

## REVIEW ARTICLE

# Characteristic features of Registered Indigenous Cattle breeds of India: A Review

Alok Kumar Yadav<sup>1\*</sup>, Jitendra Singh<sup>2</sup> and Shiv Kumar Yadav<sup>3</sup>

<sup>1</sup>Ph.D. Scholar, Division of Animal Genetics and Breeding, ICAR-National Dairy Research Institute, Karnal-132001, Haryana, India

<sup>2</sup>Veterinary officer, Department of Animal Husbandry, Lucknow, U.P.

<sup>3</sup>Department of Veterinary Physiology & Biochemistry  
CVSc & AH., NDUAT, Kumarganj, Faizabad- 224 229 (UP) India

\*Corresponding author: - alokvet1000@gmail.com

### ABSTRACT

The genetic characterization would lead to identification of unique gene pools which can be prioritized for conservation. The genes/alleles responsible for desirable traits would provide added value to our Animal Genetic Resources. There are forty 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. Draught breeds utility has decreased because of mechanization in agriculture. Indian subcontinent is a rich source of diverse germplasm, and only very few countries have such a large number of breeds with wide genetic diversity. India, therefore, initiated activities aimed at determining the status and compiling information on indigenous farm animals. The local breeds have following merits over exotic breeds viz: 1. Better disease resistance than exotic breeds, 2. More suitable for low input management system, 3. Survive better in local environment, 4. 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.

**Key Words:** Indigenous Cattle, Biodiversity, Characteristics features, Conservation

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## INTRODUCTION

A breed is a group of related animals with similar characters like general appearance, size, features and configuration etc. Often, breeds resemble each other with slight morphological differences, but because of constant inbreeding in one locality, independent breeds have evolved. In general, the cattle from drier regions are well built and those from heavy rainfall areas, coastal and hilly regions are of smaller build. There are total 231 breeds of cattle in the world out of which 40 registered breeds are in India. Most indigenous cattle breeds in the tropics are multipurpose (milk, meat, draught) and that only a few breeds have good milk potential. Indian cattle breeds are classified in to three types as under:

(A) Milch breeds

(B) Draught breeds

(C) Dual Purpose breeds

### (a) INDIGENOUS MILCH BREEDS OF CATTLE

The cows of these breeds are high milk yielders and the male animals are slow or poor workers. The milk production of milk breeds is on the average more than 1600 kg. per lactation. The examples of Indian milch breeds are Gir, Red Sindhi, Sahiwal and Deoni.

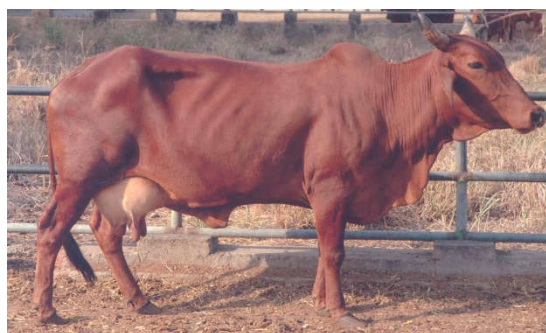
#### 1. Gir

This breed is otherwise known as Desan, Gujarati, Kathiawari, Sorthi, and Surati. Originated in Gir forests of South Kathiawar in Gujarat, it is also found in Maharashtra and Rajasthan States in India. The peculiar features of the breed are a protruding-broad and long forehead, and pendulous forward turned ears. The

popular colour is white with dark red or chocolate-brown patches distributed all over the body. Entire red animals are also encountered although it is usually mottled with yellowish-red to almost black patches. Horns are peculiarly curved, giving a 'half moon' appearance. Gir cows are good milkers and milk yield ranges from 1200 to 1800 kg per lactation. The age at first calving varies from 45 to 54 months and the intercalving period from 515 to 600 days. The Gir breed has been exported to other parts of the world. In Brazil where large herds are found, it is known as Gyr. Brazil has also evolved a strain called Indubrasil which is a cross between Gir and Kankrej.



## 2. Red Sindhi



This breed is otherwise called as Red Karachi and Sindhi. The home tract of this breed is Karachi and Hyderabad districts of Pakistan. Colour is red with shades varying from dark red to light, strips of white. Red Sindhi animals, though small in size are very good milkers. They have a compact frame with round dropping quarters. Milk production in the institutional herds ranges from 1250 to 1800 kg per lactation. Age at first calving is 39 to 50 months and the calving interval 425 to 540 days. Red Sindhi females have been used in crossbreeding with Brown-Swiss and Jersey to develop new breeds such as Karan Swiss and Jersind in India.

## 3. Sahiwal



The breeding tract of this breed is Montgomery district in Pakistan which is now named as Sahiwal. This breed otherwise known as Lola (loose skin), Lambi Bar, Montgomery, Multani, Teli. The colour is reddish dun or pale red, sometimes flashed with white patches. Muzzle and eyelashes are light in colour. This is the best dairy breed of the Indian subcontinent. It is a comparatively heavy breed with a symmetrical body and loose skin, when compared with Red Sindhi which it closely resembles. The animals are usually long and fleshy and of heavier build. A number of herds of this breed are maintained in India. The milk yield ranges from 1400 to 2500 kg per lactation. The age at first calving ranges from 37 to 48 months and

the calving interval from 430 to 580 days. A new breed called Jamaica Hope has been evolved using Sahiwal x Jersey crossbreeds.

#### 4. Deoni



This breed otherwise known as Dongerpati, Dongari, Wannera, Waghyd, Balankya, Shevera. Originated in Marathwada region of Maharashtra state and adjoining part of Karnataka and western Andhra Pradesh states. Body colour is usually spotted black and white. Age at first calving ranges from 894 to 1540 days with an average of 1391 days. Milk yield ranges from 636 to 1230 kgs. Average yield about 900 kg in 300 day. Caving interval averages 447 days. Bullocks are well suited for heavy work.

#### (B)-INDIGENOUS DRAUGHT BREEDS OF CATTLE

The male animals are good for work and cows are poor milk yielders and their milk yield on an average is less than 500 kg per lactation.

##### 1. Hallikar



Originated from the former princely state of Vijayanagarm, presently part of Karnataka. The breed is mainly found in the districts of Hassan and Tumkur in Karnataka state. The colour is grey. They are compact, muscular and medium size animal. Compact and muscular in appearance. The head is usually long with a bulging forehead, furrowed in the middle. The long horns emerge close to each other from the top and are carried backwards in a graceful sweep on each side of the neck and then gradually curving upwards to terminate in sharp points. The face is long with small ears. The coat colour is grey to dark grey with deep shadings on the fore and hind quarters. The breed is best known for its draught capacity and especially for its trotting ability. It was used in the war by Tipu Sultan for carrying cannons.

##### 2. Amritmahal



Originated in Hassan, Chikmagalur and Chitradurga district of Karnataka. The home tract of this breed is the former princely state of Mysore. Compact form with short straight back, well-arched ribs, powerful sloping quarters. Narrow face and prominent forehead with a furrow in the middle. Horns are long and end in sharp black points. Grey coloured body with dark head, neck, hump and quarters. Amiritmahal breed is one of the best draught breed of India. Animals are very active and famous for the power of endurance. Cow are not so good millkers. They are closely related to Hallikar.

### 3. Khillari



Originated from Sholapur and Sitapur districts of Maharashtra. Grey-white in colour and have quick gait. Closely resembles Hallikar breed. The animals are compact and tight. The forehead is long and with a convex bulge towards the horns with a distinct groove running in the centre of the forehead. Long horns turn forwards in a peculiar fashion. The horns are generally black, sometimes pinkish. Bullocks are regarded as fast and powerful draught animals. Excellent cows yield up to 900 to 1000 kg milk. Khillari has been exported to Sri Lanka for crossing with the local cattle for improving their draught qualities.

### 4. Kangayam



Originated in Kangayam, Dharapuram, Perundurai, Erode, Bhavani and part of Gobichettipalayam taluk of Erode and Coimbatore district of Tamil Nadu. The animals are of moderate size with compact bodies. Coat is red at birth, but changes to grey at about 6 months of age. Bulls are grey with dark colour in hump, fore and hind quarters. Bullocks are grey. Cows are grey or white. However, animals with red, black, fawn and broken colours are also observed. The eyes are dark and prominent with black rings around them. The milk yield ranges from 600 to 700 kg per lactation. Kangayam is more reputed for its draught capacity.

### 5. Bargur



Bargur is draught breed found around Bargur hills in Bhavani taluk of Erode district in Tamilnadu. Bargur cattle are of brown colour with white markings. Some white or dark brown animal are also seen. Animals are well built, compact and medium in size. Developed for work in uneven hilly terrains. Known for their speed and endurance in trotting. Color does not change with age as in Kangayam and Umblachery breeds. Head is brownish, well shaped, long and tapering towards the muzzle. Forehead is slightly prominent. Horns are of light brown color, moderate length, closer at the roots, inclining backward, outward and upward with a forward curve and sharp at the tip. Cows are poor milkers and produce 250 to 1300 kg of milk in a lactation period of 270 to 310 days.

## 6. Umblachery



A noted draught cattle breed of Tamil Nadu, Umblachery is famous for its sturdiness and strength. It derives its name from a small village with same name (Umblachery) considered as native tract of the breed. It is also known as “Jathimadu”, “Mottaimadhu”, “Molaimadhu”, “Southern”, “Tanjore” and “Therkuthimadhu”. The breeding tract includes Nagapatinam and Thiruvavarur districts of Tamil Nadu. Typically, animals are red at birth and thereafter change to grey during development. Males are dark grey with black extremities whereas cows are grey with light dark grey area in face, neck and hip regions. There are white markings on face, limb and tail and the marking on the leg resembles socks. This breed is suitable for ploughing, carting, threshing and levelling in marshy paddy fields because of its medium size. Most of the cows are not milked and calves are allowed to suckle the dam. Average recorded milk yield is 494 Kg per lactation with average milk fat of 4.94%.

## 7. Pullikulam / Alambadi



Pullikulam is a popular draught and game breed of Tamil Nadu. It is named after its village of origin (Pullikulam in Tamil Nadu) and is also known as “Palingu maadu”, “Mani maadu”, “Jallikattu maadu”, “Mattu maadu” and “Kilakattu maadu”. Madurai, Sivaganda and Virudhunagar districts of Tamil Nadu form its breeding tract. Pullikulam / Alambadi bulls are dark grey, almost black in colour while females are white or grey. The animals are small sized with compact body and short legs. Muzzle, eyelids, tail switch and hooves are black. Fore Head is broad and has a groove at centre. Horns are curved outward, upward, backward and then inward, ending with pointed tips spaced wide apart. The breed is not meant for milk production and only a few animals are milked in a large herd for consumption by herdsman. Generally, milk yield is about 1.25 Kg per day within a range of 0.5 kg to 2 Kg. The animals are also reared for manure purpose. They are active, useful draught animals but not fast trotter.

## 8. Bachaur



The breeding tract of Bachaur cattle is Sitamarhi, Dharbanga and Madhubani district of Bihar. They are also known as “Bhutia”. They are now mostly concentrated in the areas adjoining Nepal border of India, comprising Bachaur and Koilpur sub-divisions of Sitamarhi district of Bihar State. The breed has very close similarity to the Haryana breed. The breed is primarily utilized for draft qualities and ability to thrive with lower quality feeds. Common colours of Bachaur cattle is grey or greyish white. They are compact with straight backs, well-rounded barrels, short necks and muscular shoulders. The forehead is broad and flat or slightly convex. The eyes are large and prominent. The horns are medium-sized and

stumpy, curving outward, upward and downward. The breed is mainly used for work and bullocks can work for long periods without any break. Average milk yield per lactation of Bachaur cow is 347 kg with an average milk fat of 5 %. The lactation milk yield ranges from 225 to 630 kg.

#### 9. Gaolao



The breed is found principally in the districts of Wardha, Nagpur of Maharashtra and Chindwara of Madhya Pradesh. They are white and of light built with medium height and long coffin shaped skulls. There is a close similarity between the Ongole and the Gaolao except the latter are much lighter, with greater agility. The head is markedly long and narrow with a straight profile usually tapering towards the muzzle and somewhat broader at the base of the horns. The forehead is usually flat, though it appears to recede at the top, giving a slightly convex appearance. The eyes are almond-shaped and placed slightly at angles. The ears are of medium size and are carried high. The horns are short and stumpy, blunt at the points and commonly slope slightly backwards. Milk yield in cows is moderate and some may yield up to 1000 kg milk in a lactation of about 400 days. The calving interval is about 16 months.

#### 10. Kenkatha



The Kenwariya are also known as Kenkatha. They get their name from the River Ken, as they are bred along the banks of this small river in the hilly area of Bundelkhand. The Kenwariya cattle are small, sturdy and fairly powerful, varying in color from gray on the barrel to dark gray on the rest of the body. The head is short and broad and the forehead is dished. Horns emerge from the outer angles of the poll in a markedly forward direction and terminate in sharp points. Ears are sharply pointed and do not droop. The body is short, deep and compact. This breed is very popular for light draft on the road and for cultivation. They are observed to thrive on poor feed. Because of the hilly nature of the region and the poor grazing, only animals which can cover long distances and have strong feet can thrive.

#### 11. Kherigarh



Kherigarh is a draught purpose breed and the breeding tract includes "Kheri" district of Uttar Pradesh. The breed has been named after this area. The breed is also known by various names like "Kheri", "Kharigarh" and "Khari". The Kherigarh cattle are closely tied to the Malvi breed. The Kherigarh cattle are generally white or gray in color. Horns are upstanding, curving outward and upward and thick at the base. The ears are small and the eyes bright. The cattle of this breed are very active and thrive on grazing only. The bullocks are good for light draft and quick, light transport. The cows are poor milkers. The standard lactation milk yield ranges from 300 to 500 kilo grams.

**12. Malvi**

These cattle are found in Gwalior region of Madhya Pradesh and also in Andhra Pradesh State of India. It has been said that the Malvi resembles the Kankrej in many ways. Malvi cattle have short, deep and compact bodies. The head is short and broad with dished forehead. The horns, which emerge from the outer angles of the poll in an outward and upward direction, are strong and pointed. The ears are short and pointed and not drooping. The color is gray almost black on the neck, shoulders, hump and quarters. The cows and bullocks eventually become nearly pure white with age. The breed is well-known for draft qualities. They show great endurance and ability to carry heavy loads on rough roads. The cows observed in the village areas are observed to be poor milkers but selected cows on the farm show that they can produce 2000 to 2,700 pounds of milk per lactation.

**13. Nagauri**

Nagauri cattle are prevalent in the former Jodhpur State, now a part of the State of Rajasthan in India. The face is long and narrow but the forehead is flat and not so prominent. The ears are large and pendulous. The horns are moderate in size and emerge from the outer angles of the poll in an outward direction and are carried upwards with a gentle curve to turn in at the points. The tail is of moderate length reaching just below the hocks and terminating in a tuft of black hair. The cows usually have well-developed udders with large teats. The Nagauri breed is one of the most famous trotting draft breeds of India and is generally appreciated for fast road work. Nagauri cattle are famous as trotters, being used all over Rajputana in light iron-wheeled carts for quick transportation. They are also worked for all agricultural purposes, such as plowing, cultivation drawing water from wells and transportation of field produce to markets. In Barmer, Rajasthan there are good specimens of milch cows of this breed with yields as high as 900 kg per lactation.

**14. Ponwar**

Ponwar, a draught breed of cattle from North India, is believed to be evolved from a mix of hilly cattle (Morang - Nepalese hill cattle) and plain land cattle. It is also known as "Purnea". Its breeding tract is the Pilibhit district of Uttar Pradesh. The animals of this breed possess a small, narrow face, small ears and big, bright eyes. The forehead is slightly concave and often has white marking. The horns are long, upstanding and lyre-shaped. Ponwar cattle are usually black and white; the color markings do not have any particular pattern, but large patches of black and white are intermixed. The cattle of this breed are active and often fiery-tempered. They are observed to thrive well under free grazing conditions. The bullocks are good for draft purposes. They are quick movers. The animals of this breed are observed to mature late. Cows produces a fair amount of milk with an average yield of 459 Kg per lactation and are

rarely milked even in the flush of their production. Bullocks are fast movers and therefore used both for agricultural operations and transportation.

#### 15. Siri



Animals of this breed are found in the hill tracts around Darjeeling in Bengal, India and in Sikkim and Bhutan. Bhutan is said to be the real home of this breed. The Siri has a hump that is thoracic and muscular-fatty. The color most frequently seen are black and white or extensive solid black, in color patterns similar to that of Holstein-Friesians. The animal carries a thick coat all the year round, and it is generally believed that this protects them from heavy rains and severe cold. The general form of the animal is massive. The head is small, square cut and well set on. The forehead is wide and flat. The horns are sharp and directed forward and is usually covered with a tuft of long coarse hair. The position of the hump is slightly forward compared with that of other Zebu breeds. Bulls are eagerly sought after for draft purposes due to their size and reputed great strength. Selected cows yield up to 1000 kg per lactation with fairly high fat percentage.

#### 16. Red Kandhari



Originated from Kandhar tehsil in Nanded district of Maharashtra, Red Kandhari is also known as "Lakhalbunda". Mostly found in Bidar (Karnataka), Nanded, Latur, Parbhani and Hingoli districts in Maharashtra. Its breeding tract comprises Ahmadnagar, Parbhani, Beed, Nanded and Latur districts of Maharashtra. It is a draught breed of cattle. Red Kandhari is good looking with dark red colour, broad forehead. Bulls are a shade darker than cows. Horns are evenly curved and medium sized. The animals are maintained under extensive management system on grazing only in small herds. Small amount of concentrate is offered to bullocks, male calves and milking animals. The bullocks are used for heavy agricultural work like ploughing and carting as well as for transportation. The cows produce fair quantity of milk with an average of 598 Kg per lactation with average fat percentage of 4.57%. Ears are long and drooping. Producing on an average 600 liters milk per lactation length of 280 days. The males are used for draught purpose.

#### 17. Punganur



The Punganur dwarf cow, which originated in Chittoor District, Andhra Pradesh, India, is considered one of the world's smallest cows. The Punganur breed's milk has a high fat content and is rich in medicinal properties. While cow milk normally has a fat content of 3 to 3.5 per cent, the Punganur breed's milk contains 8 per cent. It is the world's shortest, humped cattle. Animals are white and light grey in colour with a broad forehead and short horns. Its average height is 70-90 cms and its weight is 115-200 kg. The cow is an amazingly efficient milker with an average milk yield of 3-5 Lit/day on a daily feed intake of 5 kg. It is also highly drought resistant, and able to survive exclusively on dry fodder. Some of the breed characteristics are: Back sloping downwards from front to hind quarters. Tail touching the ground. Slight mobile horns, almost flat along the back and normally at different heights from each other.



**18. Vechur**

The Vechur Cattle is a rare breed of *Bos indicus* cattle named after the village Vechoor in Kottayam district of the state of Kerala in India. With an average length of 124 cm and height of 87-90 cm, weighs around 130 kg, yielding up to 3 litres of milk a day. It is the smallest cattle breed in the world according to the Guinness Book of Records, and is valued for the larger amount of milk it produces relative to the amount of food it requires. The milk is believed to have medicinal qualities and easy digestibility due to smaller fat globule size. A recent report claims that the milk of the Vechur cow has more of the beta casein variety A2, rather than the variety A1 which is implicated in conditions like diabetes, ischaemic heart disease and autism. The protein component of the Vechur cow's milk has an improved antimicrobial property. As per recent findings, the anti-bacterial property of the lactoferrin protein present in the Vechur Cow milk is more than that of the antibiotic ampicillin. Although lactoferrin, present in the milk of all mammals, is found to have antimicrobial, antiviral, antitumor, immunodefence and anti-inflammatory properties recent studies prove that in the case of the lactoferrin protein in the Vechur Cow milk, these properties are much more enhanced. The Vechur Ghee (clarified butter) produced from Vechur cow's milk, is famous for its high medicinal values due to the presence of A2 beta-lactalbumin protein and higher arginine content which is good for the health of convalescing people.

**19. Motu****MOTU BULL**

These dwarf cattle are used for draught purpose in hilly and undulated terrain and the breed is named after local area "Motu" of Malkangiri district in Orissa. Their breeding tract comprises southern part of Malkangiri district and adjoining area of Chhattisgarh and Andhra Pradesh. Heavy concentration of animals is found in Motu, Kalimela, Podia and Malkangiri areas of Malkangiri district in Orissa. Sandy and clay type soil is predominant in this area. Coat colour is mainly brown (reddish) and sometimes grey. Few animals are white in colour. Animals of this breed are mostly polled and horns whenever present emerge straight and upward and end with rounded tip. Though the breed is small sized they are strong in built. The milk yield is meagre and ranges from 100 to 140 Kg in a lactation with 4.8 to 5.3% fat.

**20. Ghumusari****GHUMUSARI COW**

Ghumusari breed of cattle is also known as "Deshi". Breeding tract includes western part of Ganjam district and adjoining areas of Phulbani district of Odisha. It is chiefly a draught cattle breed, but few animals are maintained for milk, manure and fuel. The draughtability of bullocks is considered superior than other breeds of bullocks in the native tract. The animals are small sized and strong in built. They are

chiefly white in color, but sometimes shades of grey are also visible. The horns are medium sized, mostly curved upward and inward, but some animals having straight horns as well. The animals of this breed have a small head with flat, broad forehead, depressed in between the eyes. The animals are maintained in semi-intensive management system, and rarely fed any concentrate. Lactating cows and bullocks are fed with straw, rice bran and kitchen waste. Cows are milked only once in morning hours. The milk yield per lactation ranges from 450-650 kg, with milk fat ranging from 4.8-4.9%.

### 21. Binjharपुरी



Binjharपुरी, also known as “Deshi”, is a breed of cattle found in Jajpur, Kendrapara and Bhadrak districts of Odisha. Maintained for milk, draught and manure. Binjharपुरी is smaller upgraded Haryana type animal. Animals are medium sized, strong and chiefly white in color. Some animals are Grey, Black or Brown. In males, the hump, neck and some regions of face and back are black in colour irrespective of their coat color. Horns are medium in size and curved upward and inward. The animals are maintained in extensive management system. The milk yield per lactation ranges from 915-1350 kg with milk fat ranging from 4.3-4.4%.

### 22. Khariar



Khariar is named after its native tract "Khariar" in Nuapada district of Odisha. Breeding tract comprises Nuapada, Kalahandi and Balangir districts of Odisha. Heavy concentration of animals of this breed is found in Khariar, Komna, Sinapali and Boden blocks of Nuapada district of Odisha. The coat colour of Khariar cattle ranges from light brown to grey. Horns are straight and often emerge upward and inward. Animals of this breed are small sized and of strong built. Hump, neck, and some regions of face and back are dark in colour. The breed is used for draught purpose in its native tract, which is hilly and undulated. The bullocks are very good draft animals are prepared in and around the native tract for agricultural operation and transportation. However, the cows produce considerable quantity of milk, often used for family consumption and even marketed at times. The lactation milk yield ranges from 300 to 450 Kg with 4 to 5 % Fat.

### 23. Kosali



The breed is predominantly seen in the plains of Chhattisgarh and the breeding tract includes Raipur, Durg, Bilaspur and Janjgir districts. The ancient name of this region was 'Kowshal'. These are mainly

reared for manure, draught and milk. Most predominant colour is light red, followed by whitish grey. Few animals having black coat colour or red with white patches are also seen. Horns are stumpy, emerging straight, then going outward, upward, and inward from the polls. Muzzle, eyelids, tail switch and hooves are black. Head is broad, flat and straight. Hump is small to medium in size. Udder small and bowl shaped. Bullocks of this breed are very efficient for ploughing in paddy fields and other operations in the paddy fields. Animals are known for very efficient working ability and high disease resistance. The average milk yield per lactation is 210 kg with an average milk fat % of 3.5. The lactation yield ranges from 200 to 250 kg with average fat % from 3 to 4.5.

#### 24. Malnad Gidda



Malnad Gidda, the dwarf variety of cattle native to Malnad region known for their extreme shyness, has got national recognition now. Malnad Gidda cattle are small size animals and distributed in Malnad area of Karnataka. The population of the breed is about 7-8 lakh in Karnataka but is showing a declining trend. This breed has not been included in the list of recognized cattle breeds of India due to lack of information about the breed. There were 5 coat colours found in these animals (black, brown, red, fawn and white, sometimes mixture of any 2) but black colour was predominant. The average daily milk yield of elite cows was obtained as 2.11 kg. Animals of this breed are playing a significant role in the rural livelihood of Malnad area of Karnataka in terms of draught, milk and manure.

#### (C)- INDIGENOUS DUAL PURPOSE BREEDS OF CATTLE

The cows in these breeds are average milk yielder and male animals are very useful for work. Their milk production per lactation is 500 kg to 150 kg.

##### 1. Tharparkar



The original habitat of this breed is Tharparkar district in the Province of Sind, Pakistan. The breed is also found in the adjoining tracts in Rajasthan State in India, particularly around Jodhpur and Jaisalmer where excellent milch specimens are found. Otherwise known as White Sindhi, Gray Sindhi and Thari. Body colour is white or light grey. This is a medium-sized compact breed. The bullocks are quite suitable for ploughing and casting and the cows are good milch animals (1,800 – 2600 kgs). Age at first calving ranges from 38-42 months and inter calving period from 430 to 460 days.

##### 2. Haryana



The native breeding tract of this breed encompasses large parts of Rohtak, Hisar and Gurgaon district of Haryana State and is a prominent dual-purpose breed of north India. It has been extensively used in grading up non-descript cattle particularly to improve their draught capacity in the Indo-Gangetic plains. Haryana cattle are characterised by a long and narrow face, flat forehead and well marked bony prominence at the centre of the poll. Horns are small. The muzzle is usually black. Eyes are large and prominent. Good specimens of cows yield up to 1500 kg of milk per lactation. The age at first calving is 40 to 60 months depending on management and feeding conditions. The intercalving period varies from 480 to 630 days. Males are powerful work animals.

### 3. Rathi:



Rathi cattle are named after a pastoral tribe called Rathis who lead a nomadic life. The home tract of this breed lies in the heart of Thar desert. Rathi breed, is a mixture of Sahiwal, Red Sindhi, Tharparkar and Dhanni breeds with a preponderance of Sahiwal blood. The animals are of medium size with a symmetrical body and a short and smooth body coat. Their udder is well developed with a prominent milk vein. The females are docile and good milkers (1325 to 2093 kg per lactation). Calving interval ranges between 445 and 617 days.

### 4. Kankrej



The home tract of this breed is Gujarat, India. It is the heaviest of the Indian breeds. It is otherwise called as Wadad or Waged, Wadhia. Originated from Southeast Rann of Kutch of Gujarat and adjoining Rajasthan (Barmer and Jodhpur district). The animals have a broad chest, straight back and a well-developed hump. Colour of the animal varies from silver-grey to iron-grey or steel black. The gait of Kankrej is peculiar called as 1 ¼ paces (sawai chal). Kankrej is valued for fast, powerful, draught cattle. Useful in ploughing and carting. These cows are average milkers and yield about 1400 kg under farm conditions while yield under village conditions is low. The age at first calving varies from 45 to 47 months and the intercalving period from 486 to 510 days. Bulls are fast and powerful draft animals.

### 5. Ongole



The native tract of this breed is Ongole taluk in Guntur district of Andhra Pradesh, India. Otherwise known as Nellore. This is essentially a large muscular breed suitable for heavy draft work. An average milk yield of 600-1000 kg is common. Good specimens yield up to 1500 kg per lactation. The age at first calving is 38 to 45 months and the intercalving period 470 to 530 days. Excellent specimens of this breed have been exported to Brazil where large herds now exist. They are known as Nellore breed in Brazil.

The famous Santa Gertrudis breed evolved in Texas, USA, has the inheritance of Ongole breed in its development.

### 6. Krishna Valley

Krishna valley (Maharashtra&A.P)



The home tract of this breed is black cotton soil along the River Krishna and the adjoining areas of Ghataprabha and Malaprabha in Karnataka. The breed is also found in the districts of Satara, Miraj and Kolhapur of Maharashtra. Animals are large, having a massive frame with deep, loosely built short body. Tail almost reaches the ground. Common colour grey white with a darker shade on fore quarters and hind quarters in male. Adult females are more whitish in appearance. The bullocks of this breed are powerful animals useful for slow ploughing, and valued for their good working qualities. The cows are fair milkers, average yield being about 916 kgs during the lactation period.

### 7. Nimari:



Nimari cattle show a mixture of Gir and Khillari, is found in the Nimar tract of Madhya Pradesh and adjoining parts of Maharashtra. The breed has taken the coloration from the Gir as well as its massiveness of frame and the convexity of the forehead. It has acquired the hardiness, agility and temper of the Khillari with the formation of feet and occasional carrot color of the muzzle and hooves. The animals are well-proportioned and compact in appearance. In general they are red in color with large splashes of white on various parts of the body. The head is moderately long with a somewhat bulging forehead, it is carried alertly and gives the animals a graceful appearance. The horns usually emerge in a backward direction from the outer angles of the poll, somewhat in the same manner as in Gir cattle, turning upwards and outwards and finally backwards at the points. Muzzle in many animals is either copper-colored or amber-colored. There is a tendency to prominent hips common to the Gir.

### 8. Dangi:



The home tract of this breed is Ahmednagar and Nasik districts of Maharashtra. They have usually broken red and white or black and white colour. The animals are medium in size with deep bodies. The head is usually small with slightly protruding forehead. The muzzle is large, ears are small and the horns short and thick. Though the cows are not good milkers, the bullocks are popular in heavy rainfall tracts. Milk yield average 530 kg (range 32 to 1228 kg) in an average lactation period of 269 days (range from 100 to 396 days). Average fat in milk is 4.3 %.

**9. Mewati:**



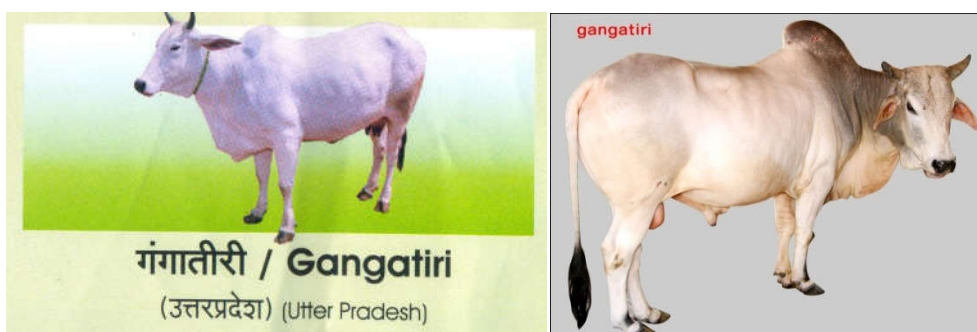
This breed found in west Alwar and Bharatpur districts of Rajasthan. Horns emerge from outward angle; ears pendulous. Large hump placed in front of withers. They are powerful but docile animals suitable for heavy ploughing and carting. They are similar to Haryana breed with traces of Gir inheritance. This breed shows admixture of Gir, Rahi and Nagauri cattle.

**10. Belahi:**



Belahi is a dual type cattle reared for milk and draught by Gujjar community in foothills of Haryana. It is maintained under low input migratory system. Belahi cow produces about 3.25 Kg milk per day. Average weight at birth was estimated as  $17.6 \pm 0.51$  kg in males and  $15.2 \pm 0.58$  kg in females, the 3 month weights were  $31.6 \pm 1.22$  and  $33.75 \pm 1.42$  kgs and adult body weights were  $304.8 \pm 1.35$  and  $266.74 \pm 2.15$  kg in males and females, respectively. Overall average daily milk yield and 305 day milk yield were estimated as  $3.25 \pm 0.15$  kg and  $1014.43 \pm 45.46$  kg respectively.

**11. Gangatiri:**



Gangatiri is a dual purpose cattle breed, found in Eastern Uttar Pradesh and Western Bihar along the river Ganga. These cattle are well adapted to low to medium input production system and produce about 2.5 to 8.0 Kg milk a day. Colour is white. Face is narrow. Horn is short, upwards pointing and tail is Long, black switch. Milk breed developed from Haryana breed. 10 years back this breed was at the verge of extinction, but by the effort of local Gou Bhaktas, we can see this breed in and around Varanasi, which are 10-15 liters of milk per day.

**12. Badri cattle:**

These are indigenous cattle available in hilly areas of Uttarakhand. Badri has become the state's first ever cattle breed to get certified by the National Bureau of Animal Genetic Resources (NBAGR) in Karnal. Badri cattle are small in size having long legs and varied body colours – black, brown, red, white or grey. These are well adapted to the hilly terrain and climatic conditions and comparatively more resistant to diseases. Estimated population is approximately 16 lakhs. This breed requires minimal care and is blessed with a

strong immunity. Thus, the cow plays an important role in the rural economy as it can be reared in those areas of the hills where it is difficult to raise other cow varieties. The petite Badri cow is found only in the hill districts and was earlier known as the pahadi cow.



### SUMMARY AND CONCLUSION

In India the need for conservation of animal genetic resources has now become clear, and the lack of necessary documentation and evaluation has been recognized. The number of indigenous cattle population is decreasing constantly due to the over whelming influence of mechanization of agriculture and crossbreeding programmes. Conservation of domestic cattle breeds of cattle is essential due to their potentiality for production or draught capability or high resistance to diseases and heat tolerance ability. All the available cattle genetic resources cannot be conserved due to the high cost involved, hence, conservation should be aimed at the those breeds which are immediately useful to the farmer. In situ conservation is the method of choice for conservation. However, *ex situ* methods of conservation such as frozen semen preservation can be complementary. Other *ex situ* methods can be utilized once they are standardized and are cost effective. NBAGR will be the national focal point in this programme while the regional focal points will be the state agricultural universities, educational institutions, religious trusts, other non-government organizations along with the farmers at the field level.

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