POST-WEANING PERFORMANCE OF SOKOTO RED GOAT KIDS UNDER TRADITIONAL MANAGEMENT SYSTEM IN SOKOTO STATE, NIGERIA

Maigandi, S. A., Tukur, H. M. and Suleiman, A.
Department of Animal Science,
Usmanu Danfodiyo University, Sokoto

Abstract
Growth rate performance and management practice of twenty eight (28) weaned Sokoto Red goat kids under the traditional management system were monitored for a period of 14 weeks (May-August) in selected hamlets of Sokoto State. The management system practiced involved allowing the weaned kids to go out for grazing in the morning and return in the evening. Their source of supplementation is cereal bran and preserved hay which is offered only in the evening. All the experimental animals were weaned at the age of 3 months. The results of the study indicated that the average daily live weight gain of single (27.78 g/day) and male (27.55 g/day) kids were significantly higher ($P<0.05$) than that of twins (24.59 g/day) and females (24.59 g/day) respectively. Higher mortality rate of 3% was recorded from twin kids. These results indicate that single birth kids and male kids grew better than the twin and female kids.

Keywords: Post-weaning, performance, Sokoto Red Goat, Traditional

Introduction

Goat population in Nigeria had been estimated at 24.5 million (FAO, 1979), 20 million (Green Revolution Mission, 1980 as cited by Adu, 1985) and 34.45 million (FDLPCS, 1992). Most of these goats are in the hands of smallholder farmers in the villages, and only about 3% are pastoral, predominantly found in Borno and Sokoto states (FDLPCS, 1992). The production system is traditional, characterized by low level of inputs and thus low productivity. This poor management practice is often associated with high reproductive wastage, which includes abortion and pre-weaning mortality (Denis, 1974; Wilson, 1976; Matthewman, 1977 as cited by Osuagwuh, 1985). However, despite the shortcomings of this system, it is the major producer of livestock in the country. It is therefore the aim of this paper to investigate the post-weaning performance of Sokoto Red goat kids under the traditional management system in semi-arid Nigeria, with a view to proposing suggestions for improvement.

Materials and Methods

The study was conducted in five different hamlets of Wamakko Local Government Area of Sokoto State, between May and August 1996 (14 weeks). The selected hamlets were Gidan Yaro, Majema, Gidan Yamma, Makera and Takalmawa. These hamlets are located in the extreme northern part of Sokoto State. The climatic condition of the state is semi-arid with two distinct seasons. The rainy season starts from mid-May and ends in mid-September, while the dry season extends from October to May (Sokoto State Drought Report, 1984).

Twenty-eight weaned Sokoto Red goat kids were selected from flocks in the five hamlets. The selected animals were between the age ranges of 3.5 - 4.5 months.

The management practice utilized by the farmers was monitored. Information on weaning age, feeding, diseases and housing as well as date of birth and type of birth were collected at the beginning of the study. Weekly live weight of the experimental animals were also monitored for a period of 14 weeks. Weighing of the kids was carried out in the morning before the animals went out for grazing. Other information such as change in feeding habit in the week was collected during the weekly weigh-in visits of the goats.

The data collected were subjected to statistical analysis usin SAS type III SS (Generalised Least Squares Analysis) (Freund and Little, 1981).

Results and Discussion

The experimental animals were raised semi-intensively under traditional management system whereby the animals were supplemented with cereal by-products (obtained from local cereal processing) in the evenings when they return from grazing. Adequate housing was not provided, thus exposing animals to respiratory infections (pneumonia and bronchitis), especially during the rainy season. Except for these,

problems, the occurrence of other diseases was not recorded during the study period.

Average weekly live weight gains increased with age (Figs 1 and 2). This could be due to the fact that the experiment was carried out during the rainy season, when pasture was available. Male kids significantly grew faster ($P<0.05$) than female kids (Table 1). Thus, the average daily live weight gain for male kids was 27.55 g/day compared to 24.59 g/day for females (Table 1). Higher live weight gain of males compared to females has been attributed to higher birth weights and presence of growth promoting hormones (androgens) in the former. It has also been obtained that males are more active and aggressive than females, thus enabling them to compete better for scarce feed resources (Kiango, 1989 as cited by Nkungu *et al.*, 1994).

Table 1: Performance characteristics of weaned Sokoto Red Goat Kids

Parameter	Sex		Type of birth	
	Male	Female	Single	Twins
Initial weight (kg)	5.74	5.08	5.41	5.45
Final weight (kg)	8.44	8.49	8.13	7.87
Mean live weight (kg)	6.67	6.49	6.94	6.15
Live weight gain (kg)	2.70	2.41	2.72	2.41
Live weight gain (kg/week)	192.86[a]	172.14[a]	194.29[b]	172.14[b]
Average daily gain (g/day)	27.55[a]	24.59[a]	27.78[b]	24.59[b]
Weaning age (month)	3	3	3	3

Means in the same row of type of birth and sex with different superscripts are significantly different ($P<0.05$).

Live weight gains of single born and twin kids also increased with age (Fig. 2). The average daily live weight gain of the single born kids were however significantly higher ($P<0.05$) than that of the twins (Table 1). This could be due to the fact that single born animals are normally heavier at birth and have higher growth rates (Wilson, 1989). The lower birth weight of twins has been attributed to intra-uterine competition for nutrients and space (Nkungu *et al.*, 1994).

These results show that initial and final weights of male kids (Table 1 and Fig.1) were higher than those of female kids. However, in the single and twin kids the initial weight is almost the same, but in the final weight, single kids grew faster than twins (Table 1 and Fig. 2). The reasons for all the changes were already stated.

The results of the average daily gain (ADG) of 24.59-27.78 g/day obtained from the present study was below the results obtained by various workers under controlled experimental conditions. For example, Adeloye (1993) obtained an ADG of 500-600 g/day when he fed forage and crop wastes to sheep and goats. Likewise, Adeloye (1994) reported 50 g/day when he fed leaf meals in the diet of goats. Aina (2002) also reported an ADG of 43.83 g/day when he offered cassava peels to West African Dwarf goats.

The weaning age for animals in this experiment was found to be 3 months. This falls within the range of 3-5 months reported by FDLPCS (1992) under traditional management system in Nigeria.

In the present study mortality of 3% was recorded only in twins and both males and females are involved. This finding agrees with the observations made by Sarmah *et al.* (1981) and Wilson and Murayi (1988). The lower birth weight of twins and poor milking ability of the dams are said to be the factors that contribute to higher mortality of twin kids (Nkungu *et al.*, 1994).

In conclusion, kid growth under the traditional management system in this experiment was not interrupted throughout the study period, but the problems of housing and health care need to be addressed. Also there is need to improve on feeding management of goats by identifying unconventional feedstuffs to reduce competition for conventional ones.

References

Adeloye, A.A. (1993). Intake and nutrient-digestibilities of all-concentrate diet from forage and some crop wastes by sheep and goats. *Nig. J. Anim. Prod.* 20: 20-24.

Adeloye, A.A. (1994). Preliminary investigation of *Parkia filicoidea* and *Tephrosia bracteolate* leaf meals in the diet of the goat. *Nig. J. Anim. Prod.* 21: 105-107.

Aina, A. B. (2002). Effect of dietary salt levels on

the performance of West African Dwarf (WAD) goats. *Nig. J. Anim. Prod.* 29(1): 47-54.

Adu, I. F. (1985). Feedlot fattening of sheep and goats: The Shika experience. In: Small Ruminant Production in Nigeria (Adu *et al*, eds.). Proceedings of national conference on small ruminants production, 6-10 October, NAPRI, ABU, Zaria, Nigeria.

F.A.O. (1979). Production year book; FAO, Rome.

FDLPCS (1992). Federal Department of Livestock and Pest Control Services. Nigerian Livestock Resources, Vol. II; National Synthesis. Resource Inventory and Management Ltd. St. Helier, Jersey, JE4 8UD, U.K.

Freund, R.J. and Little, R.C. (1981). SAS for linear models. A guide to the ANOVA and GLM procedures. SAS Institute Inc. Cary, N.C.

Nkungu, D.R.; Kifaro, G.O. and Mtenga, L. A. (1994). Performance of dairy goats in Mgeta, Morogoro, Tanzania. The small ruminant research network newsletter. International Livestock Centre for Africa, Nairobi, Kenya. 8: 1-23.

Osuagwuh, A.I.A. (1985). Incidence and control of pre-weaning mortality and abortion in small ruminants. In: Small ruminant production in Nigeria (Adu *et al.* eds.). Proceedings of national conference on small ruminant production held at Zaria from 6-10 October, NAPRI, ABU, Zaria, Nigeria.

Sarmah, P.C.; Thakuria, K.; Sarma, H. K; Borah, H. P., Manimohan, M. and Pant, K. P. (1981). A note on kid mortality in Assam local breeds. *Ind. J. Anim. Sci.* 51:248-249.

Sokoto State Drought Report (1984). Report on 1984 drought in Sokoto State. Federal Ministry of Agriculture, Water Resources and Rural Development, Lagos. pp.436-483.

Wilson, R. T. (1989). Reproductive Performance of African Indigenous Small Ruminants under various management systems. A review. Animal Reproduction Science. 20:265-285.

Wilson, R.T. and Murayi, T. (1988). Productivity of the small East African goats and its crosses with Anglonubian and the Alpine in Rwanda. Trop. Anim. Hlth Prod. 20: 219-228.

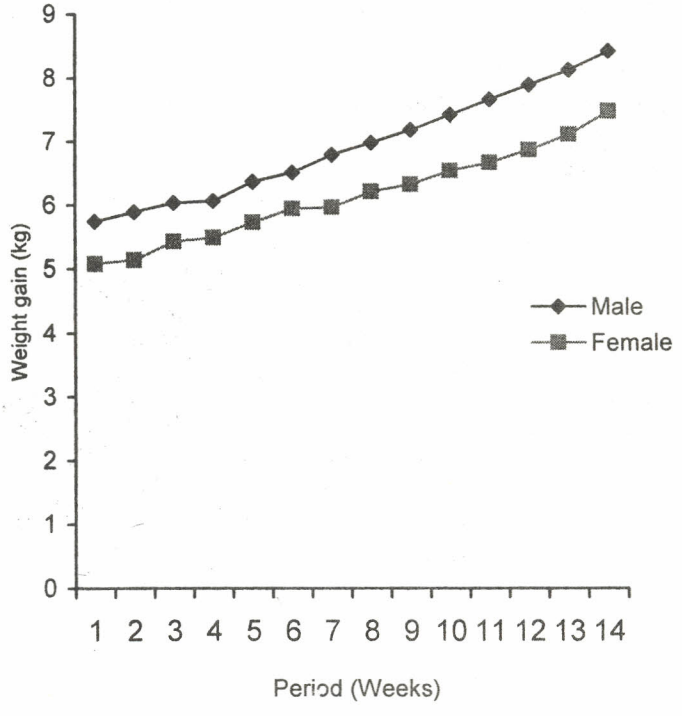

Fig. 1: Average liveweight changes of male and female kids of Sokoto Red goats

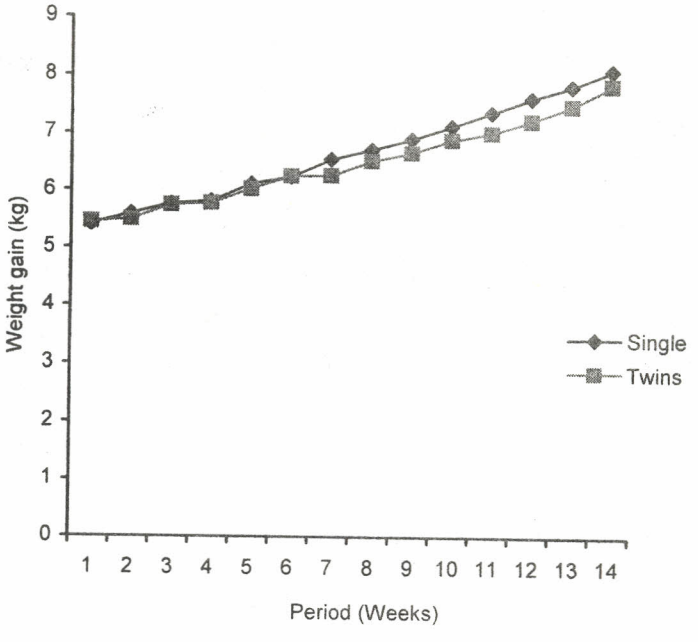

Fig. 2: Average liveweight changes of single and twin kids of Sokoto Red goats