EFFECT OF EARLY WEANING ON GROWTH PERFORMANCE OF SAHELIAN AND KALAHARI GOAT KIDS

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ABSTRACT
The study was conducted to evaluate the effect of early weaning on growth performance of Sahelian and Kalahari goat kids. Two Sahelian goat kids (all female) and one Kalahari goat kid (male) obtained at second and fourth parity respectively were used for the experiment. Kids were allowed to suckle colostrum for the first three days after parturition. Thereafter, they were suckled by their dams *ad libitum* for four weeks and then weaned. Feed and water were supplied for them. Breed, Birth weight, weaning weight and the weekly live weight changes for a period of 12 weeks were monitored. Parity, litter size, sex of kids, and mortality were recorded. Data collected on weekly weight changes were analyzed using Microsoft excel. The results revealed that the Kalahari kid had better performance in terms of growth rate compared to the Sahelian kids. The Kalahari kid had higher birth weight, weaning weight and weekly live weight changes with value of 3.5 kg, 8.00 kg and of between 0.15 kg to 2.0 kg respectively, while the values obtained for the Sahelian kids were 1.5 kg, 3.5 kg and of between 0.25 kg to 0.5 kg respectively. It is concluded that breed, litter size, birth weight, parity and sex of kid had an effect on the survival and growth of early weaned goat kids. Thus, further studies using different breeds of same dam parity; age or weight and litter size is recommended to ascertain their effect on growth performance and survival of early weaned goat kids.

Key word: Early weaning, growth performance and goat kid

INTRODUCTION
Nigeria has a population of 81.8 million goats, 46.8 million sheep and 20.6 million cattle (FAO, 2019). The larger proportion of these animals are however highly concentrated in the northern region of the country. This concentration of Nigeria's ruminant animals in the northern region is most likely influenced by the ecological condition of the region which is characterized by low rainfall, lighter sandy soils and longer dry season (RIM, 1992), as well as tsetse fly infestation free zone. The traditional system of goat management is mainly characterized by low survival rate and high mortality of kids which results in low weaning percentages. High mortality among kids and slow growth rate in those that survive are the major constraints to production. The death of kids before weaning is perhaps the single biggest cause of economic loss to goat farmers. Any attempt made to ensure survivability of kids is bound to increase productivity and economic returns (Ademosun, 1988 and Lebbie & Manzini, 1989). Early weaning helps dam to return to oestrus as quickly as possible because delay in weaning may cause delay in the reoccurrence of oestrus which may disrupt reproductive efficiency in goats (Uguru, 1981). The aim of this study was to evaluate the effect of early weaning on survival and growth performance of Sahelian and Kalahari goat kids. It is concluded that growth and survival of early weaned goat kids were influenced by litter size, birth weight, breed, sex and parity.

MATERIALS AND METHODS
Experimental Site
The experiment was conducted in the small ruminant unit of the Centre for Dryland Agriculture (CDA) poultry and livestock farm, Bayero University Kano with Global Positioning System (GPS) of N 11.97643^0 and E 008.42995^0. The annual mean rainfall of Kano state is between 800 mm to 900 mm; and variations about the annual mean values are up to ±30%. The mean annual temperature is about 26^0C (Falola, 2002). There are two distinct seasons; a wet season which is from April to October and dry season from November to March.
Experimental Design, Animals and their Management

Randomized Complete Block design (RCBD) was used to carry out this experiment. Three (3) animals were used for the study. Two breeds of goat were used in conducting the study (Sahelian kids and the Kalahari kid) which were obtained from the goat herd of the Centre for Dryland Agriculture (CDA) farm, Bayero University Kano. The study was conducted during the late dry season i.e. from March to June. The kids were weaned by separating them from their dams at four weeks of age early in the morning and taken to a weaning pen. The kids were raised intensively during which standard management and hygiene practices were employed.

Data Collection

The experimental animals were weighted at birth (birth weight) and subsequently on a weekly basis up to the weaning (weaning weight) which continued up to the end of the study. Feed and water were supplied *ad libitum*. Data collected were birth weight (kg) of the kids, weaning weight (kg) and weekly live weight changes (kg) of the kids for a period of twelve (12) weeks. Other variables include season of birth, breed, parity, type of birth, sex of kids and litter size. The kids were identified by coat colour and sex. Mortality record was also taken during the experimental period.

Data Analysis

The data collected on weekly live weight changes of the kids were analysed using Microsoft Excel.

RESULTS AND DISCUSSION

The Kalahari goat kid showed a better performance in terms of growth compared to the Sahelian goat kid as they differed in almost all the factors affecting growth performance and survival of the goat kids. The Kalahari kid was obtained at fourth parity; resulting from single birth and a male kid. The birth weight was 3.5 kg, the litter size is one, the weaning weight at fourth week of age was eight kilogram (8 kg) and the weekly live weight changes ranged from 0.15 kg to 2.0 kg. Whereas the Sahelian kid was obtained at the second (2^{nd}) parity, from multiple birth and all females. Birth weight was 1.5 kg, the weaning weight at Fourth week of age was 3.5 kg and the weekly live weight changes ranged from 0.25 kg to 0.5 kg. Result showed that the type of birth has influence on kid survival. The mortality experienced during the study was one out of three kids from the Sahelian multiple birth which is in agreement with (Oppong &Yebua, 1981 and Traore, 1985) who reported that in sub-Saharan Africa, multiple births are generally accompanied by low birth weight which, in turn, results to higher mortalities in twins and triplets than in a single kid. The result shows that sex of the kids had an influence on the kid survival since the female kid died and is in agreement with the report of Wilson and Azeb (1989) that kid mortality is higher in female kid than in male kid. Moreover, the result obtained revealed that, the kid born at fourth parity had better growth performance than the one obtained at the second parity, which is in agreement with (Nwodi,1979) who observed that does are lighter at their first kidding than at their subsequent parturitions, a situation which along with their inexperience, invariably causes high mortality among their kids. It may also be due to the fact that older does provide better pre-natal and post–natal nourishment reflected on kids with heavier birth weights and subsequent growth rate which resulted in a better chance of survival. This result is in agreement with Rattner *et al.* (1994) and Awemu *et al.* (1999. This study also revealed that birth weight had an influence on kid survival which shows that higher mortality rate is attributed to extreme light birth weight as reported by Kamal *et al.* (2009).

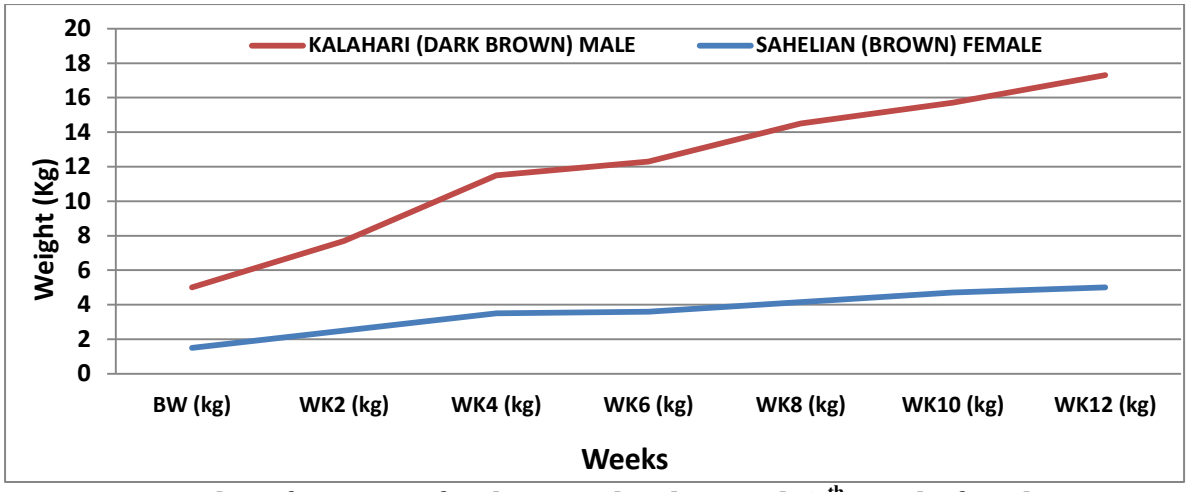

Figure 1: Growth Performances of Kids Weaned at the Fourth (4th) Week of Birth

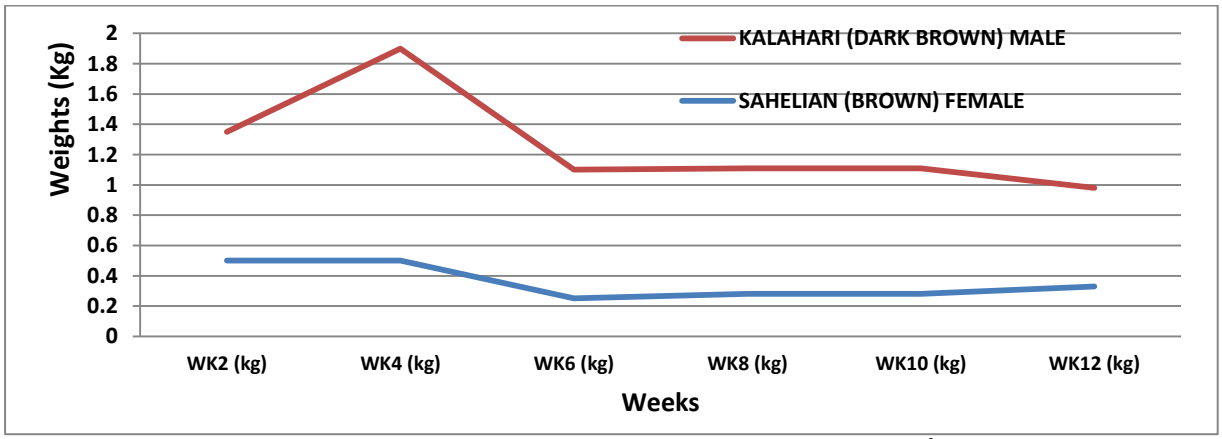

Figure 2: Average Weekly Weight Gain of Kids Weaned at the Fourth (4th) Week of Birth

CONCLUSION

It is concluded that breed, litter size, birth weight, parity and sex of kid had an effect on the survival and growth of early weaned goat kids. Thus, further studies using different breeds of same dam parity; age or weight and litter size is recommended to ascertain their effect on growth performance and survival of early weaned goat kids.

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