

Phenotypic characterization of Jaunpuri goat of Uttar Pradesh

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ABSTRACT

The present study was conducted in two district of eastern Uttar Pradesh viz. Faizabad and Jaunpur. Seven villages from Faizabad and eight villages from Jaunpur have been randomly selected. 17 farmers and 140 goats from Faizabad and 15 farmers and 143 goats from Jaunpur district were selected for present investigation. Data on growth performance and physical characteristics were recorded on 293 Jaunpuri goats of various age groups in its two native districts viz., Jaunpur and Faizabad of Eastern U.P. during 2009-2011. The average body weights of the age groups 0-3, 6-9 and 12-24 months were 4.89 ± 1.02 , 15.45 ± 0.30 and 20.44 ± 0.49 kg, respectively. In these respective age groups the mean values (cm) of body length were 32.69 ± 1.85 , 43.65 ± 0.52 and 46.34 ± 0.49 ; chest girth: 38.54 ± 2.27 , 55.67 ± 0.77 and 60.91 ± 0.58 and height: 37.69 ± 1.66 , 58.38 ± 0.88 and 60.80 ± 0.65 respectively. The findings indicated that Jaunpuri goat is a medium size goat breed and the roman nose is distinct trait of this population.

Keywords: Phenotypic traits, growth trait, Jaunpuri goat

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INTRODUCTION

Jaunpuri (Jaffarabadi) goat, found in the eastern part of U.P. has been evolved by crossing the local nondescript goat with the Jamunapari breed of goat (Saraswat, 2001). Their home tracts lie in the belt between Ganga and Gomati rivers of eastern U.P. It is one of the neglected goat germplasm, which needs systematic evaluation and characterization of their performance status for its conservation, which otherwise may lead to degeneration of this important indigenous goats of the country. It is not yet considered as a well established goat breed of the country due to lack of scientific literature about this breed. Therefore, the present study was undertaken to evaluate the growth performance and physical characteristics of this goat germplasm in its native home tract..

MATERIAL AND METHODS

The present study was conducted to evaluate the growth performance viz., body weight, body length, chest girth, height and hind girth and physical characteristics of Jaunpuri goat under the field condition during 2009-10. Data on these traits were recorded on 293 animals of either sex belonging to different age groups in its two native districts viz.,

Jaunpur and Faizabad of Eastern U.P. The data collected were classified into different age groups: 0-3, 3-6, 6-9, 9-12, 12-24 and above 24 months and sex wise also for its further analysis. Data so classified was subjected to statistical analysis using standard formulae (Snedechor and Cochran, 1994).

RESULTS AND DISCUSSION

Body Weight

The average body weight of the Jaunpuri goats at various age groups in its home tracts (Jaunpur and Faizabad districts) are presented in Table 1. The average body weights of this goat of the age groups 0-



Jaunpuri Goat

Table 1. Mean $\pm$ SE of Body weight Body weight (kg) and biometry (cm) in Jaunpuri Goat

Age (m)	Sex	Jaunpur	Faizabad	Jaunpur	Faizabad
		Body weight		Body length	
0-3	M	5.637 $\pm$ 1.475 (8)	-	32.562 $\pm$ 2.810 (8)	-
	F	3.700 $\pm$ 1.210 (5)	-	32.900 $\pm$ 2.147 (5)	-
	P	4.892 $\pm$ 1.021 (13)	-	32.692 $\pm$ 1.851 (13)	-
3-6	M	12.143 $\pm$ 0.822 (7)	10.863 $\pm$ 1.016 (11)	42.643 $\pm$ 0.833 (7)	39.409 $\pm$ 0.677 (11)
	F	12.194 $\pm$ 0.937 (18)	10.627 $\pm$ 0.913 (11)	43.333 $\pm$ 0.874 (18)	38.363 $\pm$ 0.675 (11)
	P	12.180 $\pm$ 0.703 (25)	10.745 $\pm$ 0.667	43.140 $\pm$ 0.664 (25)	38.886 $\pm$ 0.480 (22)
6-9	M	16.958 $\pm$ 0.545 (12)	14.556 $\pm$ 0.689 (9)	46.500 $\pm$ 0.931 (12)	41.111 $\pm$ 0.739 (9)
	F	15.250 $\pm$ 0.285 (12)	15.039 $\pm$ 0.587 (18)	45.208 $\pm$ 0.852 (12)	41.972 $\pm$ 0.798 (18)
	P	16.104 $\pm$ 0.349 (24)	14.878 $\pm$ 0.448 (27)	45.854 $\pm$ 0.632 (24)	41.668 $\pm$ 0.583 (27)
9-12	M	17.833 $\pm$ 0.881 (3)	19.700 $\pm$ 1.044 (5)	47.167 $\pm$ 1.691 (3)	47.800 $\pm$ 1.594 (5)
	F	16.333 $\pm$ 0.601 (3)	15.733 $\pm$ 0.925 (6)	47.000 $\pm$ 0.289 (3)	43.500 $\pm$ 1.057 (6)
	P	17.083 $\pm$ 0.583 (6)	17.536 $\pm$ 0.906 (11)	47.083 $\pm$ 0.768 (6)	45.455 $\pm$ 1.106 (11)
12-24	M	22.938 $\pm$ 0.803 (8)	19.906 $\pm$ 1.222 (17)	50.831 $\pm$ 1.003 (8)	46.912 $\pm$ 1.276 (17)
	F	21.600 $\pm$ 0.643 (20)	18.617 $\pm$ 0.789 (17)	48.500 $\pm$ 0.489 (20)	46.412 $\pm$ 0.800 (17)
	P	21.982 $\pm$ 0.525 (28)	19.262 $\pm$ 0.725 (34)	49.161 $\pm$ 0.496 (28)	46.662 $\pm$ 0.743 (34)
>24	M	37.667 $\pm$ 1.452 (3)	30.500 $\pm$ 3.092 (4)	59.667 $\pm$ 0.333 (3)	52.000 $\pm$ 3.758 (4)
	F	25.625 $\pm$ 0.387 (44)	24.635 $\pm$ 1.230 (52)	52.436 $\pm$ 0.595 (44)	50.029 $\pm$ 0.484 (52)
	P	26.394 $\pm$ 0.570 (47)	25.054 $\pm$ 1.181 (56)	52.898 $\pm$ 0.615 (47)	50.170 $\pm$ 0.526 (56)
		Chest Girth		Body Height	
0-3	M	39.250 $\pm$ 3.222 (8)	-	37.625 $\pm$ 2.434 (8)	-
	F	37.400 $\pm$ 2.947 (5)	-	37.800 $\pm$ 2.189 (5)	-
	P	38.538 $\pm$ 2.268 (13)	-	37.692 $\pm$ 1.656 (13)	-
3-6	M	50.357 $\pm$ 0.585 (7)	50.550 $\pm$ 0.355 (11)	51.071 $\pm$ 0.202 (7)	50.863 $\pm$ 1.285 (11)
	F	51.444 $\pm$ 1.207 (18)	49.090 $\pm$ 1.122 (11)	51.694 $\pm$ 1.232 (18)	51.955 $\pm$ 0.808 (11)
	P	51.140 $\pm$ 0.882 (25)	49.795 $\pm$ 0.872 (22)	51.520 $\pm$ 0.805 (25)	51.409 $\pm$ 0.749 (22)
6-9	M	61.167 $\pm$ 1.092 (12)	52.833 $\pm$ 1.648 (9)	65.825 $\pm$ 1.610 (12)	55.111 $\pm$ 1.270 (9)
	F	56.667 $\pm$ 1.029 (12)	52.750 $\pm$ 1.155 (18)	58.417 $\pm$ 1.418 (12)	55.028 $\pm$ 1.023 (18)
	P	58.917 $\pm$ 0.871 (24)	52.778 $\pm$ 0.928 (27)	62.120 $\pm$ 1.303 (24)	55.055 $\pm$ 0.765 (27)
9-12	M	59.333 $\pm$ 1.856 (3)	63.300 $\pm$ 1.881 (5)	64.000 $\pm$ 3.753 (3)	61.100 $\pm$ 0.557 (5)
	F	63.500 $\pm$ 0.764 (3)	58.250 $\pm$ 1.063 (6)	63.167 $\pm$ 0.440 (3)	55.917 $\pm$ 0.898 (6)
	P	61.417 $\pm$ 1.294 (6)	60.595 $\pm$ 1.259 (11)	65.583 $\pm$ 1.700 (6)	58.272 $\pm$ 0.970 (11)
12-24	M	64.250 $\pm$ 0.545 (8)	61.088 $\pm$ 1.342 (17)	68.500 $\pm$ 1.458 (8)	61.941 $\pm$ 1.228 (17)
	F	64.800 $\pm$ 0.766 (20)	61.294 $\pm$ 1.170 (17)	65.850 $\pm$ 0.789 (20)	60.941 $\pm$ 1.224 (17)
	P	64.643 $\pm$ 0.568 (28)	61.191 $\pm$ 0.877 (34)	66.607 $\pm$ 0.738 (28)	61.441 $\pm$ 0.824 (34)
>24	M	71.833 $\pm$ 0.441 (3)	67.375 $\pm$ 2.087 (4)	73.167 $\pm$ 0.600 (3)	68.125 $\pm$ 2.695 (4)
	F	66.943 $\pm$ 0.607 (44)	66.369 $\pm$ 0.692 (52)	66.191 $\pm$ 0.425 (44)	62.981 $\pm$ 0.583 (52)
	P	67.255 $\pm$ 0.595 (47)	66.441 $\pm$ 0.660 (56)	66.636 $\pm$ 0.471 (47)	62.277 $\pm$ 1.051 (56)
		Hind Girth		Ear Length	
0-3	M	39.737 $\pm$ 3.548 (8)	-	14.250 $\pm$ 0.688 (8)	-
	F	38.500 $\pm$ 3.421 (5)	-	13.440 $\pm$ 0.654 (5)	-
	P	39.261 $\pm$ 2.459 (13)	-	13.938 $\pm$ 0.488 (13)	-
3-6	M	52.571 $\pm$ 0.297 (7)	54.318 $\pm$ 1.817 (11)	16.700 $\pm$ 0.516 (7)	11.727 $\pm$ 0.669 (11)
	F	52.278 $\pm$ 1.289 (18)	50.045 $\pm$ 1.121 (11)	17.183 $\pm$ 0.407 (18)	14.545 $\pm$ 0.896 (11)
	P	52.360 $\pm$ 0.923 (25)	52.181 $\pm$ 1.141 (22)	17.048 $\pm$ 0.324 (25)	13.136 $\pm$ 0.626 (22)
6-9	M	63.325 $\pm$ 1.187 (12)	55.333 $\pm$ 1.233 (9)	17.708 $\pm$ 0.234 (12)	12.022 $\pm$ 1.142 (9)
	F	56.667 $\pm$ 1.450 (12)	54.972 $\pm$ 1.179 (18)	18.375 $\pm$ 0.365 (12)	13.833 $\pm$ 0.879 (18)
	P	59.995 $\pm$ 1.149 (24)	55.092 $\pm$ 0.873 (27)	18.042 $\pm$ 0.223 (24)	13.230 $\pm$ 0.706 (27)
9-12	M	61.000 $\pm$ 2.516 (3)	67.300 $\pm$ 2.528 (5)	16.500 $\pm$ 1.258 (3)	15.700 $\pm$ 0.583 (5)
	F	66.000 $\pm$ 0.764 (3)	61.833 $\pm$ 0.749 (6)	19.000 $\pm$ 0.287 (3)	14.583 $\pm$ 0.987 (6)
	P	63.500 $\pm$ 1.622 (6)	64.318 $\pm$ 1.433 (11)	17.750 $\pm$ 0.804 (6)	15.090 $\pm$ 0.594 (11)
12-24	M	66.563 $\pm$ 1.021 (8)	64.352 $\pm$ 1.827 (17)	18.288 $\pm$ 0.319 (8)	14.411 $\pm$ 0.711 (17)
	F	66.350 $\pm$ 0.577 (20)	64.147 $\pm$ 1.104 (17)	17.050 $\pm$ 0.340 (20)	14.894 $\pm$ 0.733 (17)
	P	66.410 $\pm$ 0.506 (28)	64.240 $\pm$ 1.051 (34)	17.404 $\pm$ 0.280 (28)	14.653 $\pm$ 0.504 (34)
>24	M	78.000 $\pm$ 1.000 (3)	71.750 $\pm$ 3.100 (4)	18.000 $\pm$ 0.287 (3)	18.125 $\pm$ 0.372 (4)
	F	71.170 $\pm$ 0.763 (44)	71.513 $\pm$ 1.035 (52)	18.852 $\pm$ 0.407 (44)	16.240 $\pm$ 0.342 (52)
	P	71.606 $\pm$ 0.757 (47)	71.500 $\pm$ 0.986 (56)	18.798 $\pm$ 0.382 (47)	16.375 $\pm$ 0.361 (56)

Within parantheses are number of observations.

3, 3-6, 6-9, 9-12, 12-24 and above 24 months were 4.89 ± 1.02 , 11.47 ± 0.50 , 15.45 ± 0.30 , 17.38 ± 0.61 , 20.44 ± 0.49 and 25.67 ± 0.69 kg, respectively. In general, the males had non-significantly higher average weights than the females at every age groups studied. The findings further indicated that the average body weights of goats of the two districts did not show any significant difference in any of the age groups, which shows the similarities in their genetic background. Similar body weights were also reported in Barbari goats (Singh *et al.* 1979b). However, the body weights of Jamunapari (Mishra and Khan, 1985 and Singh *et al.* 1979b), Beetal, Sirohi and Jhakarana (Mishra and Khan, 1985 and Chopra and Rana, 1995) were more than the present estimates. Whereas, Singh *et al.* (1979a) and Mukherjee *et al.* (1979) reported lower mean values of these traits in Black Bengal goats at the similar ages or age groups.

Body Length

The overall average body length of Jaunpuri goats of age groups 0-3, 3-6, 6-9, 9-12, 12-24 and above 24 months were 32.69 ± 1.85 , 41.09 ± 0.53 , 43.65 ± 0.52 , 46.03 ± 0.77 , 46.34 ± 0.49 and 51.41 ± 0.42 cm, respectively. In both districts, no sexual dimorphism was observed in the body lengths of this goat. The goats of the same age groups of the two districts did not show any significant differences in their body length. The present estimates of average body lengths of the Jaunpuri goat were comparable to that of Black Bengal (Mukherjee *et al.* 1979). However, the body lengths of Jamunapari and Jhakarana (Mishra and Khan, 1985), Beetal (Alam *et al.* 2009) and Barbari (Tiwari *et al.* 2002) goat breeds were more than the present estimates.

Chest Girth

In Jaunpuri goats, the overall average body chest girth of age groups 0-3, 3-6, 6-9, 9-12, 12-24 and above 24 months were 38.54 ± 2.27 , 50.50 ± 0.64 , 55.67 ± 0.77 , 60.85 ± 0.91 , 60.91 ± 0.58 and 66.81 ± 0.45 cm, respectively. In general, the males had non-significantly higher average chest girth than the females at the same age groups. The two districts did not show any significant difference in average chest girth of goats in any age groups. Tiwari *et al.* (2002) in

Barbari goats and Mukherjee *et al.* (1979) in Black Bengal goats also reported similar mean values of chest girth. However, the present estimates in Jaunpuri goats were lower than that in Jamunapari and Jhakarana (Mishra and Khan, 1985) and Beetal (Alam *et al.* 2009). Barhat (2005) reported lower mean values of the chest girth in Marwari goats.

Body Height

The average height of Jaunpuri goats of the age groups 0-3, 3-6, 6-9, 9-12, 12-24 and above 24 months were 37.69 ± 1.66 , 51.47 ± 0.56 , 58.38 ± 0.88 , 60.15 ± 1.05 , 60.80 ± 0.65 and 64.77 ± 0.65 cm, respectively. In both districts, the two sexes did not show any significant differences in their heights except in 9-12 months age group of Faizabad district. Similarly, the average heights of the goats of the two districts did not show any significant differences, except for females of 9-12 months age group. The present estimates were comparable with that of Barbari goat (Mittal, 1979 and Tiwari *et al.* 2002). However, earlier workers (Mishra and Khan, 1985, Chopra and Rana, 1995 and Alam *et al.*, 2009) reported higher mean values in Jamunapari, Beetal and Jhakarana goat breeds. Mukherjee *et al.* (1979) observed lower mean value of these traits in Black Bengal goats.

Hind Girth

In Jaunpuri goats, the average hind girth were 39.26 ± 2.46 , 52.27 ± 10.73 , 57.40 ± 0.78 , 64.03 ± 1.06 , 63.75 ± 0.63 and 71.57 ± 0.63 cm, in the age groups 0-3, 3-6, 6-9, 9-12, 12-24 and above 24 months, respectively. The results revealed that the males had non-significantly higher average hind girth than the females at the same age groups. No significant difference was observed between the goats of the two districts in their average hind girth in any of the age groups. Singh *et al.* (1979a) reported similar mean values of these traits in Black Bengal goats also. However, the present estimates were lower than those in Beetal (Alam *et al.* 2009) and Sirohi (Mishra *et al.* 1980), but higher than that in Marwari (Barhat, 2005), breeds of goats.

Ear Length and orientation

The average ear lengths of Jaunpuri goats of the age groups 0-3, 3-6, 6-9, 9-12, 12-24 and above 24

months were 13.94 ± 0.49 , 15.17 ± 0.45 , 15.50 ± 0.51 , 16.03 ± 0.56 , 14.87 ± 0.35 and 17.48 ± 0.29 cm, respectively. The two sexes in both districts did not show any significant differences in their ear lengths in any of the age groups. Goats of the two districts did not show significant differences in their average ear length in most ages. However, the present estimates were lower than that in Jamunapari (Acharya, 1982) and Beetal (Alam *et al.* 2009), but higher than that in Black Bengal goats (Acharya, 1982). The present findings indicated that Jaunpuri goats has drooping ear (100 %) with long leafy shape.

Tail Length

The average tail length of Jaunpuri goats of the age groups 0-3, 3-6, 6-9, 9-12, 12-24 and above 24 months were 9.27 ± 0.46 , 11.68 ± 0.26 , 12.80 ± 0.27 , 12.94 ± 0.49 , 12.44 ± 0.22 and 12.67 ± 0.17 cm, respectively. The two sexes in both districts did not show any significant differences in their tail lengths in any of the age groups. The goats of the two districts showed no significant differences in their average tail lengths in most of the age groups.

Horn Characteristics

The findings revealed that in both districts, most of goats (94.47 %) possessed horn, with straight shape (58.66 %) and backward pointed tip (73.85 %) thus, indicating that the Jaunpuri goats are horned type breed of goat.

Roman nose characteristics

The roman nose was present in 96.81 % of the Jaunpuri goats. As Jamunapari breed of goat was one of the foundation breed of the Jaunpuri goats, the genes responsible for this trait might have been inherited from Jamunapari goats, thus possessing this characteristics.

From the present findings, it may be suggested that the goats of the two districts studied might be of the similar strain of Jaunpuri goats. The findings also suggested that Jaunpuri goat is a medium size goat breed and the distinct traits of this goat is roman nose...

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