SHORT COMMUNICATION

Reproductive Traits in Berari Goats of Vidharbha Region of Maharashtra

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Abstract

The objective of this study was to examine the different benchmarks of reproductive traits in Berari goats. The Berari goat was recently recognised as India's 23rd goat breed at the national level. The study was carried out for 18 months on 12 female Berari goat kids. The different benchmarks of reproductive traits observed non-significant difference in single and twins born kids such as age at puberty, age at maturity, duration of estrus, average weight at conception, age at kidding, time required for kidding and gestation length, which were found within normal range for the other breeds of goat. It was concluded that the Berari goat breed has lower age at first estrus, age at first kidding and higher reproductive performance, which can be exploited for improving the breeding efficiency of local non-descript goat population.

Keywords: Berari goat, Estrus, Gestation, Puberty, Reproductive traits.

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Introduction

The Berari is a newly recognized 23rd breed of goat in India (INDIA GOAT 1100 BERARI 0623) from India's central region, which is primarily used for meat by local farmers. The breed derived its name from its native region Berar, which was a province in central India and covered much of present-day by Madhya Pradesh, Chhattisgarh and Vidharbha region of Maharashtra. As the goats are found in Berar region, so named as Berari. (Kuralkar *et al*. 2013). The animal's growth is the result of a complex relationship between the animal's genetic ability, various hormones, feed supply, and the environment. Hence looking towards the above fact and limited data available regarding benchmarks of reproductive traits in Berari goats present study was conducted to record birth weight, age at puberty, age at maturity, duration of estrus, average weight at conception, gestation length, age at first kidding, and time required for kidding in Berari goats.

Materials and Methods

The current study was carried out for 18 months on 12 newly born female kids at the Berari Goat and Deccani Sheep Research, Demonstration and Training Center, Borgaon Manju, Post Graduate Institute of Veterinary and Animal Sciences, Akola, Maharashtra. All goats used for study were maintained under uniform management and feeding conditions. To study the reproductive performance several parameters were studied including the birth weight of newborn kids. Following that the body weights of kids were regularly recorded every month starting on the day of their birth to puberty. The other reproductive parameter such as age at puberty, age of maturity, duration of estrus, weight at conception, gestation length, age at first kidding, and time required for kidding were recorded.

Results and Discussion

In the present study out of 12 kids, 04 were twin births and 08 were single births. The mean birth weights and corresponding monthly weights are presented in Table 1.

The data reveal that the birth weight of twins born kid was less than single born kid. As the age progressed the body weight of twin born kids observed was less as compared to single born kids. The body weight at sexual maturity observed in single and twins born kids were 14.85±0.62 and 14.01±0.11 kg, respectively. The birth weight and weight at

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Table 1: The Mean (± SE) body weight (kg) at monthly interval from birth to maturity in Berari kids

Period (Days)	*Body weight (kg) Single birth (08)*	*Body weight kg) Twin birth (04)*	*Overall Weight (kg)*
0 (Birth)	2.07 ± 0.08	1.96 ± 1.21	2.01 ± 0.64
30	3.54 ± 0.23	2.78 ± 0.31	3.16 ± 0.27
60	5.33 ± 0.37	4.65 ± 1.01	4.99 ± 0.69
90	6.92 ± 0.46	5.78 ± 0.42	6.35 ± 0.44
120	8.43 ± 0.56	7.68 ± 1.12	8.05 ± 0.84
150	9.02 ± 0.55	8.87 ± 0.41	8.94 ± 0.48
180	10.00 ± 0.50	9.52 ± 0.14	9.76 ± 0.32
210	11.07 ± 0.48	10.29 ± 0.32	10.68 ± 0.64
240	12.45 ± 0.57	11.97 ± 0.16	12.21 ± 0.36
270	13.73 ± 0.64	12.85 ± 0.51	13.29 ± 0.89
300*	14.85 ± 0.62	14.01 ± 0.11	14.43 ± 0.36
330	15.98 ± 0.58	14.87 ± 0.21	15.42 ± 0.39
360	17.01 ± 0.44	16.68 ± 1.84	16.84 ± 0.29

*age at sexual maturity.

Table 2: Different reproductive traits of Berari goats in single and twin birth

Parameters	*Single (08)*	*Twin (04)*	*Overall*
Age at puberty (days)	328.5 ± 4.77	334.41 ± 0.75	331.45 ± 2.76
Age at sexual maturity (days)	350.23 ± 4.71	358.14 ± 1.16	354.18 ± 2.9
Duration of estrus (hrs)	26.41 ± 1.87	24.89 ± 7.62	25.65 ± 4.7
Weight at conception (kg)	17.01 ± 0.44	16.88 ± 1.84	16.94 ± 2.28
Gestation length (days)	148.71 ± 2.73	151.25 ± 6.75	149.98 ± 4.74
Age at first kidding (days)	500 ± 7.04	512 ± 0.18	503 ± 3.61
Time required for kidding (min)	110.85 ± 6.25	118.27 ± 0.65	114.56 ± 3.45

maturity of single and twins observed in present study were in accordance with Siddiqui *et al*. (1981).

The details of different reproductive traits observed in Berari goats in present study are depicted in Table 2.

The data in Table 2 reveal that the Berari goats attend the different reproductive traits such as age at puberty, age at sexual maturity, duration of estrus, weight at conception, gestation length, age at first kidding, time required for kidding were within the normal range for the other breeds of goat.

In the present study, 66.66% single kidding observed in Berari goats might be due to more number of primipara goats that give single birth, which is in accordance with Das *et al*. (2008), who stated that primipara goats deliver highest percentage of single kids. In contrast to present findings Tomar and Kumar (2004) reported 87.69 % single kidding in Sirohi goats, while Nimbkar (2014) and Roy *et al.* (2007) reported 40 and 44.44% single kidding in Osmanabadi and Balck Bengal goats, respectively. The 33.33% twining percentage observed in Berari goats is low as compared to other breeds of goats, which might be due to first parity that is less likely to produce twins, while during second and third parties the twining percentage were found very high (Dangar *et al*., 2019). Roy *et al*. (2007) reported 44.44 single and 55.56 % twin birth in Black Bengal goats, which is lower than the present finding. This variation might be due to breed characteristics or difference in the management and feeding practices and parity.

The overall age at puberty observed in the present study was in accordance with Bhagat *et al.* (2016), who reported 342.13 ± 2.34 days in Kokan Kanyal Goats, while Goel and Agrawal (2004) reported it as 325 days in medium size goats. In contrast to the present findings, Kharkar *et al.* (2014) and Mohmad *et al.* (2014) reported the age at puberty in Berari and Black Bengal goats as 292.10±1.66 and 197.82±12.5 days, respectively. Similarly Das *et al.* (2008) reported that the age of puberty in Black, White and Brown Bengal goats were 203.24±3.90, 196.72±4.17 and 199.28±3.94 days, respectively, which is lower than the present findings. The variation in age at puberty might be due to the effect of year of birth, season of birth and birth weight, which significantly affect the age at puberty (Bhagat *et al*., 2016).

The overall age at maturity observed in present study is in accordance with Kuralkar *et al*. (2013), who reported 10 to 11 months as the age of sexual maturity in Berari goats. In contrast to the present findings Sarode and Bonde (1988) reported the age at sexual maturity ranged from 266±16 to 298±21 days in Osmanabadi goats which is lower than

the present findings. This might be attributed to breed characteristics, the system of management, level of nutrition and season of birth (Goel and Agrawal, 2004).

The mean overall duration of estrus observed in Berari goats under study concurred with Farshad *et al.* (2008) in the Markhoz breed as 23.82±12.3 hrs. Similarly, Greyling (2000) recorded the mean duration of estrus period in Boer goats as about 37 hrs. From the present observation it can be stated that the duration of estrus in Berari goats is at par with the other indigenous and exotic breeds of goat. The present finding regarding gestation length was in accordance with Roy *et al.* (2007) and Patel and Pandey (2013), who reported gestation length of 144.08 ±1.01 and 148.97±0.28 days in Black Bengal and Mehsana goats, respectively.

The overall age at first kidding in Berari goats from present study was in agreement with Verma *et al.* (2009), who reported 430.07± 5.8 days in Pantja goats. In contrast, Sing and Roy (2003) and Tomar and Kumar (2004) reported age at first kidding as 773.44±13.28 days and 866.31±49.77 days in Jamunapari and Sirohi goats, respectively. The overall time required for kidding observed in present study was in concurrence with Roy *et al.* (2007) as 108.53 ± 2.58 minutes in Black Bengal goats. In contrast, Verma *et al.* (1991) reported 85.05 and 103.06 min time for kidding in single and twin birth, respectively.

Conclusion

The Berari goat is low yielding medium size meat breed thriving well in tropical wet and dry region of Vidharbha of Maharashtra. The breed has lower age at first estrus, age at first kidding and higher reproductive performance, which can be exploited for improving the breeding efficiency of local non-descript goat population.

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