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Assessment of Major Animal Production and Health Problems of Livestock Development in Lay-Armacheho District, Northwestern Ethiopia

[1]Nibret Moges and [2]Basaznew Bogale

[1]Department of Veterinary Clinical Studies, Faculty of Veterinary Medicine,
University of Gondar, P.O. Box: 196, Gondar, Ethiopia
[2]Department of Veterinary Paraclinical Studies, Faculty of Veterinary Medicine,
University of Gondar, P.O. Box: 196, Gondar, Ethiopia

Abstract: A study was conducted to identify the major animal production and health problems in Lay-Armacheho district, Northwestern Ethiopia from July 2010 to June 2011. Questionnaire survey and case observational study methods were carried out for data collection. In the questionnaire survey, 100 livestock owners were interviewed. Respondents confirmed that the most important diseases affecting calves and heifers were pneumonia (32.48%) and calf diarrhea (23.93%), while trypanosomosis (39.13%), fasciolosis (30.43%), anthrax (20.65%), lumpy skin disease (11.38%) and mange (11.38%) were common in adult cattle. Mastitis (4.35%) was also common in cows. Fasciolosis, pasteurellosis and goat pox were regarded as the most important disease in sheep and goats. Colic was the most important disease followed by respiratory problems and anthrax in equines. Furthermore, Newcastle disease (92.00%) was considered as the most important disease in poultry. A total of 934 diseased animals were diagnosed based on clinical and laboratory examination. Among the diseases which were diagnosed, fasciolosis (32.45%), gastrointestinal parasitism (14.66%), anthrax (10.54%), blackleg (9.56%), pasteurellosis (7.91%), lumpy skin disease (5.60%) and trypanosomosis (2.31%) were the most frequently observed diseases in cattle. In sheep and goats, respiratory problems (63.45%), fasciolosis (37.80%), gastrointestinal parasitism (24.39%), Orf (21.38%), sheep and goat pox (17.07%) and retained fetal membranes (15.17%) were commonly encountered diseases. In equines, strangle (49.15%), epizootic lymphangitis (32.20%) and eye infection (18.64%) were found to be common diseases. Results indicated that shortage of animal feeds and livestock health problems are the major constraints for livestock development in the area. There is a need for expansion of veterinary services, introduction of alternative animal feed sources and detailed epidemiological study.

Key words: Lay-Armacheho. Livestock · Health problem · Ethiopia

INTRODUCTION

Livestock production constitutes one of the principal means of achieving improved living standards in many regions of the developing world. Animal production has been considered as the main component of agricultural development in most parts of sub-Saharan Africa. In these countries livestock plays a crucial role both for the national economy and the livelihood of rural communities. It provides drought power, milk and meat, input for crop production and soil fertility and raw material for industry [1].

In tropical areas, livestock health problems are high due to environmental factors like high temperature and humidity, topography structure of sloppy area exposed to flood so easy to infect soil borne diseases, stress factors, drought and poor animal health services [2]. Livestock in great horn of Africa is vital resource in promoting development. They provide 20-30% of the Gross Domestic Production (GDP) and at the farmer level as much as 70% of cash income is generated from livestock [3].

Ethiopia is known for its high livestock population, being the first in Africa and tenth in the world. The recent livestock population estimates that the country has

Corresponding Author: Nibret Moges, Department of Veterinary Clinical Studies, Faculty of Veterinary Medicine, University of Gondar, P.O. Box: 196, Gondar, Ethiopia.

about 44.3 million heads of cattle, 23.6 million sheep and 23.3 million goats [4]. Despite the large number of livestock in Ethiopia the sector is characterized by low productivity and, hence, income derived from this sector could not impart significant role in the development of the country's economy [5]. The low productivity is attributed to the low genetic potential of indigenous cattle, poor nutrition and reproductive performance, inadequate management, high disease incidence and parasite burden [6]. Reports of different workers from different parts of the country indicated that livestock production is constrained by different factors. However, such information lacks in the present study area. Therefore, the objective of this study was to assess the major animal production and health problems in Lay-Armacheho district, northwestern Ethiopia.

MATERIALS AND METHODS

Study Area: The study was conducted in five selected peasant associations (PAs) of Lay-Armacheho district, northwestern Ethiopia from July 2010 to June 2011. The altitude of the district ranges from 1108-1860 meters above sea level with irregular topography of mountains, marshy areas and steeply slope parts. The district has three agro-climatic zones: lowland (32%), midland (32%) and highland (7%) with one long rainy season that extends from early June to late October with the mean annual rainfall of 1200-1500 mm and mean temperature of 18-28°C. The livestock population of the area includes 40,056 cattle, 27.814 sheep, 64.785 goats, 2.224 equines, 13.786 chickens and 14.639 traditional, transitional and modern beehives respectively [2].

Study Animals: A total of 934 diseased animals (607 cattle, 145 goats, 82 sheep, 59 equines and owned by selected households and animals presented to Tikil-Dengay veterinary clinic having different health problems during the study periods were considered as study animals. All species of animals were local breeds kept under traditional management system. The study animals were comprised of different age groups and both sexes.

Sampling Procedure: In the present survey, 5 PAs namely: Shumara-lomye, Kerkere-Balegzabher, Ayenetwoha, Jeha and Adisgaye were selected purposively based on accessibility to transport and agro-ecological differences. From each PA 20 households were randomly selected which then made a total of 100 households to be included in the study. All livestock owned by the sampled households were considered as study animals which comprise cattle, goats, sheep, equines and poultry.

Data Collection: A detailed and organized questionnaire format was designed in an attempt to generate base line information related to livestock production 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 a way that farmers could give information that are recent and easy to recall and it was filled directly by interviewing randomly selected livestock owners from different villages of the five PAs. Informal group discussion with animal health staffs had also been held to generate relevant information about livestock health problems in the study area.

Case Observational Study: A total of 934 diseased animals which include 607 cattle, 145 goats, 82 sheep, 59 equines and 41 poultry were examined in the Tikil- Dengay veterinary clinic during study period to asses and address the most frequently appearing clinical diseases that affect for livestock development. The cases were tentatively diagnosed based on history; clinical findings and laboratory procedures.

Data Analysis: The data collected in the study was stored in the Excel Microsoft and descriptive statistics was employed to summarize the data.

RESULTS

Demographic Features of Respondents: The majority of respondents were male (93%) and the rest female (7%). The maximum and minimum ages were 81 and 17 years. Regarding education status, 85% of respondents are illiterate. Respondent's family size proportion showed that 42.95% and 57.05% have family members less or equal to 15 years of age and greater than 15 years of age respectively.

Livestock Herd Size and Composition: Cattle comprise the largest proportion of the livestock herd, followed by goat, sheep, poultry and equines respectively. Castrated ox (27.88%) dominated the most shares of cattle herd followed by heifer (22.7%). Meawhile, small ruminants flock is composed primarily of female animals representing 59.18% in goats and 52.38% in sheep.

Livestock Management: Regarding housing and breeding, 64.9% of the respondents house their animals separately in simple shed, which does not protect the animals from sun/ cold /rain while 35.1% of the respondent's house animals (poultry, small ruminants) with the owners in communal house. Regarding cattle breeding, 92.59% and 6.1% 1.31% of the respondents use uncontrolled natural breeding while 1.31% breed by AI service.

Watering: The major sources of water mentioned by farmers were river (86.34%) followed by temporary wells (13.66%). There were water shortage from January to May in the study area.

Feeding: Cereal straws (100%) and natural pasture (95%) were the most frequently used resources in the study area. Strove was also significantly used in the area (76.25%).

Treatment and Prevention: Regarding to treatment, 82.6% of the peasants use modern treatment and 17.4% use traditional treatment to cure/ treat diseased animals. To prevent and control livestock diseases, specially infectious and parasitic diseases 58.1%, 1.85%, 0.85% and 39.2% of the respondents vaccinate, slaughter, quarantine, use other options like deworming or do nothing, respectively.

Veterinary Service: From the respondents 41.9% have an access to modern veterinary services and 58.1% have not. Majority of respondents argue that there is lack of manpower as compare to livestock population of the district and lack of veterinary clinics in nearby.

Major Diseases of Livestock: Respondents complained that many infectious, parasitic and miscellaneous diseases are the major health problems of livestock, which cause deaths and production loss. They also indicated that the disease dynamic is aggravated by many factors like feed shortage, inadequate Veterinary service, season and agro ecological.

Respondents confirmed that diseases are the main constraints of their livestock production. The most prevailing diseases affecting calves and heifers were pneumonia (32.48%) and calf diarrhea (23.93%), but for cows trypanosomosis (39.13%), fasciolosis (30.43%), anthrax (20.65%), mastitis (4.35%) and male cattle was trypanosomosis (36.59%), fasciolosis (27.64%), lumpy skin disease (11.38%), anthrax (13.00%) and mange (11.38%). In addition, sheep were also affected by fasciolosis (32.39%), pasteurellosis (30.33%) and sheep pox (27.87%).

In small ruminants, fasciolosis was regarded as the mostimportant disease. Pasteurellosis and goat pox were the second most important diseases in sheep and goats respectively. Colic was the most important disease followed by respiratory problems and anthrax in donkeys. Furthermore, Newcastle disease (92.00%) and lice infestation (8.00%) were considered as the most important disease in poultry.

Table 1: The most frequent diseases of cattle mentioned by respondents

	Their relative degree of importance				
Disease	1st	2nd	3rd	Percentage (%)	Overall rank
Calves					
Pneumonia	20	11	7	38(32.48)	1
Calf diarrhea	13	9	6	28(23.93)	2
Pediculosis	6	8	4	18(15.38)	3
Heifers					
Fasciolosis	9	11	14	34(45.33)	1
Lumpy skin disease	3	6	8	17(22.67)	2
Anthrax	7	5	1	13(17.33)	3
Mange	2	5	4	11(14.67)	4
Adult cattle					
Trypanosomosis	20	11	5	36(39.13)	1
Fasciolosis	17	9	2	28(30.43)	2
Anthrax	6	10	3	19(20.65)	3
Mange		6	8	14(11.38)	4
Lumpy skin disease	7	4	3	14(11.38)	4
Mastitis (cows)			4	4 (4.35)	5

Table 2: Major diseases of sheep and goats mentioned by respondents

	Their relative degree of importance				
Disease	1st	2nd	3rd	Percentage (%)	Overall rank
Fasciolosis	20	12	8	40 (32.39)	1
Pasteurellosis	19	14	4	37(30.33)	2
Sheep pox	15	9	10	34(27.87)	3
Dermatophylosis (goats)	6	4	1	11(9.02)	4
Orf	10	5	2	17(22.08)	5
Tick infestation	2	1	1	4(5.19)	6

Table 3: Major diseases of equines and poultry mentioned by respondents

	Their relative degree of importance				
Disease	1st	2nd	3rd	Percentage (%)	Overall rank
Equine					
Colic	10	7	2	19(51.35)	1
Respiratory problems	6	4	1	11(29.73)	2
Anthrax	3	2	2	7(18.92)	3

Table 4: Major diseases diagnosed at veterinary clinic

Disease	Bovine	Caprine	Ovine	Equine
Anthrax	64(10.54)	-		
Blackleg	58 (9.56)	-		
LSD	34(5.60)	-		
Pasteurellosis	48(7.91)	-		
Fasciolosis	197(32.45)	-	31(37.80)	
Mastitis	13(2.14)	-		
Sheep &Goat Pox	-	-	14(17.07)	
NCD	-	-		
Gi Parasitism	89(14.66)	-	20(24.39)	
Mange Mites	19(3.13)	-		
Pediculosis	5(0.82)	-		
Respiratory Problem	13(2.14)	92(63.45)	17(20.73)	
Lamness	49(0.66)	-		
Bloat	11(1.81)	-		
Leech	9(1.48)	-		
Orf	-	31(21.38)		
Retained Fetal Membrane	12(1.98)	22(15.17)		
Dystocia	6(0.99)	-		
Ringworm	2(0.33)	-		
Eye Infection	39(0.49)	-		11(18.64)
Epizootic Lymphangitis	-	-		19(32.20)
Strangle	-	-		29(49.15)
Streptothricosis	6(0.99)	-		
Trypanosomosis	14(2.31)	-		
Total	607(64.99)	145(15.52)	82(8.78)	59(6.32)

Case Observational Study: A total of 934 diseased animals (607 cattle, 145 caprine, 82 ovine, 59 equine and 41 poultry) were diagnosed based on clinical and laboratory examinations at district veterinary clinic. Among the diseases which were diagnosed fasciolosis (32.45%), gastrointestinal parasitism (14.66%), anthrax (10.54%) and blackleg (9.56%), pasteurellosis (7.91%), lumpy skin disease (5.60%) and trypanosomiasis (2.31%) were the most frequently observed diseases in cattle. In goats, respiratory problem (63.45%), orf (21.38%) and retained fetal membranes (15.17%) were the most common diseases while in sheep fasciolosis (37.80%), gastro intestinal parasite (24.39%) and sheep pox (17.07%) were most commonly encountered. In equines, strangle

(49.15%), epizootic lymphangitis (32.20%) and eye infection (18.64%) were commonly encountered. Among the diseases which were diagnosed in poultry, Newcastle disease (80.48%) and pediculosis (19.52%) were the most frequently observed ones.

DISCUSSION

This study revealed that farming system in Lay-armacheho district is mixed crop livestock production system, of which livestock herd is dominated by cattle and goats. Livestock feeding was based on farm feed recourses (crop residues or natural pasture). Livestock plays a great role in the livelihood of the farmers in the area, which is used as a main source of income (they are 'near-cash' resources) and as a food source in addition to supporting crop production. Despite these advantages, shortage of animal feeds/ grazing land and livestock health problem are the fore front problems of livestock development in the area.

You have to mention if there are endemic diseases, why these diseases affect animals and mention the bad habits leading to spread of disease and the control measures undertaken.

Anthrax and Blackleg were the most important diseases mentioned by farmers. The importance of Anthrax and Blackleg was also reported by author [7] in the Ginchi watershed area. Lumpy skin disease (LSD) was also among the important disease in different group of cattle in the study area. Other reports also showed that lumpy skin disease was also common in Alamata woreda and Alaba Woreda [8].

In small ruminants, pasteurollosis is one of the most important diseases mentioned by farmers as well as third and second in case observational study in sheep and goats respectively. This is in agreement with the result of [9]. Fasciolosis was also among the important diseases in different group of cattle in study area. A high prevalence of fasciolosis was reported by Ameni *et al*. [10] in North East Ethiopia.

In the present study calf diarrhea caused by *E. coli* is mentioned by farmers as a serious health problem affecting calves. Tariku [11] reported prevalence rate of 28.2% in Aba Samuel dairy farm, North Gondar. Several factors affect the health and vigor of the calf in the early period of calf hood. Among these factors, inadequate feeding of colostrums, hygiene and environmental conditions are the most important. Equine colic is one of the important diseases mentioned by respondents. This is attributed to poor management specially poor care of the teeth, feeding of equines with feeds that cannot digested results in an impaction of food material and heavy infection with intestinal helminthes especially strongyles [12].

CONCLUSION AND RECOMMENDATION

In conclusion, results indicated that shortage of animal feeds and livestock health problems are the major constraints for livestock development in the area.

Based on the above conclusion the following recommendations are forwarded:

- There is a need for expansion of veterinary services, introduction of alternative animal feed sources and detailed epidemiological study.
- Awareness creation for the local farmers about the control of animal diseases is essential.
- Further detail study should be done to assess the status of the animals.
- Livestock owner need to be introduced with the basic knowledge of nutritional and animal health management.
- Development of proper animal health delivery system that could be extended to all livestock owner.

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