

Gurez - a threatened sheep breed of Kashmir

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Gurez is a well known breed of sheep limited to only Gurez Tehsil located in the basin of the River Kishan Ganga in District Bandipora (earlier under Baramulla district) of Kashmir Division of Jammu and Kashmir. The breed is well adapted to the local agro-climatic conditions of the region and is reared mainly by the 'Dardi' tribe. This breed is popular for its meat and fibre suitable for making apparel or carpet. In addition to these, it also provides little amount of milk. The animals of this breed have distinct physical, productive and reproductive characteristics. But, detailed and proper documentation of performance characteristics as well as population status of Gurez breed was not available as no systematic survey had been conducted earlier. The present population status and breeding strategies followed in the area threaten this unique animal genetic resource of our country to be extinct in near future.

A systematic field survey for characterization and evaluation of Gurez sheep was undertaken in its actual breeding tract to assess its importance so that this breed can be saved for the future. It included collection of information as per the recommendations of National Bureau of Animal Genetic Resources (NBAGR), Karnal from all 45 villages of 2 developmental blocks, comprising of the whole breeding tract. Only 747 heads of animals were come across during the present study in the actual breeding tract which indicates a very small population size of Gurez sheep.

The breeding tract of Gurez sheep is located between longitude 74°40' to 74°90' E and latitude 34°15' to 34°45' N with minimum elevation of about 3200 M above mean sea level (amsl) and the maximum height of the inhabited village is 4100 m. The locality comprised of mountainous area as well as basin of the river Kishan Ganga. The soil of the area was of loamy type with high silica contents. The pastures in

the breeding tract were of alpine (mountainous) type. Summer or autumn grazing of the livestock was carried out in alpine pastures which were located over 4000 m AMSL. The sheep was migrated back to low land in late autumn and graze in the surrounding villages in the radius of 3 to 4 km and here the topology of the grazing area was mountainous too. The pastures had brooks and stream flowing down from the melting snow/glaciers and this water was also taken by the sheep for quenching their thirst. The temperature of the region varied from -9.02°C (January) to 32.43°C (July) with an average of 7.88°C. The average annual rainfall was 124.79 mm.

The animals were reared using a mixture of stall feeding, semi-stall feeding and grazing alone. In the extreme winter (December to March) sheep were totally stall fed, in April semi-stall fed, and in the summer till late autumn they were kept on grazing alone. Gurez Sheep were migrated to high land pasture during summer and grazing continued till evening in the pastures. The predominant highly nutritious grasses in the pasture were *Trifolium pratense*, *Trifolium tomentosum* and *Lespedeza serices*. During autumn animals were grazed on the dried grasses of the mountains available in the vicinity of the villages. No fodder crop was cultivated in the area. The dry fodder was produced from wild grasses, straw of maize and wheat and mixed jungle hay. The grains like maize, wheat and locally grown pea were also fed to the animals. During the winter animals were fed on the dried wild grasses and hay @ 1.0–1.5 kg/sheep/day. During extreme winter the animals were also given crushed maize @ 200 to 300 g/animal/day and even boiled potatoes. Concentrates were given to the sheep in advance pregnancy or to all animals during extreme winter @ 500 g concentrate to adults and @ 250 to 300 g to the weaners. The lambs were let for grazing with their mother after few days of confinement and they remained with the flock where they suckled their mothers as well as graze. As the mountainous area was deficient in minerals like Iodine and Phosphorous, the farmers provided iodized salt to their sheep regularly at 15-day-interval.

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During the day time animals were let loose in the field for grazing and no housing was required. From May to November only night shelters were provided. But from December as the temperature dropped very quickly, both day and night shelters were needed upto the end of April. While the animals were in high land pastures from June to September no housing was needed. Animals were kept in temporarily made paddocks from fallen log of wood or piled stones to ward off from the attack of wild animals, further during night camp fires were lit at two to three places around the paddocks. At the time of lambing no special housing was provided, only the ewes were separated to a corner in the same pen with some straw flooring. After lambing ewes were confined for 4 to 5 days and the type of housing depends on the season of lambing.

The commonly found diseases were of bacterial and parasitic origin, like pneumonia, diarrhoea, small pox, fascioliasis, haemonchosis, dicrocoeliasis etc. Vaccination against sheep pox, clostridial and other diseases besides dosing with anthelmintics and dipping against mange and ectoparasites were practised by the farmers. The lamb mortality was found the highest (4.76%) at 4 months and above age group and the lowest in the age group of less than 1 month (3.62%).

Though white body was predominant in both the sexes (Fig. 1), few animals of brown and black were also found. No distinctive colour marking in the body was present. Similar observations were found by Acharya (1982). The head profile of Gurez sheep was slightly convex. The ears of Gurez were horizontal with varying length. About 4% of sheep had very small to rudimentary whereas some animals had medium to long ears. The average length of the ears in males and females were 12.15 ± 0.53 and 11.92 ± 0.44 cm, respectively. Wattles were present in less than 5% of Gurez population. Sheep of this breed were with rudimentary, normal horns or polled. Normally, Gurez sheep had two horns, but sometimes they may be

polycerrous with maximum number of horns to be six. The horns were brown to creamy, curved with an average length of 28.4 and 15.1 cm, in males and females, respectively. The tail was thin, straight and medium in size. The animals had woolly coat with short fleece length at six months and medium at 12 months age. The wool was non-lustrous having low crimpiness and fineness varied from medium to coarse type. The head and face were bare, but was partially covered by wool in some animals and bare in others. While the head and face were completely bare, the belly was completely and legs were partially covered by wool.

The males had higher body length, girth and height at wither compared to the females at birth, three months and at one year and above of age. However, this trend was reverse, i.e. females had slightly higher value for these traits at six months' age. At the time of birth and three months of age, the males were slightly heavier than the females, but at six-months age the females grew faster and achieved higher body weight than the males. At the age of one year and above, though the males were little heavier, there was insignificant difference in body weight between the two sexes. The measurements for different morphometric traits and body weight of Gurez sheep are given in Table 1. The animals of this breed were a good producer of meat. Males were slaughtered at much younger age (1.5 to 2 years) compared to the females (above 6 years). Females were mainly reared for producing lambs; thus they had higher mature body weight at slaughter than the males. The dressing percentage was around 50% in Gurez sheep. The females were poor milkers and yield an average of 181.05 ± 8.87 ml milk with a range of 50 to 300 ml at seventh day of lactation which goes upto an average of 338.16 ± 17.13 with a range of 50 to 550 ml at 50th day.

The animals were shorn twice a year, in March- April and September- October. On an average 621.77 g of wool was produced in autumn clip. As the animals became older, the



Fig. 1. Gurez ewe (left) and Ram (right)

Table 1. Measurements of different morphometric traits and performance of body weight of Gurez sheep

Traits	Birth		3 months		6 months		>1 year	
	Male (N=491)	Female (N=849)	Male (N=644)	Female (N=1196)	Male (N=412)	Female (N=691)	Male (N=171)	Female (N=407)
Body length (cm)	26.38±0.18 (17.50–39.00)	26.26±0.12 (17.50–37.00)	45.37±0.15 (33.02–58.42)	45.03±0.10 (35.00–64.00)	47.29±0.51 (27.50–70.00)	47.72±0.40 (27.50–71.00)	60.24±0.58 (45.72–76.00)	59.94±0.36 (45.72–75.00)
Length at girth (cm)	33.96±0.16 (22.00–42.00)	33.79±0.11 (26.00–45.00)	50.83±0.18 (35.00–68.00)	50.00±0.13 (39.00–63.00)	58.18±0.31 (40.00–75.00)	58.74±0.21 (42.50–75.00)	67.93±0.54 (50.80–84.00)	67.90±0.34 (50.80–86.00)
Height at withers (cm)	24.81±0.16 (16.25–33.00)	24.48±0.12 (16.00–40.00)	42.64±0.14 (30.00–53.34)	42.22±0.09 (32.50–53.34)	46.64±0.30 (32.00–68.00)	47.34±0.22 (32.50–66.00)	57.99±0.56 (43.50–75.25)	57.34±0.36 (36.00–81.60)
Body weight (kg)	2.54±0.02 (1.50–3.50)	2.47±0.01 (1.40–3.50)	8.73±0.08 (4.00–16.00)	8.70±0.05 (5.00–19.00)	21.28±0.25 (12.00–30.00)	21.54±0.19 (11.00–29.90)	28.60±0.28 (24.00–34.00)	28.59±0.19 (23.00–34.00)

yield of wool also increased. The males produced significantly higher fleece than females. The canary coloration had not been observed in the fleece of the Gurez sheep. The average wool production from males and females were 311.12±15.41 and 289.55±9.21 g; 450.31±12.56 and 458.31±9.10 g; 31.96±10.96 and 528.75±7.29 g, respectively, at 0–6 months, 6–12 months and 1 year and above age groups. Acharya (1982) reported an annual greasy-fleece weight of 0.5–1 kg/animal. The staple and fibre length were more in females (4.96±0.11 and 6.92±0.23 cm) when compared with the males (4.62±0.14 and 6.86±0.29 cm); however, the average crimpiness was found more in fibres from males (1.52±0.11 vs 1.47±0.06%).

Like all sheep of the hilly and mountainous sub-continent there was marked seasonality in the reproductive behavior of Gurez sheep. The sheep exhibited estrus during April-May or September-November. However, the major breeding season was September- October. Only natural mating was practised in Gurez sheep and one ram was allotted to 40–50 ewes for breeding. Normally flock mating was practised and a village sheep flock varies between 150 and 300 animals. The age at first mating for male was 1.5 years, whereas it was 1.5 to 2 years in females. The oestrous cycle lasted for 18 to 22 days with duration of 24 h. The majority of the animals lamb during March -April. The age at first lambing varied from 2 to 2.5 years. The average litter size was 1.06. On an average, the females mate 6 to 7 times in a lifetime.

SUMMARY

The present study was the first systematic documentation of Gurez breed of sheep in its actual breeding tract. The knowledge gathered from this study will be immensely helpful in developing plans for package of managerial practices, breeding plan and conservation of this unique animal genetic resource found in the northern part of our country. The farmers are rearing the animals of this breed of their own and no breed improvement programme has been undertaken in the breeding tract. As the population size of this breed is very small, inbreeding and crossbreeding with other sheep of the area pose big threats in near future. Thus, awareness programmes for educating the farmers regarding better feeding, managerial, healthcare practices, and proper breeding techniques to be followed will help in development of a sustainable and profitable sheep rearing system for this breed.

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