

# **Dairy Management and its Products**

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- Cattle and buffalo contribute nearly 15% of the gross national income. Value of milk industry accounts for more than 1 lakh million rupees.
- The country possesses 23% of world bovine population, yet the milk production is only 8% of the world milk production.
- Apart from milk production, they also contribute to draft power of tillage, cartage and other operations.
- Though the cattle population is quite large *i.e.*, around 204 millions, the number of milch cow is only 56 millions, with an average production of 187 kg per annum.
- Buffalo population is about 84 millions of which 34 millions are milch buffaloes with an average milk production of 1000 kg per annum.
- Currently, availability of per capita milk is about 220 gm/day against recommended allowance of 280 gm/day by the Nutritional Advisory Committee of ICMR.
- Cattle and buffalo contribute towards organic manure in a substantial manner. Out of 800 M tonnes of dry manure produced annually, nearly 300 M tonnes is burnt as fuel.
- Meat production from cattles and buffaloes is about 0.08 and 0.13 M tonnes per annum respectively.

# Breeds of Cattles

- Buffalo

The buffalo species is originated in India.

The present day domesticated buffaloes are the descendants of Bosarni found in wild state even today in the North- Eastern parts of India specially Assam and the surrounding areas.

The most important breeds of buffaloes are described as-

## 1. Murrah-



- The breed tract is Rohtak, Hisar and Jind of Haryana, Nabha and Patiala districts of Punjab.
- The breed characteristics are massive body, neck and head comparatively long, horns short and tightly curved, udder well developed, hips broad and fore- and hind quarters drooping.
- The tail is long reaching upto the fetlocks. The color is usually jet black with white markings on tail.
- The bullocks are good draught animals though slow and powerful.
- The average milk yield per lactation is 1,500 to 2,000 kg.
- The age at first calving is 45-50 months in village but in good herds, it is 36 to 40 months. The intercalving period is 450- 500 days.

## 2. Bhadawari –



- This breed is found in the Bhadawari Tehsil in Agra district and Etawah district of U. P. and Gwalior district of M. P.
- The body is of medium size and wedge shaped. The head is comparatively small, the legs are short and stout, hooves are black and hindquarters are uniform and higher than the forequarters.
- The tail is long, thin, flexible with black and white or pure white markings reaching upto fetlock.
- The body is usually light or copper colored which is speciality of this breed. The ears are thin.
- Average milk production is 800-1000 kg.
- The bullocks are reputed as good draught animals with high heat tolerance.

### 3. Jaffarabadi-



- The breeding tract of this breed is Kutch, and Jamunagar districts of Gujrat.
- The body is long but not so compact. The dewlap in females is somewhat loose and udder is well developed.
- The head and neck are massive. The forehead is very prominent.
- The horns are heavy, inclined to droop at each side of the neck and then turning up at point , but less lightly curved than in Murrah breed .The colour is usually black .
- The average milk yield is 1000 kg -1200 kg .
- These animals are mostly maintained by traditional breeders called Maldhairs.
- The bullocks are heavy and used for ploughing and carting.

#### 4. Surti –



- Breeding tract of this breed is Kaira and Baroda district of Gujrat.
- The body is well shaped and medium sized, the barrel is wedge shaped.
- The head is long with prominent eyes. Horns are sickle shaped, moderately long and flat.
- The back is straight and tail is fairly long. The color is black or brown.
- The peculiarity of this breed is two white collars, one round the jaw and other at the brisket.
- The milk yield ranges from 900-1300 kg.
- The age at first calving is 40-50 months with an intercalving period of 400-500 days.
- Peculiarity of this breed is very high percentage of fat in milk i.e., 8-12%.
- The bullocks are good for light work.

## 5. Mehsana –



- Its breeding tract is Mehsana, Sabarkanda and Banaskanta districts of Gujrat.
- It is evolved from cross-breeding between Surti and Murrah.
- Body is longer than Murrah and limbs lighter. Head is longer and heavier.
- Horns usually are less curved at the end as compared to Murrah breed but are longer and irregular shaped.
- Udder is well shaped.
- Color is usually black to grey with white marking often on face, legs or tail tips.
- Milk yield is 1200-1500 kg per lactation.
- Intercalving period ranges between 450-550 days.
- Bullocks are good for heavy work but rather slow.



## 6. Nagpuri-



- The breeding tract of this breed is in Nagpur, Akola and Amravati district of Maharashtra.
- The horns are long, flat and curved, bending backward on each side of the back almost to shoulders.
- The face is long and thin. The neck is somewhat long the limbs are light . The tail is comparatively short reaching a little below hocks.
- The milk yield is 700-1200 kg per lactation. The age at first calving is 45- 50 months and intercalving period is 450- 550 days.
- The bullocks are good for heavy trotting work but slow in movement.

## 7. Kundi-

- The word Kundi means fish hook in Sindhi language.
- This breed is distributed in forest tract along the river, Indus in the rice – growing region of North Sindh and in the swampy and rice tracts of Karachi and Hyderabad districts of Pakistan.
- Kundi animals are generally jet black (85%) although light brown are not uncommon (15%).
- Horns are thick at the base, inclined backward and upward and end in a moderately tight curl. The forehead is slightly prominent, the face hollow and eye are small. Hind quarters are massive. Massive glands are capacious with prominent milk veins.

Other than these important breeds of buffaloes, some other breeds are-

7. **Nili Ravi**- found in Sutlej valley in Ferozpur district of Punjab and Sahiwal district of Pakistan.
8. **Godavari**- Found in Godavari deltaic area and Krishna deltaic areas.
9. **Toda**- Found in south India and is indigenous to Nilgiri hills.
10. **Parlakhemundi**- It is found in Orissa.
11. **Tarai**- Found in hilly areas of U. P.
12. **Sambalpuri**- It is found nearby Bilaspur district of C.G.
13. **Kalahandi**- Eastern hilly parts of Andhra Pradesh adjoining Orissa.
14. **Pandharpuri**- Found in South- eastern Maharashtra.

## Different Breeds Of Cows

Different breeds of cows may be classified into three categories-

1. Indigenous breed
2. Exotic breed
3. Cross breed

### **1. Indigenous breed-**

**(a) Kankrej-** home tract of this breed is south- east of Rann of Kutch in Gujrat, from Tharparkar district of Pakistan to Ahemedabad.

-These are fast, powerful and draught cattle.

- Cows are average milkers and yield about 1400 kg in farms and less in villages.

-This is an important breed and has been exported abroad widely.

-The age at first calving in the breed varies from 45-47 months and intercalving period varies from 480- 510 days.



## **(b) Tharparkar-**



- The origin of this breed is from Tharparkar district of Sindh state of Pakistan.
- The animals are also known as Thari.
- Tharparkar breed is also found in adjoining tracts of Rajasthan, especially around Jodhpur and Jaisalmer.
- This is a medium sized and compact breed. Males are good draught animals. The milk yield in cows ranges from 1800-2600 kg.
- The age at first calving ranges from 38-42 months and intercalving period is 430- 460 days.

### (c) **Hariana-**



- The main tract of this breed is Haryana.
- Centre of origin is around Rohtak, Hisar, and Gurgaon districts.
- This is the most important dual purpose breed and widely spread in Punjab, Haryana, U.P. and M.P.
- Cows yield upto 1500 kg of milk per lactation.
- The age at first calving is 40- 60 months depending on management. The intercalving period is of 480- 630 days.

**(d) Mewati-**



- This breed is found in west Alwar and Bharatpur district of Rajasthan.
- They are powerful but docile animals suitable for heavy ploughing and carting.
- They are similar to Haryana breed with traces of Gir inheritance.

**(e) Nagauri-**



- This breed is famous for trotting and as a draught animal.
- The bullocks are good for fast road work.
- They are prevalent in Jodhpur, Rajasthan.
- Milch cow of this breed yields 900 kg milk per lactation.



(f) **Gir-**



- It is a native of Gujrat but also found in Maharashtra and adjacent Rajasthan.
- Its peculiar features are protruding broad and long forehead and pendulous frontward turned ears.
- Color is white or dark red or chocolate brown patches distributed all over the body.
- Milk yield of Gir cows is 1200- 1800 kg.
- The age at first calving is 45-54 months and intercalving period is 515- 600 days.

**(g) Nimari-**



- It is found in Nimar tract of M.P. and adjoining part of Maharashtra.
- The color is usually red with large flashes of white on various parts of the body.
- Sometime light red or white patches are also found.
- Horns are in backward direction.
- This breed is popular to work in rough areas.
- Animal milk yield is 450- 500 kg.

**(h) Red Sindhi-**



- The home tract of this breed is Karachi and Hyderabad district of Pakistan.
- It is smaller in size and good milker.
- They have compact frame with round dropping quarters.
- The color is red with shades of dark red to light, strips of white color are sometime seen on dewlap and occasionally on forehead.
- Milk production in herds is about 1250- 1800 kg per lactation.
- Age at first calving is 39- 50 months and calving interval is 425- 540 days.
- It is also exported out to Srilanka, Tanzania, Philippines, USA, Malaysia, Iraq, Myanmar and Indo- China.

## (i) Sahiwal

- Its breeding tract is Sahiwal in Pakistan.
- It is heavy breed with symmetrical body and loose skin.
- Animals are long and fleshy with heavier built.
- Color is reddish dunn or pale red and sometime with white patches.
- It has light color Muzzle, and whitish ring along the eye.
- Eyelashes are of light color.
- Milk yield ranges from 1400- 2500 kg per lactation.
- The age at first calving ranges from 37- 48 months and calving interval is 430- 580days.



## (j) Hallikar-



- This breed is originated from Vijaynagar, presently in Karnataka state.
- The color is grey, dark grey with deep sheath and fore and hind quarters.
- While rearing the calf, it is difficult to approach animal.
- It is good for draught capacity and trotting ability.
- It was used in the war by **Tipu Sultan** for carrying cannons.

**(k) Siri-**



**Siri Cattle**

- It is main breed in hilly tract around Darjeeling and West Bengal, Sikkim and Bhutan.
- The breed can stand rugged mountaneous conditions.
- Selected cow yields upto 1000 kg milk per lactation with fairly high fat percentage.

## 2. Exotic Breeds of Cows-

### a) Holstein Friesian-

- It is native of Holand.
- It has triangular body, irregular color (black and white), large chest, long tail, distinct milk veins.
- Age at first calving is 25- 27 months.
- Yielding capacity is about 5500- 6000 kg (fat 3.67%) per lactation.



## **b) Brown Swiss-**

- it is native of Switzerland.
- it has triangular body, head long and thin, wide forehead, depressed at middle, brown color, docile nature, more tolerance capacity to heat, useful for milk and meat.
- age at first calving is 27- 29 months.
- milk yielding capacity is 5200 kg (fat 4.0%) per lactation.





### c) Jersey-



- it is native of Island of Jersey.
- it has medium size, compact triangular body, comparatively light head, light red color with or without white spots, straight loin and flat hips, large belly, heat tolerance capacity more is than Holstein.
- milk yielding capacity more than 4500 litres per lactation (fat 5.3%).
- age at first calving is 25- 30 months.

#### d) Ayrshire-



- it is native of Scotland.
- it has large body, straight loin and flat hips, small head, upward and backwardly directed horns, red or brown or mixed color, Aggressive nature.
- milk yielding capacity is about 5000 kg (fat 3.5%) per lactation.
- First calving is at the age of about 25- 27 months.

### 3) Cross Breeds-



- a) **Jersind-** it is indigenous breed, that is Kankrej, Gir, Hariana, Sahiwal and Red Sindhi were crossed with Holstein Friessian, Brown Swiss and Jersey.
- b) **Karan Fries-** this breed has been evolved from crossbreeding between Tharparkar and Holstein Friessian.
- c) **Karan Swiss-** it is evolved from crossbreeding between American brown swiss bulls with Sahiwal and Red Sindhi cows.



**d) Sunandini-** it is evolved from crossbreeding between local non descript cows of Kerala with Brown Swiss bulls.

**e) Frieswal-** it is evolved from crossbreeding between Friesian with Sahiwal.