (LSD) among the important disease in different group of cattle in the study area. Other reports also showed that lumpy skin disease was also common in Alamata and Alaba district [14].

Among the small ruminants, pasteurellosis was one of the most important diseases during the observation study of goats and sheep, respectively, except in the Jimma Arjo district, where it was more prevalent in the next one which agrees with the result of [15]. Fasciolosis was also one of the important diseases in different groups of cattle in the study areas, which is similar to the report from northern

Ethiopia [1]. Gastrointestinal parasites and trypanosomosis are a common parasitic disease affecting the development of cattle of the Sibule district, accounting for 25.49% and 8.01%, respectively. As in the author's report [17] Aba Samuel Dairy Farm in North Gondar reported a prevalence rate of gastrointestinal parasites of 2.25%. Many factors affect the health and vigor of livestock development in all districts. These factors include inadequate food quality and quantity, unavailability of nearby veterinary clinics, and lack of awareness of increased animal production and productivity due to limited animal production and health care to each farmer organization in the respective districts [18].

## 6. Conclusion And Recommendations

In the present study, the barriers to livestock health and productivity in districts are high in quality and their number. These include animal feeding, poor animal management, limited ability to use genetics, high prevalence of infectious diseases, and animal husbandry systems. In addition, there are limitations of animal health and production specialists who will ensure for sustainable development in the livestock sector. Thus, the following recommendations were forwarded based on the above result:

- Further research should be done using microbiological, parasitic and molecular methods using micro-reliable diagnostic tools (assisted by laboratories) to diagnose specific and serious diseases in cattle in the region.
- It is important to increase the veterinary services, extension services and alternative sources of animal feed.
- Local farmers should be provided training and capacity building on rational use, reproduction, prevention and control of animal diseases.
- Livestock owners should have a basic knowledge of animal husbandry.

## Abbreviations

AI

Artificial Inseminations, CBPP = Contagious Bovine Pleuropneumoniae, LSD = Lumpy skin diseases, PAs = Peasant Associations

## Declarations

### Ethics Approval and Consent to Participate

Wollega University Research Ethics Review Committee (WUREC) approved this research before actual data collection. A consent sheet was prepared in English and attached to the tool on separate page regarding the purpose, description, anticipated benefits, other relevant aspects of the study and signed informed consent was taken from all respondents prior to data collection for respondents of above 18 years of age. Thus, authors declare that all methods were performed in accordance with the relevant guidelines and regulations.

## Consent for Publication

Note applicable.

## Availability of Materials and Data

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

## Competing Interests

The authors declare that the manuscript has no competing interest to declare that are relevant to the content of this article.

## Funding

Not applicable

## Author contributions

All authors contributed to the manuscript to final submission. Conceptualization, Data curation, analysis and writing the original draft were performed by Kitessa DJ, Investigation, methodology, validation and supervision were majorly done by Deressa KA while visualization, reviewing and editing was done by Terefa TY. Finally all authors read and approved the final manuscript submission.

## Acknowledgments

All authors warmly extend their deep and heartfelt gratitude to veterinarians, Animal production experts and other corresponding districts' respondents for their kind and faithful information during survey besides their dedicated time.

## References

1. Ethiopian Agricultural Sample Enumeration (EASE), 2003. The Statistical report on Farm Management Practice, livestock and farm implements of part II for Results at the country level. Accessed at <http://www.csa.gov.et/>
2. Gebrecherkos and Berihun A. Prevalence of bovine fasciolosis in municipal Abattoir of Adigrat, Tigray, Ethiopia. Mekelle University College of Veterinary Medicine, Ethiopia. Rev. Electrón. 2012; 13(9): 1–14. Accessed at <http://www.veterinaria.org/revistas/redvet/>
3. Moges N and Bogale B. Assessment of major animal production and health problems of livestock development in Lay-Armacheho District, Northwestern Ethiopia. American Eurasian Journal of Scientific Research. 2013; 7(3): 136–141. DOI: 10.5829/idosi.aejrs.

4. Mukasa-Mugerwa E. Review of reproductive performance in female *Bos indicus* (Zebu) cattle. ILCA Monograph., 1998; 6. Addis Ababa, Ethiopia. ISBN 92-9053-099-5
5. Assegid W. Constraints to livestock and its products in Ethiopia: Policy implications DVM Thesis, FVM, AAU, Debre Zeit, Ethiopia. Journal aavs; 2000 DOI: 10.14737/2016/4.2.92.98.
6. Central Statistics Agency (CSA). Federal Democratic Republic of Ethiopia, 2006. Agricultural Sample Survey, volume II, Report on livestock and livestock characteristics. Statistical Bulletin 388 Addis Ababa, Ethiopia, 2007; 2 (9); 25–27. Accessed at <https://searchworks.stanford.edu/view>
7. Coopreck, D.L. The Borena plateau of southern Ethiopia. Synthesis of pastoral research, Development and change, System study. International Livestock Center for Africa (ILCA), Addis Ababa, Ethiopia. (1994). URL: <https://books.google.com.et/>
8. East Wollega Bureau of Livestock Development and Fisheries (EWBLF). Annual reports 2008; Pp. 20–25.
9. Bezuayehu, T. Nature and cause of land degradation in the oromia region: A review socioeconomic and policy research working paper 36 ILRS, Nairobi, Kenya, 2002. Accessed at [https://ageconsearch.umn.edu/record/182886/files/2002\\_Land%20degrad](https://ageconsearch.umn.edu/record/182886/files/2002_Land%20degrad).
10. Gida Ayana District Bureau of Livestock Resources Development and Fisheries (GABLF). Annual report, 2012; Pp: 23–29.
11. Jimma Arjo District Bureau of Livestock Development and Fisheries (JADBLF). Annual Report, 2008; Pp. 35–41.
12. Sibire district Bureau of Livestock Resource development and Fisheries (SSDBLF), (2008). Annual report Pp. 21–28.
13. Belayneh GE. An assessment of feed resources, their management and impact on livestock distribution in Ginchi watershed area. MSC thesis submitted to Haramaya University of Agriculture, Ethiopia, 2002. <https://core.ac.uk/download/pdf/132672168.pdf>
14. Yohannes T. Major animal health problems of Market oriented livestock development in Alamata Woreda, DVM thesis, Faculty of Veterinary Medicine, Addis Ababa University, Bishoftu, Ethiopia, 2007. Accessed at <https://cgspace.cgiar.org/handle/10568/670>.
15. Ayet G, Yigezu LGelaye E, Tariku S. and Asmare K. Epidemiologic and serologic investigation of multifactorial respiratory diseases of sheep in central highland of Ethiopia. *Journ. of appl. Research in Veterinary Med.* 2004; 2(4): 274–278. Accessed at <http://www.jarvm.com/articles/Vol2Iss4/AyeletIJ>.
16. Ameni G, Erko B and Bogale T. Preliminary study on major bovine trematode. Infectious around Kemissie, north eastern Ethiopia and treatment trial with praziquantel. In: *Bull. Anim. Hlth. Prod. Afric*, Research Institute (ILRI), Nairobi, Kenya. 2001; Pp: 2–4. doi: 10.1016/j.vas.2018.11.002
17. Tariku S. Reporting Disease occurrence and distribution of major livestock in Ethiopia *Veterinary Epidemiology News*, 2000. <https://core.ac.uk/download/pdf/132631322.pdf>
18. Radostits DM., Blood DC, Gray CG. *Veterinary Medicine. A Text book of the diseases of cattle, sheep, pigs, goats and horses*, 8 ed. Bailliaiere Tindall, London, 2007, Pp: 652–656. eBook ISBN:

# Figures

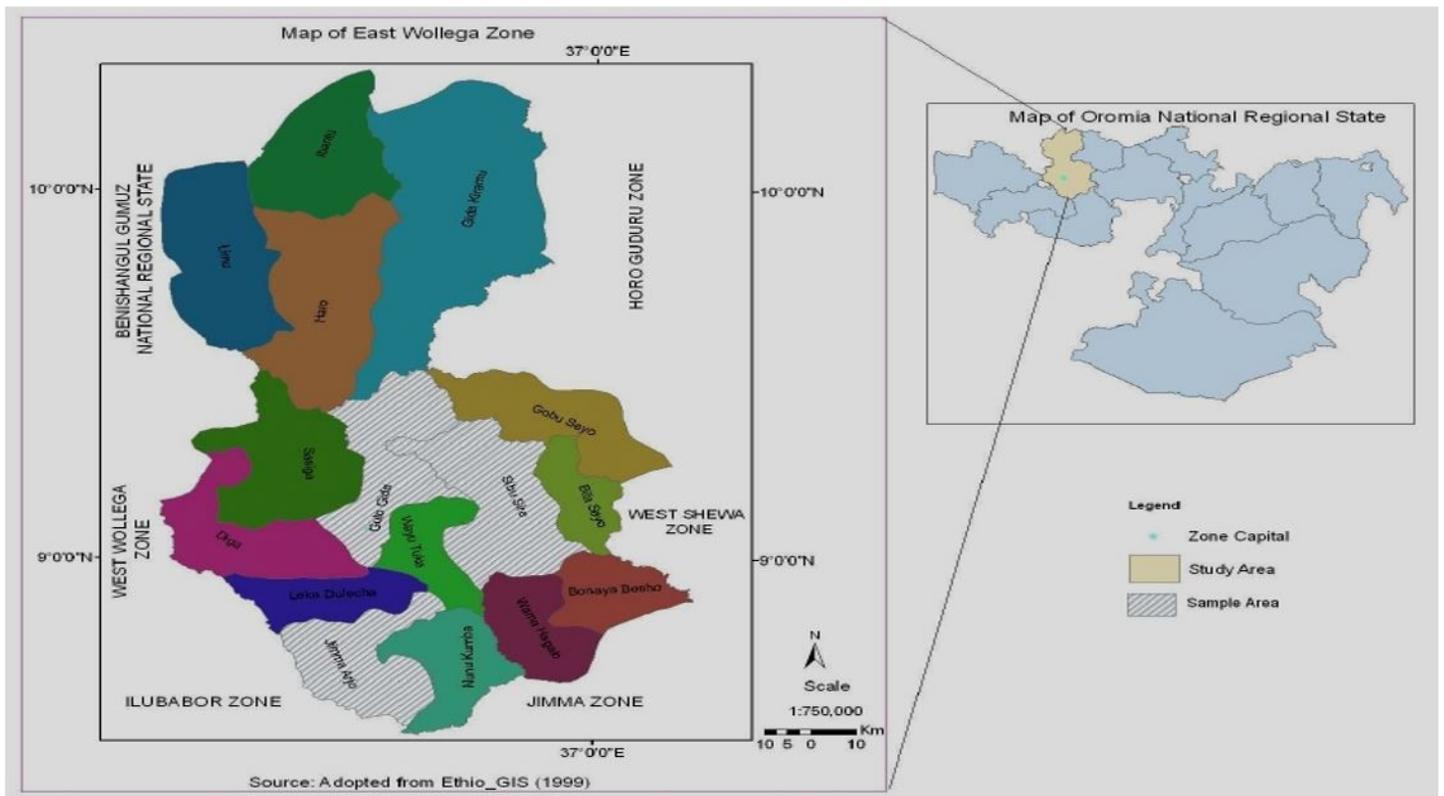
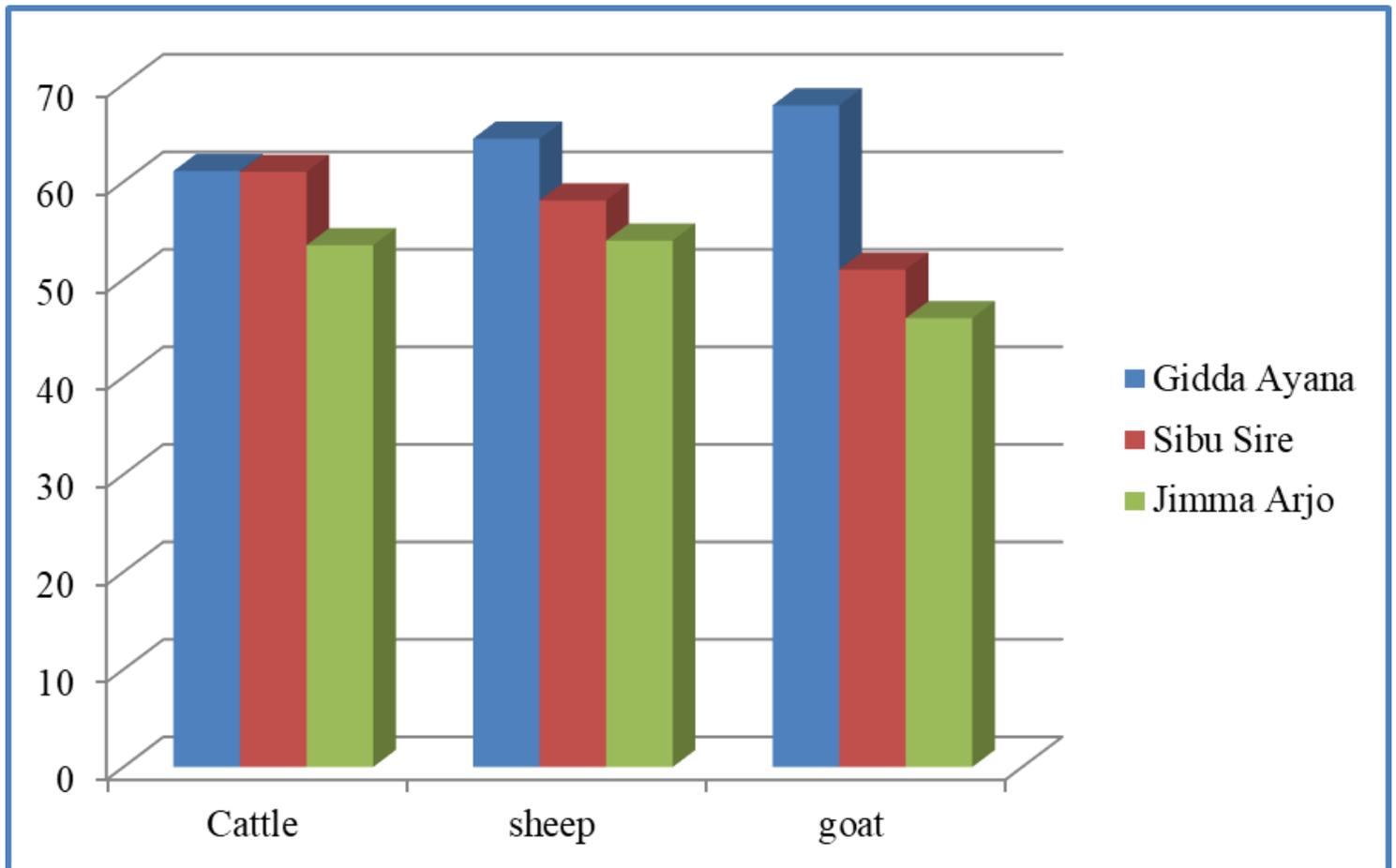


Figure 1

Map of East Wollega Zone Note: The designations employed and the presentation of the material on this map do not imply the expression of any opinion whatsoever on the part of Research Square concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. This map has been provided by the authors.



**Figure 2**

The proportion and distribution of ruminants across the selected districts

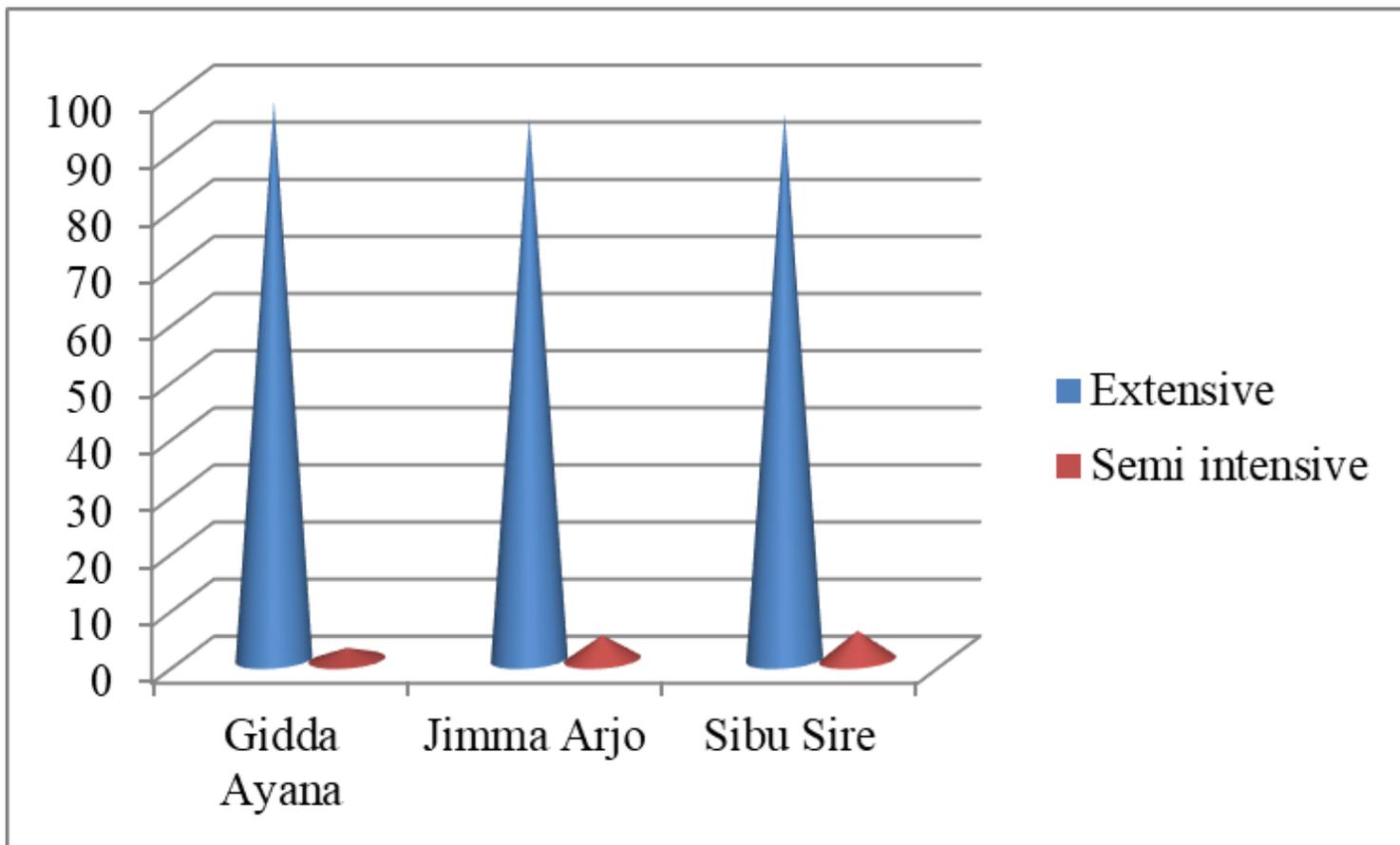


Figure 3

Management system of animals in the districts

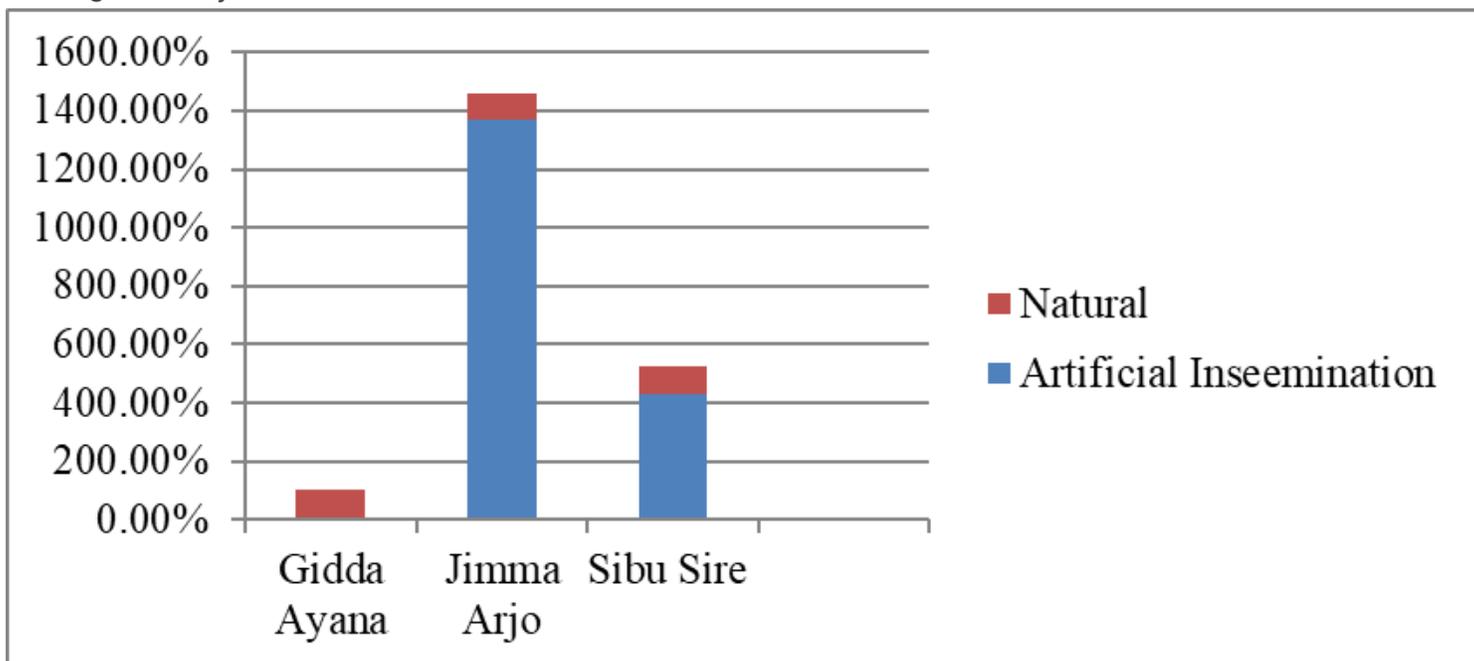


Figure 4

Animal breeding methods

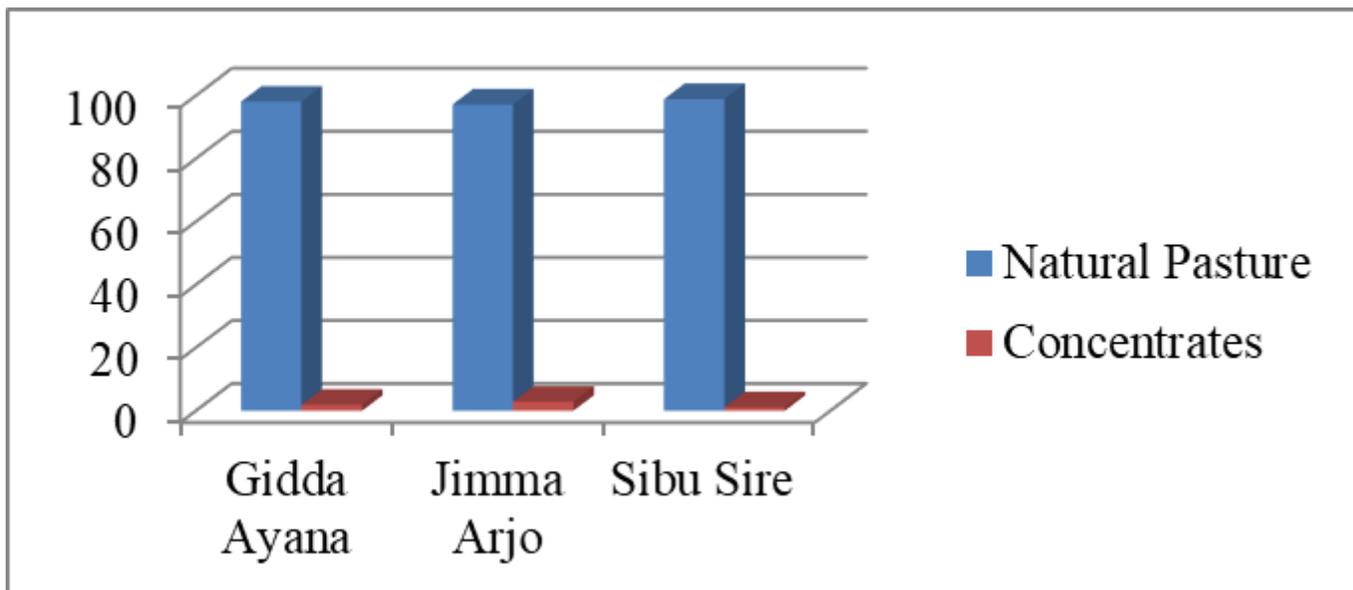


Figure 5

Sources of animal feeding across the districts

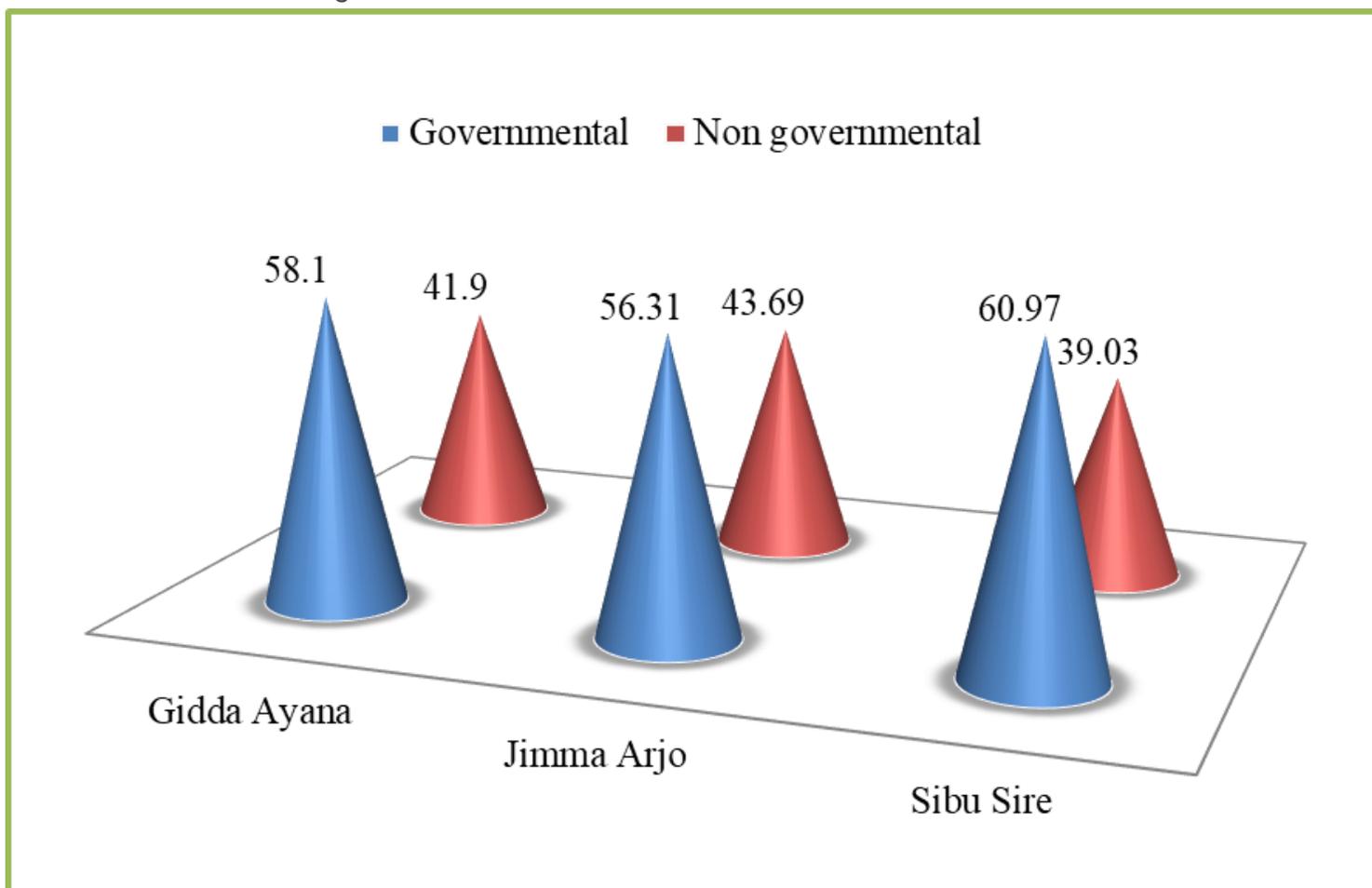


Figure 6

Accessibility to different forms of veterinary services across the districts