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Morphometric Attributes of Nagaland Long Hair Goat of Zunheboto District, Nagaland

R K Singh, Rakesh Kumar Chaurasia¹, and D Borkotoky

Krishi Vigyan Kendra, Phek-797107, ICAR-National Research Centre on Mithun, (Nagaland)

ABSTRACT

Nagaland is the part of Indo Myanmar bio-diversity hotspot, Twenty five recognized global biodiversity hotspot provides a unique profusion of habitats and diverse biota. Nagaland Long Hair Goat (NLHG) is an example of this unique biodiversity. This goat is distributed in a few pockets Zunheboto, Tuensang and Kiphire districts of Nagaland and has very distinctive features. As per crude estimate total population of this goat is about 1200, which is declining rapidly. The present data were collected from two the different villages i.e., Xuivhi and Aghunato of Zunheboto District of Nagaland. Phenotypic Data was collected from 60 adult goats (30 males and 30 females) of approximately 12 to 24 months of age. The animals are medium sized and their coat colour is either white or jet black in general, but animals with patches of black on white are also not uncommon. The average measurements of the body weight (kg), body length (cm), height at wither (cm), and hair length (cm) have been found to be 37.52 ± 0.96 , 112.54 ± 1.91 , 105.78 ± 1.89 and 27.84 ± 0.46 and 30.77 ± 0.54 , 90.63 ± 0.83 , 76.96 ± 0.74 , 14.59 ± 0.49 , respectively male and female. The numbers of offspring per kidding and milk production (g/day) have been found to be 1.67 ± 0.11 and 343.33 ± 18.37 , respectively. The males are bigger in size, heavier in weight and bear long course hair compared to female. These goats are basically reared for meat and their hairs are at times used for making head gears and other cultural items.

Key Words: Long hair goat, Morphology, Nagaland and Attributes.

INTRODUCTION

The Northeast region of India comprising of the states of Arunachal Pradesh, Assam, Meghalaya, Manipur, Tripura, Mizoram, Nagaland and Sikkim is unique in providing a plethora of habitats, featuring diverse biota. In which Nagaland, one of the North Eastern states is physiographically a part of Patkai-Naga Hills that harbours very rich and unique biodiversity.

Goats occupy a unique place among domestic livestock in the North Eastern Region because of their ability to survive and produce under unfavourable climatic and managerial conditions. Goats possess superior efficiency for transforming coarse feed into milk, meat and capable of selective browsing on undesirable vegetation (Das, 2001). People of Nagaland are predominantly non-vegetarian in their food habits and relishes meat from all the possible sources. The

total number of goat in the state is 0.09 m as per Census 2012. There is a 44.21 percent decline in the number of goat population during the inter censuses period of 2007-2012. Assam hill goat and Black Bengal are the commonly reared breed of goat in this region. Nagaland Long Hair Goat (NLHG) locally known as Apu-Asu-Ne constitutes a small group of the non-descript population and is found only in the hilly tract of Zunheboto and Tuensang districts of Nagaland, India (Zaman *et al*, 2013). A crude estimate of 1200 NLHG is known to exist in farmers field. The presence of long coarse hair on the entire body particularly at neck, withers, mid rib, fore leg and hind leg regions distinguishes this breed from others goat breeds. This goat is basically reared for meat in the region. The coarse hair of this animal is utilized in making head gears worn by Naga warriors. Due to changing life styles, the wearing of old tribal costumes is now restricted to

Corresponding Author's Email: rksingh3@gmail.com

¹Krishi Vigyan Kendra, Zunheboto, Nagaland University, (Nagaland)

tribal festivals and cultural events only. Therefore, this breed is getting less important, which is adversely affecting the population of this unique goat in the region. Looking into its characteristic hair and dwindling population, the present study was planned with the aim to document the phenotypic characters of this unique goat breed of Nagaland.

MATERIALS AND METHODS

Location of the study and animals

The present study was conducted in the two villages, Xuivhi village of Satakha block and Aghunato village of Tokiye block of Zunheboto district of Nagaland. A total of 60 adult goats (30 bucks and 30 does each) aged about 12-24 months were used for partial morphological characterization study. The animals were maintained by the farmers in semi-intensive condition and were fed occasionally with kitchen waste and tree leaves.



Fig. 1: NLHG Adult buck



Fig. 2: NLHG Adult doe

Body measurements

In an attempt to characterize and evaluate the Long Hair goat partially, some of the morphological characteristics were measured in adult bucks and does such as; body weight, body length, height and hair length. Besides, no. of kids/kidding and milk production per day was recorded in doe wherever available. Body length was measured from point of shoulder to pin bone and height was measured at the level of wither. All measurements were done using a measuring tape and were taken in the morning time before the animal was fed and let loose for grazing. The mean and standard errors (SE) for different traits were statistically analysed using Microsoft Excel 2010 software.

RESULTS AND DISCUSSION

The coat colour of the goat was observed as complete white or black, but patches of black and white were also not uncommon.

Body weight

The body weight of adult bucks and does, aged 12-24 months were 37.52 ± 0.96 and 30.77 ± 0.54 kg, respectively (Table 1). Body weights of bucks were higher than that of does. This finding was in accordance with the earlier reports of Rahman (2007) and Alam (2006) who reported that the body weight of male goats was higher than that of female goats. Body weight of adult male and female goats of black Bengal breed was 14.20 ± 0.20 kg and 12.40 ± 0.41 , respectively as recorded by Paul et al (2011) at the similar age group. Khargaria et al (2015) reported the body weight as 24.86 ± 0.80 kg in adult Assam hill goat body weight in 2-4 yr age group. It clearly indicates that long haired goat attains higher body weight than black Bengal goats at the same age and therefore is a potential animal for rearing as meat animals in the high meat demanding region.

Body length

In this study, the average body length of adult buck and doe was 112.54 ± 1.91 and 90.63 ± 0.83 cm, respectively. It was observed that body lengths

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of bucks were higher than that of does. Hasanat *et al* (2003) also reported that male has longer body length than females and sex had significant influence ($P<0.01$) on body length in Black Bengal goats, which supported the present study. Body length of adult male and female goats in Black Bengal breed was 46.50 ± 0.77 and 42.15 ± 0.55 cm, respectively as observed by Paul *et al* (2011) at the same age group. In adult Assam hill goat (2-4 years) the body length was recorded as 61.48 ± 0.57 cm in a study by Khargaria *et al* (2015). Body size of the Long hair goat was larger as compared to that of Black Bengal and it grows faster than the later.

Table 1. Measurement of different parameters of adult buck and doe in Nagaland Long Hair Goat.

| Parameter | Male | Female |
|-----------------------|-----------------|------------------|
| Body weight (kg) | 37.52 ± 0.96 | 30.77 ± 0.54 |
| Body length (cm) | 112.54 ± 1.91 | 90.63 ± 0.83 |
| Height at wither (cm) | 105.78 ± 1.89 | 76.96 ± 0.74 |
| Hair length (cm) | 27.84 ± 0.46 | 14.59 ± 0.49 |
| Milk yield (g/day) | - | 343.33 ± 18.37 |
| Kidding rate (number) | - | 1.67 ± 0.11 |

Height at wither

The height of the animals was measured as the height at wither. The average height of bucks and doe was recorded as 105.78 ± 1.89 and 76.96 ± 0.74 cm, respectively. The height at wither was higher for the buck than that for the doe. Rahman (2006) also reported that wither height for adult male goat was higher than the female in Black Bengal breed and it strongly supported our findings. Paul *et al* (2011) recorded height at withers in adult male and female goats in Black Bengal breed was 46.90 ± 0.33 and 43.10 ± 0.74 cm, respectively at the same age group. While Khargaria *et al* (2015) recorded the height at wither as 61.48 ± 0.57 cm in adult Assam Hill Goat of 2-4 yr age group. Growth characteristic for the height of this breed was similar to those of long sized breeds of goat like Vembur, Sirohi and Jamunapari.

Hair length

In the present study, more hair growth was observed in male goat than that of female and the hair was of coarse type. The average hair length has been recorded as 27.84 ± 0.46 and 14.59 ± 0.49 cm in males and female, respectively and the hair length was found to be longer in male than that of females. Other common goat breeds in the region *i.e.*, Black Bengal and Assam hill goats don't have any significant hair growth that may be used for the preparation of any hair products of human use. Thus, the growth of long hairs is an additional characteristic of this breed of goat which makes it a more useful than other goat breeds of the region.



Fig. 3: NLHG White hair coat



Fig. 4: NLHG Jet black hair coat

Lactation and Kidding

The milk yield of adult doe of NLHG had been recorded as 343.33 ± 18.37 g. It was found that the adult doe gave birth to single kid or twins and occasionally triplets. The average litter size in long

hair goat has been observed as 1.67 ± 0.11 which is comparable to that in Black Bengal goat having litter size as 1.95 ± 0.74 (Miah and Alim, 2009). Thus, the Long hair goat is a moderate milk producer animal with good litter size.

CONCLUSION

On the basis of the information obtained from the present study, it can be concluded that NLHG is a medium sized animal having complete black or white coat with occasional patches of white and black colour. The growth rate of this animal is higher than that of Assam hill goat and Black Bengal goat, which is found in the similar agro-climatic condition of the region. In addition to this Long hair goat produces good quality of long coarse hairs. The adult does are moderate milk yielder. These types of goat also have high potential to be used as a good source of meat animal in the region. This animal has not been fully explored for its potentials and needs to be characterized for exploring the possibilities to place it as recognized breed of goat.

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