



## STUDY ON RETROSPECTIVE AND ANIMAL HEALTH PROBLEMS INVESTIGATION, IN THE SELECTED DISTRICTS OF BEENISHANGUL GUMUZ REGIONAL STATE

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**ABSTRACT:** Survey was conducted on retrospective and animal health problems in the 23 kebeles of Abrahamo, Bambasi, Homosha, Sadal, Pawe and Dibate districts in Benishangul Gumuz regional state, with the objectives to identify the main constraints related with livestock production and cause morbidity, mortality and associated risk factors. In this survey, the demographic features of respondents were assessed and 7.27%, 7.8%, 11.95%, 4.21% and 16.19% of crude mortality rates were recorded in cattle, sheep, goat, equine and poultry respectively in six Districts of study sites. The highest and lowest (16.2%) and (4.21%) crude mortality rates were recorded in poultry and equine respectively. Without poultry, overall crude mortality rates were 8.56%, 21.2%, 19.32%, and 35.46% of calf, lamb and kid of young mortality rate were registered. So, overall 27.1% of young crude mortality was recorded. Respondents of livestock owners indicated that, the highest morbidity rates were Trypanosomosis (12.26%), CBPP(10.72%), Shoa pneumonia(11.99%), NCD(22.49%), avian salmonella (12.67%), CCPP(10.7%), while the lowest morbidity rates were Bovine pastuerellosis (5.93%), Shoa pox (6.70%), equine pneumonia(3.39%), ovine pasteurelloss(3.07%). Of the respondents, 89.52%, 80.47%, 77.14%, 73.80%, 67.62%, 61.42% and 46.2% of respondents were ranked as Trypanosomosis, Pasteurellosis, endo parasite, NCD, PPR, ectoparasite and CBPP as the highest priority animal diseases while, 14.76%, 11.90%, 9.52%, 8.57%, 5.23%, 4.76%, 3.80% of respondents indicated, Black leg, FMD, LSD, Rabies, Anthrax, Brucellosis, CCPP as the lowest priority diseases respectively. In study areas, un appropriate treatment, irregular vaccination schedule, less monitoring system, and weak disease surveillance were the main gaps identified. Therefore, strategic prevention and control measures should be implemented properly in study areas so as to reduce the problems encountered.

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### 1. INTRODUCTION

Ethiopia's agriculture sector accounts for 40- 41.4 % of the country's gross domestic product (GDP) and employs 75% of the country's workforce. The livestock sector in Ethiopia contributes 12% and 33% of the total and agricultural Gross Domestic Product (GDP) respectively, and provides livelihood for 65% of the population. The sector also accounts for 12-15% of total export earnings, the second in order of importance (MOA and USAID, 2021; BAHS, 2012; World Bank, 2006). Livestock is a key component in agriculture sector-in fact, Ethiopia has the largest livestock population in Africa, with 70 million cattle, 42 million sheep, 52million goats, 2.15 million horses, 10.80 million donkeys, 0.38 million mules, 8.1 million camels, and 56 million chickens(CSA, 2021).

The livestock sector has been contributing considerable portion to the economy of the country, and still

promising to rally round the economic development. It is eminent that livestock products and by-products in the form of meat, milk, honey, eggs, cheese, and butter supply - provide the needed animal protein that contributes to the improvement of the nutritional status of the people (CSA, 2018/19).

Livestock plays an important role in providing export commodities such as live animals, hides and skins to earn foreign exchanges to the country. On the other hand, draught animals provide power for cultivation of the smallholdings and for crop threshing virtually all over the country and are also essential modes of transport to take holders and their families long distances to convey their agricultural products to the market places and bring back their domestic necessities (CSA, 2016/17).

The contribution of the livestock sector to the livelihoods of producers in particular and to the

national economy in general can be explained in terms of food production, supply of inputs and services for crop production, raw material for agro-industry, cash income and export earning, savings and investment, and its role as a generator of employment, most people in rural areas of these countries depend on agriculture sector for their livelihood, which plays a great role in the socio-economic development (Behnke and Metaferia, 2011; MOA, 2021).

Despite the large number of livestock, production and productivity in general is low in the country, mainly due to the low genetic quality of local breeds, poor nutrition, and animal health problems. Similar to low-income African countries, per capital consumption of food from a livestock origin is low, as result of uncontrolled animal diseases, poor husbandry system, and poor infrastructure (Negassa *et al.*, 2011; CSA, 2018/19).

Benishangul- Gumuz Regional State is one of the regions, which is found in the Northwestern part of the country, having favorable agro-climatic condition in its all parts and suitable for animal rearing). The animal population of the region was estimated to be 777,915 cattle, 100,013 sheep, 431,216 goats, 82,080 equines and 1,249,578 poultry (CSA, 2016/17). Poultry is the highest in population size and is kept almost by all people in the region for egg production and as a source of income. Cattle and goats are the second and third widely available species. Cattle, Sheep, Goat, Equine and Poultry were study population included the survey. As Central Statistical Authority (CSA) of (2016) on the livestock deaths in the region indicated that, the mortality rate ranges between 12.7% - 48.06%. As reported by (Asmamaw, *et al.*, 2017), the overall mortality rate in cattle, sheep, goat and equine was 21.46%, 22.1%, 22.52% and 6.75% respectively.

Consistently, Asmamaw, *et al.*, 2017 reported retrospective study in seven woredas of 36 kebeles in Benishangul Gumuz regional state and 223 respondents were participated. CBPP, FMD, PPR, CCPP, Sheep and Goat pox, Bovine Pasteurellosis, LSD; Black leg; NCD and Anthrax were reported as major animal disease and Trypanosomosis, Internal parasites, ectoparasites and Babesia were assessed as endemic disease. 42.26% of cattle, sheep and goats were vaccinated. Besides this, crude animal mortality rate were (21.46 % ) cattle ; (22.1 % ) sheep; (22.52 % ) goat; (6.75 % ) equines and (75.1 % ) poultry and so mortality rate excluding poultry were 18.20 % (Asmamaw, *et al.*, 2017). Similarly, LSD=2.32%, CBPP=2.91%, Anthrax=0.87%, PPR=21.97%, Sheep and goat pox=7.20%, CCPP=10.92%, NCD=52.32%, Rabies=1.46% proportional mortality rate and Trypanosomosis= 28.72%, internal parasites=26.39% and ectoparasites =13.46% proportional morbidity rate were reported (Asmamaw, *et al.*, 2017).

The main constraints of livestock production include animal health problems, inadequate nutrition, unimproved management, poor genetic makeup and lack of animal welfare. Health problems which are of diverse in origin have been repeatedly incriminated as the main impediments for production and productivity of the sector as well as agricultural development. Diseases may be caused by environmental, nutritional, congenital, hereditary and immunological factors and also be resulted from pathogenic organisms including viruses, bacteria, fungi, parasites (Asmamaw A *et al.*, 2017).

In this case the common animal production constraints such as improper handling/back ward husbandry system/, infectious and non- infectious diseases occurrence in outbreak and endemic forms that hinders overall effort made to develop livestock sector and improve the livelihood of farmers in the region. Therefore, the present survey will be conducted to assess the problems related with livestock production and/or health including morbidity, mortality and management aspects in domestic animals and the existing problems in the livestock that hider livestock production and productivity in the region in general and in the district in particular.

### 1.1 Objectives

- To identify the animal health constraints related with livestock production in selected woreda of the region from respondents,
- To assess the major cause of morbidity, mortality and associated risk factors

## 2. MATERIALS AND METHODS

### 2.1 Study area

The present survey was conducted in May to September 2023 in selected woredas of the region. It was conducted in six woreda of twenty three (23) kebeles. Assosa town is the capital city of BGRS, and is situated at a distance of 633 kilometer from Addis Ababa. Geographically, the region is located in the north west of the country between latitude of 9° and 11° N and longitude of 34° and 35°E and its altitude is from 700-1560 meter above sea level. Annual rain fall is between 900-1500 mm with uni modal type of rainfall that extends from April to October with peak rainy periods from June to August, and annual temperature ranges between 25- 35°C (NMSA, 2014; CSA, 2015). The region has three administrative zones namely Asossa, Metekel and Kameshi and consisting 22 districts of one is special woreda. The region as whole has about 485 peasant associations with an estimated human population of 784,345; from this 86.49% was found in rural and 13.51% found in urban and with an average public settlement within Sq. km were 14 inhabitants (CSA, 2007 & 2015). The region is one of

the most scarcely populated. These populations are mainly dependent on agriculture and related activities for their livelihood (CSA, 2015). The livelihood of the society in the region mainly depends on mixed livestock and crop production. The region has an

estimated animal population of 411,998 cattle, 84,418 sheep, 321,603 goats, 49,476 equines, 774,112 poultry and 199,817 honeybees family, being found in the region (CSA, 2016; BGAB; AFRA, 2016).

**Figure 1:** Map of Benishangul Gumuz Regional state



## 2.2 Study Population

The study population includes major livestock species reared in the district namely: *cattle, sheep, goats, equine, and poultry*. All age groups and both sexes were included in the study. Similarly, Animal health workers and Livestock owners were involved as key respondents in this retrospective survey.

## 2.3 Study Design

Retrospective and semi-structured questionnaire survey was used.

## 2.4 Sampling method and Sample size

The sampling method of the region for the retrospective study was based on the animal population, disease reporting, risk levels and agro ecology to some extent. Consistently, 25% of the region's woreda and 15% of the selected woredas' kebele was selected. So, Bambasi, Abrahamo, Homosha, Pawe, Dibate and Sedal districts were selected.

Total sample size for sample collection, and enumeration of respondents, which were animal owners and animal health workers were assigned according to Thrust field (2007). A 5 % absolute precision (5% sampling error) at 95% confidence interval was used. So that, previous or earlier crude mortality rate of 18.20% was reported by (Asmamaw, *et al*, 2017) in seven district and 36 kebeles of the BGRS. And hence, the earlier prevalence was taken as 18.20%.

Accordingly, 23 kebeles were selected in the region. Sampling kebeles were selected purposively as convenient. For this survey, an estimated 233 respondents (210 livestock owners and 23 animal health workers) were interviewed in the respective

villages to generate baseline information with related to animal health problems, and animal diseases in veterinary health posts as well as household levels. So respondents of the kebeles were randomly selected in the community. District animal health experts and kebelles animal health assistance was participated during questionnaire survey.

Therefore, the total sample size for the study were calculated using the following formula for each sampling units.

$$n = \frac{(1.96)^2 \times P(1-P)}{d^2}$$

Where: n=the total sample size, p=previous prevalence (18.20%), d=desired absolute precision / marginal error between the sample and population / (5%), (0.05) at 95% CI,

$Z_{\alpha/2}$  = the standard normal deviation corresponding 95% of confidence level = 1.96

$n = (1.96) \times (1.96) \times (0.182) \times (1-0.182) / (0.05) \times (0.05) = 229$ ; accordingly, 206 animal owners and 23 animal health workers were assessed in this study in the six district of 23 kebeles. However; it was increased to 233.

## 2.5 Study Methods

### 2.5.1 Interview with kebele community livestock owners

The questionnaire survey was used to assess the livestock owners on livestock constraints and diseases investigation in 23 selected kebeles of six woredas. A detailed and organized questionnaire format (Annex I) was designed and an attempt was made to generate base line information related to the most important livestock existing constraints, most important problems that hinders animals production, list of priority animal diseases occur in areas, the frequency of treatment for

individual animal in a year, cost of treatment per animal once treated, rating of livestock based on the importance, number of animals diseased and died in the kebeles and Animal production constraints were assessed in the villages. About 210 livestock owned respondents were involved in the interview in the studied kebeles. The questionnaire was framed in such a way that farmers could give information that are recent and easy to recall, and it was filled directly by interviewing randomly selected livestock owner from different villages of the 23 peasant associations.

### 2.5.2 Interview with kebele Animal Health workers

Twenty three (23) animal health workers were involved in the studied kebeles. In the kebeles, Veterinary health posts, retrospective baseline information was inspected in the case books from 2022 and 2023 which includes the list of common priority animal diseases, recommended drugs for suspected diseases, number of animals diseased and died in the years, animal vaccine type and the number of animals vaccinated in the last 2022 and 2023 was assessed in the veterinary health posts during the questionnaire survey. Besides this, animal population of the village, the main animal health constraints, participation of the community in controlling animal health problems in this village (e.g. management, vaccination activities), and problems regards to materials needed to give veterinary services, was assessed in the veterinary health post of case book document.

### 3. DATA MANAGEMENT AND ANALYSIS

All questionnaire data collected from twenty five (23) kebeles and 210 animal owners and 23 animal health workers were recorded and handled carefully and enter to Microsoft excel sheet (MS) and analyzed. Processed,

## 6. RESULT

### 6.1 QUESTIONNAIRE SURVEY WITH LIVESTOCK OWNER

**Table 1: Demographic features of respondents**

Respondents	Categories	Frequency	Response rate (n=210, %)	CHI2	P-Value
Sex	Male	187	89.04	0.68	0.70
	Female	23	10.95		
Education level	Illiterate	71	33.80	13.2	0.004
	1-4	49	23.33		
	5-8	53	25.23		
	8-12	37	17.62		
Age	<35years	33	15.71	8.62	0.07
	35-50 years	106	50.47		
	>50 years	71	33.80		

coded data were transferred to Intercool STATA version 12.0 for analysis. Descriptive statistics were used for estimation of community livestock owners and kebele animal health workers of response rate from interviewed questionnaire survey animal health workers, and retrospective questionnaire information in the selected kebeles. Pearson's chi-square ( $\chi^2$ ) was used to evaluate the association of different variables with the prevalence of brucellosis infection. In all of the statistical analysis, a confidence level of 95% is used and P-value of less than 0.05 (at 5% level of significance) was considered as statistically significant.

➤  $\text{Animal crude mortality rate} = \frac{\text{number of died within the period}}{\text{Population at risk}} \times 100\%$

Population at risk

➤  $\text{Animal moribidity rate} = \frac{\text{number of sick within the period}}{\text{Population at risk}} \times 100\%$

Population at risk

### 4. EXPECTED OUTCOMES

Appropriate and relevant information on the constraints related with livestock production and health problems including mortality, morbidity and management aspects in the selected twenty three kebeles of the six Districts in the region.

### 5. BENEFICIARIES

- Animal owners will be the primary servers from the feedback given and enhance production and productivity;
- It serve as data center for the region and good to design strategic disease prevention and control;
- It will be important for stallholders for study and survey

As *Table 1* indicated, from 210 respondent livestock owners in six woredas (23 kebeles), 89.04 % were male respondent whereas 10.95% were females. Of 210 respondent participants', 33.80%, 23.33%, 25.23% and 17.62% of the education level categories were illiterate, 1-4, 5-8 and 8-12 grade respectively during the assessment of the study. Of these 210 study respondents' age categories, majority (50.47%) of participants were 30-50 years old while the lowest (15.71%) were less than 35 years old.

**Table 2: When did you start rearing animals?**

No.	Time line of rearing	N= 210	Response rate (%)	Chi2	P-value
1	1-5yrs	35	16.66	2.30	0.51
2	6-10yrs	29	13.80		
3	10-20yr	49	23.33		
4	>20 yrs.	97	46.2		

As *Table 2* indicated, 46.2% of participants were rearing his animal for greater than 20 years while the 13.80% of respondents were rearing 6-10 years old in the areas, which was non-significant ( $P < 0.05$ ).

**Table 3: Rank /score/ of animal kept in selected woreda by their importance**

Animal kept	Woredas						Response rate	
	Bambasi	Abrahamo	Homosha	Sedal	Pawe	Dibate	N=210	%
Cattle	51	33	21	22	25	36	188	89.52
Sheep	21	14	6	3	13	17	74	35.23
Goat	43	26	34	23	16	33	175	83.33
Equine	28	18	19	15	12	24	116	55.23
Poultry	47	35	26	19	22	28	177	84.28

As *Table 3* indicated, in six woredas, 188 (89.5%) respondents selected cattle as primary importance of domestic animals, 177(84.3%) respondents selected poultry as secondary importance, 175(83.3%) respondent selected goat as 3<sup>rd</sup> importance, and 116(55.2%) participants' selected donkey as 4<sup>th</sup> importance, according to community livestock owners preference. Whereas sheep was selected as 74(35.2%) 5th importance in domestic house, in 23 kebeles as survey indicated.

**Table 4: What are the most important constraints and difficulties that prevent achieving the best results from stock farming?**

Constraints	Woredas						Response rate	
	Bambasi	Abrahamo	Homosha	Sedal	Pawe	Dibate	(n=210)	%
Lack of feed and shortage of water	42	19	16	12	21	17	127	60.47
Cost of drugs	32	21	17	14	16	11	111	52.85
Lack of remedy and drug availability	40	25	18	17	20	26	146	69.52
Disease alerts, outbreak	49	32	19	11	10	18	139	66.2
Management problems	11	9	5	6	5	3	39	18.6
Lack of treatment	11	19	16	23	9	18	96	45.71
un- response to treated animals	15	16	11	9	10	9	70	33.3



As *Table 4* indicated; with regard to constraints for stock farming, the highest (69.52%) and 66.2% of the respondents were indicated as constraints of remedy, drug in-availability and disease alerts, outbreak in the areas respectively, while the rest 60.5%, 52.85%, 45.7%, 33.3% and 18.6% of participants indicated that, lack of feed and shortage of water, cost of drugs, lack of treatments, un-response to treated animals, and management problems respectively.

**Table 5: Grazing managements of animals**

Grazing managements	Observational response rate			
	N =210	( % )	Chi2	P –value
Communal grazing	101	48.09	17.74	0.04
Continuous grazing	8	3.80		
Rotational grazing	3	1.43		
Free grazing	69	32.86		
Zero grazing	14	6.66		
Continuous, and communal grazing	1	0.47		
Communal, and free grazing	7	3.33		
Communal, and zero grazing	5	2.38		
Continuous, and free grazing	1	0.47		
Free and zero grazing	1	0.47		

As indicated in *Table 5*, study participants indicated that, 48.09% of livestock owners' grazing managements of animals were communal grazing, while the remaining 32.86%, 6.66%, 3.80, 3.33, 2.38, and 1.43% of respondents indicated, free, zero, continuous, and (communal and free grazing), (communal and zero grazing), rotational grazing respectively.

**Table 6: Animal died in 2022/2023 in the six woreda study conducted**

Woreda	Species	Animal died in the 2022/2023						(n=3002, %)
		<1year		1-3 year		>3 year		
		N=1079	%	N=1026	%	N=897	%	
Bambasi (6=kebeles), Abrahamo (4= kebeles), and Homosha and Sedal (6= kebeles), Dibate ( 4=kebeles) and pawe (3= kebeles)	Cattle	116	26.1	131	29.5	197	44.36	444(14.79 %)
	Goat	243	35.32	233	33.86	212	30.8	688(22.91%)
	Sheep	42	30.43	53	38.4	43	31.2	138(4.59%)
	Equine	0	0	0	0	99	100	99(3.29%)
	Poultry	678	41.52	609	37.29	346	21.2	1633(54.39%)
Total		1079	35.94	1026	34.2	897	29.88	3,002

As *Table 6* indicated, 14.8%, 22.9%, 4.6%, 3.3% and 54.4% of relative mortality rate were recorded in Cattle, Goat, Sheep, equine and poultry respectively in six woredas (23 kebeles) of study sites.

**Table 7: Young died in 2022/2023 in the six woreda study conducted**

woredas	Young spp										Crude young mortality		
six woredas	Cattle Calf				Sheep lamb				Goat kid				
	Born		died	N=%	Born		died	N=%	Born		Died	N=%	
	M	F			M	F			M	F			
	345	331	143	21.2	241	261	97	19.32	488	468	339	35.46	(N=2134, 579) =27.1%

As *Table 7* indicated, 21.2%, 19.32%, and 35.46% of relative young mortality rate were recorded in Calf, sheep lamb, and goat kid respectively in six woredas (23 kebeles) of study sites.

**Table 8: Animal crude mortality rate in 23 villages in (2022/2023) by livestock owners**

No	Animal type	No of animal population	No of animal died	Crude mortality rate %
1.	Cattle	6101	444	7.27
2.	Sheep	1766	137	7.8
3.	Goat	5753	688	11.95
4.	Equines	2346	99	4.21
5.	Poultry	9614	1634	16.99
Total		25,580	3,002	11.74%

As the *Table 8* above indicated, the crude mortality rate in animal type were, 7.3% of cattle, 7.8 % of sheep, 11.95% of goat, 4.21% of equines and 16.99 % of poultry in 23 villages of the study area. Without poultry, death rate= $1368/15,966 \times 100\% = 8.56\%$ .

**Table 9: Animal diseased (sick) in the six woreda in 2022/2023 of livestock owners**

Woreda	Species	Sick						Total (n=6,301, % )	
		<1year		1-3year		>3 year			
Bambasi (6pa), Abrahamo (4 pa) , and Homosha and sedal ( 6 pa), dibate ( 4pa) and pawe (3 pa)	Cattle	319	17.50	648	35.56	855	46.92	1822	28.91
	Goat	441	26.2	625	37.06	620	36.77	1686	26.76
	Sheep	84	23.2	137	37.84	142	39.22	362	5.74
	Donkey	2	0.93	25	11.68	187	87.4	214	3.39
	Poultry	819	36.94	872	39.33	526	23.72	2217	35.18
Total		1,665		2,307		2,330		6,301	

As *Table 9* indicated, 28.91%, 26.76%, 5.74%, 3.4%, and 35.2% of relative morbidity rate of Cattle, Goat, sheep, Donkey and poultry respectively were recorded in the 23 kebeles of study sites.

**Table 10: Specific Diagnosis of diseases and syndromes responsible for animal morbidity in six woredas (2022/2023) respond by livestock owners**

Diseases and syndrome	Species	No. of sick	Proportional morbidity rate (n=6305 diseased)
Trypanosomosis	Cattle	773	12.26
CBPP		676	10.72
Bovine pasteurellosis		374	5.93
Pneumonia	Shoat	756	11.99
Shoat pox	Goat	423	6.70
CCPP		675	10.70
Ovine pasteurellosis	Sheep	194	3.07
Pneumonic case	Equine	214	3.39
NCD	Chicken	1418	22.49
Avian salmonella		799	12.67
=6,305			

**Table 11: No. of animals born in 2022/2023 of livestock owners**

Animals	Animal born by Sex		Total(N= 2134, %)	%	No. died	(n=579, %)
	Male no.	Female no.				
Cattle	345	331	676	31.67	143	24.69
Sheep	241	261	502	23.52	97	16.75
Goat	488	468	956	44.79	339	58.5

31.67%, 23.52% and 44.79% of cattle, sheep, and goat were born in 2022/2023 in the study sites as Table 11 indicated.

**Table 12. Common animals' diseases in your locality in their order of importance**

Animal disease in the area	Woreda						Response rate	
	Bambasi	Homosha	Abrahamo	Sedal	Dibate	Pawe	N=210	%
Trypanosomosis	56	24	32	21	31	24	188	89.52
CBPP	32	10	13	11	14	17	97	46.2
PPR	33	25	24	22	27	11	142	67.62
Black leg	5	4	3	2	16	1	31	14.76
Anthrax	2	2	1	1	4	1	11	5.23
Pasteurellosis	43	22	32	25	33	14	169	80.47
Endo parasite	44	21	29	23	28	17	162	77.14
Ecto parasite	33	24	12	22	26	12	129	61.42
NCD	45	19	29	16	31	15	155	73.80
Rabies	5	4	3	1	4	1	18	8.57
LSD	2	3	6	2	3	4	20	9.52
FMD	18	4	3	0	0	0	25	11.90
Shoat pox	2	2	3	2	2	0	11	5.23
Toxic plant	0	1	2	1	0	1	5	2.38
CCPP	3	2	1	1	1	0	8	3.80
Brucellosis	2	3	2	1	1	1	10	4.76

As Table 12 showed that, 89.5, 46.2, 67.6, 14.8, 5.2, 80.4, 77.1, 61.4, 73.8, 8.6, 9.5, 11.9, 5.23, 2.38, 3.8 and 4.76 respondents of 23 kebeles of community livestock owners indicated ; Trypanosomosis, CBPP, PPR, Black leg, Anthrax, Pasteurellosis, endoparasite, ectoparasite, NCD, rabies, LSD, FMD and Shoat pox, Toxic plant, CCPP and Brucellosis respectively were scored as common animal disease in the woredas.

**Table 13 : Level of the disease symptoms in the woredas by respondents**

Animal disease problems	Woredas						Ranking	
	Bambasi	Abrahamo	Homosha	Sedal	Pawe	Dibate		
Sudden death	15	11	6	7	5	10	54	12
Itching or wool loss or skin problem, nodules	44	26	21	11	20	35	157	5
Diarrhea,	51	35	24	22	23	34	189	1
Losing body condition,	45	29	23	16	22	30	165	4
Bloating or swollen belly,	18	14	8	6	7	9	62	10
Nervous symptoms,	20	12	9	6	7	13	67	9
Not eating,	52	28	25	23	21	35	184	2
Lambing problems, abortion	18	9	11	5	6	12	61	11
Blindness, lacrimation	36	19	15	11	14	24	119	7
Coughing, discharge	33	11	9	6	8	22	89	8
Lameness	13	9	3	1	0	11	37	13
Salivation,	36	25	22	19	9	24	135	6
Rough hair coat	49	29	24	13	28	32	175	3



As Table 13 indicated that, animal disease problems or symptoms such as, diarrhea, not eating, Rough hair coat, losing of body conditions, itching or wool loss or skin problems, salivation, lacrimation, coughing, nervous symptoms, bloating, lambing problem, sudden death, and lameness were scored as 1- 13 based on veterinary importance as respondents in 23 kebeles reported.

**Table 14. Frequency of treatment in the selected six woredas in year**

Livestock kept	Districts						Mean frequency per year
	Bambasi	Homosha	Abrahamo	Sedal	pawe	Dibate	
Cattle	54	70	62	36	44	52	53
Shoats	22	60	32	48	17	34	35.5
Equine/ Donkey/	24	24	12	24	30	42	26

As Table 14 indicated; respondents in the six woredas reported domestic animals such as cattle, shoats, and equine (donkey) were taken averagely, 53, 35.5 and 26 defined frequency of treatment in the year.

**Table 15. Cost of treatment in the Districts**

Livestock kept	Average cost of treatment in Districts						Average cost
	Bambasi	Homosha	abrahamo	Sedal	pawe	Dibate	
Cattle	71	52	69	60	58	49	59.83
Shoats	37	32	28	28	20	31	29.33
Equine/ Donkey/	57	40	64	36	56	57	51.66
Poultry	10	10	6	15	5.2	5.4	8.6

As Table 15 indicated, 59.83, 29.33, 51.66 and 8.6 birr of average cost of treatment were given to cattle, shoats, donkey and poultry in selected six Districts respectively.

**Table 16. Is the animal drugs used in the area are effective treatment?**

Variables	Freq.	Response rate (n=210, %)	Chi2	P-value
a. Yes	171		8.12	0.04
b. No	39			

As Table 16, 76.71% of the respondents indicated that as treatment was effective while the rest 17.80%, and 12.32% of study participants noted as there was no effective treatment and as they did not know whether the drug was effective or not in the surveyed areas.

**Table 17. What is the effect of diseases?**

Variables	Response rate		Chi2	P-value
	Freq.	(n=210, %)		
a. Cause death of livestock	2	0.95	15.51	0.05
b. Causes production loss (milk, meat, hides and/skin	20	9.52		
c. Causes loss of work efficiency ( draught power), of oxen and other	0	0		
d. Death, production loss and draught power work efficiency loss	118	56.2		
e. Death, and production loss	55	26.2		
f. Production loss and work efficiency loss of draught power	15	7.1		

As Table 17 indicated that, 56.2% of the respondents noted that, the effect of diseases in the area were cause death, production loss and draught power work efficiency loss, while 26.2, 9.52, 7.1, 0.95% and 0% of the respondents noted as diseases causes (death, loss), production loss, production and draught power loss ;death and loss of draught power only respectively.

**Table 18. How do you control or treat diseases, when it occurs in your herd?**

Variables	Freq.	Response rate (n=210, %)	Chi2	P-value
1. By using traditional medicine locally available	0	0	121.75	0.000
2. Buying and administration of veterinary drugs by their own	7	3.33		
3. Travelling to nearby veterinary clinic	152	72.4		
4. Buying drug, travel to nearby to vet clinic	33	15.71		
5. Traditional medicine, to nearby vet clinic	18	8.6		

72.4% of the study participants indicated that, diseases in the areas was controlled by travelling to nearby veterinary clinic while 0% of the respondents noted as they control diseases by using traditional medicine locally available as Table 18.

**Table 19. How is the disease transmitted?**

Variables	frequency	Response rate (n=210, %)	Chi2	P
a. By flies	23	10.95	4.29	0.36
b. By ticks	1	0.47		
c. By treatment materials	0	0		
d. Both fly and tick	186	88.6		

Majority (88.6%) of the study participants indicated, as the disease transmitted by both flies and ticks, while 10.95%, 0.47%, and 0% of respondents stated as the disease transmitted by flies, ticks and treatment materials, respectively, as table 19 showed.

**Table 20. What is the reason for animal movements**

No.	Reason for animal movements	N =210	%	Chi2	P- value
a.	Trade	5	2.4	26.77	0.02
b.	Agriculture	6	2.86		
c.	Long journey in search of water, feed	34	16.2		
d.	Trade, agriculture and feed, water	73	34.76		
e.	Agriculture, feed and water purpose	65	30.95		
f.	Trade, feed and water	12	5.71		
g.	Trade, agriculture	15	7.14		

As Table 20 noted, majority of (34.76%, 30.95%) of the respondents' animal movement were for trade, agriculture, feed and water purpose, respectively while the rest were for either of them.

**Table 21: Is there any operation for animal disease in your area?**

Variables	Freq.	Response rate (n=210, %)
a. Yes	201	95.71
If yes, what kind of control methods employed in your area?		
1. Fly control using insecticides	196	93.33
2. Resting animals from work	170	80.95
3. Treatment of affected animals	198	94.28
4. Vaccination	190	90.47
5. Animal movement control	89	42.38
b. No	0	0

95.71% of the respondents noted that, as there was animal diseases control methods in the areas while 93.2%, 80.95%, 94.28%, 90.47%, and 42.38% of participants said that as there was fly control using insecticides, resting animals from work, treatment of affected animals, vaccination and animal movement controls respectively which were set as operation for animal diseases in your areas as the Table 21 showed.

**Table 22. Where do you get drugs for the treatment of patient animals?**

Variables	Freq.	(Response rate n=210, %)	Chi2	P- value
a. Vet. Pharmacy	173	82.4	9.33	0.09
b. Shops	2	0.95		
c. Vet clinic	9	4.28		
d. Both pharmacy , vet. clinic	26	12.4		

82.4% of study respondents indicated as the drugs for treatments of patient animals get from veterinary pharmacy while 0.95% of the respondents stated as they get from shops as Table 22 indicated.

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**Table 23: Is there any illegal drugs sellers and injector in your kebeles or areas?**

Variables	Frequency	Response rate (n=210, %)	Chi2	P-value
a. Yes	42	20	0.036	0.98
b. No	168	80		

As Table 23 indicated, majority (80%) of the study participants said as there was no any illegal drug seller and injectors in the kebeles whereas 20% of the participants (kebeles animal health workers) noted as there was illegal drug seller and injector in the areas.

## 6.2 INTERVIEW WITH KEBELES ANIMAL HEALTH WORKERS

Twenty three animal health workers (respondents) (23) were involved in the studied kebeles. In the kebele Veterinary Health Posts, Retrospective information were assessed from the case book documents from 2022 and 2023, which were related to existing problems/ constraints, animal died and sick data, list of common priority animal diseases, and recommended drugs for suspected diseases were surveyed in the veterinary health posts during the questionnaire survey.

**Table 24. What are the main constraints with animal healthy encountered in this areas**

Constraints	Districts						Response rate	
	Bambasi	Abraham o	Homosh a	Seda l	Pawe	Dibate	(n=23)	%
Disease occurrence	6	4	3	3	3	4	23	100
shortage of feed and water	4	3	0	1	2	2	12	52.2
Unwillingness to vaccinate their animals	1	3	2	2	1	1	10	43.47
Shortage of treatment materials	3	3	3	3	2	4	18	78.26
Shortage of vet drugs	6	4	3	3	2	4	22	95.65
Lack of expert assistance	2	0	0	2	0	0	4	17.4
The absence of training for farmers	4	3	2	3	2	1	15	65.2
Unavailability of vaccine, cold chain	1	0	0	2	1	0	4	17.4

As Table 24 indicated; with regard to constraints for animal health and veterinary services, the highest (100%, 95.65%) and 78.26 % of the respondents were indicated as constraints of disease occurrence, shortage of vet drug, shortage of treatment materials in the areas respectively, while the rest 65.2%, 52.2%, 45.7,43.5%, 17.4, and 17.4 % of participants indicated that, lack of training of farmers, shortage of feed and water, unwillingness to vaccinate their animals, lack of expert assistance, and unavailability of vaccine, cold chain respectively.

**Table 25: Animal diseased (sick) in the six District in 2022/2023 years**

Woreda	Species	Sick						Total (n=43,379, % )	
		<1year		1-3year		>3 year			
Bambasi (6pa), Abrahamo(4 pa) , and Homosha and sedal ( 6 pa), dibate ( 4pa) and pawe (3 pa)	<b>Cattle</b>	2201	16.57	4471	34.88	5899	34.14	12,571	28.97
	<b>Goat</b>	3043	22.91	4312	33.64	4278	24.75	11,633	26.82
	<b>Sheep</b>	577	4.34	943	7.35	978	5.66	2498	5.76
	<b>Donkey</b>	14	0.11	173	1.34	1290	7.46	1477	3.40
	<b>Poultry</b>	5651	42.54	6016	46.93	3533	20.44	15,200	35.04
<b>Total</b>		<b>13281</b>		<b>12818</b>		<b>17280</b>		<b>43,379</b>	

As Table 25 indicated, 28.97%, 26.82%, 5.76%, 3.4%, and 35.04% of relative morbidity rate of Cattle, Goat, sheep, Donkey and poultry respectively were recorded in the 23 kebeles of study sites.

**Table 26: Animal died in 2022/2023 in the six District study conducted**

Woreda	Species	Animal died in the 2022/2023						(n=9341, %)
		<1year		1-3 year		>3 year		
		N=6644	%	N=1869	%	N=855	%	
Bambasi (6pa), Abrahamo(4 pa) , and Homosha and sedal ( 6 pa), dibate ( 4pa) and pawe (3 pa)	<b>Cattle</b>	361	10.75	408	12.78	613	21.96	1382(14.79%)
	<b>Goat</b>	756	22.51	725	22.71	660	23.64	2141(22.92%)
	<b>Sheep</b>	131	3.90	165	5.2	134	4.80	430(4.60%)
	<b>equine</b>	0	0	0	0	308	100	308(3.29%)
	<b>Poultry</b>	2110	62.83	1894	59.33	1076	38.55	5081(54.4%)
<b>Total</b>		<b>3358</b>		<b>3192</b>		<b>2791</b>		<b>9341</b>

As Table 26 indicated, 14.8%, 22.92%, 4.6%, 3.29% and 54.4% of relative mortality rate were recorded in Cattle, Goat, Sheep, equine and poultry respectively in six woredas (23 kebeles) of study sites

**Table 27. What are the animal diseases exists in your area in order of their economic importance?**

Animal disease in the area	Woreda						Response rate	
	Bambasi	Homosha	Abrahamo	Sedal	pawe	dibate	N=23	%
Trypanosomosis	6	2	4	2	3	4	21	91.3
CBPP	6	1	2	1	2	1	13	56.52
PPR	6	3	3	2	2	3	20	86.95
Black leg	2	1	1	1	1	2	8	34.78
Pasteurellosis	5	2	4	2	3	4	20	86.95
Endo parasite	4	1	2	1	1	2	11	47.82
Ecto parasite	3	1	2	1	1	2	10	43.47
NCD	5	2	3	1	2	3	16	69.56
FMD	3	0	1	0	0	1	5	21.74
Shoat pox	1	1	1	1	1	1	6	26.08
Pneumonia	6	2	4	2	3	4	21	91.3

91.3%, 56.52%, 86.95%, 34.8%, 86.95%, 47.82%, 43.5%, 69.56%, 21.74%, 26.08%, 91.3% of the respondents indicated, Trypanosomosis, CBPP, PPR, Black leg, Pasteurellosis, endoparasites, ectoparasites, NCD, FMD, Shoat pox, and pneumonia respectively as Table 27.

Table 28: Do you think that there area available (enough) drugs and vaccines in your clinic to treat and control animal diseases occurs in your area?

Variables	Frequency	Response rate (n=23, %)
a. Yes	8	34.8
b. No	15	65.22

34.8% of the animal health workers in the kebele indicated that, as available drugs and vaccines in the veterinary clinics treat and control animal diseases while 65.22% of the respondents noted that as they were not effective to treat and control the diseases as Table 28.

Table 29: Do you know that the drugs are effective treatment for the diseases occurs in your areas?

Variables	Frequency	Response rate (n=23, %)
a. Yes	21	91.30
b. No	2	8.69

The highest (91.30%) of kebele animal health workers noted that as the recommended drugs were effective for specific diseases whereas 8.69% of them were noted as the drug were not effective for diseases in the areas as Table 29 shown.

**Table 30: Is there any illegal drugs sellers and injector in your kebeles or areas?**

Variables	Frequency	Response rate (n=23, %)
c. Yes	8	34.78
d. No	15	65.22

As Table 30 indicated, majority (65.22%) of the study participants said as there was no any illegal drug seller and injectors in the kebeles whereas 34.8% of the participants(kebeles animal health workers) noted as there was illegal drug seller and injector in the areas.

## 7. DISCUSSION

The present survey was conducted in Bambasi (6 kebeles), Abrahamo (4 kebeles) and Homosha (3 kebeles), Sedal (3 kebeles), pawe (3 kebeles), and Dibate (4 kebeles) of six districts for retrospective animal mortality and morbidity rate and problems identification in the areas. Overall 210 respondents of livestock owners and 23 kebeles animal health workers were interviewed. Animal crude mortality and proportional morbidity rate, treatment cost per animal in a year, domestic animal level of importance, disease and syndrome prioritization, and animal population in 2022/2023 were assessed during the survey.

Of 210 respondents of kebeles residents, 89.04% were male, while 10.95% were female. Regarding the educations categories, (33.80%), (23.30%), (25.23%) and (17.62%) of respondents were illiterate, 1-4, 5-8, and 8-12 grades respectively in the 23 sites. And < 35 years, 35-50 years and >50 years of age categories were 15.71%, 50.47%, and 33.80% of respondents respectively in the 23 villages of study sites. The present findings were consistent with Asmamaw A *et al.*, (2022) in Bambasi district, who reported, (91.04%) male, and (8.95% female. And 26.86% of illiterate, 65.67% of 1-8 grade, and 7.46% of 8-10 grade of education level in the district, and < 30 years, 30-50 years and >50 years (5.97%, 40.29%, and 53.73%) of respondents of age categories respectively, were reported during the study. Comparably, the present

result was concord with the previous findings of Umer seidG. *et al.* (2021) in Doba District of WestHarerghe Zone, Ethiopia; who indicated demographic features the respondents. That is 86.7% of males and 13.3% of females of sex groups. 66.7% of illiterate, 24.4% of literate, 8.9% of primary school of education status. And 37.8% of respondents were less than 15 years, 62.2% of respondents of family size were age ranging greater than 15 years.

Similarly, Abdihakim M, *et al.*(2022) in SomaliShabelle Zone, Somali Regional State, Ethiopia, showed that, Gender, age, educational level and family size were assessed, that was, 75% of respondent males and 24.5% females of sex groups. 63.5% of respondents illiterate, 26% of primary grade, and 10.5% religious school of educational levels. Furthermore, Gebremedhin A.(2007) who studied that, major animal health problems of market oriented livestock development in Atsbi Womberta woreda, Tigray regional state, that is 82% respondents of males, and 18% of females. Respondents of 82 % of illiterate, 10% of Religious, and 6% of elementary school and 2% of junior and above. 39.8% of respondents were less than 15 years old, and 61.2% of respondents of greater than 15 years of demographic features in the areas.

Up on investigation of animal health problems, majority of respondents said that disease occurrence

(66.2%), lack of grazing feed and water (60.47%), cost of drug (52.85%), lack of remedy, drug in-availability (69.52%), management problems (18.6%), un-response to treatment (33.3%) and lack of treatment materials (45.71%) are the most constraint, livestock production limiting factors in the areas. Comparably, Umer seid Geletu *et al.* (2021) in Doba District of West Harerghe Zone, Ethiopia; indicated that, 100% of occurrence of health problems, and 37.8% of animal loss due to diseases were animal health constraints that limit the productivity in the area. Besides this, Birhanu A *et al.* (2015) who studied on Investigation of major cattle production constraints in KembataTambaro zone of Southern Ethiopia, showed shortages of feed and free grazing land and diseases as the major constraints affecting production and productivity of cattle and small holders' livelihood. In addition, Markos T, (1999) in a M2-2 sub-agroecological zone with special reference to goat production, who investigated, livestock production constraints as feed shortages, livestock diseases, low genetic potential of indigenous livestock, lack of marketing infrastructure and water shortages.

Comparably, this findings were in-consistent with the earlier findings of Asmamaw A *et al.*, (2022) who indicated, (98.50%) of disease occurrence, (95.52%) of shortage of water, (88.06%) of feed and grazing land, (55.22%) of insufficient drug, (59.70%) of increased cost of drug, (8.95%) of un response to treated animals, (7.46%) of poor management of animals, 4.48% of unwillingness to vaccinate their animals, and (5.97%) of uncontrolled animal movement were livestock health constraints respond by community livestock owners.

As community livestock owners respond, animal crude mortality rate with animal type were 7.27% of cattle, 7.8% of sheep, 11.95% of goat, 4.21% of equine, and 16.19 % of poultry. Similarly, 14.79%, 22.9%, 4.59%, 3.29% and 54.39% of relative mortality rate were recorded in Cattle, Goat, Sheep, donkey and poultry respectively in six woredas (23 kebeles) of study sites. Besides, 21.2%, 19.32%, and 35.46% of calf, lamb, kid of young mortality rate were encountered/ investigated in the present study of six woredas. Comparably, the present crude mortality was in line with the previous findings of Asmamaw A *et al.* (2017) which was reported as crude animal mortality rate were, 21.46 % cattle, 22.1% sheep, 22.52 % goat, 6.75 % equines and 75.1 % poultry. Besides this, 2.32% LSD, 2.91% CBPP, 0.87% anthrax, 21.97% PPR, 7.2% Shoa pox, 10.92 % CCPP, 52.32 NCD% and 1.46% Rabies, were reported as proportional mortality rate. These varieties might be due to, the major causes of mortality were poor management problems followed by viral and bacterial diseases. Similarly, it was also slightly inconsistent with mortality rate of 12.17% cattle, sheep 38.06%, goat 68.58% and equines 30.28% and crude

mortality rate excluding poultry were 48.63% in Assosa zone woredas' (CSA, 2013).

The current study was concord with the previous findings of Gebremedhin A. (2007) who indicated in AtsbiWombertaworeda, Tigray regional state, as 16.98%, 6.6% of anthrax in cattle, sheep, 15.7%, 14.7% of black leg in cattle, sheep, 10.6% of mastitis of cattle, 8.9% ,17.0% of Pasteurellosis in cattle, sheep, 5.3% of LSD in cattle, 7.9% ,53.7% of shoa pox of sheep, goat and 53.7% of NCD of livestock mortality rate respectively, and also, Gebremedhin A. (2007) reported that, during 2005/2006 years, a total of 223 animals died from different causes, but according to farmers, most of sheep died of diseases that is categorized as unknown disease. From the total number of animals died, 12.3% were cattle, 40.8 % were sheep, 20.1% Goat, 18.7% were poultry and 4.1% were equine.

However, the present finding is higher when compared with the previous findings of, Tesfaye D *et al.* (2011) who indicated, 4.4 % overall mortality rate of cattle due to trypanosomosis and 12.1% of overall prevalence of the disease, during his research activity on economic burden of bovine trypanosomosis in three villages of Metekel zone, Northwest Ethiopia. In addition, it disagrees with the previous findings of Hossain MM *et al.* (2014) who reported, 5.6% average overall mortality rate, and higher mortality of cattle in rainy season (37.98%) followed by winter (33.03%) and summer (28.99%) and also pneumonia (39.91%), Tuberculosis (20.58%) and enteritis (15.58%) cause of deaths. In addition, this result was in line with the earlier reports by Solomon w. *et al.* (2014) during their studies on major causes of lamb mortality at Ebinatworeda, Amhara National state, north western, Ethiopia, that, 40% of overall lamb mortality, most of mortalities were due to diarrhea (51.0%), pneumonia (38%) and others 10.0%.

The present, report were higher, as compared to the previous report of Asmamaw A *et al.*, (2022) in Bambasi district, who reported, animal crude mortality rate of 1.01% of cattle, 0.98% of sheep, 6.20% of goat, 0.87% of equine, and 9.47% of poultry from livestock owners. Similarly, 1.02% of cattle, 7.17% of sheep, 4.51% of goat, 4.52% of equine, and 4.85% of poultry in the five villages of Bambasi district, from the veterinary health posts of cases book documents.

Livestock owners respondents said that, morbidity rate in animal type were. 28.91%, 26.76%, 5.74%, 3.39%, and 35.2% of relative morbidity rate of Cattle, Goat, sheep, equine and poultry respectively in the 23 kebeles of study sites. In addition, in the present study, 12.26%, 10.72%, 5.93%, 11.99%, 6.70%, 10.70%, 3.07%, 3.39%, 22.49%, and 12.67% of bovine trypanosomosis, CBPP, Bovine pasteurellosis, shoa



pneumonia, shoat pox, CCPP, Ovine pastuerellosis, equine pneumonia, NCD, and avian salmonella, respectively of livestock morbidity rate were recorded in 23 kebelles. Comparably, Asmamaw A *et al.* (2017) reported that, 28.72% Trypanosomosis (cattle, shoats), 26.39% internal parasites (cattle, shoat, equines), 13.46% ectoparasites (cattle, shoat, equines) and 31.43% other disease complications were studied as proportional morbidity rate during the study period. However, the present findings were inconsistent with the findings of Chaudhary JK, *et al.* (2013) who reported an overall bovine morbidity of 31.22%. Besides this, it was in accordance with the study conducted by Kelay B *et al.* (2008) who reported incidence of crude morbidity 61.5%, due to (diarrhea, pneumonia, navel ill, septicemia and congenital disease), during the study of calf morbidity in dairy farms in Debre zeit, its environs, Ethiopia and also the most frequent disease of calf diarrhea with incidence of 42.9%. This variation were due to substantial economic losses and/ or animal death, due to disease occurrence, shortage of variety drugs, in appropriate vaccination program, and different health constraints in the areas.

Comparably, the present findings were in line with the earlier report of Asmamaw A *et al.* (2022) in Bambasi who reported that, relative morbidity rate of 12.34% trypanosomosis, 10.85% CBPP, 12.27% pastuerellosis, 1.04% of PPR, 1.11% of shoat pox, 4.46% of CCPP, 1.12% of equine pneumonia, 32.24% NCD, and 24.54% of avian salmonella in five villages. Similarly, kebeles animal health workers reported that, 25.37% of trypanosomosis, 31.23% of CBPP, 28.30% of pastuerellosis, 1.79% of PPR, 1.02% of shoat pox, 4.99% of CCPP, 2.53% of equine pneumonia, 1.70% of NCD, and 1.12% of avian salmonella of proportional morbidity rate.

As the present survey indicated that, Trypanosomosis, CBPP, PPR, Black leg, pasteurellosis, endoparasite, ectoparasite, NCD, Rabies, LSD, FMD, and Shoat pox, Toxic plant, CCPP, Brucellosis and anthrax were common animal diseases prioritized by respondents as, 89.52%, 46.2%, 67.62%, 14.76%, 80.47%, 77.14%, 61.42%, 73.80%, 8.57%, 9.52%, 11.90%, 5.23%, 2.38%, 3.80%, 4.76%, and 5.23% of response rate respectively assessed in the 23 villages of the sites. The current findings were compared with the previous of Asmamaw A *et al.*, (2022) in Bambasi district who noted, Trypanosomosis, CBPP, PPR, anthrax, Black leg, pasteurellosis, endoparasite, ectoparasite, NCD, Rabies, LSD, FMD, and Shoat pox of common animal diseases prioritized by respondents as 98.50%, 97.01%, 10.44%, 38.80%, 55.22%, 49.25%, 32.8, 45, 89.55%, 4.47%, 22.39%, 19.40%, and 4.47% of response rate respectively assessed in the five villages of the sites.

Similarly, the current finding was concord with the findings of Nigatu D. *et al.* (2017) who indicated, the response of the animal health workers at the public animal health service centers and the common priority animal diseases of the area as, Trypanosomiasis, Pasteurellosis & CBPP, PPR, Pneumonia, ectoparasites and endoparasites, NCD, Salmonella, FMD, Blackleg, Lumpy skin disease, and Sheep and Goat pox, in the study area of Assosa zone of Benishangul Gumuz Regional State.

The present study indicated that, frequency of treatment per animals per year were averagely, 53, 35.5, 26 of cattle, shoat and equines respectively, were brought to nearby veterinary health posts in a year as community livestock owners reported. Besides this, 59.83 for cattle, 29.33 for shoat, 51.66 for equine and 8.6 for poultry, of average treatment cost was reported by livestock owners during the survey period in selected six woredas.

Comparably, lower results were reported by Asmamaw A *et al.* (2022), in Bambasi district, that was, 17, 3, 2 of cattle, shoat and equines of frequency of treatment per animals per year respectively, and averagely, 18, 11.66, 7.33 frequency of treatment per animals per year, of cattle, shoat and equines respectively. Besides this, 48.4 for cattle, 17.2 for shoat, 30.2 for equine of treatment cost was reported by Asmamaw A *et al.* (2022) in Bambasi district.

In addition, it was comparable with the findings of Gebremedhin A. (2007), in AtsbiWombertaworeda, Tigray regional state, who indicated that 42.5% of modern treatment cost, and 35.2% of traditional treatment cost as frequency of treatment. Similarly, 44.0% expensive, 44.0% moderate and 12.0% cheap of degree of treatment cost as respondents in the study areas. This finding was relatively comparable with that of Asmamaw A *et al.* (2017) who showed, the farmers in the area were spending a significantly higher amount of money for the treatment of priority common animal diseases. Many of the farmers prioritized losses of draft power as the most important impact of the disease. The disease burden was significantly higher in the rainy season than at other times of the year.

## 8. CONCLUSION AND RECOMMENDATIONS

The retrospective study on animal health problems investigation in Bambasi, Abrahamo, Homosha, sedal, pawe and Dibate (23 kebeles) were assessed. The highest and lowest (16.2%) and (4.21%) crude mortality rates were recorded in poultry and equine respectively. Similarly, 21.2% of calves, 19.32% of lambs and 35.46% of kid goat of young mortality rates were recorded and overall all crude young mortality was 27.1%. The highest and lowest (poultry (35.2%), cattle (28.9%), goat (26.76%) and (sheep (5.74%), and

equine (3.39%)) of morbidity rates were investigated respectively. The highest and the lowest NCD (22.49%), avian salmonella (12.67%), trypanosomosis(12.26%), and shoat pneumonia (11.99%) and ovine pasteurellosis(3.07%), equine pneumonia(3.39%), bovine pasteurellosis (5.93%) respectively. 91.3%, 56.52%, 86.95%, 34.8%, 86.95%, 47.82%, 43.5%, 69.56%, 21.74%, 26.08%, 91.3% of respondents ranked animal Trypanosomosis, CBPP, PPR, Black leg, Pasteurellosis, endoparasites, ectoparasites, NCD, FMD, Shoat pox, and pneumonia, respectively in the study areas. 91.3%, 91%, 86.95%, 86.90%, 69.56%, and 56.52% of respondents were ranked animal Trypanosomosis, pneumonia, PPR, Pasteurellosis, NCD and CBPP as the highest priority animal diseases while, (26.08%, 21.74%, and 34.78% ) of respondents indicated, shoat pox, FMD black led as the lowest priority diseases respectively. In 23 kebeles of the surveyed sites, average frequency of treatment per animal per year in the villages, were 53, 35.5, 26 for cattle, shoat and equines respectively, and 59.8, 29.33, 51.66, and 8.6 of cattle, shoat, equine and poultry average treatment cost were recorded in the study. In studied area, un strategic treatment and vaccination service, misdiagnosis, lack of veterinary diagnostic equipment's, less monitoring, and weak surveillance were main gaps identified. Therefore, strategic control measures should be implemented properly in study areas so as to mitigate the problems encountered.

**Based on the above findings, the following recommendations were forwarded:**

- Illegal drug seller /shoppers, venders and injectors in the specific areas should be managed and owner ship would be created,
- Identification and isolation of major animal disease, and regular seasonal surveillance could be implemented,
- Community sensitization and social mobilization should be done in order to increase their perspectives up on animal husbandry, animal production , handling, sanitary measures, disease reporting, management options of rotational , continuous, communal grazing and watering strategy,
- Cyclical vector (tsetse fly- transmitted trypanosomosis), ticks and mechanical vectors control measures should be conducted in the areas.
- Regular animal disease monitoring, and vaccination program should be implemented.

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