

Hill cattle of Pithoragarh district of Uttarakhand

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The Uttarakhand state is rich in biodiversity i.e. availability of all domesticated species like cattle, buffalo, sheep, goat, yak and poultry. In the state the farmer is resource poor and mainly dependent on the livestock sector for their livelihood. The state had large proportion of non-descript cattle. In the present study an attempt has been made to characterize hill cattle of the state and in the series hill cattle of Pithoragarh district was chosen.

Information on various management practices opted by the livestock owners in the district and performance traits were generated by interviewing the farmers using a structured questionnaire in 8 villages (Tadi goan, Jaiti, Jalat, Dhapa, Sarmoli, darat, Savila and Sutinda) of Munsyari block of Pithoragarh district to characterize the hill cattle available in the district. A total of 82 farmers were interviewed to know the habitat, status, management, utility and performance of the cattle available. Farmers were interviewed for choice of breed, utility, sale and purchase of animals, animal housing, feeding, breeding, prevalent diseases in the area and performance of the breed. Performance traits like birth weight, age at sexual maturity and first calving, daily milk yield, lactation length, dry period, service period, calving interval and draft performance were collected by conversing with the farmers from the surveyed villages.

Physical characteristics were recorded on animals of different ages and sex during the survey. Eight different body measurements were recorded on 194 animals of different age and sex. The body measurements recorded were body length, height at withers, heart girth, paunch girth, face length, ear length, horn length and tail length without switch. The body measurements data were analyzed using least square maximum likelihood program (Harvey, 1990) including age within sex as fixed effects.

The Pithoragarh district had 2.23 lakh of cattle and 0.86

lakh of buffaloes in 2005 (Anonymous 2006). Among the cattle there were 92.81% indigenous and most of them (more than 99%) were non-descript and need their characterization on priority. In the district other cattle available were Jersey crossbred (15478), Friesian crossbred (693) other crossbreds (17299), Hariana (3), Sahiwal (5) and Red Sindhi (279) as per the *State Livestock Census* (2003). In the district maximum and minimum temperature goes up to 32°C in summer and 0°C during winter. The annual rainfall ranged from 1400 to 1800 mm. There are some areas which also experienced snowfall for few days in the year. The altitude of the surveyed villages ranged from 1800 to 2400 m above msl. Humidity ranged from 30 to 90%. The survey revealed that there was large number of hill cattle in the remote areas like in different villages of Munsyari block. In the Pithpragarh city and surrounding areas there was large number of crossbred cows for milk production. In the surveyed area cattle were reared for milk (26%), bullock power (22%), both (48%) and manure (100%). Most of the animals were farm born. Sale and purchase of the animals were observed among the farmers (88%). Land holding was small to medium size, about 66% farmers had less than 25 nali of land. Family size was about 6.2 members per family. The average annual income of a farmer was around ₹ 41000. And about 80% income came from crop and livestock production.

Animals of the breed were reared mainly on semi-intensive system of management i.e. grazing from morning to afternoon. In some villages there was no grazing, all the animals were stall fed. Ladies were taking all the cares of



Figs 1–2. 1. Hill cow of Pithoragarh district. 2. Face of hill cattle of Pithoragarh district

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rearing of the animals. Cows in milk and bullocks during the work only, were provided small amount of concentrate in the evening. Animals were kept in houses only during night. Animal houses were part of owners residence (86%). Animal houses were open (62%) and *kachha* type (68%). Drainage of the houses was not proper. Milk was mostly used for household purposes. Herd size ranged from 2 to 10 animals. Breeding was natural. Breeding bulls were available in the villages. Calves reared mainly through suckling. Dehorning and deworming practices were not adopted by the farmers. Vaccinations for H.S., FMD and BQ was observed in very few cases through State Animal Husbandry Department.

Animals of the breed were small in size with cylindrical type of body. Animals were well built and compact with strong legs. Body colour varies in different colours i.e. brown (53.1%), black (42.3%) and white or black and white (4.6) (Figs 1–2). Skin was mostly white (30%) or brown (40%). Eyes lids were black (77%). The colour of hoof and muzzle was black and brown. Dewlap and hump was small to moderate. Head was small. Face was short and concave in shape. Ears were small to moderate in length and horizontal in orientation. Neck was short in length and thin. Horns were small, black or gray in colour, stumpy and curved towards face with pointed tips. Udder was small, not well developed and milk veins were not prominent. Udder was touching the body. Sizes of fore and rear udder were small (83% and 79%, respectively). Teats were small 5–10 cm long, most of the cases in cylindrical shape (78%) but sometimes funnel shaped (22%). Tips of the teats were either round-(67%) or funnel - (26%) shaped. Naval flap was small (89%). Penis sheath flap was short and tucked up with body. Tail was long touching to ground with black (81%) or white (19%) switch. Temperament was docile in most of the cases.

The least square means, standard error and number of observations for 8 different body measurements are presented in table 1. In the age group 3–6 months, 6–12 months and 1–3 years, none of the trait under study differ significantly in both of the sex. The cattle above 3 years were divided in to 2 groups i.e. cow and bullocks. In the cows average body length, height at wither, heart girth, paunch girth, ear length, face length, tail length without switch and horn length were

99.28±0.93 cm, 96.95±1.35 cm, 127.31±1.34 cm, 138.65±1.51 cm, 19.51±0.19 cm, 35.64±0.33 cm, 71.39±0.87 cm and 9.13±0.47 cm, respectively. The corresponding figures in bullocks were 101.00±3.29 cm, 99.00±2.66 cm, 135.85±2.74 cm, 138.28±4.32 cm, 19.57±0.68 cm, 37.85±1.18 cm, 70.85±3.07 cm and 13.57±1.65 cm, respectively. The significant differences were observed in heart girth and horn length between cows and bullocks. All the other biometric traits under study did not differ significantly in both of the sex might be due to that fewer number of bullocks (7). It was also observed that all the body measurement in hill cattle of Pithoragarh district were closer to the hill cattle of Almora district but higher than the hill cattle of Rudarprayag. Banga *et al.* (2005) reported lower estimates of body length, heart girth and height at wither in calves, heifers and adult (cows) as compared to the present study.

The estimates of body length, height at wither and heart girth in cows and bulls were lower than the Sahiwal, Kankrej, Hariana, Red Sindhi and Bargur breeds and within the range as in Vechur and Punganaur breeds of cattle (Pundir and Ahlawat, 2007). The similar estimates of face length and horn length in cows and bullocks were observed in Malnad gidda cattle (Singh *et al.* 2008). All the other morpho-metric traits under study in cows and bullocks had higher values as compared to the reports of Singh *et al.* (2008) for malnad gidda cattle.

The average birth weight was 9.14 kg (8 to 12 kg). The cow and bullock weigh about 100 to 120 kg., respectively. The estimates of birth weights and adult body weights were similar to the reports of Singh *et al.* (2008) and Ashok (2000) in Malnad Gidda cattle but lower than the Vechur (Iype, 1996). The average age at first calving, daily milk yield, lactation length, dry period, service period, calving interval, herd life and number of calving during life time were 40 months (3–5 years), 1.41 kg (0.5–2.0 kg), 208 days (6–8 months), 138 days (4–6 months), 105 days (3–4 months), 485 days (15–20 months), 10–15 years and 8–10 calving, respectively.

The estimates of age at first calving, daily milk yield and calving interval were within the range as reported by Singh

Table 1. Age -and sex-wise different biometric traits (cm) in hill cattle of Pithoragarh district

Age (mo.)	Sex	No. of Obs.	Body length	Height at wither	Heart girth	Paunch girth	Ear length	Face length	Tail length without switch	Horn length
3–6m	Male	11	61.45±2.62	61.45±2.12	72.63±3.78	76.81±4.24	13.54±0.55	21.27±0.94	36.18±2.45	-
3–6m	Female	11	59.63±2.62	53.45±2.12	71.00±3.78	74.18±4.24	12.00±0.55	21.18±0.94	32.54±2.45	-
6–12 m	Male	17	65.35±2.11	68.88±1.71	78.11±3.04	85.41±3.41	14.76±0.44	23.29±0.76	41.76±1.97	4.66±2.52
6–12 m	Female	25	63.52±1.74	65.32±1.41	75.80±2.51	80.96±2.81	13.20±0.36	22.68±0.62	39.48±1.62	4.33±2.52
1–3yr	Male	8	76.62±3.08	77.62±2.49	93.12±4.43	101.12±4.98	15.25±0.64	27.12±1.11	51.37±2.87	6.50±1.54
1–3yr	Female	27	78.66±1.67	81.14±1.35	96.25±2.41	100.48±4.98	16.44±0.35	28.59±0.60	53.03±1.56	6.64±0.87
Cow	Female	89	99.28±0.93	96.95±1.35	127.31±1.34 ^a	138.65±1.51	19.51±0.19	35.64±0.33	71.39±0.87	9.13±0.47
Bullock	Male	7	101.00±3.29	99.00±2.66	135.85±2.74 ^b	138.28±4.32	19.57±0.68	37.85±1.18	70.85±3.07	13.57±1.65

et al. (2004). The average daily milk yield obtained in the study was in agreement with the state average for indigenous cows during 2005–06 (Anonymous, 2006) may be due to fact that in the district hill cattle reared for milk too in addition to bullock power and manures. The average daily milk yield were within the range as in Malnad Gidda cattle (Singh *et al.* 2008). The age at first calving and calving interval were in close agreement and lower dry period and service period were observed in Malnad Gidda cattle by Singh *et al.* (2008) as compared to the present study. Bullocks of the breed were used for 25–40 days in a year for agricultural operations. A pair of bullock can plough about 6–8 Nali (0.4 acre) of land in a day.

SUMMARY

The Pithoragarh district had 2.23 lakh of cattle and 0.86 lakh buffaloes in 2003. Among the cattle there were 92.81% indigenous and most of them (more than 99%) were non-descript and need their characterization. A survey, including 82 farmers and 194 animals of different age and sex was conducted in 8 villages of Munsyari block of Pithoragarh district to characterize the hill cattle. The survey revealed that large number of hill cattle were available in the remote areas like in Munsyari block of the district and in surrounding areas there were large number of crossbred cattle mainly reared for milk production. In the surveyed area cattle were reared for milk, bullock power and manure. Animals were reared mainly on semi-intensive system of management i.e. grazing from morning to afternoon and thereafter stall feeding. In some villages there were no grazing, all the animals were stall fed. Animals were small in size with cylindrical-shaped body. Body colours vary in different colours i.e. brown, black and white or black & white. Tail was long touching to ground with black or white switch. The ranges of different biometric traits showed that animals were closer to Vechur and Punganaur breeds of cattle for their

shape and size but smaller than the Harijana and Sahiwal breeds of cattle. The hill cattle available in Pithoragarh area were smaller in size as compared to hill cattle of Almora and bigger to that of cattle of Rudarprayag district. The average birth weight was 9.14 kg The average age at first calving, daily milk yield, lactation length, dry period, service period and calving interval were 40 months, 1.41 kg, 208 days, 138 days, 105 days and 485 days, respectively. Bullocks of the breed were used for 25–40 days in a year for different agricultural operations. A pair of bullock could plough about 6–8 Nali (0.4 acre) of land in a day.

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