COMPARISON OF MALE AND FEMALE SOKOTO RED AND SAHELIAN GOATS USING PRE-WEANING, WEANING AND POST WEANING TRAITS

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ABSTRACT

A study was carried out to compare the males and females of Red Sokoto (RS) and Sahelian (SH) goats. The study was carried out at the small ruminant unit of National Animal Production Research Institute (NAPRI), Shika using 60 goats. The study indicated that there were no significant differences (P>0.05) in the birth weight (BW), pre weaning (PRW), weaning and post weaning PTW traits between the females of RS and SH. There were no significant (P>0.05) differences in the birth weight (BW), pre weaning (PRW), weaning traits between the male RD and SH but significant (P<0.05) differences existed for post weaning bodyweight between the males of RD and SH. This indicated that the RS and SH were similar in pre-weaning and weaning weights hence could be utilised for selected for these traits.

INTRODUCTION

Goat husbandry is a major means of providing for the livelihood of smallholder farmers (Ouuma and Osakwe, 2008) due to their prolificacy and adaptability to varied harsh conditions than other available breeds. Hence, genetic improvement of these indigenous breeds can improve the productivity and sustainability of the goat enterprise in the tropics faster than trying to improve the exotic breeds (Shoyombo *et al.*, 2015).

The type of breed has a major influence on the birth weight and subsequent growth performance of kids (Mourad, 1993). This will have bearing on any meaningful success expected to be achieved in any improvement program.

There have been several reports (Ikwuegbu *et al.*1995; Gwaza *et al.*, 2007; Shoyombo *et al.*, 2015) of sexual dimorphism in goats. Ikwuegbu *et al.* (1995) identified sex of kid of West African Dwarf goat as a factor for differences in birth weight. Gwaza *et al.* (2007) also identified that sex causes a difference in bodyweight of Cashmere goats with the males weighing significantly higher than the females. Alawa and Oji (2008) in their study identified that bodyweight at birth and bodyweight at weaning were higher in males than females. There is paucity of information on comparison of different indigenous breeds of goat on the basis of their sex. The objective of this study is therefore to compare the Red Sokoto and Sahelian breeds on the basis of breed using pre-weaning and post weaning weights of some selected goats.

MATERIALS AND METHODS

Experimental Location

The experiment was carried out at National Animal Production Research Institute, (NAPRI), Ahmadu Bello University, Shika-Zaria, Kaduna State, Nigeria. Zaria is located between latitude 11°04′N and longitude 7°42′E, on an altitude of 706 m above sea level (Wikipedia, 2017). The area falls within the Northern-Guinea Savannah zone of Nigeria, characterized by rainfall ranging from 1100mm to 1250mm annually. The area lies within the warm humid climate of the Northwest zone of the country, with clear distinctive dry and wet seasons. The ambient temperature rarely falls below 26°C except during harmattan period when temperature below

26°C may be recorded. However, annual temperature does not exceed 35°C (Source-Weather Station of Institute of Agricultural Research, Zaria).

Experimental Animals and Management

A total of 60 kids, comprising of 30 kids (10 males and 20 females) of Red Sokoto and 30 kids (10 males and 20 females) of Sahelian breeds of goat. The kids were managed under the intensive system of management. The experimental kids were ear tagged according to breed and were allowed *ad-libitum* milk from their various dams with fresh milk supplementation until they were 30 days old. After the 30th day, the kids were given concentrate supplement containing 40% CP and 11.70MJ energy at the rate of 60g/head/day in addition to dam's milk. Legumes were later fed when the concentrate supplementation was stopped until the kids reached 150 days. The kids were weaned at 120 days of age.

Traits Assessed

The traits evaluated at the end of the experiment, were bodyweights at birth, 30-, 60-, 90-, 120- and 150- days of age which were taken with the help of Weighbridge® (manufactured by Salter in England with a 200kg ±1kg calibration).

The collected data was analysed using the GLM procedure of SAS (2001) using the following model:

$Y_{ij} = \mu + B_i + e_{ij}$

Where Y_{ij} = weight of the i^{th} individual

μ = Overall mean

B_i = effect of i^{th} breed (1,2)

e_{ij} = random error

RESULTS AND DISCUSSION

There were no significant differences between the male Red Sokoto and Sahelian goats in all the pre weaning, weaning weight and 120 days of age (Table 1). This is an indication of good mothering ability of their respective dams (Gipson, 2017). These pre weaning traits and mothering ability could be selected for in the two breeds for goat production systems which sell off weaners. There was however a significant difference between the bodyweights at 150-days of age.

There were no significant differences in bodyweight at birth, pre weaning, weaning and post weaning age of the female breeds of Sokoto Red and Sahelian goats. This indicates that there is no significant difference in the mothering ability of the dams of both breeds of goats as they had the same potential to confer similar weaning weights on their kids (Table 2). The similarities in the post weaning weights of the females of the two breeds indicated that the traits can be selected for in either of the breeds using the mass selection method as it is medium to highly heritable (http://sites.google.com/site/viveklpm/sheep-snd-goat-production-management/important-traits-of-sheep-and-goat).

CONCLUSION

Based on the results of the study, the males and females of both breeds can be selected for the traits they were compared for as well the trait for good mothering ability.

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Table 1: Comparison of pre weaning and post weaning weights of male Red Sokoto and Sahelian goats

Traits (kg)	Red Sokoto (N=10)	Sahelian (N=14)	SEM
Birth weight	1.60 ± 0.40	1.69 ± 0.35	0.15
30- day (pre weaning weight)	6.30 ± 0.82	6.21 ± 0.89	0.36
60-days (pre weaning weight)	9.60 ± 0.84	9.86 ± 1.17	0.43
90- days (pre weaning weight)	14.80 ± 1.23	14.43 ± 1.85	0.42
120-day (weaning weight)	20.10 ± 2.33	18.64 ± 1.28	0.74
150-day (Post weaning weight)	25.90 ± 2.13*	23.57± 1.09	0.66

SEM= Standard Error of Mean N= number

Table 2: Comparison of pre weaning and post weaning weights of female Red Sokoto and Sahelian goats

Traits (kg)	Red Sokoto (N=20)	Sahelian (N=16)	SEM
Birth weight	1.34 ± 0.39	1.44 ± 0.40	0.13
30 days pre weaning weight	5.85 ± 1.04	6.31 ± 0.79	0.32
60 days pre weaning weight	9.20 ± 0.95	9.38 ± 0.96	0.32
90 days weaning weight	12.65 ± 1.35	13.50 ± 1.41	0.46
120days Post weaning weight	17.90 ± 1.07	18.31 ± 1.35	0.40
150days Post weaning weight	23.60 ± 1.05	23.38 ± 1.31	0.39

SEM= Standard Error of Mean N= number