REPRODUCTIVE PERFORMANCE OF WEST AFRICAN DWARF SHEEP AND GOATS AT VILLAGE LEVEL IN OGUN STATE, NIGERIA

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ABSTRACT

Reproductive performance of 20 pregnant ewes and 20 pregnant does of West African Dwarf breed at village level in Ogun State, Nigeria were compared in a study which lasted for 8 months. Litter size in ewes was 1.50 while that of does was 1.65. The number of males produced by the two species out-numbered that of females. However, multiple births were higher in goat than in sheep. Results of birth weights and body weights of lambs and kids at 3 month of age were significantly different ($P < 0.05$). Lambs were heavier at birth with overall mean birth weight of 2.00kg compared with 1.48kg recorded for kids. At the age of 3 months, the overall body weight of lamb was 10.38kg while that of kid was 7.61kg. Mortality in lamb was 23.33% as against 10.81% in kids. Effective management system of West African Dwarf sheep and goats at village level before and after birth will improve the reproductive efficiency of the two species.

Key Words: Reproductive performance, WAD sheep and goats.

INTRODUCTION

Sheep and goats display unique ability to survive different management systems in Nigeria. This is probably one of the reasons why they represent about 63.70% of the total grazing domestic livestock in the country (Gefu and Adu, 1984). However, mortality rates among the two species have been considered as the major constraints to their productivity.

Rural participatory survey of livestock production in Ogun State in 1997 confirmed that most cases of reproductive wastage in small ruminants in the state were due to

outbreaks of diseases such as PPR and helminthiasis. Consequently, the State Government introduced annual vaccination of all small ruminants in the state against the two deadly diseases to ensure improved productivity. Earlier report of Sumberg and Mack (1985) suggested yearly vaccination of West African Dwarf (WAD) sheep and goats for maximum effectiveness.

The purpose of this study therefore was to compare the reproductive performance of WAD sheep and goats in Ogun State following annual vaccination against PPR and deworming. The paper also recommends strategies that will reduce reproductive wastages in the two species at the village level.

MATERIALS AND METHODS

Reproductive performance of 20 pregnant ewes and 20 pregnant does of West African Dwarf (WAD) breed was compared in 2 villages (Osiele and Sokan) of Odeda Local Government area of Ogun State, Nigeria. Each pregnant animal was monitored for 8 months from pregnancy period (5 months) to time of weaning (3 months). The experimental animals were tagged and placed on similar feeding regimens throughout the period of study. Details of the feeding regimens involved feeding mainly maize chaff in the morning by the owners while animals roamed about freely in the afternoon in the villages scavenging on crop residues and natural pasture. Chopped cassava tuber was offered *ad libitum* in the evening. All small ruminants in the local government were earlier vaccinated against PPR and dewormed with Baminth wormer by the State Agricultural Development Project and Veterinary Department 2 months prior to the time of study.

TABLE 1: LAMBING AND KIDDING PERFORMANCE OF WAD EWES AND DOES IN ODEDA LOCAL GOVERNMENT AREA OF OGUN STATE.

Performance Criteria	Ewes	Does
Pregnant Dams	20	20
%Abortion (Late pregnancy)	10	-
Litter Size	1.50	1.85
Sex		
Male	18	20
%Male	60	54.05
Female	12	17
%Female	40	45.95
Sex Ratio	1:0.67	1:0.85
Type of Birth		
Single	7	6
%Single	23.33	16.22
Twins	20	22
%Twins	66.67	59.46
Triplets	3	9
%Triplets	10	24.32

Parameters studied in comparing the 2 species were litter size, birth and weaning weights of lambs and kids, pre-natal and post-natal mortalities. Weights of lambs and kids were recorded on weekly basis. Type of birth was classified into single, twin and triplet. Data obtained were subjected to analysis of variance as described by Steel and Torrie (1980) while differences among means were compared using student's t-test.

RESULTS

Results of lambing and kidding of 20 WAD ewes and 20 WAD does at village level are presented in Table 1. There were two cases of abortion in ewes, which represents 10% pre-natal loss. Litter size in ewes was 1.50 compared to 1.85 recorded for does. The number of males produced by the two species out numbered that of females thus bringing the sex ratio in ewes to 1:0.67 while that of does was 1:0.85. Twin births were more common in both species than single and triplet births. There were 20 lambs from twin births in ewes

while 22 kids were from twin birth in does. However, multiple births were higher in goat than sheep.

Results of lambs and kid weights are presented in Table 2. There were significant differences ($P < 0.05$) in the birth weights of lambs and kids produced. Lambs were heavier at birth with overall mean birth weight of 2.00kg compared to 1.48kg recorded for kid. Male and female lambs were heavier at birth than male and female kids. Lambs born as singles had heavier birth weight of 2.24kg compared to the weight of 2.00kg recorded for kids. Similarly, all lambs from multiple birth were heavier at birth than kids from multiple birth.

Results obtained on body weight at 3 months for both lambs and kids were significantly different ($P < 0.05$). Overall body weight of lamb was 10.38kg compared to the value of 7.61kg obtained for kids at the same age of 3 months. Lambs, regardless of sex and type of birth were generally heavier in body weight at the age of 3 months than kids. All lambs born as triplets had no record of body weight because of early mortality. However, overall mortality in lambs was 23.33% while that of kids was 10.81%.

DISCUSSION

The higher litter size in doe could be attributed to higher reproductive potential. Odubote and Akinokun (1992) also reported higher litter size of 1.70 for WAD goat while Buvanendran and Adu (1990) and Balogun *et al.* (1993) recorded lower litter size of 1.29 and 1.22 for Balami and Yankasa sheep, respectively.

Both species produced more males than females under similar management systems. This means improved survival rate of more offsprings since males are believed to survive better than females because of heavier weights of males at birth. The effect of sex on survival rate of goats have been investigated (Ebozoje and Ngere, 1995). Although twin births were more common in both species than single and

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TABLE 2: MEANS OF LAMB AND KID WEIGHTS (kg) AND MORTALITY FROM BIRTH TO WEANING.

Parameters	Birth Weight		Body Weight at 3 months		Mortality (%)	
	Lamb	Kid	Lamb	Kid	Lamb	Kid
Overall	2.00 ± 0.06 ^a	1.48 ± 0.05 ^b	10.38 ± 0.19 ^a	7.61 ± 0.18 ^b	23.33	10.81
Sex						
Male	2.08 ± 0.08 ^a	1.62 ± 0.06 ^b	10.61 ± 0.25 ^a	7.45 ± 0.45 ^b	22.22	5.00
Female	1.88 ± 0.09 ^a	1.31 ± 0.07 ^b	10.01 ± 0.24 ^a	6.01 ± 0.72 ^b	25.00	17.65
Type of birth						
Single	2.24 ± 0.09 ^a	2.00 ± 0.04 ^b	11.04 ± 0.28 ^a	8.97 ± 0.08 ^b	-	-
Twins	2.02 ± 0.06 ^a	1.50 ± 0.02 ^b	10.09 ± 0.20 ^a	7.00 ± 0.05 ^b	20.00	9.09
Triplets	1.37 ± 0.11 ^a	1.08 ± 0.06 ^b	-	4.82 ± 0.91	100.00	22.22

Means within the same row having different superscripts differ significantly ($P < 0.05$).

triplet births, some of the farmers interviewed preferred to keep either sheep or goats with records of triplet or quadruplet births not minding the effects on survival rate.

The heavier birth weight of lambs over that of kids could be attributed to the heavier body weight of the ewes. Although the weights of the dams were not recorded in this study, it is generally believed in the tropics that sheep are heavier than goats. At 3 months, lambs had heavier body weights than kids. In the study by Combellas *et al.* (1980), it was shown that the relationship between birth weight and weaning weight is economically important in lamb production.

In spite of the heavier weights of lambs compared to those of kids, mortality was higher in lambs. The villagers reported that sheep strayed more than the goats hence the lambs are much more exposed to danger. The lower mortality rate in kids could also be attributed to greater maternal care of the does. Wiener *et al.* (1983) indicated that inbred lambs suffered greater mortality during growth. This is usually the case with extensive system of management where breeding cannot be controlled. However, mortality rates of 23.33% in lambs and 10.81% in kids recorded in this study can be considered to be very low

compared with other studies (Buvanendran and Adu, 1990; Ebozoje and Ngere, 1995). This could be attributed to the annual vaccination against PPR and deworming of all sheep and goats in the state. Sumberg and Mack (1985) had earlier suggested yearly vaccination of West African Dwarf sheep and goats for maximum effectiveness. The higher litter size and multiple births in does coupled with higher survival rate of kids as observed in this study are some of the factors that contributed to the popularity of goats in Ogun State. However, the lower birth and weaning weights of kids can be considered as major constraints to goat production. From this study, it appears that lamb production from sheep is a feasible proposition since the lambs out weighed the kids by 2.77kg at 3 months of age.

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