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Siri cattle – An endangered breed of Sikkim, India

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Sikkim is located in Himalaya with variable climate of 17–30°C in summer and 5–20°C in winter. Average rainfall is 3,894 mm during May to September. More than 85% of livestock are owned by marginal farmers, small farmers and landless labourers. Major crops grown in the state includes rice, maize, finger millet, pulses, mustard and soybean. Large cardamom (spices) farming is providing good earnings to the farmers. Productivity in terms of milk production/day/milch cows in crossbred was 5.94 kg and indigenous 1.94 kg. Information about Siri breed and its management in its native tract is scanty. Therefore, an attempt was made to characterize and evaluate indigenous cattle i.e. Siri, so that suitable strategies may be planned for conservation of the breed by limiting further decline in its population, and enhancing the productivity.

Surveys were conducted in north and south Regu areas of East district. Farmers (29) from 5 villages were interviewed to record information on various management practices opted by the Siri cattle owners. Farmers were interviewed to know the habitat, status, management, utility and performance of the Siri cattle. Farmers were also enquired about choice of breed, sale and purchase of animals, animal housing, feeding, breeding and prevalent diseases in the area. Performance traits like birth weight, age at first calving, daily milk yield, lactation length, dry period, service period, calving interval and draught performance were collected by conversing with the farmers from the surveyed villages using pre-designed questionnaire. Ten different body measurements and physical characteristics were recorded on 68 animals of different age and sex. The body measurements recorded were body length, height at withers, heart girth, paunch girth, face length, face width, ear length, horn length and tail length without switch and with switch. The body measurement data were analyzed by least square maximum likelihood program (Harvey 1990) including age within sex as fixed effects.

The surveys revealed that all the indigenous cattle were Siri. Similar observations were revealed from Livestock Census (2012) and through discussions with State Animal Husbandry Department officials, that Siri cattle were available only in remote areas where AI is inadequate. In cities and nearby areas all indigenous cattle were crossed with Jersey and Holstein Friesian for increasing the milk production. Siri is an indigenous dual purpose cattle breed originating from Bhutan (Nublang) and are of the Zebu family. Siri breed can survive in the mountains very well, owing to their long, powerful legs. Bulls can be very valuable as they are one of the strongest native breeds. Sikkim had 140,467 cattle heads in the year 2012 including 126,519 crossbreds and 13,948 Siri (Livestock Census 2012). Siri cattle has shown declining trends from the years 2003 to 2007 (–21.64%), 2007 to 2012 (–77.46%) and 2003 to 2012 (–82.34%). The corresponding figures for Siri milch cattle were –17.39%, –77.39% and –81.32%, respectively. The crossbred milch and total cattle has shown decreasing trends during 2003 to 2007. But trends during the years 2007 to 2012 and 2003 to 2012 were positive for milch (85.18 and 51.51%) and total crossbreds cattle (73.37 and 58.14%). The total cattle population in the state has shown negative trends during the years 2003 to 2007 (–17.77) and 2003 to 2012 (–11.94%). During the years 2007 to 2012 it increased by 4.14% due to increase in crossbreds population. The milch populations also revealed similar trends over the same period. Siri cattle population has shown drastic decline from 61,687 to 13,948 during the years 2007 to 2012 and falls under threatened category. Tantia *et al.* (1996) reported 140,036 indigenous cattle in 1982, which again showed drastic decline. Keeping in view these facts state government has started a conservation program on Siri cattle under field in which milk recording is going on for selection and multiplication of Siri germplasm.

Most of the animals were farm born. Tying of animals was observed in day and night both. Animal houses were mostly open and separated from the owner house. Animals were also housed in a temporary tent in a field for a month for manuring before the sowing and then animals were shifted to another field. Animal houses were made up of wood. Drainage of the houses was not proper. Floor of the house was *kachcha* in all the cases. Calves reared mainly through suckling and colostrums feeding. Animals were reared mostly on stall feeding, some time graze on steep

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slopes in thick forests. Cows were given concentrates at the time of milking. Dehorning and de-worming practices were not adopted. Castration of males was done at the age of 6 months. All the farmers clean their milking pots and udder before milking. Breeding was natural. Siri breeding bulls were available in the herds. Herd size ranged from 10–30 in East Sikkim and 1–3 in West Sikkim. Milking was twice in a day i.e. morning and evening. Vaccinations for HS, FMD and BQ were observed.

Siri cattle are normally larger as compared to other types of cattle available in north east states. They normally have a thick coat of long hairs. Their coat colour varies - brown with white patches (34), black with white patches (13), brown (11) and black (10); skin grey; muzzle and eyelids black. Forehead is convex, wedge shaped with white patches; ears smaller in length and horizontal in orientation; horns smaller in length and curved outward, foreword and then upward; horn tips sharp and pointed; hooves broad and strong. Strong legs and feet make the Siri cattle useful for ploughing fields in hilly terrain. The position of the hump is slightly forward compared with that of other zebu breeds. Hump is specific, cervicothoracic and covered with long hairs. Dewlap is small in cows and moderate in bullocks. Poll is prominent. Udder is small, not well developed; milk veins not prominent; fore and rear udder small; teats small (5–12 cm long and mostly funnel in shape); tips of the teats mostly round. Naval flap was almost absent. Tail is up to the hock with black, brown and gray switch. Sheath in males are small. Temperament is docile.

Higher estimates of different morphometric traits were observed in males as compared to females at all ages. The average body length, height at wither, heart girth, paunch girth, horn length, ear length, face length, face width, tail length without switch and with switch in cows (25) were 106.32±1.40 cm, 114.20±1.55 cm, 157.80±2.52, 162.16±2.61 cm, 16.48±0.79 cm, 18.24±0.26 cm, 40.88±0.75 cm, 20.84+0.37, 75.56±2.29 cm and 95.56±6.59 cm, respectively. The corresponding estimates in bullocks were 109.00±1.57 cm, 117.57±4.54 cm, 152.00±6.06, 169.85±3.12 cm, 118.85±0.91 cm, 18.00±0.53 cm, 43.42±0.84 cm, 22.71±0.77, 83.57±6.83 cm and 100.57±5.57 cm, respectively. Significant differences in cows and bullocks were observed for paunch girth similar to Uttarakhand cattle (Pundir *et al*. 2013) and Tripura cattle cattle (Pundir *et al*. 2014). Tantia *et al.* (1996) reported similar estimates of heart girth, ear length, face length in males and females and height at wither in males. Higher estimates of body length, paunch girth, face width and horn length in Siri cattle. In cows all the estimates were in close agreement with the reports of in Bargur cattle (Pundir *et al.* 2009), Uttarakhand cattle (Pundir *et al.* 2013), Tripura cattle (Pundir *et al.* 2014) and Malnad Gidda cattle (Singh *et al.* 2008). Higher estimates of all the traits were observed in Pullikulam cattle (Singh *et al.* 2012), Kankrej cattle (Pundir *et al.* 2011) and Kenkatha cattle (Pundir *et al.* 2007) as compare to the present study.

The birth weight of calves ranged from 10 to 18 kg. The adult body weight in males and females ranged 200 to 250 kg and 230 to 300 kg, respectively. The daily milk yield ranged from 2.0 to 6.50 kg. The age at first calving, lactation length and calving interval ranged from 40–60 months, 200–240 days, 450 to 600 days, respectively. The estimates of age at first calving, daily milk yield and calving interval were within the range as reported by Tantia *et al.* (1996). The average daily milk yield obtained in the study was higher than the Tripura cows (Pundir *et al*. 2014) and Uttarakhand cows (Pundir *et al.* 2013). The service period and dry period ranged from 180 to 330 days and 250 to 360 days, respectively. Similar estimates of age at first calving and calving interval but lower dry period and service period were observed in Malnad Gidda cattle by Singh *et al.* (2008) as compared to the present study. A pair of bullock may plough about 1.0 acre of land in 6–8 h. Bullocks were used for 3 to 4 months in a year for draught purpose. The bullock performance was better than the hill cattle of Uttarakhand (Pundir *et al.* 2013).

Keeping in view the milk productivity, draft performance and adaptability to the extreme unfavourable hilly conditions, breeds need to be conserved as it is declining drastically. There is urgent need to check the crossbreeding in the breeding tract and breed may be improved genetically by selective breeding.

SUMMARY

Siri is a dual purpose cattle breed originating from Bhutan and also available in Sikkim and Darjling (West Bangal of India). Number of Siri cattle declined drastically from 79,000 to 13,948 during the years 2003 to 2012 and therefore the breed falls under threatened category. Siri cattle is reared mostly on stall feeding, some time graze on steep slopes in thick forests. The prominent body colour is brown with white patches or black with white patches, however, pure black and brown colours are also available. Siri cattle have typical hump i.e. cervico-thoracic and covered with long hairs. Size of the cattle is larger as compared to cattle of other states of north east states. The daily milk yield ranged from 2.0 to 6.50 kg. The age at first calving, lactation length and calving interval ranged from 40–60 months, 200–240 days, 450–600 days, respectively. A pair of bullock may plough 1.0 acre of land in 6–8 h. Bullocks were used for 3 to 4 months in a year for different agricultural operations. Keeping in view the status, utility and adaption of breed, there is urgent need to check the crossbreeding in the breeding tract and breed may be improved genetically through systematic performance recording in the field. The State Animal Husbandry Department, Sikkim has already started a genetic improvement program in the field, which needs to be strengthened.

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