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Physical parameters and management of hill cattle of Almora district of Uttarakhand

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In Uttarakhand there is larger proportion of indigenous non-descriptive cattle which need to be characterized on priority so as to formulate suitable breeding policy for improvement of cattle productivity in the state. In the present study an attempt has been made to characterize hill cattle of the state and in the series hill cattle of Almora district was chosen.

Information on various management practices opted by the livestock owners in the district were generated by interviewing the farmers and data were collected on conformation traits of the cattle using a structured questionnaire in 7 villages of 3 blocks of Almora district to characterize the hill cattle the district. Details of the village, farmers interviewed and animals recorded are given in Table 1. Farmers (79) 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 maturity and calving, lactation 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 age and sex during the survey.

Table 1. Details of the village, farmers interviewed and animals recorded

Village	Block	No. of farmers	Animals
Sheel	Bhaisiana	14	30
Dhari	Bhaisiana	08	13
Chhani	Bhaisiana	07	15
Maniagar	Dhauladevi	17	42
Gajanaia	Dhauladevi	01	03
Thath	Lamgara	18	41
Chaikhan	Lamgara	14	29
Total		79	173

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Eight different body measurements were recorded on 173 animals of different age and sex and analyzed. 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. In the Almora district maximum and minimum temperature ranged from 15°C–28°C (summer) and 2°C –14°C (winter). The annual rainfall ranged from 800 to 1200 mm. There are some areas which experienced snowfall also.

The altitude of the surveyed villages ranged from 1600 to 1800 msl. The survey revealed that there is large number of hill cattle in the area. Hill cattle are reared for bullock power, milk and manure. Most of the animals were farm born. Land holding was small; about 75% farmers had less than 20 nali of land. Family size was larger, i.e. about 8 members per family. About 70% income came from crop and livestock production. The composition of livestock was 50% cattle, 30% buffalo and 20% goat. The Almora district has 2.37 lakh of cattle and 1.09 lakh of buffaloes. Among the cattle there were 68000 breedable cows and out of which 64000 were non-descript. Details of the age-wise recorded animals are given in Table 2.

Animals of the breed were reared mainly on extensive system of management and managed by mostly ladies. Animals of different farmers pooled in a group of 25–50 animals for grazing in the hilly terrain nearer to water source.

Table 2. Age-wise distribution of surveyed animals

Age	Number	Percentage
Up to 6 months	05	02.9
6–12 months	25	14.5
1–3 years	22	12.7
Cows	52	30.1
Bullocks	69	39.8
Total	173	100.0

Figs 1–2. **1.** Cow of the hill cattle of Almora district; **2.** Bull of the hill cattle of Almora district.

Cows in milk and bullocks during the work provided some feeds and concentrate in the evening. Animals are kept in houses only during night. Animal houses are part of owner's residence. Animal houses were open and *kachha* type in most of the cases. Drainage of the houses was not proper. During milking udder and milk pots were washed. Milk is mostly used for home consumption. Herd size ranged from 2 to 5 animals. Breeding was natural. Semen of hill cattle bull was not available at veterinary hospitals. No breeding bulls were available in the visiting herds. Breeding was made from the male animals available in the herd, i.e. those were not castrated. Calves were reared mainly through suckling of dam. Dehorning and deworming practices were not adopted. Vaccinations for HS, FMD and BQ were practised in few cases.

Animals of the breed were small in size with cylindrical type of body (Figs 1 and 2). Animals were well built and compact with strong legs. Body colour varied in different colours and shades, i.e. white (26,6%), black (19.6%), reddish/red (16.2%), brown (11.6%), gray (7.5%), reddish white (5.8%), grayish white (5.2%), black and white (2.9%), whitish brown (2.3%) and reddish brown (2.3%). Skin was tight. Eyes lids were black. The colour of hoof and muzzle was black and brown. Dewlap and hump was small to moderate. Head was small. Face was short and concaves. Ears was small to moderate in length and horizontal in orientation. Neck was short in length and thin. Horns were small, black or gray, stumpy and curved towards face with pointed tips. Udder was small, not well developed and milk veins were not prominent. Sizes of fore and rear udder were small. Teats were small 5–8 cm long, in most of the cases they were in cylindrical shape and in some cases in funnel shape. Tips of the teats were either round or funnel. Naval flap was small. Penis sheath flap is short and tucked up with the body. Tail was long touching to ground with black, brown or white switch. Temperament was docile in 90% animals.

The means, standard error and number of observations for 8 different body measurements are presented in Table 3. In the age group 6 to 12 months face length differ significantly in both of the sex. All the other biometric traits did not reveal significant differences in this group. In the age group 1 to 3 years none of the trait differs significantly due to sex effects. The cattle above 3 years were divided in to 3 groups, i.e. cow, bull and bullocks. There were no significant differences in body length, heart girth, paunch girth and horn length between the cows and bulls, however, bullocks have more values for these traits as compared to cows and bulls. The height at wither, ear length and face length were significantly different in cows and bullocks while bulls did not reveal significant differences from cows and bullocks. The tail length without switch was significantly different in bullocks and bulls from cows and bulls and bullocks did not have significant difference for this trait. 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 and higher for body length, height at wither, heart girth, paunch girth, ear length and tail length without switch were observed in Malnad Gidda cattle (Singh *et al*. 2008).

The birth weight ranged from 8 to 10 kg. Body weights at 6 and 18 months of age were around 50 and 65 kg. The cow and bullock weigh about 80 to 90 and 90 to 120 kg, respectively. The estimates of birth weight and adult body weight 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 46 months (3–5 years), 1.12 kg (0.5–2.0 kg), 265 days (10–12 months), 140 days (4–6 months), 115 days (3–4 months), 384 days (12–20 months), 12–15 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 *et al.* (2004). The average daily milk

Table 3. Age- and sex-wise different biometric traits (cm) in hill cattle of Almora district

Age (months)	Sex	No. of Observation	Body length	Height at wither	Heart girth	Paunch girth (cm)	Ear length	Face length	Tail length without switch	Horn length
<3	M	1	45.00	56.00	52.00	47.00	8.00	16.00		–
<3	F	1	45.00	55.00	53.00	48.00	7.00	16.00	30.00	–
3–6 m	M	2	55.00	60.00	70.00	77.50	13.50	19.00	37.50	–
6–12 m	M	6	74.00	76.16	83.33	90.00	11.66	21.50	43.50	4.50
			±3.55	±2.88	±5.12	±5.75	±0.74	±1.28[a]	±3.31	±2.18
6–12 m	F	7	69.28	73.28	84.85	89.14	11.57	27.00	47.57	4.00
			±3.29	±2.66	±4.74	±5.32	±0.68	±1.18[b]	±3.07	±2.52
1–3yr	M	18	82.05	85.11	101.83	103.33	18.05	31.61	59.38	7.88
			±2.05	±1.66	±2.95	±3.32	±0.43	±0.74[a]	±1.91	±1.02
1–3yr	F	14	80.85	83.71	97.35	101.85	16.92	29.57	56.28	8.00
			±2.32	±1.88	±3.35	±3.76	±0.48	±0.83	±2.17	±1.16
Cow	F	57	98.75	96.49	126.38	134.35	19.14	36.84	70.89	11.85
			±1.15[a]	±0.9[a]	±1.66[a]	±1.86[a]	±0.24[a]	±0.41[a]	±1.07[a]	±0.57[a]
Bullock	M	54	106.25	103.68	139.72	147.55	20.14	39.48	76.87	17.44
			±1.18[b]	±0.96[b]	±1.70[b]	±1.91[b]	±0.24[b]	±0.42[b]	±1.10[b]	±0.59[b]
Bull	M	12	99.41	99.91	128.41	127.58	19.16	38.25	77.33	13.00
			±2.51[a]	±2.03[ab]	±3.62[a]	±4.06[a]	±0.52[ab]	±0.90[a]	±2.34[b]	±1.26[a]

M, male; F, female

yield obtained in the study was lower than the state average for indigenous cows in the year 2005–06 (Anonymous 2006) may be due to fact that in the district hill cattle reared mainly for bullock power and manures. The average daily milk yield and lactation milk yield were lower than the 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. The bullocks of the hill cattle were used for 20–30 days in a year for different agricultural operations. A pair of bullock may plough about 10 Nali (0.5 acre) of land in a day.

SUMMARY

A survey was conducted in 7 villages of Bhaisiana, Lamgara and Dhauladevi blocks of Almora district to characterize the hill cattle of the district covering 79 farmers and 173 animals of different age and sex. Hill cattle in the district were small in size with majority of cylindrical type of body. Animals were well built and compact with strong legs. The white body colour predominates (26%). Head was small. Face was short and concaves. Udder was small. Tail was long touching to ground with black, brown or white switch. Animals of the breed were reared mainly on extensive system of management, i.e. grazing from morning to evening. The ranges of different biometric traits showed that animals are similar to Vechur and Panganaur for their shape and size and smaller than the Hariana and Sahiwal breeds of cattle. In most of the biometric traits cows and bulls were same while bullocks had more values. The birth weight ranged from 8 to 10 kg. The cow and bullock weigh about 80 to 90 and 90 to 120 kg, respectively. The average age at first calving, daily milk yield, lactation length and calving interval were 46 months, 1.12 kg, 265 days and 384, respectively. The bullocks of the hill cattle were used for 20–30 days in a year for different agricultural operations. A pair of bullock may plough about 10 Nali (0.5 acre) of land in a day.

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