

**MAJOR ANIMAL HEALTH PROBLEMS OF MARKET ORIENTED LIVESTOCK
DEVELOPMENT IN ALAMATA WOREDA**

**By
Yohannes Tekle**





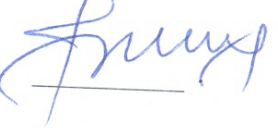
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List of Acronyms

Absl	Above sea level
DVM	Doctor of Veterinary Medicine
FMD	Foot and Mouth Disease
GDP	Gross Domestic Products
ILRI	International Livestock Research Institute
IPMS	Improved Production and Market Success of Ethiopian farmers
LSD	Lumpy Skin Disease
NCD	New Castle Disease
OoARD	Office of Agriculture and Rural development
PLW	Pilot Learning Woreda
RDO	Research Development Officer
TARI	Tigray Agricultural Research Institute
TLU	Total Livestock Unit
US	United States

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Abstract

An attempt was made to study major health problems of livestock in *Alamata Woreda*, northern Ethiopia, from December 2006 to April 2007. Questionnaire survey was carried out on 100 livestock owners to collect information on the livestock production system and the major health problems recognized by farmers in the study area and cross sectional study on 841 diseased animals, which constitute 334 cattle, 185 sheep, 173 goats, 56 equines (donkeys and mules) and 93 camels was under taken. During the cross sectional study from the whole diseased animals which were presented to Alamata, Gargelle and Tunga Veterinary clinics, 841 animals were selected randomly from each species and then they diagnosed base on history, general and systemic examinations and laboratory tests to identify diseases (cases) that frequently affect animals in the study area during the study time. The questionnaire survey result revealed that in cattle infectious diseases (47%) is the most important health problem, followed by miscellaneous case (27%) and parasitic problem (26%), in sheep parasitic problems (49%) followed by infectious diseases (27%) and miscellaneous cases (24%) are the common health constraints and similarly in goats the most important health problems were those caused by parasites (42%) followed by infectious cases (38%) and miscellaneous diseases (20%). In equines (donkeys and mules) miscellaneous cases (63%) followed by parasitic diseases (22%) and infectious diseases (15%) were identified. While in the camel the predominant health problems were miscellaneous cases (68%) and parasitic diseases (32%), respectively. In poultry NCD (54%) was the most devastating infectious disease followed by parasites (41%) and predators (5%). Results of the cross sectional study also indicated that septicemic pasteurellosis (19%) in small ruminants, tick challenge (14%) in all species and particularly cattle, traumatic injury/wound (11%) in all species and especially in cattle and camel, LSD (9%) in cattle were the leading cases which were diagnosed from December 2006 to April 2007. During the cross sectional study, it is also pointed out that LSD and pasteurellosis in cattle and small ruminants, respectively occurred as outbreak and resulted in deaths of many animals. The study also addressed that the animal production system in the study area in general is traditional with a number of problems. Most of the respondents complained that animal feed followed by water shortage is serious problem. They also indicated that during animal marketing disease transmission is a big problem.

Key Words/Phrases: Alamata, livestock, animal health, disease, questionnaire survey, cross sectional study,

1. INTRODUCTION

Livestock production constitutes one of the principal means of achieving improved living standards in many regions of the developing world. In sub-Saharan Africa countries, livestock plays a crucial role both for the national economies and the livelihood of rural communities (ILCA, 1980). Africa is now a net importer of livestock and livestock products spending up to three times what it earns (US \$ 900 million in 1998) from livestock export (Thambi, 2001).

Ethiopia is one of the most populous countries in Africa, having an estimated population of 67.2 million in July 2002 with annual growth rate of 2.9%. The dominant economic feature of the country is the agriculture sector of which livestock is a very important and essential component (CACC, 2003).

The livestock population of Ethiopia is estimated to be about 43,124,582 cattle, 23,721,633 sheep, 18,559,730 goats, 1,655,383 equines, 16,396 camels and 34,199,484 poultry (CSA, 2006). This figure indicates that Ethiopia possesses large livestock population (FAO, 1993, FAO-OIE-WHO, 1994). In the highlands, livestock are raised together with crop cultivation for their livelihood, whereas in the lowlands or the 'pastoralists' subsistence is based mainly on livestock and livestock products (CACC, 2003).

The livestock sector contributes significantly to the macro and micro economy of Ethiopia. Available data indicated that livestock products represent 40% of agricultural output/GDP in Ethiopia (ILRI-FAO, 2005). It is well known that livestock products and byproducts in the form of meat, milk, honey, eggs, cheese, and butter supply the needed animal protein that contribute to the improvement of the nutritional status of the people. Livestock also plays an important role in providing export commodities, such as meat, live animals, hides and skins to earn foreign exchange to the country. On the other hand, draught animals provide power for cultivation of the small holdings and for crop threshing virtually all over the country and are also essential modes to transport farmers and their families long distance as well as their agricultural products to the market and their domestic necessities back home. Livestock also confer a certain degree of security in times of crop failure, as they are a "near-cash" capital stock. Furthermore, livestock

provides farmyard manure that is commonly applied to improve soil fertility and are also used as a source of energy (CACCC, 2003).

Livestock with poultry in Ethiopia are believed to be the engine for the development of the nation's economy in general, and the small holder resource-poor farmers in particular. However, the livestock sector is facing many problems. Among the major livestock constraints that are bottle necks for the market oriented livestock development are animal feed shortage, presence of various economically important diseases, inappropriate policies, poor genetic performance, poor management, poor infrastructure like veterinary services, and inadequate institutions (Assegid, 2000).

Diseases have numerous negative impacts on productivity and fertility of herds i.e. losses due to mortality and morbidity, loss of weight, depressed growth, poor fertility performance, decrease physical power and the likes (CACCC, 2003).

In the low lands, disease prevalence, the environment experiences high temperature, low rain fall, inadequate feed availability, and low vegetation coverage. And the other major reason is the lack of satisfactory health services (Assegid, 2000).

Experiences have shown that (Coppock, 1994) information on animal health had been focus of research. However, knowing the type and extent of the common and/or major health problems is very important to livestock owners,. Veterinarians, and researchers and can assist in the development of herd health strategies and the selections of possible interventions (Radiostatis, *et al.*, 1994). Damte (2003) recommended that an organized research that can elucidate major animal health problems is a central issue for further study of epidemiological study on diseases of livestock.

The general objectives of this study were:

- ✓ To obtain base line information on the major health problems of livestock and poultry in the *Woreda*.
- ✓ To give recommendation regarding the veterinary service and possible treatment, control and prevention strategies of major diseases of livestock in the *Woreda*.

2. METHODS AND MATERIALS

2.1. Description of Study area

The study was conducted in Alamata *Woreda* which is found in Tigray Regional State, Ethiopia. The *Woreda* is Situated 180kms south of Mekelle, capital city of Tigray Regional State, and 600kms north of Addis Ababa, capital city of Ethiopia,.

The *Woreda* has an altitude ranging from 1178 to 3148 absl and the mean minimum and maximum annual rain fall is 615mm and 927mm, respectively. The rain fall of the area is bimodal with the small rain (short rain season) covering 80% of the *Woreda* and occurs between January to April, and main rain (long rain season) covering the whole *Woreda* and occurs from June to August.

Agro climatically, the *Woreda* is divided into two, intermediate high land ('Dega') which covers 25% and the low land ('Kola') which covers 75% of the *Woreda*. Mixed crop and livestock farming system is the mode of agriculture in the *Woreda*. The major crops that are grown in the area include sorghum, maize and teff. The small undulating mountains surrounding the low land part of the *Woreda* are very steep and with low vegetation coverage. Eutric vertisols and lithic letosols (cambic) and Linthic leptosols (Orthic) are the soil types in the *Woreda*.

In the study area crop cultivation is dependant on Livestock. The total agricultural human and livestock population is 84,997 and 111, 804, respectively. Cattle are the major livestock kept in the *Woreda*.

Number of animals that are found in Tigray region and Alamata *Woreda* are listed in table1.

Table1: Number of animals found in Tigray region and Alamata woreda.

Species of animals	N ^o of Animals found in Tigray region	N ^o of Animals found in Alamata Woreda
Cattle	2,668,078	83,579
Goats	1,759,126	14,398
Sheep	687,212	3,822
Horse	7,598	-
Donkey	403,517	8,527
Mules	16,418	325
Camel	39,791	1,153
Poultry	4,999,677	114,449
Bee hives	228,684	1,751

Source: CACC, 2003 and Alamata OoARD, 2006.

2.2 Study protocol

2.2.1. Sampling Procedure

Purposive and simple random sampling techniques were used to select peasant associations and house holds, respectively. Initially, based on accessibility to transport and difference in geographical location five peasant associations namely Gargelle, Kulu Gize lelem, Selam Bikalsi, Limat and Tumba were purposely selected as study site. Since there was homogeneity regarding the matters that have been considered to be addressed, twenty Respondants were then randomly selected from the villages of each of the peasant associations and formed a total of 100 respondents. All livestock and poultry owned by selected respondents were considered as study animals, accordingly, there were a total of 1412 animals sampled constituting 517 cattle, 268 goats, 120 sheep, 45 camel, 27 equine, 438 chickens and 7 bee hives.

During the observational study diseased animals were selected randomly and they were identified by their origin, sex, breed, color, name of their owner.

2.2.2. Questionnaire Survey

A detailed and organized questionnaire format (Annex I) was designed and an attempt was made to generate base line information related to livestock production and with particular emphasis on major livestock health problems; livestock diseases considered as important by farmers and measures taken by farmers against livestock diseases. The questionnaire was framed in such away that farmers could give information that are recent and easy to recall, and it was filled directly by interviewing randomly selected farmers from different villages of the five peasant associations .

2.2.3. Cross Sectional Study

A total of 841 diseased animals which include 334 cattle, 185 sheep, 173 goats,56 equines and 93 camels were examined in the three veterinary clinics (Alamata, Gargelle and Tumga) from December 2006 –April 2007 to assess and address the most frequently appearing clinical diseases that affect market oriented livestock development . The cases were tentatively diagnosed based on history, clinical findings and many of the parasitic diseases were finally diagnosed using simple laboratory procedures.

2.2.4. Data Analysis and Management

Data were stored in to excel spread sheet (MS Excel) and imputed to be analyzed by SPSS version 10 computer programs.

3. RESULT

3.1. Questionnaire Survey Analysis

Demographic characterization of the interviewees

From the 100 respondents 90 % (n=90) were male and 10% (n=10) were female .Their educational back ground was indicated that 52% (n=52) were illiterate,5% (n=5)had religious knowledge, 31% (n=31) were grade 1-6 and 12% (n=12) were above grade 6. The top, bottom and average age of the respondents is 74, 20 and 39 respectively. The family size of the house hold ranges from 1-14 and the mean is about 5.

Livestock and their use

Most of the respondents (88%) own cattle and few of them own bee hives (Table 2). species. The mean, range, proportion and herd structure of animals owned by the Respondants is listed in table 2.

Table 2: Descriptive statistics of species of animals which are found in the study area and proportion.

<i>species</i>	<i>Mean</i>	<i>Range</i>	<i>Proportion from species herd (%)</i>
Cattle	5.9	1-15	
Male calf	1.3	1-3	10.0
Female calf	1.3	1-3	10.4
Heifer	1.8	1-4	12.0
Dry cow	1.6	1-4	12.2
Lactating cow	1.7	1-5	19.0
Castrated ox	1.7	1-3	24.7
Bull	1.6	1-6	11.8
Camel	2.1	1-20	
Male calf	1.0	1-2	20.0
Castrated ox	1.5	1-3	75.6
bull	2.6	1-20	4.4
Goat	9.6	2-30	
Male kid	1.8	1-5	9.0
Female kid	2.1	1-5	14.1
Yearling	3.5	1-6	18.3
Doe	4.6	1-10	46.0
castrated	0.75	1-2	1.1
Buck	2.6	1-5	11.5
Sheep	9.2	3-25	
Male lamb	2.25	2-5	7.5
Female lamb	1.9	1-5	19.2
Yearling	3.6	3-7	15
Ewe	3.4	1-10	45.0
Castrate	1.4	1-3	5.8
Ram	2.25	2-5	7.5
Equine	0.3	1-2	
Young	0.6	1	11.1
Adult female	0.88	1-2	55.6
Ault male	1	1	29.6
Poultry	7.3	1-30	
Bee hive	1	1-3	

In the study area farmers use their animals for different purposes. Out of the respondents 93% (n=88), 82 % (n=88) and 73 % (n=88) indicated that they use Cattle for traction, milk and sell/market, respectively, and 96 % (n=28) and 82 % (n=28) of the respondents sheep for sell/market and meat respectively. Almost all of the respondents reported that oxen are the sole

animals which are used for traction power. The detail description of main functions/products, frequency and proportion of respondents is described in table3.

Table 3: Functions/Products, frequency and proportion.

<i>Function/product</i>	<i>Cattle</i> <i>N=88</i>	<i>Goat</i> <i>N=28</i>	<i>Sheep</i> <i>N=13</i>	<i>Equine</i> <i>N=26</i>	<i>Camel</i> <i>N=7</i>	<i>Poultry</i> <i>N=66</i>	<i>Bee</i> <i>N=7</i>
Traction power	81(26.7)						
Milk/its byproducts	75(25.7)	12(15.8)					
Market/sell	71(23.1)	24(34.2)	9(50)		5(33.3)	56(31.1)	5(45.5)
Manure/fertilizer	61(1.0)	16(21.1)	5(27.6)				
Meat	6(2.0)	21(8.7)	4(22.2)			60(33.3)	
Wealthy/prestige	3(1.0)				3(20)		
Transport/loading				26(100)	7(46.7)		
Hide/skin	7(2.1)	5(8.9)					
Egg						64(35.6)	
Honey							6(54.5)

N= Number of animal owners

Livestock feeding Practice

Parallel to animal health, feed availability and lack of appropriate use of the available animal feed are major problems regarding market oriented livestock development packages in the study area. The majority of the interviewees agreed with this and reported that animal feed and water shortage are significant problems. Hence, animals are forced to graze till the grass root level and take up pathogenic organisms together and become diseased. They also said that animals tend to eat dry feed remnants and other non-feed materials which induce wound on prehensile organs. Due to this animals are exposed to soil borne diseases such as *Tafia* (anthrax), *Wekee* (blackleg). In 88%, 86% and 81% responses the major types of feed stuff for cattle are Stover (sorghum, maize), straw (teff, wheat, barley) and others (Table 4). Sixty-seven percent suggested that they feed their animals with cactus (belles) during dry season. All small ruminant, camel and equine owners replied that mostly these animals browse and graze freely in fallow lands along roads, rivers and hill sides. Meanwhile, the Respondants also indicated that they provide them with straw, stove when brow thing plants and grazing pasture are no more available. Sixty-seven percent respondents reported that common grazing area is limited this is because almost all the

area is cultivable /covered with crops during cropping seasons, and therefore during that time shortage of animal feed as it is true in dry season is a problem of animal owners. In table 4, Major animal feed and proportion of Respondants is listed in detail.

Table 4: Major cattle feed stuff types, their seasonal availability and Proportion of respondents

Feed Stuff	Availability and Season			Proportion (%) N=100
	D S	SRS	LRS	
Stove(Sorghum, Maize)	**	*	*	88
Straw (Teff, Wheat, Barley)	*	*	*	86
Natural pasture	**	*	*	81
Cactus (Belles)	**	*	*	67
House left over (Attela ...)	*	*	*	51

DS=Dry season, SRS=Short rain season, LRS=Long rain season,

** =more available, * =Available.

Watering

Animal owners water their animals in different watering points depending on the season of the year. Water shortage is reported by 24% of interviewees. Interviewees from *Gargalle, Kulugize lemlem, Tunga* peasant associations complained that the dirty water in their respective peasant associations/villages is a cause of parasitic diseases like *Yegubet Til* (fascillosis) due to this their animals are unthrifty (emaciated) even if they eat more, and their production is below expected level. There are different watering sources (Table 5) and water shortage is common in the dry months (Table 6).

Table 5: Major Watering sources and frequency and Proportion (%).

Source	Frequency	Proportion (%)
	N=94	
Stream	84	44.7
Well	62	33.0
Pond	36	19.1
River	6	3.2

Table 6: critical months of water shortage and their frequency and proportion.

Months	Frequency	Proportion (%)
May	23	27.7
April	18	21.7
June	18	21.7
March	14	16.7
January	5	6.0
February	5	6.0

Housing and breeding

Eight nine percent of the respondents said that they house their animals separately in simple shed which does not protect the animals from sun and cold/rain. They also underlined that predatore/heyne is a thereat in the area. Few respondents (7%) said that animals (poultry, small ruminants) with the owners in communal house. Majority of the responses (97%) indicated that animals are breed naturally. While in very few (2%) Artificial insemination is used.

Marketing of livestock

As animals are paramount important source of cash, seventy- eight percent (78 %, N=96) of interviewees indicated that they sell animals for different purposes (table6) any time when the need arises but said that animal sell is more common during holidays. The majority of respondents noticed that animals for sale are brought from different *Woredas* of Afar and Amhara Regional State to Alamata where there is a big market and as a result of animals from different mix, hence, disease transmission/outbreak among group of animals is evident. Owners also complained that due to animal diseases and feed shortage animals for sell are with low body condition and are sold at low price.

Table 7: Purposes of livestock sell Frequency and percentage of respondents

Reasons	Frequency N=100	Proportion (%)
For household	64	32.2
Agricultural input	51	25.6
Credit and Tax	45	22.6
Replacement	25	12.6
Out break/Disease	9	4.5
Drought/food shortage	5	2.5

Culling criteria of animals and disposing of featal membrane/abortus /cadaver

Replacement of low performing animals by high performing animals is commonly practiced and accordingly old age (51%), infertility (20%), poor production (15%) and disease (14%) are the culling criteria. Traditionally, almost all (96%) of the respondents explained that they do not dispose featal membrane /abortus/cadaver properly i.e. it is not buried or burned..

Major livestock health problems

Respondents confirmed that animal health and diseases are the fore front constraint of their livestock production in which many infectious and non –infectious diseases (Table7, 8and9) are highly prevalent and the high prevalence is governed by factors like agro-ecology of the *Woreda*, livestock population, uncontrolled animal movement (diseases transmission), inadequate

veterinary service, minimum attention to animal health by government and non-government bodies. Hence, farmers lack maximum benefits from the market oriented livestock development extension.

According to 37% of the respondents 23%, 21%, 18%, and 38% of animals have aborted during May, April, March and during the other months, respectively. Goat (45.5%), cattle (31.8%) and sheep (22.7%) were the species that have aborted

From 88 cattle owners 47%, 26%, and 27% respondents indicated that infectious, parasitic and miscellaneous diseases (Table 8, 9 and 10) are the major animal health problems of cattle, respectively. In sheep 49%, 27% and 24% of respondents (n=13) reported that parasitic, infectious and miscellaneous are (Table 8, 9 and 10) e common diseases, respectively; 42%, 38%, 20% respondents (n=28) suggested that parasitic, infectious and miscellaneous are major diseases (Table 8, 9 and 10) of goats, respectively, and 63%, 22% and 15% respondents (n=26) reported that miscellaneous, parasitic and infectious diseases (table7,8 and 9), respectively affect equine more frequently. 68%, and 32% of interviewees (n=7) indicated that miscellaneous and parasitic diseases (Table 8 and 9), respectively affect the camel.

From 66 respondents 54%, 41% and 5% complained that infectious (*Fengle*/NCD), parasitic and predators (Table8, 9 and 10), respectively are the major poultry health problems. Owners complained that *Fengle* (NCD) is a devastating disease that clears the whole flock of poultry in a short time.

Table 8: Major livestock and poultry infectious diseases which were mentioned by owners (December-April 2006/7) and their importance/frequency.

<i>Disease</i>	<i>Local name</i>	<i>Cattle</i> <i>N=88</i> <i>(47)</i>	<i>Sheep</i> <i>N=13</i> <i>(72)</i>	<i>Goat</i> <i>N=28</i> <i>(38)</i>	<i>Camel</i> <i>N=7</i> <i>(0)</i>	<i>Equine</i> <i>N=26</i> <i>(15)</i>	<i>Poultry</i> <i>N=66</i> <i>(54)</i>
Blackleg	Weke/ Degahebe	52(14)					
Anthrax	Tafia	48(13)					
LSD	Dibdibta	44(12)					
Mastitis	Yetut beshta	30(8)					
FMD	Zigag	11(3)					
Drmatophillosis/ Streptotrichosis	Kemate	11(3)					
Actinobacillosis	Anashie	5(1)					
Pasteurellosis	Dingetegna/ Miemieta		8(13)	19(20)			
ORF	Afemendid		5(10)	11(16)			
Pox	Fintita/ gudedo		3(5)	2(2)			
PPR	NK			3(3)			
Tetanus	Adrik/getre					7(15)	
NCD	Fengle						54(54)

N=Number of animal owners, NK=Not known

Table 9: Major livestock and poultry parasitic diseases which were mentioned by owners (December-April 2006/7) and their importance/frequency.

<i>Disease</i>	<i>Local name</i>	<i>Cattle</i> <i>N=88</i> <i>(26)</i>	<i>Sheep</i> <i>N=13</i> <i>(49)</i>	<i>Goat</i> <i>N=28</i> <i>(42)</i>	<i>Camel</i> <i>N=7</i> <i>(32)</i>	<i>Equine</i> <i>N=26</i> <i>(22)</i>	<i>Poultry</i> <i>N=66</i> <i>(41)</i>
Endoparasitosis	Tlatil	24(6)	8(13)	10(11)	3(6)	10(20)	
Tick infestation	Mezger	11(3)					
Leech/hurdiasis	Alakt	4(1)					
Mange mite	Ekek	7(20)	10(20)	22(24)			
Fasciolosis	Yegubet-til	7(2)	7(110)				
Babesiosis	Dem-ashin	6(1)					
Trypanosomosis	Wuzwuz/ Silim	18(5)			12(25)		
Ectoparasitosis	Tigegna		7(11)	7(98)			
Lice(Pedunculosis)	Kumal						37(41)

N=Number of animal owners

Table 10: Major livestock and poultry miscellaneous diseases which were mentioned by owners (December-April 2006/7) and their importance/frequency.

<i>Disease</i>	<i>Local name</i>	<i>Cattle</i> <i>N=88</i> <i>(27)</i>	<i>Sheep</i> <i>N=13</i> <i>(24)</i>	<i>Goat</i> <i>N=28</i> <i>(20)</i>	<i>Camel</i> <i>N=7</i> <i>(68)</i>	<i>Equine</i> <i>N=26</i> <i>(63)</i>	<i>Poultry</i> <i>N=66</i> <i>(5)</i>
Respiratory problems	Sal/Buhe	34(9)		5(5)	8(11)	3(6)	595
Calf diarrhea	Guahsi/ Tekmat	15(4)					
Reproductive problems	NK	18(5)					
Local abscessation	Megli	8(2)			4(17)	2(4)	
Plant toxicosis	Akera/Efil	4(1)			3(6)		
GIT disorder	Yehod metawek		6(10)	8(9)	4(17)		
Lameness	Mojele		4(6)		4(17)		
Circling disease	Azurit		3(5)	3(30)			
Eye problem	NK		3(5)				
Abortion	Michingaf			3(3)			
Wound/sore	kusil				9(20)	12(26)	
Colic	Kurtset					7(15)	
Caecal impaction	Andel					5(11)	

NK =Not Known, N= number of animal owners, NK=Not known.

Animal loss in 2005/6

Respondents confirmed that a number of animals were died in the year (2005/6) due to disease (Table11). Blackleg (16.9%) in cattle, pasteurilosis (36%, 23.6%) in goat and sheep, respectively, constipation (57.1%) in camel, caecal impaction (60%) in equine and NCD (73%) in poultry were the leading causes of death (Table 11).

Table 11: Causes of death, frequency and percentage of animals lost in 2005/6 which was reported by owners from December 2006- April 2007.

<i>Causes</i>	<i>Local name</i>	<i>Cattle</i> <i>N=65</i>	<i>Goat</i> <i>N=72</i>	<i>Sheep</i> <i>N=65</i>	<i>Equine</i> <i>N=5</i>	<i>Camel</i> <i>N=7</i>	<i>Poultry</i> <i>N=524</i>
Blackleg	Wekee	11(16.9)					
Anthrax	Tafia	8(12.3)					
Fasciolosis	Yegubet-til	2(3.1)		8(12.3)			
Bloat/ caecal impaction	Ye hod menfat	5(7.7)	4(5.6)	1(1.5)	3(60)	1(14.3)	
Dystocia	Himam hirsi	4(6.2)					
Trypanosomosis	Wuzwuz	5(7.7)				2(28.6)	
Sorghum toxicosis	Akera/efil	5(7.7)					
Urethral calculi	Tsaeri shinti	4(6.2)	1(1.4)	3(4.6)			
Circling disease	Azurit	11(17.3)					
Traumatic injury	NK	2(3.1)					
Snake bite	Arawit	4(6.2)					
NCD	fengle						375(73)
Lice infestation	Kumal	8(11.1)	11(17.3)				309(5.8)
Predator	Arawit						7(1.4)
Pasteurellosis	Dingetegn/ miemieta		26(36.1)	13(23.6)			
PPR	NK		4(5.6)				
CCPP	Samba		23(32)				
Mange mite	Ekek		4(5.6)				20(3.9)
Abortion	Michingaf		3(4.6)				
Constipation	Andel					4(57.1)	
Unknown diseases	Likfti	15(23.1)	6(8.3)	15(23.1)			82(16)

NK=Not known.

Treatment and Control measures

According to 10%, 74%, 13%, and 3% respondents, slaughter, modern treatment, traditional treatment and other option are used to cure their diseased animals, respectively. A combination of more than two measures is commonly practiced. From traditionally treated diseases infectious 60%, parasitic 8%, surgical 14% and non-infectious 1% cases were reported.

To prevent and control livestock diseases, specially infectious and parasitic diseases 88%, 4%, 3%, 4% and 2% of the respondents vaccinate, slaughter, quarantine, use other option like deworming and do nothing, respectively.

Problems of veterinary service

Almost all respondents commented that veterinary (animal health) service is inadequate and weak. There is shortage of man power, drugs and veterinary equipments. These drugs that are available are costly. Veterinary clinics and posts are inadequate.

3.2. Cross Sectional Study

A total of 841 diseased animals (334 cattle, 185 sheep, 173 goat, 56 equine species and 93 camels) were tentatively/definitively diagnosed based on history, general and systemic examination and laboratory tests in Alamata, Gargelle and Tunga Veterinary Clinics from December 2006-April 2007. Most of the cases were examined in Alamata veterinary Clinic. Septicemic pasteurellosis 19% in small ruminants (Table11), tick challenge 14% in all species; traumatic/wound 11% in all species particularly in cattle and camels, lumpy skin disease (LSD) 9% in cattle (Table11) were the major diseases in the area from during the study time. Lumpy skin disease and septicemic pasteurellosis cases occurred as out break and these diseases were responsible for the death of many animals in the *Woreda* with varying morbidity rate from one peasant association to another.

Table 12: Major clinical diseases of livestock which were diagnosed in 2006/7, and their frequencies and proportional morbidity rates.

<i>Disease/Disorders</i>	<i>Cattle</i> <i>N=334</i>	<i>Sheep</i> <i>N=185</i>	<i>Goat</i> <i>N=173</i>	<i>Equine species</i> <i>N=56</i>	<i>Camel</i> <i>N=93</i>
Pasteurellosis		70(37.8)	82(47.4)		
Tick infestation	66(19.6)	10(5.4)	11(6.4)	8(14.3)	8(8.6)
Traumatic injury/wound	34(10.2)	8(4.3)	8(4.6)	10(17.9)	40(43)
Lumpy skin disease	72(21.6)				
Local abscessation	24(7.2)	8(4.3)	5(2.9)	4(7.1)	14(15.1)
Fasciolosis	8(2.4)	36(19.5)	15(8.7)		
Pediculosis	7(2.1)	14(7.6)	9(5.2)		
Mange mite	11(3.3)	11(5.9)	12(6.9)		
Pox	11(3.3)	11(6.4)			3(3.20)
Streptotrichsis/ dermatophilosis	16(4.8)				
Eye infection	6(1.8)	5(2.7)	6(3.5)	1(1.2)	5(5.4)
ORF (Contagious ecthyma)		9(4.9)	6(3.5)		
Calf diarrhea	14(4.2)				
Lung worm	5(1.5)	3(1.6)	1(0.6)		6(6.5)
Bloat	8(2.4)		2(1.2)		4(4.3)
Trypanosomosis	2(0.6)				13(14)
Copper deficiency	11(3.3)				
Retained fetal membrane	11(3.4)	1(0.5)	1(0.6)		
Mastitis	7(2.1)	2(1.1)	2(1.2)		
Parafilariaasis	10(3.0)				
CH ₂ O engorgement	4(1.2)	1(0.5)	2(1.2)	2(3.4)	
Vaginal prolapse	6(1.8)				
Caecal impaction				11(19.6)	
Colic				9(16.1)	
Tetanus				8(14.3)	
Blackleg	5(1.5)				
Babesiosis	3(0.9)				
Rabies				3(5.4)	

4. DISCUSSION

Based on the result of this study livestock diseases and their consequences have severe impact on the small holder farmers' livelihood directly and indirectly. The direct cause of diseases is mortality of animals and the indirect effects include low output such as meat, milk, and draft power, poor growth and fertility, and costly treatment. Animal diseases have also been indicated as public health hazards (Assegid, 2000).

It is also indicated that major constraints to alleviate animal health problems include low quality and inadequate animal health services, minimum attention to the services, low and/or no private sector involvement, more over, the animal health of the *woreda* is also exacerbated by different factors like feed and water shortage (Table 6), poor management, dirty water, traditional treatment practices (cauterization, incision, drenching), the agro-ecology and climate of the *Woreda*, i.e. mostly the *woreda* is situated in low land (below 1500m) at which there are predisposing factors for the occurrence of different diseases, like high temperature, and low vegetable cover. The high livestock population also has its own role in transmission and serving as foci of infection for several diseases.

A report showed that about 858,912 animals were diseased by different types of diseases during the year 2001/2 in Tigray Regional State, and only 161,018 of them were treated (CACC, 2003). The report also indicated that a greater number of animals died during the same year in Tigray Regional State due to diseases of which 65.4% were poultry. In addition the estimated numbers of goats, cattle and sheep died in the Region were about 108,786, 60,657 and 43,387 heads, respectively (CACC, 2003).

According to this study many infectious, parasitic and miscellaneous diseases were identified (Table 8, 9 and 12) as major livestock and poultry health problems in the study area.

4.1. Infectious Diseases

The questionnaire surveys revealed that blackleg followed by anthrax were the most important bacterial infectious diseases of cattle, which were responsible for the loss of many animals (Table 11). Reports from Tigray (Legesse, 1996) and from Adaa liben *woreda*, central Ethiopia (Tesfahiwet, 2004) indicated that the two diseases are important. The high occurrence of these diseases could be due to the endemic and resistant nature of the spore of causative agents that can stay in soil for many years and when the spore get into the animal body, due to its short incubation period, infected animals die soon. The other explanation could be due to low vaccination coverage in all villages of the *Woreda* and the causative agent may be introduced to the low land area of the *Woreda* during over flooding from the high lands.

However, blackleg and anthrax were important diseases in the cross sectional study. This may be due to a difference in season of occurrence of the diseases and time of the study.

A lumpy skin disease (LSD) is the other important infectious viral disease that is put as the first and third ranking common disease in the cross sectional study and questionnaire survey (Figure 1, e). This agrees with the findings of Tesfahiwet (2004) in that LSD was an important infectious disease in Adaa liben *Woreda*, central Ethiopia. LSD has a very high morbidity and moderate mortality (Radostits *et al.*, 1994). Its transmission from infected to healthy animal is high, as a result it mostly occurs as an outbreak and this could be the reasons that make it very common disease mentioned by farmers, furthermore it may be also due to low prevention measures like vaccination. LSD was important because of presence of insect vector in the endemic area.

Pasteurellosis was found to be the most economically important bacterial infectious disease of small ruminants in the *Woreda*. This is in agreement with the result of Ayeleti *et al.* (2004) which indicated that pasteurellosis is a major concern in north Shoa, central high lands of Ethiopia. The causative agent of pasteurellosis is known to be a normal habitat of the upper respiratory tract. When there is stress, the bacteria multiply rapidly and invade the lower respiratory tract where infection is initiated. Due to its short incubation period, stressed animals become diseased and die immediately even without showing clinical sign. The main reason for the frequent occurrence of

the disease in the study area could be due to several predisposing factors like high temperature and aridity of the area. The other most probable reason may be low level of implementation of prevention strategies.

The next most important small ruminant infectious disease is ORF which is a viral disease affect mainly young animals. The result agrees the findings of Woldemeskel and Ashenafi (2003) that ORF was a common viral disease with similar occurrence rate of 3% in northern part of Ethiopia. Since it is a skin disease, it may have its own contribution for the condemnation and low quality of skin of small ruminants whereby farmers could lack revenue due to rejection of skin in market. Its high prevalence may be because of absence of prevention methods.

According to the questionnaire survey as well as cross sectional study, tetanus, an infectious bacterial disease was found to be the common diseases of equines. Its prevalence may be related to continuous contact with infected material and harness. More over it may be due to inadequate treatment and prevention options.

The study also revealed that New castle disease (NCD) was identified as a popular and economically significant infectious viral disease of chickens in the study area. It was also reported by Dessie and Jobre (2004) that NCD was the single major health constraint, which cause heavy mortality and morbidity to village chicken and affects productivity in the country. Its frequency in the *Woreda* is related to absence of control and prevention methods.

Since chicken owners did not bring diseased chicken to the veterinary clinics, chickens were not included in the cross sectional study

However, interviewees strongly complained that NCD is very important chicken disease.

4.2. Parasitic Diseases

The findings of this study indicated that parasitic diseases remain as causes of mortality, loss of production, hide and skin rejection, predispose animals to many infectious diseases. Among the

endoparasits, *Fasciola* ranks first mainly in sheep, goats and cattle. It is assumed to be the highest cause of organs condemnation, particularly liver (Personal communication, 2007).

A high prevalence of fasciolosis was reported by Ameni (2004) in north east Ethiopia.

The prevalence of fasciolosis is mainly due to the fact that the intermediate host (snail) may be found in the wide marshy area which has 1000 hectare land coverage in the Woreda (OoARD, 2006) that favors the development and survival of the infective stage, metacercaria. It could also be because of low vector and parasitic control.

It is well understood that ectoparasites are important economical diseases that affect hide and skin quality. Different works showed that tick and mange mites are the most common economically important ectoparasites affecting all animals in general and large and small ruminants in particular. Reports of Tesfahiwet (2004) and Asfaw (1999) indicated that tick burdens were observed in Adaa liben *Woreda* and Borena province of Ethiopia, respectively. The problem of mange (Figure1,d) mite was also reported by Tesfahiwet (2004) in Adaa liben *Woreda*, central Ethiopia and Legesse(1996) in northern Ethiopia. Their high occurrence may be related to high temperature during the dry season which favors their reproduction and attachment to the animal. It may also be due to lack of coordinated control scheme with in and among neighboring *Woreda*.

The other parasite which respondents indicated during the interview as important health problem is leech (Hurdiasis). Leech is a blood sucking parasite that attach to the pharynx part of the oral cavity while animals drink leech infected water sources, especially during the dry season when water is no more available. Leeches due to its blood sucking nature, is responsible for losses of large amount of blood within a short time resulting in anemia and related disorders.

Trypanosomosis and babesiosis were also identified as major protozoan parasitic diseases of cattle and camel health problem. Shewit (2004) indicated that trypanosomosis was an important cattle disease in Gibe valley, south Ethiopia.

Results of the questionnaire survey showed that lice infestation (pediculosis) was indicated as a cause of death, loss of vision and reduce production in many chickens in the study area at the smallholder farmer level. This may mainly be due to poor hygienic conditions and lack of regular spray of the chickens and their house.

4.3. Miscellaneous Diseases

The findings in this study indicate that diseases of undifferentiated causative agents and traumatic cases are the other health problems of livestock in the *Woreda*. Complex respiratory problem is the other common health problem from the miscellaneous diseases. This result also agrees with reports of Ayelet *et al.* (2004) where complex respiratory disease is the major health problem in north Shoa, central Ethiopia. The high occurrence may be explained due to climatic stress, malnutrition, maltreatment (tradional) i.e. drenching.

Calf diarrhea is the second miscellaneous diseases that affect principally new born calf. Calves could be infected by environmental bacteria such as *Eshershi coli*, *Salmonella* species as well as virus like rota virus, corena virus, and feed change.

Bloat and circling disease are also identified as major health problems of livestock in the area. Bloating is the common gastrointestinal disorder that causes sudden death of ruminants and it could be suggested that bloat occurs in the study area when animals graze lush grass in and around the marshy area which is found in the *Woreda*. It may also occur due to anatomical disorders like esophagus obstruction. Circling disease is a major problem of small ruminants in the area. It most probably is caused due to coenerus cerebrals because respondents confirmed that they frequently found the cyst when they open the head of dead animals. In addition, circling disease could be brought about by infection like listeriosis, encephalitis (Aiello *et al.*, 1998).

Abortion is the other miscellaneous problem identified as economically important health problem of livestock in general and small ruminants in particular. Different factors could be mentioned here as triggering factors. In the study area climatic conditions like dryness, high temperature and feed shortage besides diseases, could be the once responsible to cause abortion in pregnant

animals. Abortion most frequently occurs in the dry season. More over physical damage could result in abortion when animals are crowded under shed and watering points.

The study revealed that equines and camels also suffer from miscellaneous diseases. Back /sore and colic are the most frequent problems affecting equines in the study area (Figure1, a). Back sore may be caused when equines (donkeys and mules) bear huge load frequently without rest and without comfortable harness. Besides, equine owners may be reluctant to treat and give rest to their donkeys and mule suffering from back sore. This result is in agreement with findings of Girma (2004) in Jimma. The second miscellaneous disorder or syndrome was colic. Colic is an acute syndrome with multifactorial etiology of which gastrointestinal disorder; vulvulos, strangulation and parasites like *Strongylus vulgaris* for colic. These causes may result from heavy work load and physical damage (Colahan, 1999).

According to this study traumatic/wound is the leading cause of miscellaneous diseases in the camel. Infected fighting wound, puncture wound caused by thorn, wounds from predators, saddle sores, micro lesions caused by ectoparasites are the various wound types encountered in the camel (Schwartz, 1992). The extent of the wound is believed to be exacerbated by traditional treatment, cauterization. Micro wounds are caused by when camels graze and chew Cactus (Belles) which is a thorny and common feed of camel in the study area.

Respiratory problem is observed to be a major health constraint of camels causing death and decreased work out put. It could be associated with high temperature and aridity of some the parts of Woreda. Various lower respiratory tract disease conditions of camels are reported (Schwartz, 1992). Similarly, in this study respiratory disease complex, pneumonia which is locally named as 'Buhe' was also identified as a major disease in the camel.

Figure 1: Lesions and syndrome which were observed during the cross sectional study.

a. Colic syndrome



b. Vaginal prolapse



c. Arthritis/
Local abscessation



d. Loss of hair (alopecia) due to Mange mite, e. Nodular and eruptive lesions of LSD.
Sample (skin scrape) is being taken for laboratory examination and it was found psorcoptus positive
this ox was suffering from LSD and after treatment it is becoming to recover.

5. CONCLUSION AND RECOMMENDATIONS

This study revealed that principally the economy of most of the community of Alamata *Woreda* is crop and livestock mixed agriculture, of which livestock that includes large and small ruminants, equines and camels are the major species raised. Livestock in the *Woreda* have a number of uses, they serve as draught power, source of food, means of transport, source of manure (Organic fertilizer), source of cash (they are 'near- cash' resources). Despite those advantages, livestock of the *Woreda* are facing many problems. Livestock health problem is the fore front problem of market oriented livestock development extension programs in the study area. Infectious, parasitic and miscellaneous diseases are the leading causes of mortality, production losses, reduce growth rate, reduce reproduction ability of animals, down grade of livestock products (hides and skins) and food borne diseases were principal problems.

Based on the above conclusion the following recommendations are forwarded

- To control, prevent and eradicate economically important livestock diseases; animal health (veterinary) services should be restructured, expanded and strengthened.
- Animal health professionals should be trained at large scale, field animal professionals should get continuous on job refreshment courses so that they can diagnose and treat diseases easily.
- Drug and veterinary medications supply should be regular and adequate.
- Understanding of the indigenous knowledge of animal owners about animal health should be addressed.
- To identify and isolate the causative agents of diseases; referral laboratories should be established at least at zone level and there fore diagnosis of livestock diseases at field will be easier to practitioners.
- Detail epidemiological survey on major economically important diseases of livestock is recommended to undertake.
- It is paramount importance to produce and document information about animal health aspects which are undertaken at the *Woreda*.

- Animal feed development packages should be scaled up to halt feed shortage and intern reduces animal health problems.

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7. ANNEX