Research Article

STUDY OF PRODUCTION AND REPRODUCTION PARAMETERS OF BOER GOATS IN NATIONAL LIVESTOCK BREEDING OFFICE, POKHARA

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Abstract

The study revealed the performance of Boer goat raised at NLBO, Pokhara which can be representative result in context of Nepal. The secondary data of FY 2074/75 and 2075/76 were collected and arranged in MS Excel 2016 Pro plus. The analysis of data of total population of goats was done by descriptive statistics. The average birth weight of kids(n=71) and average weaning weight (n=28) was 3.34±0.77 kg and 14.59±4.13 kg respectively. The male was found to be significantly($p<0.05$) heavier than female. There was no significant ($p<0.05$) effect of birth type in birth weight. The average preweaning daily gain for male and female was 137.86±43.57 g/day and 107.15±41.57 g/day respectively. The average gestation length in 1st and 2nd parity was 149.59±6.14 (n=37) and 149.06±4.32 (n=17) respectively. The kidding rate seems increasing with each parity viz. 126.5% (1st parity) and 161.1% (2nd parity). The twinning rate was 49.29%. The kidding interval (n=18) was lengthy 307.61±40.41 days. The above findings were based on short duration of time so further research should be done to evaluate long term data to find more precise parameters.

Keywords: boer goat, birth weight, kidding rate

Introduction

The 65.6% of total population is based in agriculture occupation in which livestock contributes for 13% of total GDP (MoLD, 2017). The total population of goats in number of heads is 11,225,130 while about 2,463,253 household rear goat (MoLD, 2017). The Khari being native breed of Nepal is concentrated in terai region with high resistance trait towards environment and disease but comparatively low meat production in contrast to Boer goat. Boer goat has excellent body conformation, fast growing rate and good carcass quality (Lu.,2001). As the farmers willing to improve their economic status through goat farming are adopting this new breed in fast rate and crossing with native breed Khari. The grading up has its own merit and demerit. With this fact, the government authorities have been concerned regarding this issue.

Materials and Methodology

Study area: National Livestock Breeding Office, Pokhara of Kaski District of Gandaki Province with subtropical climate.

Study animals: This study was performed in Nepali FY 2074/75 and FY 2075/76 of NLBO, Pokhara where 100% pure Boer goats are maintained. Total 71 kids were produced from 37 breeding Boer does served with 3 Boer bucks, among which 37 were males and 34 were females. The total of 29 kids were nursed for 3 months before weaning. The birth weight measurement is done on the same day of birth and the body weight is measured on monthly basis. The weaning is done at 3 months of age. The Boer goats are stall fed with closed housing system.

Data collection and statistical analysis:

The secondary data of two consecutive FY 2074/75 and 2075/76 were collected and arranged in MS Excel Professional Plus 2016.

- Production performance parameters: Average Birth weight, Average weaning weight, Average daily gain(g/d)
  The weight of male and female at birth was compared using t-test.
- Reproduction Performance:
  Average gestation length
  Kidding interval
  Kidding rate= No. of kids born/no. successful mating * 100%
  Twinning ability= No. of twins/total no. of kids* 100%

Results

1. Production performance

Table 1: **Birth weight, weaning weight and preweaning body weight gain of kids born in FY 2075/75 and 2075/76**

Classes	No. of kids	BW (kg) Mean ± SD	No. of kids	WW (kg) Mean± SD	Preweaning body weight gain (g/day)
Overall	71	3.34±0.77	28	14.59±4.13	
Birth type					
Single	33	3.7±0.66	19	15.85±3.88	
Twin	35	2.93±0.65	9	11.94±3.01	
Sex					
Male	37	3.56±0.73	13	15.94±4.06	137.86±43.57
Female	34	3.17±0.77	17	13.18±3.87	107.15±41.57

In this study, t=0.01, P<0.05, meaning that the t- test is significant i.e. weight of male kid is higher than female at birth.

1. Reproductive performance:

The gestation length, kidding interval and kidding rate were studied according to the data of FY 2074/75 and FY 2075/76 of Boer goat farm of NLBO. The results are shown in tables below.

Table 2: **Average gestation length and kidding rate according to parity**

Parity	Gestation period (Mean± SD) days	Kidding rate (%)
1st	149.59±6.14 (n=37)	126.5%
2nd	149.06±4.32 (n=17)	161.1%

Kidding interval was found to be 307.61±40.41 days for 18 Boer does. The overall twinning ability of does (twins n=35, does n=37) was found to be 49.295% for two consecutive years 2074 and 2075 B.S. Prolificacy or kidding rate in this herd was found to be 148% or 1.48 kids per doe for two consecutive years.

Discussion

The average birth weight of Boer kids in this study is in line with the data published on annual report 2074/2075 of GRS, Bandipur i.e. 3.34 kg whereas the birth weight of Khari goat is 1.63 kg. In other country like Egypt, Abd-Allah. S et al reported the birth weight 3.20±0.0210 Kg of Boer kids. The birth weight of Boer kids ranges from 3 to 4 kg with male kids weighing about 0.5 kg heavier than female. Boer kids at weaning age can gain from 20 to 25 kg (Lu, 2001).

The body weight can be influenced by genetics, nutrition, health and disease, breeding age and method and management system. The feed formulated as <2% body weight and feeds with imbalanced crude protein may have attributed for lesser weaning weight at NLBO. As well as the kids are fed along with dam due to which kids might not have get adequate nutrients for growth. Blackburn (1995) reported that Boer goats will not maintain a productive advantage when forage conditions are less than optimal. The mean kidding interval(n=18) was found to be 307.61±40.41 days over two consecutive years which is much higher than that of reported viz. 258 days (Webb et al.,2004) and 265.35 ± 4.42 days (Duricic et al, 2012). This might be due to the data of limited time period as well as the Boer Doe brought from Australia and Bandipur, Nepal were acclimatizing in the environment of Pokhara. In addition to this nutrition and intensive farming practice might contribute to higher uterine involution time period. The longer gestation period also contributed to longer kidding interval in this study. The kidding rate (see table 2) seems to be increasing with increase in parity which is in line with authors. The prolificacy/ kidding rate finding of this study was 148% is much lesser than the finding reported by Duricic et al (2012) i.e. 180% and Malan, 2000 i.e. 189%. This might be due to study of data of limited time period. However, the twinning ability (n=35) was found to be 49.295% which is in line with many authors.

Conclusion

The study revealed the performance of pure Boer goats in the climatic condition of Pokhara under the management of NLBO. The productivity of any breeding female is determined by the number of progenies delivered in a given period of time (Greyling, 2000). The average birth weight is optimal while average weaning weight is suboptimal which is suggestive of good average daily gain if the feeding regime is improved and can reach up to breed standard. This signifies good body condition at sexually mature age rendering healthy kids bearing capacity in female and normal semen production in male. As the Boer goat is highly adaptable breed, the productive as well as reproductive performances would improve with time. The kidding rate and twinning rate has revealed this fact. In GRS, Bandipur with good management practices, the largest Boer breed stock has been raised without any major complications and it has sustained well in the hilly region as well. The results (kidding rate with parity, twinning rate, weaning weight) of this study favor the Boer goat to be used as superior breed in context of Nepal. However, the nutrition and herd health management play key role in sustainable Boer farming. In a nutshell, this study concludes that the Boer goat can give better production and reproduction performance in environment of Nepal. The above findings were based on short duration of time so further research should be done to evaluate long term data to find more precise parameters

Recommendation

The improved nutritional regime with seasonal fodder should be incorporated in management system of Boer Goat farm at NLBO to meet the breed standard performance. The stocking density is currently high which can be managed by building new sheds as the old sheds are too old for animals to remain healthy. Time to time disease screening tests is also important to keep the nucleus herd intact. This study can be utilized as the resource for evaluation of the Boer farm status and implement improvement on required aspects by NLBO. The basis for better production and reproduction performance lies in herd management, nutrition and health.

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