



Reproductive performance of Changthangi Pashmina goats

M SHARIEF¹ and F D SHEIKH²

*Sher-e-Kashmir University of Agricultural Sciences and Technology of Kashmir
Ladakh, Jammu and Kashmir 194 101 India*

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India has wide variety of goat breeds inhabiting from temperate cold arid to hot tropical region. One of the best breeds of goat known for its fibre is the Pashmina goat of Leh (Ladakh) district of J& K state, which contributes 90% of the total pashmina (cashmere) production of India. These goats of arid region are well adapted to the extreme climatic conditions and categorised as Changthangi goat breed, which still requires its recognition. Though it plays an important role in the economy, very little work has been carried out in the breed. Studies on the reproductive performance of Changthangi breed of Pashmina goats are few, because of its geographical isolation. With a view to ascertain the reproductive performance of this breed of goat in its natural habitat, this study was under taken.

Data collected from over 500 Changthangi pashmina goats born over a period of 7 years (1988–1995) in J&K state government Pashmina goat farm (Leh autonomous hill development council) located at 33° 0' 45"N (latitude) and 77°, 40"E (longitude) and on an altitude of 3650 m above

Table 1. Least square means of birth weight

Factors	N	Least square mean
General mean	550	2.073±0.15
<i>Parity of dam</i>		
1st parity	136	1.968±0.27
2 nd parity	122	2.022±0
3 rd parity	116	2.105±0.37
4 th parity	105	2.123±.35
5 th parity	71	2.119±6.48
<i>Sex of kid</i>		
Male	230	2.160±0.25
Female	320	1.986±19
<i>Type of birth</i>		
Single	535	2.271±0.16
Twin	15	1.875±0.14

Present address: ¹Assistant Director, Sheep Husbandry Department Leh, Pashmina Goat Farm, Khuril, Nyoma Leh, Ladakh.

²Assistant Professor, Animal Breeding and Genetics.

Table 2. Mean and standard error of different reproductive traits

Traits	Mean±SE
Litter size (no.)	1.02±0.50
Service period (days)	227.79±52
Birth weight (kg)	Male 2.327±0.25 Female 2.179±0.19
Kidding (%)	97.58±2.23
Age at first tugging	550.33±7.20
Overall age at first kidding	699.44±10.23
Age at first kidding	151.08±0.50
Kidding interval	366.45±3.43

msl. The climate at the farm is harsh and arid; the temperature varies from –25°C in January to 0.8°C in July.

The data were analysed for the parameters, viz. age at first tugging, litter size, age at first kidding, gestation period, kidding interval, birth weight, twinning percentage, to evaluate the reproductive performance of these animals. The data were analysed by least square analysis of variance technique (Harvey 1979) with use of model having age at first kidding, gestation period etc, as fixed factors.

The data on different parameters is given in Tables 1-4. Analysis of variance for birth weight indicated that the overall age at first tugging in the present study is 550.3±7.12 days, which is in agreement with the report of Jian and Zhang (1983) in Liaoning breed of Cashmere goats. The overall age at first kidding was recorded as 699.44±10.23 days, which is in agreement with the reports of Mitta (1991). A gestation period of 151.08±3.43 days is in agreement with the reports

Table 3. Least square mean of kidding interval in Changthangi goats

Inter-kidding period	N	Least square mean±SE
First	135	359.30±5.28
Second	142	356.25±6.63
Third	115	356.36±7.42
Fourth	63	352.36±7.42

Table 4. Effect of parity, sex of conceptus and type of kidding on mean (SEM), length of gestation period in Pashmina goats

Factors	N	Gestation period least square mean	SE
General mean		151.05508	±0.5
<i>Parity of dam</i>			
1 st parity	136	151.34abc	±0.41
2 nd parity	122	152.97	±0.88
3 rd parity	116	151.67	±0.96
4 th parity	105	151.11	±0.81
5 th parity	71	151.34	±0.62
<i>Sex of conceptus</i>			
Male	230	151.45	±0.13
Female	320	151.19	±0.29
<i>Type of conceptus</i>			
Single	535	151.27	±0.52
Twin	15	151.10	±3.16

Values with unlike superscripts within a column differ significantly (P 0.05).

of Prakash and Singh (1985). The litter size was recorded as 1.62 kids. Similar were the reports of Rajiv Kumar (1992). In Pashmina goats twinning was not common (less than 1%). The kidding % was recorded as 97%, similar reports were made by Johnson (1985). Overall birth weight in the present study is 2.073 ± 0.13 kg. Male at birth were significantly heavier than females and similar were the reports of Darokhan and Tomar (1983). Type of birth influenced the birth weight significantly ($P > 0.01$). Kids born as single were significantly heavier (2.271 vs 0.16 kg) than kids born as twins (1.875 ± 0.14 kg). Similar are the findings of Verma *et al.* (1991) for Jamunapari goats.

SUMMARY

The study was under taken to establish a base data generation regarding the production parameters of Pashmina goats in its native tract. Its reproductive performances in the extreme cold condition of the region, are appreciable. Around 500 pashmina goats from different areas of Changthang region of Leh district were randomly accessed for its reproduction performance. LSM method was used to find out the different reproductive traits. The overall age at first tugging was recorded as 550.33 ± 7.12 , with an overall age at first kidding as 699.44 ± 10.23 days. The gestation period was noted as 151.08 ± 0.5 days. The average birth weight in this breed was recorded as 2.32 ± 0.25 and 2.179 ± 0.19 in male and females respectively. A litter size of 1.02 ± 0.50 indicates nature's own way for survivability in this region. However the kidding % in this breed of goat was 97.58 ± 2.23 . It was also observed that the type of birth has a significant influence on birth weight.

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