

## OCCURENCE OF MASTITIS CASES IN WEST AFRICAN DWARF GOATS UNDER EXTENSIVE SYSTEM OF MANAGEMENT IN OGBOMOSO

V. A. TOGUN<sup>1</sup>, O. A. AMAO<sup>1</sup>, O. A. OYEBODE, E. A. AJIBADE

<sup>1</sup> Department of Animal Production and Health,  
Commercial Farm, Ladoko Akintola University of Technology, Ogbomosho Nigeria.  
<sup>2</sup> State Veterinary Clinic, Owode, Ogbomosho.

### ABSTRACT

Occurrence of mastitis was studied in West African Dwarf goats reared under extensive system of management in Ogbomosho. Data obtained from the veterinary records of the Oyo State Ministry of Agriculture, Natural Resources and Rural Development, Ogbomosho, from 1994-2002 were used for the study. Mastitis cases accounted for 4.7% of total diagnosis with peaks of occurrence in 1995 (1.2% of total diagnosis for the study period; 5.9% of total disease occurrence for the year and 25.7% of the total mastitis cases for the study period); in the months of June and September (0.8% each of total treated and 17.1 % each of total mastitis cases for the study period) and the late wet season (34.3%). However, percent of monthly occurrence was higher in September (8.6) than June (6.8). It appears that goats were more susceptible to mastitis in the rainy than dry season. The information so obtained would enhance management in goat production.

Key words: Goats, Udder, Mastitis, Extensive system, Season

### INTRODUCTION

Mastitis, an inflammation reaction of the udder tissue to bacterial, chemical, thermal or mechanical injury is characterised by physical, chemical and usually, bacteriological changes in milk with attending necrotic, pathological and glandular changes in defined areas of the udder. It interferes with normal flow of milk (Rapport and Bar-Moshe, 1986; Blood *et al.* 1989; Esminger, 1992; Sponle 1995; Alayande *et al.*, 2003), occurring as the most common and costly disease (Esminger *et al.*, 1990) which could take a heavier toll in dairy industry than any single disease through considerable economic loss (Chineme and Ado, 1984; Esminger 1991; 1992). Mastitis reported (Okolo, 1985; Kawu *et al.*, 1992) in goats implicated micrococcal abortions and high intra - and perinatal losses among kids (Elze, *et al.* 1972); in sheep (Rapoport and Bar-Moshe, 1986; Falade *et al.*, 1988; Fthenakis, 1998) it accounted for a high frequency of culling (Odenya, 1992) and in cattle (Sweeney *et*

*al.*, 1988; Trasanarom *et al.*, 1998; Mahendra *et al.*, 2001) its incidence witnessed hepatic failure with subsequent signs as anorexia, weight loss and cessation of milk production.

Mastitis from injury, chilling, bruising or improper milking are non-infectious (Esminger, 1992), but could be deadly. There is a dearth of information on the incidence and seasonality of occurrence of mastitis in West African dwarf (WAD) goats, the most populous goat breed in Ogbomosho, Oyo State of Nigeria. This study was therefore designed to document such information on goats under extensive management system in Ogbomosho.

### MATERIALS AND METHODS

Ogbomosho is an urban city located on Latitude 80 07'N and Longitude 40 15' E with a mean annual rainfall of 1,224.7mm and a relative humidity of between 75 and 95%. The region has a mean annual

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temperature of about 26.20C and it is about 600mm above sea level. (Adediran, 1977).

The 9-year (1994-2002) veterinary clinic records of treatment of 752 WAD goats brought to the veterinary clinic of Oyo State Ministry of Agriculture, Natural Resources and Rural Development in Ogbomoso and its environs, were examined for mastitis cases. The animals were raised and maintained under the traditional extensive system of management and without adequate shelter. They roam about freely in the daytime, scavenging on dump hills, feeding on grasses and browse plants, with occasional feed supplementation from kitchen and crop residual wastes. The animals were generally exposed to the vagaries of weather. No adequate health care practices were maintained.

Data on frequency, seasonal, yearly and monthly diagnosis were collected. Season was classified as: Late Dry (LD): Jan-Mar; Early Wet (EW): April-June; Late Wet (LW): July - Sept; Early Dry (ED): Oct.-Dec. The data were subjected to Analysis of Variance (ANOVA) and simple descriptive analysis, using frequency distribution of the SPSS Computer package (Field 2000).

The results of this study are shown in Tables 1-3. Table 1 shows the seasonal

## RESULTS

distribution of mastitis in WAD goats in Ogbomoso. From the records of goats examined and treated at the veterinary clinic during the study period, 4.7% of all the goats had mastitis. The LW recorded the highest incidence 6.3, 34.3 and 1.6 for percentages of seasonal cases, mastitis cases and total diagnosis respectively, followed by EW and LD with equal values (%) of 22.9 and 1.1 of mastitis cases and total diagnosis respectively. However, the percent of seasonal cases was only slightly higher in EW (4.6) than LD (4.0). The ED recorded the least percentages for the three observations. There was no significant difference between seasons in the various observations although the rainy season (ER plus LR) value was numerically higher than dry season (EW plus LW) value.

Table 2 shows the frequency distribution of mastitis according to year. The highest incidence was observed in 1995 as the values (%) recorded for the yearly diagnosis, total diagnosis and mastitis cases 5.9, 1.2 and 25.7 respectively and did not depict a consistent trend.

Table 1. Seasonal distribution of mastitis in West African Dwarf goats in Ogbomoso (1994 -2002)

Season	Total no of animals examined and treated	No of mastitis cases	Percent of seasonal cases treated	Percent of mastitis cases	Percent of total diagnosis and treatment
LD	198	8	4.04	22.86	1.06
EW	176		4.55	22.86	1.06
LW	191	12	6.28	34.28	1.60
ED	187	7	3.74	20.00	0.93

Total	752 -	35	-	100.00	4.65
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occurrence as a proportion of total monthly diagnosis was highest (8.6%) in February and September, followed by 8.6% 6.8% and 6.1% in the months of June and July respectively. Mastitis incidence was observed in all other months but with varying lower values as shown in the table.

## DISCUSSION

The low incidence of mastitis, (only 4.6% of total diagnosis and treatment throughout the study period) observed in this study could be related to the fact that the WAD goats are not high volume milk producers, compared to actual milk goat breeds.

The observed seasonal variation (higher value in the rainy season) in the incidence of mastitis in WAD goats reared in Ogbomoso, is supported by such results (Trisanarom *et al.*, 1998; Mahendra 2001; Opara and Okoli 2000), where season had appreciable influence on the occurrence of mastitis in ruminants.

This higher value in the rainy season (EW and LW combined), when humidity is high in a tropical environment, is in line with the report of Gupta *et al.* (1999), who observed that the incidence of mastitis in goats was correlated with the increase in relative humidity. The observation in this study can be explained by the fact that this period coincides with availability of abundant pasture for grazing by ruminants. There is a general increase in the quality of nutrition for the free-range goats and this could enhance the capacity of pregnant goats to develop their udder to an optimum size for lactation after kidding. Besides, lactating does would need to produce adequate quality and quantity of milk for their suckling and growing kids. To achieve this, goats that are not properly housed, with adequate provision of feed would resort to extensive scavenging. The wet season, with its attending humidity in the tropical environment is, in some cases, characterized by the prevalence of poor

sanitary conditions (Opara and Okoli, 2002) as a result of damp environment. This situation could enhance the survival of pathogens and subsequent infection of the udder. Although the udder of the WAD goats is not pendulous, the engorgement could make it vulnerable to contamination during scavenging on dump hills. where there are food wastes, crop residues and other filthy materials, that could aid infection. The udder could also be exposed to trauma from hard objects like broken bottles and rusty metals in their scavenging environment, which make the goats susceptible to mastitis - causing organisms. In the exceptional cases of good milkers, removal of excess milk from the goat udder after suckling would encourage decongestion, which makes the udder less engorged, more functional in milk production and less vulnerable to mastitis.

## CONCLUSION

Caprine mastitis in Ogbomoso, which is more prevalent in the rainy season (when values recorded in the early and late rainy seasons are combined), can be controlled by improving management practices. This could be achieved through the provision of shelter and adequate attention to nutrition of the pregnant and nursing does. By this, the act of scavenging, which often predisposes does to udder injuries that subsequently culminate in mastitis would be reduced. In some cases it might be necessary to remove excess milk after suckling. This would encourage optimum performance of the udder in milk

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production as well as reduce congestion. By this, the shape and size of the udder would be maintained and the udder would be less vulnerable to accident, which normally exposes the udder to mastitis causing organism.

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