

Review Article

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Recently Recognized Indigenous Cattle Breeds of India: A Review

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ABSTRACT

India, third richest biodiversity countries in the Asia, and it is home to huge indigenous cattle genetic resources. India having 190.9 million cattle population with 43 register native indigenous cattle breeds, in addition to this large number of non-descript cattle population available throughout country. This indigenous cattle breeds are especially more adapted to different agro-climatic conditions of India and some of indigenous cattle breeds were performing excellent in other country throughout world. In recent times, several of the indigenous breeds suffered decline mainly due to their becoming uneconomical. Apart from this indigenous cattle breeds have merits like better disease resistance, low input management and better survival in extreme weather condition, this make them imperative in current climate change situation. Phenotypic characterization is vital for managing the animal genetic resources at nationwide and regional levels. Huge proportion of non-descript cattle characterization and inventorization of cattle genetic resources of India is still incomplete. National Bureau of Animal Genetic Resources (NBAGR) at Karnal by Indian Council of Agricultural Research (ICAR), is main functioning on identification, evaluation, characterization, conservation and sustainable Utilization of Livestock Genetic Resources. With efforts from NBAGR phenotypic characterization of domestic animal diversity of India, accelerated. A large number of recognized livestock and poultry breeds and populations were systematically studied and documented recently. This review provides information of the cattle breeds recently recognize by NBAGR, ICAR and population of cattle, phenotypic characterization and documentation in India.

Keywords

NBAGR, Zebu, Brisket, Breed, Hump

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Introduction

India is the seventh largest country in the world and is a mega-biodiversity centre (Srivastava *et al.*, 2019). Over 70 per cent of

its people are engaged in vocations connected with farming and animal husbandry. In India, total livestock population is 512.5 million and among that 190.9 million are cattle, which is cover 37.28 percent of total livestock

population of the country (Anonymous, 2012). When we seeing global picture almost 30% of the world's cattle population of about 1.4 billion exist in in India (Robinson *et al.*, 2014). India ranks first in milk production with 165.4 million tonnes of milk in 2016-17, out of those indigenous cattle contribute 11.3% and 9.5% by non-descriptive cattle (BAHS, 2017). Livestock breeds are recognized as significant components of world biodiversity because the genes and gene combinations they carry may be useful to agriculture in the future (Hall *et al.*, 1995). Bosindicus cattle (Zebu cattle) were evolved over hundred years with very little scientific selection and majorly followed in Indian traditional animal husbandry practices, because of this zebu cattle were much more adapted to harsh local environment, resistance to tropical diseases and external parasites and sustenance on low quality roughages and grasses (Sharma *et.al.*2015). A diversified agro-ecological zones in India have helped to develop number of cattle populations. Breed characterization allows to study assessment of genetic variability, a fundamental element in working out breeding strategies and genetic conservation plans. There are forty three recognized breeds of cattle in India, in addition to large number of non-descript cattle. In recent times, several of the indigenous breeds suffered decline mainly due to their becoming uneconomical. India has large number of breeds with wide genetic diversity than other countries. The local breeds have many merits over exotic breeds viz. better disease resistance than exotic breeds, more suitable for low input management system, Survive better in local environmental condition, Suitable for draught work In addition, existence of superior indigenous breeds can provide valuable research inputs for developing superior breeds. It is therefore important that Indigenous breeds of cattle are conserved, developed and proliferated. Breed registration and

recognition is a very important step for breed certification and all relevant information regarding the enormous and biodiverse animal genetic resources of our country the procedure shall lead to formation of breed inventory and try identify and understand these unique genetic resources which shall ultimately facilitate the genetic improvement of the native livestock population.

Badri (Pahadi)

Badri has become the first registered cattle breed of Uttarakhand which is certified by the National Bureau of Animal Genetic Resources (NBAGR). This breed is found in the hilly regions of Uttarakhand and balanced gait while walking. Badri cattle are small in size having long legs and varied body colours – black, brown, red, white or grey. Straight forehead with prominent poll, medium to large hump. Udder is small and tucked up with the body. These are well adapted to the hilly terrain and climatic conditions and comparatively more resistant to diseases. Urine has better value due to their feeding habitat. The lactation milk yield ranges from 547 to 657 kg with an average milk fat of 4 %. Bangaet *al.*, (2005) recorded the body measurements in Badri cattle for heart girth, height at wither and body length which averaged as 62.15 \pm 3.2, 59.66 \pm 2.5 and 47.55 \pm 1.5 cm in calves, 115 \pm 6.4, 89.71 \pm 3.1 and 84.65 \pm 2.6 cm in heifers and 137.63 \pm 7.1, 100.76 \pm 5.8, 103.97 \pm 6.3 cm in adults, respectively

Belahi (Morni, Desi)

Belahi cattle are spreaded in North Himalayan foothills with their breeding tract in North eastern parts of Haryana, Punjab and Himachal Pradesh (Vohra *et al.*, 2012). They are migratory breed and well adapted to local environment and are excellent dual-purpose (milk and draught) cattle underneath extensive

management system and provides livelihood security to Gujjar pastoralists of the region (Vohra *et al.*, 2017). Body coat colour pattern having reddish brown and face, extremities and ventral part of body having different degrees of white colour. Head is straight and broad with prominent poll. Horns are sickle shaped, curved upwards and inwards. adult body weights were 304.8 ± 1.35 and 266.74 ± 2.15 kg in males and females, respectively. Overall average daily milk yield and 305 day milk yield were estimated as 3.25 ± 0.15 kg and 1014.43 ± 45.46 kg respectively (Yadav *et al.*, 2018). The lactation milk yield ranges from 182 to 2092 kg with an average milk fat of 5.2%.

Gangatiri (Eastern Hariana or Shahabadi)

Gangatiri is dual-purpose zebu cattle breed, found mainly in Varanasi, Chandauli, Ghazipur and Ballia district of eastern Uttar Pradesh and adjacent areas of Bihar state of India. Bhinchharel *al.* (2017) observed characteristic feature such as medium size muzzle, lustrous eyes, medium sized dewlap, small brisket, sharp and smooth shoulder with medium legs, medium sized bowl shaped udder with cylindrical shaped medium sized teats and prominent, crooked and branched milk veins as characteristic features of the Gangatiri cattle. Forehead is prominent, straight and broad with shallow groove in the middle. Developed mostly by small and marginal farmers of several communities like Yadav, Bhumihaar, Brahmin, Rajbhar, Kshatriya, Patel, etc. Lactation length was 187.80 days, average dry period length was 176.60 days and average calving interval was 372.40 days in Gangatiri cattle (Singh *et al.*, 2017). Milk yield ranges from 900 to 1200 kg per lactation with an average fat in milk is 4.9%. Gangatiri cattle contributed considerably to total income of framers, so higher profit from rearing Gangatiri cattle will have significant positive impact on socio-

personal and socio-economic status of these farmers reported by (Singh *et al.*, 2018).

MalnadGidda (Gidda, Uradana, Varshagandhi)

The name of the breed, MalnadGidda, has been derived from in three words Malay means hilly, Nadu means place (Malay + Nadu= Malnad) and Gidda means small. As indicated in name this is a small size breed and found in hilly tract of Chikmagalur, Dakshina Kannada, Hassan, Kodagu, Uttar Kannada and Udupi District of Karnataka. There are 5 coat colours present in these animals (black, brown, red, fawn and white, sometimes mixture of any 2) but black colour is predominant (Singh *et al.*, 2008). The animals bear a compact body weighing about 90 to 140 kg. Singh *et al.*, (2008) observed in his study that the colour of skin, eyelids, muzzle, tail switch were predominately black in the animals with black coat colour, however, the muzzle colour was carroty or pinkish in fawn and white coat coloured animals. The head profile was straight in all most all the female animals but it was slightly concave in males. The horns were of small to medium in length and outward, upward and inward with pointed tips in orientation. The limbs were short and comparatively thinner. The hump was small in cows but more prominent in bulls. The dewlap size was small to medium. The udder was bowl shaped and small in size. The teats were funnel shaped with pointed tips.

Lakhimi

Lakhimi cattle of Assam are distributed in entire state and reared for milk and draught purposes by local people. Total population is about 79 Lakhs. Animals are small sized, horned and have relatively short legs. Coat colour is variable mainly brown and grey. Hump is medium in size and the backline is

slightly curved. Udder is small and bowel shaped. Bullocks are excellent draft animals especially for carting and ploughing especially in the muddy fields for paddy cultivation. Lactation milk yield ranges from 270 to 375

kg (ICAR-NBAGR Newsletter-2017). The milk yield ranges from 325 to 375 kg per lactation with an average 5.3% fat. Age at first calving ranges from 44 to 49 months (Table 1 and Fig. 1–7).

Table.1

S.N.	Breed	Home Tract	Accession number
1	Badri	Uttarakhand	INDIA_CATTLE_2400_BADRI_03040
2	Belahi	Haryana and Chandigarh	INDIA_CATTLE_0532_BELAHI_03038
3	Gangatiri	Uttar Pradesh and Bihar	INDIA_CATTLE_2003_GANGATIRI_03039
4	MalnadGidda	Karnataka	INDIA_CATTLE_0800_MALNADGIDDA_03037
5	Lakhimi	Assam	INDIA_CATTLE_0200_LAKHIMI_03041
6	Ladakhi	Jammu and Kashmir	INDIA_CATTLE_0700_LADAKHI_03042
7	Konkan Kapila	Maharashtra and Goa	INDIA_CATTLE_1135_KONKANKAPILA_03043

Fig.1 Badri (Pahadi)



Fig.2 Belahi (Morni, Desi)



Fig.3 Gangatiri (Eastern Haryana or Shahabadi)



Fig.4 MalnadGidda (Gidda, Uradana, Varshagandhi)



Fig.5 Lakhimi



Fig.6 Ladakhi



Fig.7 Konkan Kapila (Konkan gidda, Konkan)



Ladakhi

Ladakhi cattle are native to Ladakh region of Jammu and Kashmir. These are small sized and short statured black or brown colored animals well adapted to extreme cold climatic and hypoxic conditions. Ladakhi cattle were small in size with cylindrical type of body. Animals were well built and compact with strong legs. Body colour varied in different colours and shades i.e. black, brown and black with white patches. Body had long hairs with glossy sheen. Colour of skin, muzzle, eyelids and hoof were black while horns were black in colour.

Horns curved upward, outward then forward orientation with pointed tips. Hump and dewlap were small. Head was small. Face was short and concave. Ears were small to moderate in length and horizontal in orientation. Size of udder was small not that much develop but milk vein were prominent. Tail was long, touching almost ground level. Animals were well docile with very low milk production.

Average daily milk yield range from 1.0 to 4.5 kg (Pundir. 2016). Udder is small in size and bowl shaped. Milk yield is around 2 to 5kg/day. Milk has high fat percentage of around 5% and used mainly for producing butter and churpi, important part of diet of local people (nbagr.res.in).

Konkan Kapila (Konkan gidda, Konkan)

The breeding tract of this breed includes Thane, Raigadh, Ratnagiri, Sindhudurg and Palghar districts of Maharashtra. Distributed in Konkan region of Maharashtra and Goa. The animals are of various coat colours, predominant being reddish brown/black, however white/grey, mixed and in few animals brown or fawn coat colour is also available. The animals are small to medium in size with compact body, straight face, small to medium sized hump and dewlap. Generally straight and small sized horn emerge from side of the poll behind and above eyes in outward and going upwards and backwards ending with pointed tips. Konkan Kapila cattle are low milk producers (around 2.25 kg/day) and possess good draft ability suited to hilly terrain and hot and humid climate of its native tract (nbagr.res.in).

Cattle species form a chief share of livestock in India with major share coming from it. Indigenous genetic resources in livestock sector and their conservation have thus become crucial for sustained food production.

The challenge is the conservation of livestock genetic resources and also increasing output per unit from livestock averting major loss in genetic diversity. ICAR-NBAGR, Karnal is the nodal government organization for registration of recognized germplasm in

country. Newly identified breeds are approved by Breed Registration Committee of Indian Council of Agricultural Research (ICAR) headed by Deputy Director General (Animal Sciences).

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