

SHORT COMMUNICATION

CAUSES OF MORTALITY OF SHEEP IN IBADAN, NIGERIA: A CASE STUDY OF SHEEP AND GOAT UNIT OF IBADAN DAIRY FARM

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ABSTRACT

This study was carried out in an attempt to determine the causes of mortality in sheep in Ibadan, Southwest Nigeria. The result showed that the most common causes of mortality were pneumonia (19.5%), diarrhoea (18.5%) helminthiasis (17.0%), starvation (9.5%) and enterotoxaemia (8.7%). 65.7% of all the 811 deaths recorded occurred during the first six months of life indicating that lambs were more susceptible to infections than adult sheep. More deaths occurred among the females than male sheep. Most deaths occurred during the dry season months of December to February. It seemed that the constraint on sheep productivity imposed by disease can be greatly ameliorated by a combination of improvement of dry season feeding and the prevention of the three major diseases that were together responsible for 55% of all deaths.

Key words: Mortality, Sheep, West African Dwarf

INTRODUCTION

Domesticated small ruminants are important sources of meat in Nigeria. According to David-West (1985), they contribute about 35% of nation's meat supply and are second only to cattle in importance (ILCA, 1993). These animals are prolific; their management is less capital intensive and they can easily be managed in small households. Notwithstanding these production potentials, a major constraint to sheep production is disease. Disease hinders production directly by causing death and indirectly by restricting growth rates and reproductive performance (Adeoye, 1984). A knowledge of the aetiological agents of mortality in small ruminants is then necessary for both the

prevention and management of disease outbreaks with a view to improving sheep production which will in turn increase the supply of animal protein to the growing populace.

MATERIALS AND METHODS

Animals

The study was carried out at the Sheep and Goat unit of the Ibadan dairy farm, Ibadan, Southwest Nigeria, where sheep raised solely for meat production. The flock numbered 305 during the time of study and all animals were of the west African Dwarf breed.

Management

The animals were maintained semi-intensively. They grazed largely on giant-star grass (*Cynodon nlemfuensis*) which was interspersed with legume, *Centrosema pubescens*. Maize-based concentrate was also given as feed supplement at the rate of 0.5kg per head per day. Brewers grain was fed alone or was used to supplement maize-based rations whenever the latter was not available or insufficient. The sheep were housed overnight in large groups of 50-150 animals in 3 houses each measuring 15.0m long, 6.0m broad and 3.0m high. All houses had concrete floors covered with wood shavings that served as beddings for the sheep. Male animals were weaned at 4-6 months of age depending on the rate of physical growth while the female lambs remained in the breeding stock. The animals were routinely dewormed at intervals of two months. Dipping with acaricide (Asuntol, R50 Bayer, FRG) was carried out at monthly intervals.

Data Collection and Analyses

Data were obtained from farm records for the 5 years (1980 - 1985) of post-mortem

performed by the station's veterinary officer. Records of birth, culls, transfers and death were obtained from the farm office and analysed to show causes and incidence of death.

RESULTS AND DISCUSSION

A total of 1,525 Sheep were born during the study period out of which 811 deaths were recorded giving an overall mortality rate of 53.2%. Records showed that 65.7% of all deaths occurred within the first six months of life. Mortality thereafter progressively declined with age of sheep (Table 1). Of the 811 deaths, 514 (63.4%) were females while the remaining 297 (36.6%) were males. Most deaths occurred during the months of December to February (Figure 1).

TABLE 1: AGE INCIDENCE OF MORTALITY IN SHEEP

Age of sheep (in months)	No. of cases	% of total
0 - 3	335	42.5
3 - 6	184	23.3
6 - 12	135	17.1
12 - 24	103	13.0
Over 24	33	4.2
TOTAL	790	100

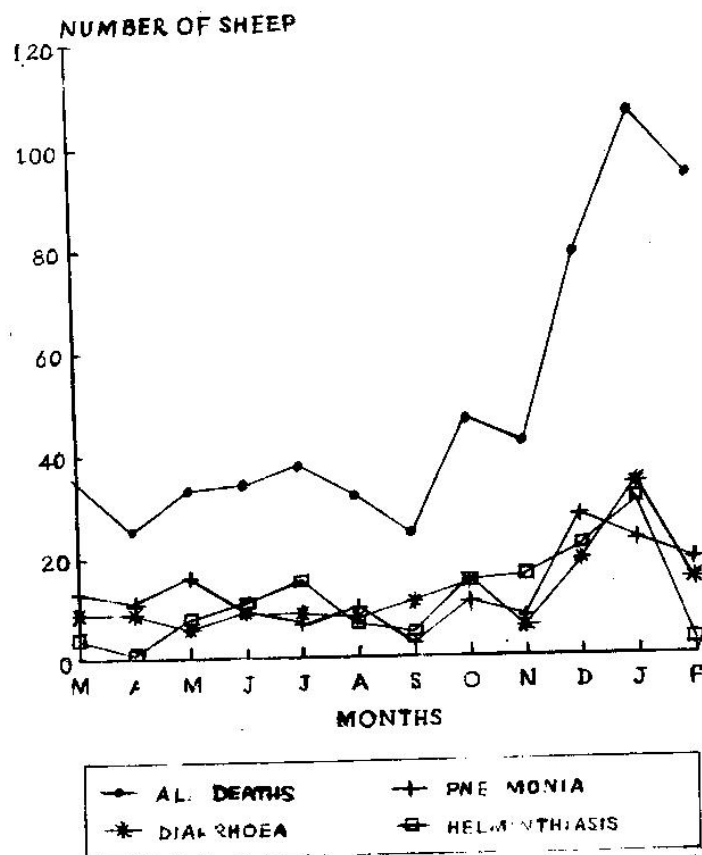
The ages at death of the remaining 21 sheep were not known.

fig 1

TABLE 2: AETIOLOGY OF DEATHS IN SHEEP AT THE SHEEP AND GOAT UNIT OF IBADAN DAIRY FARM (1980 - 1985)

Causes of death	No. of Cases recorded	% of Total cases
Pneumonia	158	19.5
Diarrhoea	150	18.5
Helminthiasis	138	17.0
Runt	77	9.5
Enterotoxaemia	66	8.2
PPR	29	3.7
Ketosis	23	2.8
Septicaemia	22	2.7
Pregnancy toxaemia	13	1.6
Metritis	12	1.5
Dystocia	11	1.4
Hypocalcaemia	7	0.9
Babesiosis	6	0.7
Bloat	6	0.7
Fatty degeneration	4	0.5
Impaction	4	0.5
Anaemia	4	0.5
Sheep pox	4	0.5
Nephritis	3	0.4
Heart water	3	0.4
Internal haemorrhage	3	0.4
Tuberculosis	2	0.2
Starvation	2	0.2
Peritonitis	2	0.2
Abomasitis	2	0.2
Plant poisoning	2	0.2
Hepatitis	1	0.1
Foot rot	1	0.1
Unknown	56	6.9
TOTAL	811	100

MONTHLY INCIDENCE OF DEATH IN SHEEP



CAUSES OF SHEEP MORTALITY

The conditions incriminated in the deaths of 811 sheep are given in Table 1. The three most common diseases, i.e. pneumonia, diarrhoea and helminthiasis were collectively responsible for 55% of the overall mortality. Pneumonia was the most common cause of death and was responsible for 19.5% of all cases. Most deaths due to pneumonia occurred during the months of December to February but with a smaller peak in May (Figure 1). Although pneumonia occurred in all age groups, most (71% of all cases) occurred in the 0 to 6 month old age group. Diarrhoea was incriminated in 18.5% of all deaths. Most cases were diagnosed during the months of December to February and involved very young lambs. Helminthiasis was recorded in 17% of all cases, it was most commonly seen in two to six month-old lambs. Haemonchosis and taeniasis were most commonly recorded as causes of helminthiasis. Most cases of helminthiasis were diagnosed between the months of October and January with a smaller peak in July. All cases of runting were recorded in very young (0 - 3 months old) sheep. Most incidents occurred during the months of November to January. The causes of death in 6.9% of the 811 cases were unknown either because no significant lesions were found during post-mortem examination or because the carcasses were putrified before necropsy was attempted.

The death of more female sheep than males recorded in this study is similar to the findings of Primov (1984) and may be attributed to the system of management whereby males were weaned at 4 - 6 months of age and possibly sold off, while females remained in the breeding flock there after, so that the deaths recorded were mainly among the remaining females. During early life, lambs depend on maternally-derived (colostral) antibodies or vaccinal immunity for protection. Inadequate antibodies from colostrum, lack of vaccination or faulty vaccination regimes may be responsible for these deaths from 0 - 6 months of age. Most of the deaths in sheep were recorded during the months of December and February which were during the period of late

dry season. It coincided with the period when fodder was least available resulting in malnutrition (Akerejola, 1980) which reduces the body resistance to infection (Wilson, 1976). Most cases of pneumonia were recorded at the end of dry season and the beginning of rainy season respectively. At the end of dry season, the dusty weather which results from dry harmattan wind increases insult to the respiratory tract. This condition may be further aggravated by stress of malnutrition due to decrease in availability of feed. At the beginning of rains, there is chilling, and the resultant rapid fall in temperature predisposes the respiratory tract to intercurrent infections. Apparently, lambs were more susceptible to the predisposing factors of pneumonia than adult sheep, hence the higher incidence of death recorded in lambs. That enteritis occurred most in very young lambs may be a reflection of inadequate intake of colostrum during the neonatal period. As peak incidence was recorded at the end of dry season, it may well be that undernutrition of the dam resulted in low yields of colostrum (Otesile, 1985). Two peaks of helminthiasis were recorded; end of dry season and peak of rains. The first peak of mortality was likely to be due to stress of malnutrition. On the other hand, in the peak of rains, pasture-larval challenge is high. Most deaths occurred in lambs below 6 months of age due to low immune response to the worms (Oppong, 1972).

The highest incidence of runting was recorded in the dry season when pasture was scarce and the dams were not given adequate concentrate ration supplement. According to Otesile (1985), this may have resulted in the birth of lambs with low birth weights which were unable to stand and suckle. Also, some affected dams secreted little or no colostrum which led to emaciation and subsequent death of their lambs. Some cases of "runting" occurred after the death or desertation of lambs by their dams around or shortly after parturition. Very young lambs that were emaciated and died mainly of starvation were regarded as "runts" by the sheep attendants on the farm (Otesile and Oduye, 1983).

In conclusion, as pneumonia, diarrhoea and helminthiasis were responsible for 55% of the overall mortality recorded, greater emphasis should be placed on their prevention. Less number of sheep should be housed together (1 sheep /sq.m) and the frequency of deworming in the flock can be increased to montly intervals, in order to decrease worm burden in the sheep. During the dry season, when there is scarcity of feed, the amount of concentrate supplement can be increased to prevent malnutrition. Additional concentrate feed supplement should be provided for pregnant ewes and also during lactation, in order to lower the incidence of runting.

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