

Research

Phenotypic Characterization and Performance of Jaunpuri goat: A Lesser Known Caprine Genetic Resource of Uttar Pradesh, India

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ABSTRACT

The present study aimed to appraise the phenotypic biometric measurement characteristics of the native goat of Jaunpur and adjoining districts for breed recognition and registration with the ICAR-National Bureau of Animal Genetic Resources, Karnal, India. The survey was conducted in 27 villages of Jaunpur, Sultanpur and Ambedkar Nagar districts. The overall body weight at birth, 3 months, 6 months, 1 year and adult age were 2.31 ± 0.07 , 7.71 ± 0.39 , 11.46 ± 0.32 , 18.96 ± 0.47 and 29.07 ± 0.42 Kg respectively. The body length, height, chest girth, pouch girth of adult animals was 64.93 ± 0.67 , 69.54 ± 0.53 , 73.22 ± 0.56 and 80.84 ± 0.87 cm respectively. The values were generally comparable with Barbari, Bundelkhundi and Jamunapari goats of the region. Scanty information is available on the phenotypic characteristics, management, and performance of the Jaunpuri goat; hence, there is a need to characterize and document this prized caprine germplasm. Keeping this in view, the present research work was conducted to study the phenotypic characteristics, performances and management practices of Jaunpuri goat population in its breeding tract.

Keywords: Characterization, Jaunpuri goat, Management, Phenotype

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INTRODUCTION

Animal husbandry plays a crucial part in the economy of India and contributes significantly to rural livelihoods. India possesses abundant livestock resource (Shanmathy *et al.*, 2018) that play an important role in income generation, capital storage, employment generation and household nutrition. Among livestock farming, goat farming is the most suitable option for the upliftment of the weaker section, especially the landless and marginal farmers of economically backward regions of India (Kumar *et al.*, 2017). The present goat population is estimated at 148.88 million representing a 10.14 percent growth in comparison of 19th Livestock Census (2012). Systematic efforts towards characterization, documentation and conservation of livestock genetic resources gained momentum after the establishment of the ICAR-National Bureau of Animal Genetic Resources at Karnal, Haryana. In addition to 43 well descript goat breeds, several unrecognized and lesser known goat populations are dispersed throughout the country (Verma *et al.*, 2010). Uttar Pradesh possesses 14.48 million goats with four registered goat breeds, viz. Jamunapari, Barbari, Bundelkhundi and Ruhelkhundi, with a large number of non-descript goat populations. Jaunpuri is one of the distinct but lesser known indigenous goats, found in eastern Uttar Pradesh (Anmol *et al.*, 2025). The

population is distributed across Jaunpur, Sultanpur and Ambedkar Nagar districts. Characterization of its phenotypic attributes is essential for documenting this indigenous genetic resource and providing a basis for its sustainable utilization, improvement and conservation. The present research work was conducted in Jaunpur, Sultanpur and Ambedkar Nagar districts, to evaluate the phenotypic characteristics, performances and management practices of Jaunpuri goat population in their breeding tract.

MATERIALS AND METHODS

The present study was conducted in 27 villages across the Jaunpur, Sultanpur, and Ambedkar Nagar districts of Uttar Pradesh. Around 90 goat flocks with a population of about 2,000 animals were surveyed (Fig.1 a). The body biometric traits, viz. body length (BL), height at withers (H), chest girth (CG), paunch girth (PG), ear length (EL), face length (FL), face width (FW), tail length (TL) and body weight (BW) were recorded from 400 adult animals (90 male and 310 females) (Fig. 1 b, c, d). Body weights of 250 kids across different age groups from birth to first kidding were recorded. Body weight was measured with a digital scale, while biometric traits were recorded with a measuring tape. The measurements were recorded while the animal was at rest, squarely on an even floor. The data on physical traits, viz. head profile, ear orientation, colour pattern,

production performance, reproduction traits, etc. and management practices were collected by personal

observations and interviewing goat farmers using a predesigned questionnaire developed for this purpose.



Fig.1a: Flock of Jaunpuri goat



Fig.1b: Measurement of tail length in female



Fig.1c: Measurement of height at wither in male



Fig.1d: Measurement of horn length in goat

RESULTS AND DISCUSSION

Phenotypic characteristics

Jaunpuri is a dual purpose goat dispersed in Jaunpur, Sultanpur, Ambedkar Nagar and adjoining districts of eastern Uttar Pradesh. Jaunpuri goat has two distinct variants based on the coat colour of animals. The two coat colour variants are black to dark brown and brown to light red. Black Jaunpuri have a complete black or black brown body coat. The red brown animals have a complete light red coloured coat with dark brown markings. The proportion of black colour variants are about 75%. Jaunpuri goats are medium-sized, well-built with large pendulous ears and short tails. The average flock size was observed to be 5.25 ranging from 2 to 20. A flock typically consisted of 50% females, 20% males and 30% kids. The face line was slightly convex. Udder was medium in size with developed teats. Animals of

both the sexes were horned, with the horns oriented upward and backward.

Body biometry

The mean body weight and biometry measurements of adult goat and kids are given in Table 1 and 2 respectively. The average body weight of adult male and female was as 34.36 ± 0.60 and 26.78 ± 0.39 kg, respectively. All biometric traits except tail length showed significant differences between the sexes. The body biometric measurements were comparable to those reported by Kumar (2010), Kumar *et al.* (2017) and Patel *et al.* (2017). The body weight of kids increased progressively with the advancement of age. The body weight at six months of age after weaning, is particularly important for marketing of male kids. The body weight of Jaunpuri goat is higher than reported for Barbari goats but lower than the Jamunapari goats (Dharmendra *et al.*, 2017).

Table 1: Body weight and biometry estimates of adult Jaunpuri goat

Traits	Body weight (kg)	Body Length (cm)	Height (cm)	Chest Girth (cm)	Pouch Girth (cm)	Ear length (cm)	Tail length (cm)
Overall	29.07±0.42 (400)	64.93±0.67 (400)	69.54±0.53 (400)	73.22±0.56 (400)	80.84±0.87 (400)	17.05±0.50 (400)	11.63±0.27 (400)
Sex	**	**	**	**	**	**	NS
Male	34.36±0.60 (90)	70.51±1.35 (90)	74.39±1.10 (90)	78.51±0.95 (90)	87.78±1.42 (90)	18.64±0.54 (90)	12.01±0.38 (90)
Female	26.78±0.39 (310)	62.52±0.64 (310)	67.45±0.48 (310)	70.73±0.56 (310)	77.84±0.75 (310)	16.48±0.42 (310)	11.46±0.31 (310)

**Significant at $P < 0.01$; figures within parentheses are number of observations.

Table 2: Body weight of Jaunpuri kids (kg)

Particulars	Birth weight	3 months	6 months	1 year
Overall	2.31±0.07 (30)	7.71±0.39 (70)	11.46±0.32 (88)	18.96±0.47 (42)
Sex	NS	**	**	**
Male	2.35±0.07 (17)	8.58±0.64 (31)	12.21±0.45 (52)	19.70±0.51 (17)
Female	2.26±0.13 (13)	6.99±0.37 (39)	10.85±0.51 (36)	18.35±0.68 (25)

**Significant at $P < 0.01$; figures within parentheses are number of observations.

Management

Jaunpuri goats are predominantly maintained under a grazing-based management system. However, approximately 10% of farmers provide concentrate feed, particularly during the advanced stages of pregnancy. During the lean season, about 46% of farmers supplement grazing with fodder and tree leaves. The animals are generally allowed to graze for approximately 6-8 hours per day. In eastern Uttar Pradesh, farmers commonly practice mixed farming, integrating crop cultivation with livestock rearing as part of their farming system. Most farmers provide night-time housing for their goats. Approximately 41% of the farmers maintain their animals in *pucca* houses, while 60% use *katcha* housing structures. About 30% of farmers provide separate housing facilities for goats, whereas the remaining farmers keep their animals in close association with the household. The marketing age of male kids was reported to be approximately 9-12 months.

Performance

The study revealed that does were bred through natural service. The number of breeding bucks maintained per flock ranged from one to two, with an overall buck-to-doe ratio of 1:9.2. These findings were in agreement with those reported by Kumar *et al.* (2017) and Patel

et al. (2017). Farmers generally kept the breeding buck with the flock throughout the year. Selection of breeding bucks was primarily based on desirable body conformation traits characteristic of Jaunpuri goats. In most cases, bucks were selected from within the same flock, although some farmers exchanged breeding bucks with those maintained in other flocks to facilitate breeding.

The age at first mating of bucks was approximately 12 months, with a range of 10-15 months, whereas does were first mated at around 10 months of age. The average breeding span of does was approximately seven years. These findings were comparable with those reported by Bhuiya *et al.* (2014) and Mishra *et al.* (2012).

The average litter size was 1.60, with twinning being relatively common (60%), while triplets were reported in approximately 15% of cases. Jaunpuri goats were also observed to have good milk-producing potential. The majority of farmers (60%) reported milk yields of up to 1.50 kg per day, whereas approximately 10% reported daily milk yields ranging from 1.50 to 2.00 kg. The lactation length ranged from 6 to 7 months. The average milk fat and solids-not-fat (SNF) contents were $5.06 \pm 0.25\%$ and $7.90 \pm 0.17\%$, respectively.

Overall, the study revealed that the Jaunpuri goat is phenotypically distinct from other goat populations

found in the region and is preferred by farmers because of its adaptability and dual-purpose utility. The Jaunpuri goat population has considerable potential for improvement through systematic selection and the use of superior breeding bucks, which could contribute to its genetic improvement, wider dissemination and sustainable utilization.

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