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Effect of season sex and type of birth on body weight at birth of black Bengal kids

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Abstract

The present investigation was conducted in the flock of pure bred Black Bengal Goat maintained at different demonstration unit of Krishi Vigyan Kendra, Korea (KVK). A total of 47 kids were used in the experiment. Least-squares means for body weights at birth and 3 months of age were 1.48 and 6.06 kg, respectively. The present study reveals that there was significance difference ($P < 0.05$) in the average birth weight on sex and season. The average birth weight of male (1.56) was recorded to be higher than female kids (1.41) of Black Bengal goats. Highest birth weight was recorded in summer season than rainy and winter. Highest body weight was recorded in single birth (1.61) than twin (1.40kg).

Keywords: black Bengal, goat, average birth weight, body weight at 3 month

Introduction

In India, Goat rearing is the main source of economy of the poor & weaker section of the society. In India, the marginal and landless farmers are preferred to goat rearing. A majority of farmers rearing goat are maintaining them at subsistence level because of their hardy nature small size, easy management, less capital investment small space requirement, high fertility, short generation interval and disease resistance [4]. Therefore, goat farming has become a help to poverty lessening. And also plays an important role in the sustenance of the livelihoods of impoverished families, especially in rural areas. For economic point, body weight is of prime importance. The overall efficiency of farm is judged through growth, production and reproductive performance of individual goat. Growth is measured in term of body weight. The birth weight and early growth rate of animals are influenced by genetic factor but also by maternal and environmental factors [10]. Pre-weaning body weights and growth rates in are often considered as an early indicator of the late growth and economic benefit and can affect body weight at first kidding and at puberty [3, 13]. Birth weight and the sequences growth rate in goats is influenced by type of birth (single or multiple) [2, 8]. Black Bengal goat is abundantly found in Bihar Oddisa and Bengal state in India. Meat production is the most important feature of this breed. This has proved to be an excellent goat breed with respect to growth, production, disease resistance and adaptability to dry or hot climate under poor quality range conditions [16]. Farmers generally prefer to rear black Bengal goats over other meat breeds of goat due to beautiful look, colour and its performance. It is a multipurpose animal, with respect to provide meat, hide and manure to enrich soil fertility and play an important role in generating employment, raising income and improving household nutrition. Being small in size, it can easily be handled by women, children and old members of the family. Thus, the objective of this study was to estimate body weight of Black Bengal goats at first kidding and 3 month under field conditions are essential for developing efficient management programs in goat farm.

Materials and Methods

Korea district in India is come under sub-tropical climate. Korea is situated at an elevation of 558m Above mean sea level at Latitude & Longitudes between 23 °85'40.28" To 23 °26'32.29" North Latitude & 81°66' 77.82" To 82 ° 23' 99.54" East Longitude. The place generally has a dry tropical weather which is moderate but on a warmer side in summer season. An average rainfall of 682.72 mm mainly during monsoon season from July to September. Similarly, the temperature ranges from 17.6 °C to 30 °C.

The present investigation was conducted in the flock of pure bred Black Bengal Goat maintained at Different demonstration unit of Krishi Vigyan Kendra, Korea (KVK). True types of animals were selected. A total of 47 kids were used in the experiment from 2018 To 2020. IN KVK farm goats of the present investigation were kept under similar system of housing i.e. semi intensive housing with concrete flooring. The green fodders consisted of MP Chari (*Sorghum bicolor*), Sudan grass (*Sorghum vulgare var sudanense*), Berseem (*Trifolium alexandrinum*), Hybrid Napier (*Pennisetum hybrid*) and local grasses. The concentrate mixture, green grasses and wheat straw were fed during morning and evening at the time, Ad lib drinking water was made available to all animals. The Present study was aimed to investigate birth body weight and 3 month goat managed at demonstration unit under Krishi Vigyan Kendra. Also investigate effect of season and sex on birth body weight and 3 month black Bengal kids. The Data Were Analyzed Using Mixed Model Least-Squares and Maximum Likelihood Method.

Results and Discussion

Black Bengal goat is famous meat purpose goat and one of the potential genetic resources of India. Least-squares means for body weights at birth and 3 months of age were 1.48 and 6.06 kg, respectively. Hassan, *et al.*, 2007 also noted that the average birth weight of Black Bengal goat was 1.60 ± 0.50 kg, which is higher than the results of the present study. In this study, the weaning weight of HBB goat was more or less similar to black Bengal goat which was observed by Khan, *et al.*, 2013. The present study reveals that there was significance difference ($P < 0.05$) in the average birth weight of male (1.56) and female (1.41) kids (Table no.1). The heaviest of male kids to female attributed to the anabolic effect of male sex hormones during pre-natal growth and to uterine environmental, these result comply by (Nieto, *et al.*, 2006). Birth weight of male kids was recorded to be higher than female kids of Black Bengal goats by many workers in the world as well as in India and is in agreement with the findings of (Hassan, *et al.*, 2007 and Khan K., *at al.*, 2013). The average birth weight of kids at winter season, rainy and summer season were 1.26, 1.41 and 1.58kg respectively. These findings were also supported by some authors. Effect of type of birth is significantly correlated with body weight at birth ($P < 0.01$). Birth weight at summer season was recorded to be higher than birth weight at rainy and winter season. Highest birth weight was recorded in summer season. Seasonal influence had significance effect ($P < 0.01$) on the birth weight of kids in Bengal goats. The effect of season may be explained partly by the climatic conditions, hence, feeding practices in different seasons for dams and offspring were similar. Differ in the average birth weight recorded and highest body weight was recorded in single birth (1.61) followed by twin (1.40kg). The differences in birth weight of the twin and triplets may be due to the small size and weight of the twin and triplets in the uterus. The birth weight decreased with increase in number of fetus present in uterus. Due to the higher number of fetuses in the uterus, there is less space for them to join, thus they get less amount of nutrition from mother and hence a reduction in the birth weight of the lambs [2]. These findings were also supported by Talukder, *et al.* 2020. The average live body weight of male and female black Bengal goat at 3 month was 6.64 and 5.51, respectively (Table no.1). According to Shoshe, *et al.*, 2019, male and

female KWW of BBG was 5.35 and 4.96 kg, which was lower than the present findings. The single born kid exhibited higher body weight at kidding compared to multiple birth kids. single birth kids had an advantage over multiple birth kids had to compete for milk from their dam's, single kids had sufficient milk for growth to weaning [9]. Moreover Talukder, *et al.* 2020 also find similar result that the type of birth exerts a significant influence on weaning weight.

Table 1: Effect of Sex and Birth Type on productive performances of HBB goat

Parameter	Birth weight (kg)	Body weight at 3 month (kg)
Average Body Weight	1.48	6.05
Male Kids	1.56	6.64
Female Kids	1.40	5.51
Significant	**	**
Season		
Summer	1.58	
Rain	1.26	
Winter	1.41	
Significant	**	
Types Of Birth		
Single	1.61	
Twin	1.39	
Significant	**	

**=Significant at 1% ($p < 0.05$) level of probability, NS=Non significant

Conclusions

The results obtained in the present study indicate that sex season and type of birth has a positive effect of birth weight and weaning weight

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