

PREVALENCE OF DISEASES AMONG SHEEP AND GOATS IN EDO STATE, NIGERIA

AUGUSTINE OMOIKE

ABSTRACT

Clinical records of small ruminant (Sheep and Goat) diseases treated were collected from the veterinary clinics, Ministry of Agriculture and Natural Resources of three Local Government areas in Edo state, for a period of five years (1997-2002). To identify the disease occurrence and prevalence as it militates against the growth of these animals in these sub-humid areas. The total numbers of small ruminants treated were 316 having 25 cases of Sheep and 291 cases of goats. Diarrhoea accounted for 20 & 12.4%; helminthiasis 20 & 13.4% and Pneumonia 16 & 20.3% for sheep and goat respectively. Pneumo-enteritis, mange, anorexia, wound and kata were common among goat while, pneumo-enteritis; helminthiasis and wound were among sheep. Goat diseases prevalence showed much occurrence of pneumonia, helminthiasis and diarrhoea. While, sheep was more of diarrhoea, helminthiasis and pneumonia respectively. The statistical analysis of the clinical treatment data using a three-factor analysis of variance revealed that animal type and disease were significant ($p < 0.05$), while, the diseases occurrence due to the local government area was not significant ($P < 0.05$). The disease occurrence strictly depended on the type of disease and species of the small ruminant. Profitable and efficient animal development in these local government areas and other areas with similar conditions, call for re-sensitization towards adequate small ruminants' health care management programmes especially semi-intensive method with regular deworming; both governmental and non governmental contribution by funding research on the improvement of indigenous breed.

Key words: diseases, occurrence, Sheep and Goats, Veterinary Clinics.

INTRODUCTION

Sheep and goats are among the first animals to have been domesticated and have been raised by man for food and clothing for many centuries; could be used as poverty eradication by small resource holders and for food security in Nigeria, because of the alarming geometrical population growth; as goats in Uganda are an important source of meat, milk, skins, cash, manure, savings and sociocultural values (Magona and Musisi, 1999). Small ruminants form an integral and important component of the pattern of animal production in Asia (Devendra, 1986). They still remain popular among the rural populace and the resource poor people. In the study of Devendra and Burn (1983) quoted by Devendra (1986) the importance of small ruminants is primarily associated with their small size, which is significant for the advantage of mankind as it favours low investment, smaller risk of loss, preference over large ruminants for food and reproductive efficiency and economic use of the available land. IBAR (1978) revealed that 89% of the world's goat population is situated in the tropics. The distribution of sheep and goats in Africa is not even and numbers of flock size tend to be higher in the drier areas than the humid areas (Otchere, 1986) while, earlier, Devendra (1981) cited by Stemmer et al (1998) stated that goats are however widely distributed in the humid tropics accounting for 58% of the total world population; according to World Almanac Education Group (2003), Nigeria has livestock of 24 million goats, 13.5 million sheep and 15.7 million cattle, while Mohadi (2002) stated that goats are 34 Million and sheep are 24 Million. Milk from this group of animal is highly reputed, for its dietetic value and so highly recommended for consumption in Europe and the Asian Sub continent. However, this is not popular in Nigerian because of some resentment with regards to alleged strange odour (Joy and Wimberley,

1981). Despite these animals wide importance and apparent advantages especially in the livelihood of small resource holders, these species have not been accorded adequate attention in Nigeria

In most countries, especially in the developing countries like Nigeria, sheep and goat diseases constitute a major limiting factor in small ruminant production. Nevertheless, this factor can greatly be reduced if not completely eliminated. It is estimated that Nigerian loses about 15% to 20% of its annual income from the livestock sector due to livestock diseases (Akerejola, 1980) and that diseases associated with enormous economic losses as a result of morbidity and mortality (Egbe-Nwiyi et al, 1999). Therefore small ruminant development should have as its primary objective the elimination and reduction of incidence of diseases. Williamson and Payne (1985), Magona and Musisi (1999) reported that disease is generally recognized as the major constraints in sheep and goats production in the humid zone while, Phiri et al (1998) cited Phiri (1998) that helminthes in livestock are a major cause of production losses in the livestock industry. Environment may be more important either as an actual cause or as a deciding factor in the severity of a disease. Where a number of causes are involved, the significance of each may be denoted by the words predisposing, exciting and contributory (Parker, 1980). Little or no supplementary feeding and inadequate housing during harsh weather as these animals scavenge for food in Edo State therefore, predisposes these small ruminants to diseases. According to Hall (1986) predisposing factor is the large number of management or environment drawbacks, which causes stress in an animal, such as calving, high temperature or humidity, unclean surroundings. Future researcher with these animals should look towards adapting them to tropical environment. The need to identify clinical diseases, which could undermine the efforts of investing in small ruminants production as proposed by FAO (Food and Agricultural Organization) and WHO (World Health Organization) therefore arises (Akerejola, 1980). The objective of this research is indeed to identify the disease occurrences and its prevalence besides socio-cultural factor to enhance prevention, control of this factor militating against high production of these species. As Economides (1983) had long suggested that disease and health problems of sheep cannot be controlled or prevented if they are not identified.

METHODOLOGY

The study was carried within the catchment's area of these three Local government headquarters: Esan West Local Government, Ekpoma; Etsako West Local Government, Auchu and Esan South East Local Government, Ubiaja, in Edo State of Nigeria, within latitudes $7^{\circ} 02''N$ and $5^{\circ} 08''S$ as well as longitudes $6^{\circ} 14'' E$ and $7^{\circ} 14'' W$, these areas are characterized by a vegetation of dense savanna woodland comprising tall grasses, high forest trees with an average annual rainfall of 850mm, with a population of 89,628; 126,112 and 130,984 respectively (Federal Gazette 1991 and Esan West L.G. Secretariat Census 1991) Because the conditions in these local government areas in term of existing weather and small ruminants production cut across the entire state.

Data and information were obtained from case files of diagnosed small ruminants within the period of 1998 to 2002 from veterinary clinics. Available data contained daily treatment figures of the different diseases treated at the clinics and oral interview of personnel in the Ministry of Agriculture and Natural Resources and the stock holders (farmers) on disease occurrence of small ruminants in the three Local Government Areas under study, to re-evaluate the data collected. Twenty respondents were selected randomly from each local government headquarter and two other adjoining neighbouring villages, in the studied areas. The data was analyzed using the three-factor analysis of variance according to Montgomery (1984).

RESULTS

Table 1: Reported cases of small ruminants' disease at veterinary clinic in Etsako West L.G.A

DISEASE/ANIMAL	1998		1999		2000		2001		2002	
	S	G	S	G	S	G	S	G	S	G
Diarrhoea	1	3	0	0	0	0	0	2	1	3
Pneumonia	1	5	0	2	0	3	0	4	1	7
Pneumoenteritis	0	8	0	9	1	1	0	3	0	4
Helminthiasis	0	7	1	0	0	9	1	0	2	2
Mastitis	0	0	0	1	0	2	0	0	0	1
Scouring	1	1	0	0	0	1	0	2	0	0
Wound	0	3	2	2	0	1	0	1	0	0
Kata (PPP	0	2	0	0	0	1	1	3	0	0
Conjunctivitis	0	1	0	0	0	0	0	0	0	1
Sore foot	0	1	0	0	0	0	0	0	0	3
Mange	0	0	0	1	0	3	0	7	0	4
Anorexia	0	2	0	0	0	0	0	1	0	3
Bloat	0	1	0	0	0	0	0	0	0	0
Abscess	0	1	0	0	0	0	0	3	0	1

Table 2: Reported cases of small ruminants' disease at veterinary clinic in Esan South East L.G.A

DISEASE/ANIMAL	1998		1999		2000		2001		2002	
	S	G	S	G	S	G	S	G	S	G
Diarrhoea	-	4	0	5	0	1	0	2	1	3
Pneumonia	1	5	0	7	0	3	0	2	0	6
Pneumoenteritis	0	0	2	0	0	0	0	0	0	4
Helminthiasis	0	3	1	4	0	5	0	5	0	3
Mastitis	0	0	0	0	1	0	0	0	0	0
Scouring	0	0	0	0	0	0	0	0	1	2
Wound	0	1	0	2	0	1	0	2	0	0
Kata (PPP	0	0	0	0	0	0	0	0	0	0
Conjunctivitis	0	1	0	1	0	0	0	0	0	0
Sore foot	0	0	0	0	0	2	0	0	0	0
Mange	0	2	0	0	0	1	0	4	0	4
Anorexia	0	0	0	0	0	3	0	0	0	0
Bloat	0	0	0	0	0	0	0	0	0	0
Abscess	0	0	0	0	0	2	0	0	0	0

Table 3 Reported cases of small ruminants' disease at veterinary clinic in Esan West L.G.A

DISEASE/ANIMAL	1998		1999		2000		2001		2002	
	S	G	S	G	S	G	S	G	S	G
Diarrhoea	0	1	2	3	0	4	0	1	0	4
Pneumonia	1	6	0	5	0	6	0	4	0	4
Pneumoenteritis	0	0	0	0	0	0	0	0	0	4
Stomatitis	0	1	0	0	0	0	1	1	0	1
Mastitis	0	2	0	1	0	0	0	0	0	0
Dystocia	0	0	0	2	0	2	0	1	0	2
Wound	0	1	0	0	0	0	0	0	1	0

Kata (PPP	0	0	0	1	0	0	0	0	0	0
Conjunctivitis	0	3	0	0	0	0	0	0	0	0
Sore foot	0	1	0	0	0	0	0	0	0	0
Mange	0	0	0	0	0	0	0	3	0	1
Anorexia	0	0	0	1	1	0	0	0	0	1
Blindness	0	0	0	1	0	2	0	0	0	0

Key

S:Sheep

G:Goat

Table 4 Analysis of variance table

Source of Variation	df	SS	MS	Fcal	Ftab
Total	59	269.4	-	-	-
Disease	1	17.07	17.07	11.30	4.04*
Animal Type	1	153.6	153.6	101.72	4.04*
Local Govt. Area	2	1.9	.95	.63	3.19N.S
Disease X Animal type	1	19.26	19.26	12.75	4.04*
Disease X Local Govt.	2	.63	.315	.21	3.19NS
Animal X Local Govt.	2	3.7	1.85	1.23	3.19NS
Disease X Animal X Local Govt.	2	.84	.42	.28	3.19NS
Error	48	72.4	1.51	-	-

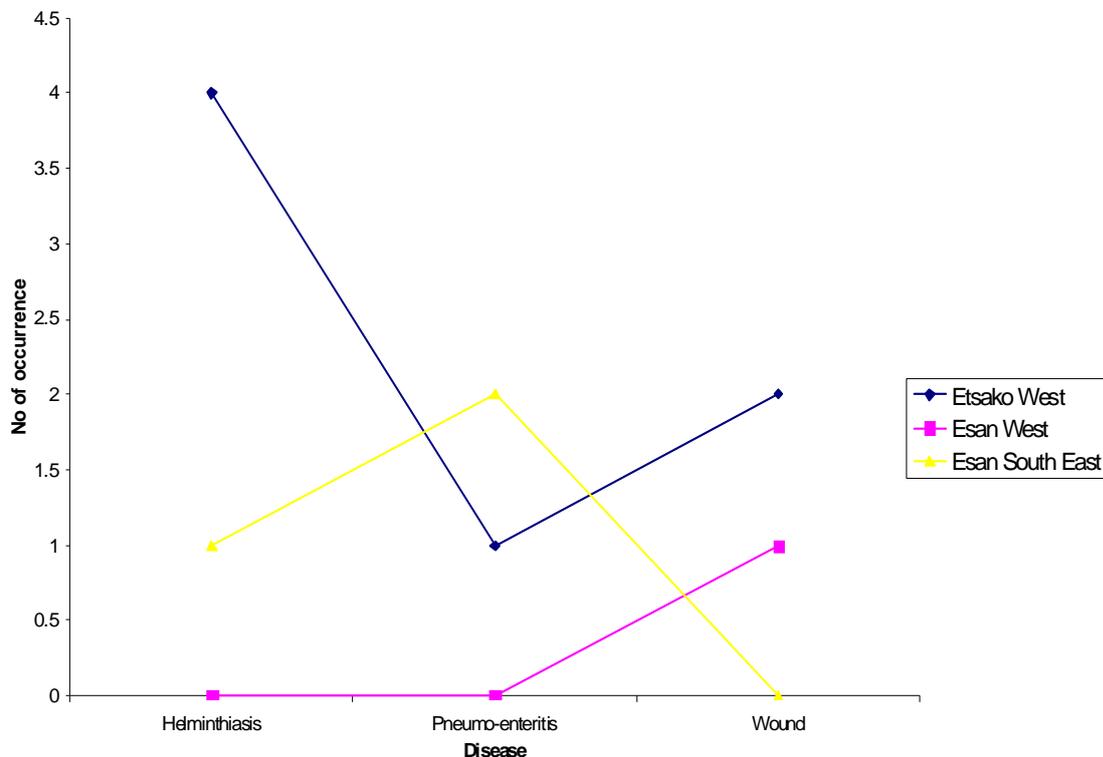


Fig 1 Prevalent diseases of sheep in the study area

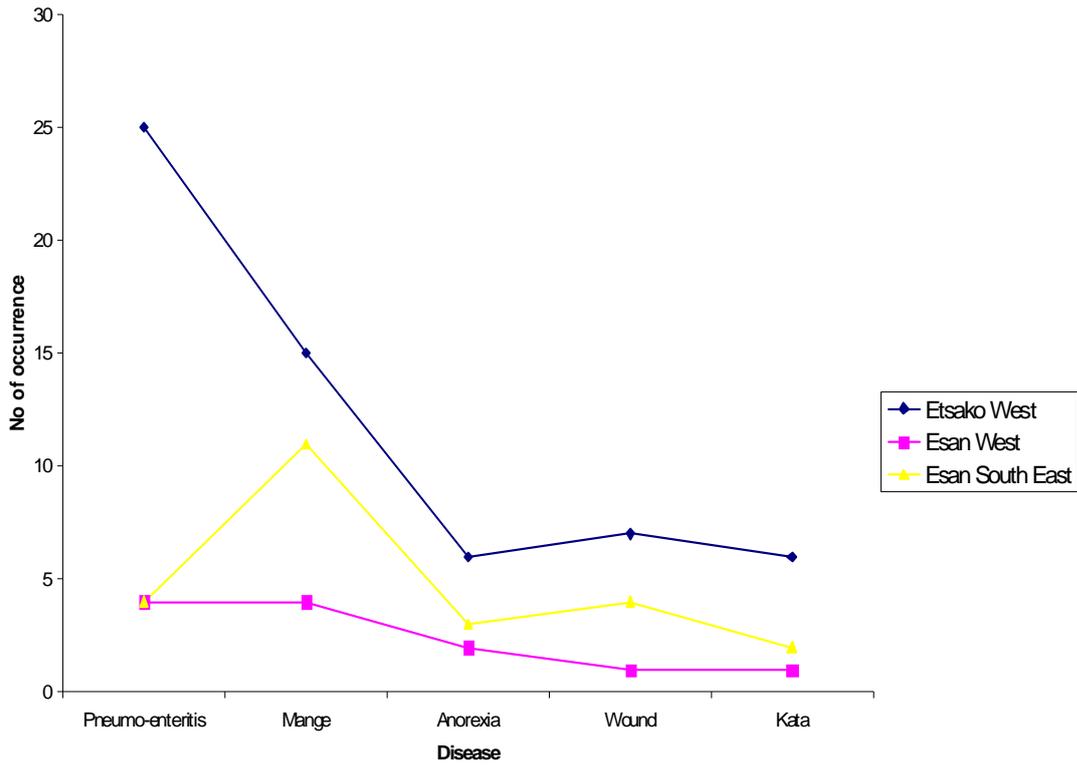


Fig 2 prevalent diseases of goat in the study area

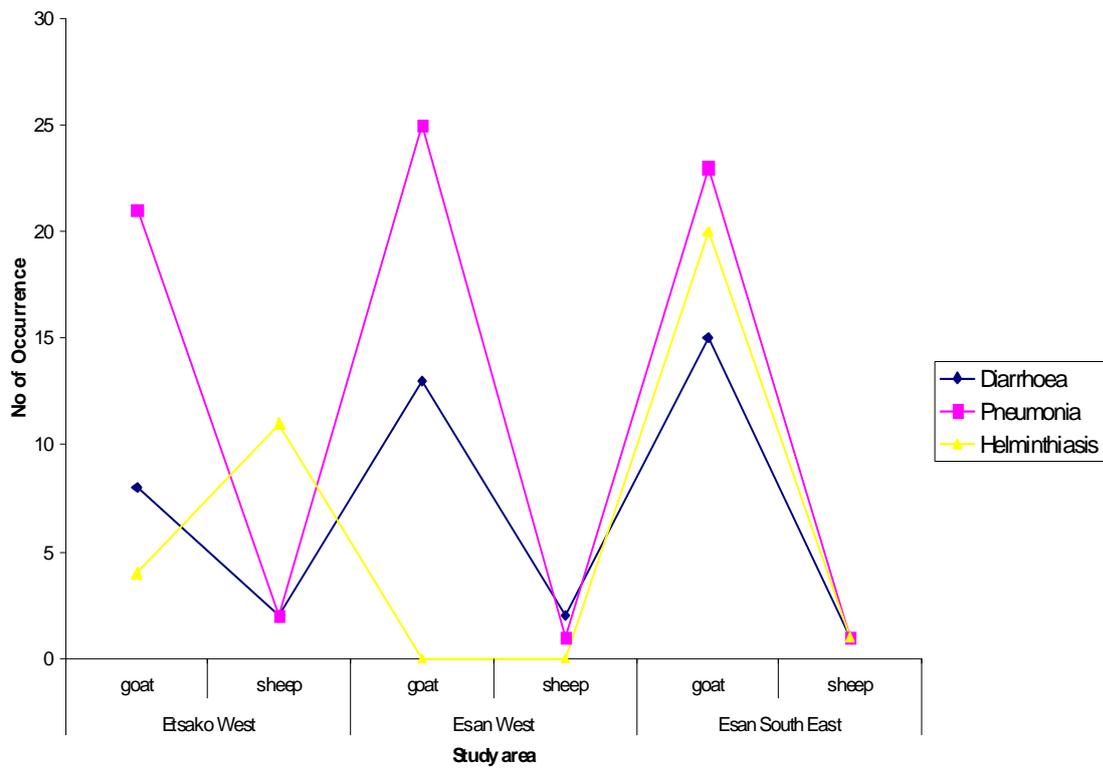


Fig 3 Prevalent diseases among sheep and goat in the study area

DISCUSSION

The prevalent small ruminants' diseases encountered by farmers in Etsako West area and its neighbouring villages were pneumoenteritis, pneumonia and helminthiasis; other diseases were encountered but too minimal to attract attention. However, mange is equally posing a threat while, helminthiasis was serious among sheep; Pneumonia was among goats as shown in Table 1. Goats were generally affected. The prevalence of pneumonia, helminthiasis and diarrhoea were recorded among sheep and goats, as mange is posing a threat in goats, as shown in table 2; while, sheep diseases were minimal among farmers in Esan South East and its environs. The incidence of small ruminants' diseases of pneumonia and diarrhoea were prevalent among farmers in Esan West and its neighbouring villages, especially with goat (Table3). Pneumo-enteritis was high in Etsako West because of the excessive harmattan conditions peculiar to this environment while mange had been found peculiar to the goats in the studied area, this result in skin damage; but considered to be less harmful than internal parasite (Williamson and Payne, 1985). Otchere (1996) stated earlier that helminthiasis and ectoparasitosis are widespread in tropical Africa and both seriously affect the productivity of small animals. Sheep diseases of prevalence were helminthiasis, pneumo-enteritis and wound (Fig 1). Other prevalent diseases of goat were pneumo-enteritis, mange, and anorexia, wound and kata (Fig. 2). Goat diseases prevalence and predominance in these areas showed the occurrence of pneumonia as highest followed by helminthiasis and diarrhoea. Reverse was the case of sheep as diarrhoea and helminthiasis were more pronounced followed by pneumonia (Fig 3). Economides (1983) found that pneumonia could be treated using tetracycline antibiotics to their concentrate ration. It is only practicable when the rural farmers pay more attention to their animals' health and feeding. Therefore, it is an indication of their predisposed nature of these small ruminants to bad husbandry management practices, extensive system, and the prevalence of *Mycoplasma mucooides* organism that causes pneumonia.

Most animals may suffer pneumonia unnoticed except when stressed before they are phenotypically noticed (Hunter, 1996). Predisposition of these small ruminants to filthy environment accompanied by seasonal variation of nutrient availability was the major cause. As weigh gained during raining season and subsequent early dry season is lost through scavenging for feed. Acharya (1986) noted that low protein feeding and total lack of concentrate supplementation during dry season lead to poor performance in rural area. The occurrence of helminthes is a confirmation of the study of Waruiru et al (1995) cited by Magona and Musisi (1999) who attributed helminthosis as one of the greatest single impediment to the development of small ruminants production in the tropics and that the high prevalence of gastro-intestinal strongyle infections in goats especially, in the humid high altitude zone and semi humid zone may be explained by existence of climatic conditions that do support prolonged survival of nematode infective larvae on pasture as in the case of goats in Uganda, supported by Hunter (1996) that certain infectious diseases are triggered by underlying environmental or husbandry factor. Also, according to Ademosun (1994) and Doma et al (1999) cited by Odeyinka and Ajayi (2004) inadequate feeding is a major constraint to ruminant production in tropical Africa. Parasites, especially gastro-intestinal helminthes have long being small ruminant's problem in Nigerian (Beaton, 1937; Chiejina 1986, Urguhart et al 1992; Hunter, 1996 and Nwosu et al 1996 cited by Egbe-Nwiyi et al 1999) as Fabiyi (1970) Observed that Eighty-nine percent of goat examined after slaughter in Zaria were found affected with *Haemonchus* sp. Similar infection rates with *Haemonchus* sp. were observed in goats slaughtered in Kano, Kaduna, Maiduguri, Sokoto, Ibadan, Calabar and Port Harcourt (Okon, 1975).

The occurrence of diarrhoea could be as a result of inflammation of varying degrees caused by the presence of helminthes in the stomach and intestines of domestic animals, and

that certain chronic and few diseases are characterized by diarrhea, as it is important to determine whether diarrhoeic animals have been ill for a long time or not because, it could also be a mere reflection of a temporary change to animals' normal faeces while adapting to a change in diet, but, diarrhea in young livestock is largely caused by toxin producing strains of *Escherichia coli* (Hunter,1996). Though, recorded cases treated and analysed in this study were not classified by age.

Generally, the diseases common to goats were pneumoenteritis, mange, helminthiasis, mastitis, sore foot, conjunctivitis and Anorexia. While, diseases common to sheep were pneumo-enteritis; pneumonia, been equally identified along enterotoxaemia and pasturellosis in Arid and Semi Arid areas (Acharya, 1986), and helminthiasis; The goats were found to be more susceptible to diseases in these areas; Etsako West Local government areas had more cases both in sheep and goat diseases followed by Esan South East local government area.

The severity of these infections determines type and duration of treatment. The effect of the infection is determined by a combination of factors of which the varying susceptibility of the host species, the pathogenecity of the parasite species, the host/parasite interaction and the infective dose are the most important; that the economic losses are closely associated with the extend to which the pathogenic effect of helminth infections influences the production of the individual host (Over et al 1992). Over et al (1992) also estimated that *H. contortus* and *Oe. Columbianum* have the largest and economic impact on sheep and goat production in developing countries as the large lungworm of sheep and goats *Dictyocaulus filarial* and small lungworms of the Protostrongylidae *M. capillaries* and *Protostrongylus rufescens* only has a limited geographical distribution due to the distribution of snail intermediate host.

Though, the reported cases of small ruminants treated were relatively smaller in number compared with the overall population of the available small ruminants in these localities; the reason could be from lack of healthcare concern but for consumption and sales of these animals, though, the treated cases of reported small ruminants diseases at the veterinary clinic is increasing as a result of progressive awareness of animal health in these areas (Table 1, 2 & 3). However, sheep are less popular in these areas except Etsako West local Government area, dominated by the Moslems, who use ram for their Ramadan festivity. Statistically, the results has shown that the disease occurrence was significant ($p<0.05$), that the small ruminant the small ruminants affected by a peculiar type of disease was significant ($p<0.05$), as reflected in Table 4; diseases affecting sheep and goats in these areas are peculiar to it due to the predisposing factors, but, the disease occurrence within the local government areas had equal chances of occurrence beside, the fact that there are little variation in there ecological composition; The disease occurrence due to local government interaction with these animals was not significant ($p<0.05$). The Least Significant Difference (LSD) of disease shows that the goats in these areas could contract goat diseases, but the frequency is different from that of the sheep.

CONCLUSION

This study revealed that pneumonia, helminthiasis and diarrhoea diseases predominates in the three Local Government Areas under study both in sheep and goats, however, their occurrence in these local government areas was largely influence due to the predisposing factor such as the humid conditions and the extensive system of production. That is, area having the same geographical conditions will have its small ruminants exposed with same health problem. Though, other small ruminant diseases are common but not as prevalent as the above mention diseases.

RECOMMENDATIONS

At this juncture, because of the prevalent diseases, there is a strong need for adequate feeding, good housing and regular drenching using anti-helminthes drug, especially at the onset of rainy and dry season for the small ruminants but, not frequently to guide against anthelmintic resistance. As in the cases of two selected goatherds' farmers in Georgia, Southeastern United State of America, who had anthelmintic resistance due to indiscriminate usage of anthelmintics against gastrointestinal nematode (Terril et al, 2001). Furthermore, consolidation of awareness of the important of the veterinary services, in these areas should be embarked upon as soon as possible. Finally, the researchers should look into the upgrading of our indigenous small ruminants as a view to meet the food security of this nation.

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