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Wool characteristics of Gurez sheep

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Abstract
Gurez sheep is a well-known breed of J&K. It is known for its adaptability, mutton production as well as its wool characteristics. A total of 581 wool samples of Gurez sheep of both sexes were collected randomly and analyzed for various wool quality traits at Fleece Testing Laboratory, Srinagar, Kashmir. These traits included clean wool yield (CWY), fibre diameter (FD), staple length (SL), crimps per inch (CPI), medullation (M) and wool colour. The overall averages for CWY (%), FD (µ), SL (cm), CPI, and M (%) were 76.10±0.13, 28.31±0.17, 4.48±0.07, 5.37±0.10 and 9.29±0.39, respectively. The variance (CV) for all the traits under study was low to high for the traits under study. Highest variance was obtained for medullation. Wool color for the samples was white, brown or black. Our results indicate that the Gurez sheep is a carpet wool breed possessing high within breed variability for the wool quality parameters which can be further analysed and manipulated for better selection decisions.

Keywords: Gurez, sheep, quality, wool

Introduction
Gurez is a well-known breed of sheep found in the Gurez Tehsil located in the district Bandipora of the Kashmir Division of Jammu and Kashmir [1]. The breed is well adapted to the local agro-climatic and geo-physical conditions of Gurez valley and is reared by the 'Dardi' tribe [1]. The breed is known for sturdiness, adaptability, disease resistance [2] and mutton production [1]. Fiber diameter, staple length, crimp, color, and medullation percentage are important in the determination of wool quality in any breed. Staple length and fiber diameter are generally linked with wool processing performance and determine its end use. Gurez sheep is small [3] to medium in sized with white, brown, black and their varying shades [1]. Little information is available regarding the wool characteristics of this sheep breed. Therefore, the present study was undertaken to evaluate the wool characteristics of Gurez sheep in its breeding tract.

Materials and Methods
A total of 581 wool samples of Gurez sheep irrespective of sex were collected from different villages of Gurez area of the Bandapora district of J&K. The wool samples were tested at Fleece Testing Laboratory, Nowsharah, Srinagar for analysis. The wool quality traits included in the present study were clean wool yield (CWY) (%), fibre diameter (FD) (µ), staple length (SL) (cm), crimps per inch (CPI), medullation (M) (%) and wool colour. Measuring scales were used for recording staple length and crimps per inch. Fibre diameter was measured using ermoscopes. Scouring was done in a scouring plant to estimate the clean wool yield which was then estimated using the formullaW2/W1*116 where W1 is the weight greasy weight of the sample, W2 is the scoured weight and the factor 116 is used to take into account the a 16% moisture regain. Wool colour was visualized and recorded in day light. The descriptive statistics was viz: mean, standard error, standard deviation, variance and range for different wool quality traits were computed by SPSS [4].

Results and Discussion
A total of 581 wool samples of Gurez sheep were collected and analyzed to evaluate its wool quality traits. The wool colour in was observed to be predominantly white, black, brown with varying different shades. The overall averages for CWY (%), FD (µ)), SL (cm), CPI, and M (%) were 76.10±0.13, 28.31±0.17, 4.48±0.07, 5.37±0.10 and 9.29±0.39, respectively.

The clean wool yield (CWY) varied within the range of 61.30 to 83.20% and had an average value 76.10±0.13%. However, Qureshi and co-workers [5] in Poonchi sheep observed the estimate of 71.08±2.11% for CWY [6]. Reported a lower estimate of 63.14±0.23 in Poonchi sheep [7]. Reported average CWY of 69.33±0.02% with CV % of 7.22 in Kashmir Merino sheep. The fibre diameter of processed fibre ranged from 23.18 µ to 43.44µ with an average 28.31±0.17µ. The range of fibre diameter (Table 1) indicates that the Gurez sheep have higher fibre diameter than that of other sheep breeds of Jammu and Kashmir [6]. Reported fibre diameter of 24.99±0.13 µ with range of 21.05 µ -32.82 µ in Poonchi sheep whereas [2] reported FD of 20.41 ± 0.01 in Kashmir Merino sheep. The overall average of 4.48±0.07 cm with range of 1.75 cm -10.00 cm was observed for Gurez sheep in the present investigation. The finding is more or less in consonance with the findings of [8], [2], [9] and [7]. The range of crimps varied from 1.75 to 17.00 number/ inch with overall average high CV% of 5.37±0.10 No/ inch and 44.32%, respectively (Table 1). However, lower estimates were observed by [5] and [6] in Poonchi and higher estimate were reported by [7] in Kashmir Merino sheep.

The medullation of only 430 samples were estimated and observed as 9.29±0.39% from total of 581 wool samples of Gurez sheep and the range and CV% of 0.13% to 45.21% and 86.22%, respectively was observed in the present study. Similar mean medullation value with lower CV (22.33%) was reported in Poonchi sheep by [10]. However, higher medumation was reported in in Pugal sheep and Purky sheep by [11, 8] respectively. Lower, estimates of modulation were observed by [7] in sheep reared in Kashmir. The variance of 10.43, 16.40, 2.69, 5.66 and 64.16 for CWY (%), FD (µ), SL (cm), CPI and Medullation (%) was observed in the present study indicating the traits possess low to high variability. Low variance for CWY (%), SL (cm) and CPI was observed in the present study whereas slightly moderate and high variability for FD (µ) and Medullation (%), respectively was observed in the present study. The low variability for CWY, SL and CPI indicated that selection on the basis of collateral relatives and better management practices can improve these trait and moderate at high variability for FD (µ) and Medullation (%) indicated that these traits can be improved by selective breeding.

Table 1: Averages of different wool quality traits

Trait	N	Mean± S.E	Range	Std. Deviation	Variance
CWY (%)	581	76.10±0.13	61.30-83.20	3.23	10.43
FD (µ)	581	28.31±0.17	23.18 -43.44	4.05	16.40
SL (cm)	581	4.48±0.07	1.75-10.00	1.64	2.69
CPI	581	5.37±0.10	1.75-17.00	2.38	5.66
Medullation (%)	430	9.29±0.39	0.13-45.21	8.01	64.16

Conclusion

From the results it was observed that Gurez is a good carpet wool breed having distinct and variably wool characteristics within the breed. This variability can be exploited through selective breeding. Avoidance of breed dilution as well provision of incentives to farmers rearing this breed may go a long way in its conservation. More studies may be required for a full understanding of the genetic variability within this breed.

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