

ORIGINAL ARTICLE

Conception rate of Black Bengal on frozen semen of Boer and its effects on growth performance of crossbred goat (Black Bengal X Boer) in Bihar

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ABSTRACT

A study was conducted at Animal Production Research Institute (APRI), RPCAU, Pusa, Bihar to investigate the efficacy of frozen semen of Boer, success of AI technique, and conformation of site of semen deposition, conception rate in Black Bengal and performance of their kids under semi intensive system in hot humid climate of North Bihar. For this Ten Black Bengal (*Capra hircus*) goats (average body weight 21 kg) of second kidding were inseminated with semen of Boer goat with maintaining the standard managemental practices and found about 60% conception rate which indicate success of cross breeding, conformation site of semen deposition and technique. The Boer semen straw was collected from Bangalore (institute) for Artificial insemination (A.I) in Black Bengal. Thus, it was found that crossbred progeny is superior in comparison to pure breed of Black Bengal in respect of birth weight, weight at 3 months, 6 months, 9 months and 12 months of age as well as daily weight gain. So, this cross breed (Black Bengal X Boer) may be recommended for farming among the farmers.

KEY WORDS: -Frozen semen, Conception rate, Boer Goat, Black Bengal Goat, Cross Breed, Birth weight, Weight Gain, Semi- intensive

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INTRODUCTION

With increasing high demand and consumption of goat meat in eastern states of India, there is a big goat market so that goateries are an important occupation particularly for poor community for their socioeconomic & livelihood improvement. Particularly, the role of animal husbandry is the backbone of the rural Bihar. The goat population of the Bihar ranks 3rd (12 million) in India (135.17 million) as per 19th livestock census 2012. Most of the goat (90%) in country is Black Bengal [2]. Consumption of goat meat is increasing rapidly due to its social acceptability, this sector has tremendous potential in employment generation, income, sustainability and foreign exchange earnings. Black Bengal Goat is globally known for its prolificacy, excellent meat quality, adaptability to hot humid conditions of Bihar [3, 5, 6, 7, 11, 12, 16]. Apart from these Black Bengal goat kids more commonly thrive in two years, twinning is more frequent (56.32%) and quadruplet is least (2.11%) as reported by Hassan and co-workers [8]. However, Black Bengal goat is reported to have a slower growth rate, low producer of milk [7, 2, 4, 10, 11] whereas the Boer is the fastest growing breed of goat. Furthermore, Black Bengal is the heritage and pride of eastern and north eastern part of India and a major meat productive animal in West Bengal, Jharkhand, Orissa and Bihar [15, 16]. Boer goat is considered to be one of the desirable goat breeds for meat production worldwide with excellent body conformation and prolific breeder. Its average daily gains were 240, 238 and 218g/day for singly, twin and triplets Boer kid respectively [4]. The desirable genetic traits for meat production of Boer are birth weight, growth rate, weaning weight, breeding weight, mature weight, kidding rate, carcass quality as reported by Haas, [9], Brown and Machen [5] and Cameron *et al.*, (2001). Therefore, the present study was carried out with aim to evaluate the effect of frozen semen of Boer on

conception rate of Black Bengal goat and develop a cross breed having better growth rate, milk yield and survivability so that socioeconomic of the farmers could be improved.

MATERIAL AND METHODS

The present study was conducted at Animal Production Research Institute (APRI), Dr. Rajendra Prasad Central Agricultural University, Pusa, Samastipur (Bihar) to produce crossbreed progeny. For this study 10 Black Bengal (*Capra hircus*) goats having average body weight 21kg. of second kidding were selected. The frozen semen of Boer goat which was brought from Bangalore (institute), and Artificial insemination (A.I) technique was used as suggested by Leboeuf *and co-workers* [14] under semi intensive condition throughout the study. Others health care *viz*; deworming, vaccination *etc.* were maintained. The goats were tested for pregnancy after 3 months through abdominal palpation to evaluate the conception rate. After successful kidding the growth performance of 10 crossbreed progeny (Black Bengal X Boer) were evaluated. The body weight (kg) of crossbreed kids and Black Bengal kids were recorded at the time of kidding, 3 months, 6 months, 9 months and 12 months of age. Average daily wt. gain (g/day) of crossbreed kids and Black Bengal kids were also estimated.

RESULT AND DISCUSSIONS

The result showed that about 60% goats were found positive pregnancy which conform the efficacy of AI technique, site of semen deposition and conception rate in Black Bengal goat. Amoah & Gelaye [1] also reported conception rates of goat in range of 50% to 70%. The mean birth weights (Kg) of Black Bengal and crossbreed kids were estimated as 1.42 ± 0.17 and 2.36 ± 0.35 respectively whereas it was 5.75 ± 0.29 , 9.54 ± 0.35 , 12.31 ± 0.45 , 15.30 ± 1.37 at age of 3 months, 6 months, 9 months and 12 months respectively for Black Bengal which is close agreement with as reported by Jalil [13] as 5.65, 9.63 kg respectively while it was 10.85 ± 0.40 , 16.00 ± 0.40 , 21.60 ± 0.96 and 27.20 ± 1.35 for crossbreed goat. The mean daily body weight gain (g/day) was estimated at 3 months, 6 months, 9 months, 12 months of age and found to be 48.18 ± 3.45 , 45.39 ± 1.89 , 40.15 ± 2.02 and 38.33 ± 3.81 respectively for Black Bengal kids while it was estimated comparatively more as 92.27 ± 3.17 , 75.79 ± 3.21 , 71.14 ± 2.68 and 68.05 ± 3.16 respectively for crossbreed kids. The estimate of birth weight shows that crossbreed goat has more birth weight as compared to pure breed (Black Bengal) which may be due to genetic effect. These trends have also been marked at 3 months, 6 months, 9 months and 12 months of age. The average daily weight gain also showed increasing trend at certain age life which indicate that the body weight at any stage (growing stage) of life is depend on birth wt. of the individual. Thus, crossbreed progeny is superior to pure breed (Black Bengal) in respect of birth weight, body weight at 3 months, 6 months, 9 months and 12 months of age as well as daily weight gain, so it may be recommended for farming but further need research on large data set.

Table 1: The comparative Body and comparative Average wt. of kids in both breeds at 3 months and 12 months of age

| S.No. | Parameters | Cross breed kids (BB x Boer) | Black Bengal kids |
|-------|---|---------------------------------|-------------------|
| 1. | Birth wt. (kg) | 2.36 ± 0.35 | 1.42 ± 0.17 |
| 2. | Body weight of kids at 3 months (kg) | 10.85 ± 0.40 | 5.75 ± 0.29 |
| 3. | Body weight of kids at 6 months (kg) | 16.00 ± 0.41 | 9.54 ± 0.35 |
| 4. | Body weight of kids at 9 months (kg) | 21.60 ± 0.96 | 12.31 ± 0.45 |
| 5. | Body weight of kids at 12 months (kg) | 27.20 ± 1.35 | 15.30 ± 1.37 |
| 6. | Average daily wt. gain at 3 months (gm/ day) | 92.27 ± 3.17 | 48.18 ± 3.45 |
| 7. | Average daily wt. gain at 6 months (gm/ day) | 75.79 ± 3.21 | 45.39 ± 1.89 |
| 8. | Average daily wt. gain at 9 months (gm/ day) | 71.14 ± 2.68 | 40.15 ± 2.02 |
| 9. | Average daily wt. gain at 12 months (gm/ day) | 68.05 ± 3.16 | 38.33 ± 3.81 |

The animals were allowed to grazing with officering concentrated feed. The animals were vaccinated against Peste des Petits Ruminants (PPR) disease.

CONCLUSION

Under standard manage mental practices the Black Bengal goat of second kidding showed 60% conception rate with Boer frozen semen through A.I technique in agro –climatic condition of Bihar. The experimental results showed that 60% conception rate in black Bengal Goat and also observed that depth of semen deposition affected pregnancy rate. It is also concluded that, whenever the semen deposited in deeper the genital tract during AI lead to higher rate of pregnancy without any adverse effect like dystocia and other factors. The crossbred progeny (Black Bengal x Boer) is superior to pure breed (Black Bengal) in respect of birth weight, body weight at 3 months, 6 months, 9 months and 12 months of age as well as daily weight gain, so it may be recommended for farming.

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