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#### Akanksha

Ph.D. Scholar, Livestock Production Management, ICAR-National Dairy Research Institute, ERS, Kalyani, West Bengal, India

#### Subhankar Paul

Ph.D. Scholar, Livestock Production Management, ICAR-National Dairy Research Institute, ERS, Kalyani, West Bengal, India

#### Nikhil Sachan

M.V.Sc. Scholar, Veterinary Gynaecology and Obstetrics, C.V.Sc. & AH, ANDUAT, Kumarganj, Ayodhya, Uttar Pradesh, India

#### Surya Kant

M.V.Sc. Scholar, Livestock Production Management, C.V.Sc. & AH, ANDUAT, Kumarganj, Ayodhya, Uttar Pradesh, India

#### KD Singh

Assistant Professor, Livestock Farm Complex, C.V.Sc. & AH, ANDUAT, Kumarganj, Ayodhya, Uttar Pradesh, India

#### Vikas

M. V. Sc. Scholar, Department of Livestock Production Management, at College of Veterinary Science and Animal Husbandry, ANDUAT, Kumarganj, Ayodhya, Uttar Pradesh, India

#### Corresponding Author:

##### KD Singh

Assistant Professor, Livestock Farm Complex, C.V.Sc. & AH, ANDUAT, Kumarganj, Ayodhya, Uttar Pradesh, India

## Breeds of small ruminants: An update

**Akanksha, Subhankar Paul, Nikhil Sachan, Surya Kant, KD Singh and Vikas**

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### Abstract

Globally and particularly in emerging nations, the production of small ruminants constitutes a substantial portion of the livestock industry. Among all livestock species, small ruminant husbandry has enormous socioeconomic benefits for impoverished farmers. Over the past few decades, small ruminants have steadily gained importance in the rural economy, especially in arid and semi-arid areas. In arid and semiarid rain-fed areas, small ruminants are crucial to the food and nutritional security of millions of rural people, particularly the landless, marginal, and small farmers. Small ruminants are prized for their meat, milk, wool, and hair. In India, sheep and goats are the most common meat-producing animals. The meat is widely favoured by people of all castes and religions. Recently, there has been growth in the total livestock population, including small ruminants. The total livestock population in India is 535.78 million, which increased by 4.6%, with goats contributing 148.88 million and sheep contributing 74.26 million. There is also a rise in the population of goats and sheep, *i.e.*, 10.1% and 14.1%, respectively. The consistent rise in the number of sheep and goats over the past 20 years is a notable trend in the global livestock population. The biodiversity of small ruminants is considerable in India. 39 goat breeds and 45 sheep breeds have been notified and registered by the ICAR-National Bureau of Animal Genetic Resources. Among goat breeds, Jamunapari is the most famous for its milk production, whereas the Black Bengal breed (eastern region) is highly valued for its skin, meat production, and prolificacy, and Chegu and Changthangi breeds from the temperate Himalayan region produce high-quality fibre known as Pashmina. Some other breeds of goat also have better milk-producing abilities, including Surti, Osmanabadi, Zalawadi, Sirohi, etc. In the case of sheep, breeds from the southern region (Mandya, Nellore) are mostly mutton type; Himalayan breeds (Gaddi, Gurez) are known for the production of wool (carpet type), whereas breeds of the north-western arid and semiarid regions have greater diversity in terms of production, including Chokla (Indian Merino) which has potential for wool production; Sonadi is known for its milk-producing ability; and Marwari is a triple-purpose breed (milk, meat, and wool) along with disease-resistant capacity.

**Keywords:** Goat, livestock, sheep, small ruminant, breed

### Introduction

Breed is defined as the group of animals that have common ancestor, possess similar morphological, physiological and economical characters. Breeds are developed by the efforts of breeders and farmers. It occurs mainly by the continuous selection and breeding activities. Our indigenous or native breeds are most valuable animal germplasm that is highly suitable for our agro ecological and rearing conditions. Generally, breeds are named according to their native place. There are 39 goat and 45 sheep breeds registered in India. Various crossbreeds of sheep are also developed in different research Centre.

**Indigenous Breeds of Goat:** Classification on the basis of Agro climatic regions.

**Northern temperate Himalayan region:** Goats are mainly reared for fibre and Pashmina production. Gaddi (Hair), Chegu and Changthangi (Pashmina breeds).

**North western arid and semiarid region:** Mainly dual-purpose (meat and milk) breeds Jamunapari, Beetal, Barbari, Jakhrana, Marwari, Kutchi, Mehsana, Sirohi, Zalawadi, Gohilwadi, Surti, Rohilkhandi, Pantja, Kahmi.

**Southern peninsular region:** Mainly reared for Meat and also for milk. Malabari, Osmanabadi, Sangamneri, Attapaddy, Kanni Adu, Teressa, Konkani Kanyal, Berari, Kodi Adu, Bidri, Salem Black, Nandidurga.








**Important exotic breeds of goat's Dairy breeds:** Sannen, Alpine, Anglo Nubian.





**Mohair:** Angora.

**Eastern region breeds:** Meat Breeds mainly. Black Bengal, Ganjam, Sumi-Ne, Assam Hill.






**Meat purpose:** Boer.

**Table 1:** Indigenous Breeds of Goat





Breeds	Characteristics	
<b>A. Breeds of northern temperate Himalayan region</b>		
Gaddi	Found in Kangra and Kullu valley, Shimla (Himanchal Pradesh). Predominantly white colour. Well-built and sturdy body and legs, tapering muzzle, Roman nose, drooping and pointed ears that are 12cm in length, horns are long, pointed, bending upwards and backwards with one or two twists. Kidding is once a year. Meat is coarse and devoid of fat. Hairs are 17- 19cm long used for ropes, snow boots and coarse rug making.	
Bhakarwali	Jammu and Kashmir region. White, brown and black with white markings. Hardy large sized with strong legs, long ears, horns are long and curved in upwards, outwards direction. 10-12cm long silky hairs are present on the bodies which are used for making ropes and skin is locally used to make sacks.	
Chegu	Spiti and Kashmir, Uttarkashi, Chamoli districts of Uttaranchal. Predominantly white but greyish red also found. Face and muzzle are tapering, small ears; horns are bent upward backward and outward direction. Long hairs below and within which and undercoat of delicate fibre known as Cashmere or Pashmina grows. Meat is of good quality. Also used for drought purpose to carry salt and small loads.	
Changthangi	Changthang area of Ladakh. Predominantly white colour and rarely brown, black or grey. Short and hardy legs, sharp ears and horns are directed upwardly outside and forming half circled loop inside. Warm delicate fibre Pashmina is obtained. Meat is of very good quality.	
<b>B. Breeds of north western arid and semi-arid region</b>		
Jamunapari (Etawah Breed)	Etawah, Agra, Mathura districts of Uttar Pradesh and Morena district Madhya Pradesh. Word 'Jamunapari' is attained from 'Jamuna River'. It is biggest, majestic and most beautiful breed of India. Large size tall and leggy, convex face line with Roman nose, ears are very long (27cm), flat and drooping. Body is mainly white and cream colour and thick growths of hairs are found in buttock region known as Feathers. Hair coat is glossy. Dual purpose breed yield both meat and milk of good quality (3.5 fat %). Selected bucks are 127cm tall and nannies are 102cm in height. Pasture condition required for better performance.	
Barbari (City breed)	Breed is originated from Barbera city of East Africa. Found in Etawah, Agra, Aligarh, Rajasthan, Delhi, Gurgaon, Karnal and Rohtak district of Haryana. Small size breed with white colour having small brown patches, eyes have bulging appearance. Small, tubate and slit (outward) ears Twisted horns present in both sexes. Dwarf breed and highly suitable for stall feeding. Bucks have large thick beard. Prolific breeder with twinning rate 64% and triplets 13%.	
Beetal	Similar to Jamunapari breed (smaller) found in Punjab and Haryana. Black and brown body colour and heavily spotted on white. Convex face line with Roman nose, long, flat, curled ears. Stall fed and average lactation yield is 177kg with 5% fat. Breed easily adapts in different agro ecological conditions.	

Jakhrana	Found in Alwar district of Rajasthan. Predominantly black colour. Forehead is slightly bulged, legs are thick and long, horns grow horizontally backwards and outwards. Meat is good. Skin is popular for tanning purpose. Breed is similar to Beetal but longer than Beetal.	
Sirohi	Medium sized breed of Rajasthan and Gujrat. Predominantly brown colour with light dark brown patches, ears are flat and leaf like drooping, twisted tail carries the pointed hairs. Excellent breed with good lactation yield and faster body weight gain. Breed is also resistant for several diseases.	
Marwari	Breed of Marwar, Jodhpur, Pali, Nagaur, Bikaner, Barmer districts of Rajasthan and Mehsana district of Gujrat. Medium sized, predominantly black colour, horns are short, twisted and pointed. Jet black long shaggy hairs are present grows 10-12cm/year. Meat is of good quality and breed is resistant to many diseases.	
Mehsana	Mehsana, Gandhinagar, Ahmedabad districts of Gujrat. Small breed with grey black skin, Roman nose, broad muzzle, tail is short and abrupt. Black coloured ears having white spots at the base. Meat is of average quality and high milk yielder.	


Kutchi	Kutch (Gujrat) and Southern Rajasthan. It is also named as Kathiawari. Larger body size with black coat and reddish mark on neck, horns are corkscrew type pointed upwards. Dual purpose breed, meat is of good quality and lactation yield is 80-90kg in 130 days.	
Surti	Surat and Baroda districts of Gujrat. Medium body sized breed, mainly white coloured, small horns directed backwards, short legged. Breed is similar to Berari goat. Good milk yielder around 2.25-2.50kg per day.	
Zalawadi	Found in Gujrat. Large size body and legs, throat carries lobular appendages, ears are leaf like drooping, and horns are long and straight, twisted. Locally known as 'Tara Bakri'. Hairs are long, coarse and lustrous with staple length 10-12cm. Meat is of good quality.	
Gohilwadi	Breed found in Bhavnagar, Amreli, Junagarh districts of Gujrat. Large body size, nose line is slightly convex, tubular ears, horns are slightly twisted and turned backwards. Possess black coarse and long hairs. Reared for meat, milk and fibre (Multipurpose breed).	
Kahmi	Native to Saurashtra region of Gujrat. Locally called as Veludi. Coat colour is distinctive as two different colours are present i.e., reddish brown face and black coloured back abdominal area. Convex forehead, long, tubular ears, horns are directed. Utilised for milk (1-7kg average daily milk yield) as well as meat.	

Rohilkhandi	Named is derived from native place Rohilkhand region of Uttar Pradesh. Predominantly black coat colour with star patches on neck and face. Both sexes are beardless and wattle less. Slight convex forehead, lateral outward curved horns. Tuft of hairs (black and brown colour) is present in thigh region and tail is bunchy. Twins and triplets are observed usually.	
Pantja	Breed of Uttar Pradesh (Tarai area) and Uttarakhand. Medium size breed, uniform light brown to tan body colour with streaks on either side of face. Reared for milk and meat. Twinning is common. This breed is well adapted to humid conditions of Tarai area.	
Karauli	Karauli is a medium to large sized goat, reared for meat and milk. It is distributed in Sawai Madhopur, Kota and Bundi districts of Rajasthan. Medium sized, corkscrew in shape pointed upwards horns are the typical feature.	
Sojat	Large sized. Reared in Pali, Jodhpur, Nagaur and Jaisalmer districts of Rajasthan for meat and milk (dual purpose).	
Gujari	Large in size. Dual-purpose breed of Rajasthan. The coat has a white face, leg, and abdomen with a brown and white color combination.	






### C. Breeds of southern peninsular region

Malabari	Native to North Kerala (Callikut, Kannur and Tellicherry districts). Also known as 'Tellicherry'. Breed is mixture of Surti blood. Medium sized, horns are slightly twisted directed outward and upwards. Coat colour is not uniform varies from completely white to complete black. Meat is of good quality and skin is popular in tanning industry.	
Osmanabadi (Deccania)	Breed of Osmanabad, Maharashtra, Karnataka, Telangana, Andhra Pradesh. Large body size and long legged, ears are long and pendulous. Predominantly black colour with white, brown spot. Two types based on presence of short and long hairs on thigh region and hindquarter. Breed is popular to attain early maturity and prolific in nature having good reproductive performance (twinning is common). Breed have good dressing percentage and resistant to many diseases.	
Attapaddy	Native to Kerala known as "Black Gem of Kerala". Medium sized, lean and slender body, mainly black in colour, bronze coloured eye, pendulous ears, bunchy tail. This breed is highly resistant to diseases like FMD, enteritis, pneumonia and enterotoxaemia. In this region goat rearing is primary source of income. Well suited for dry hot condition and poor quality roughages. This breed is considered as endangered and mainly reared by tribal community for meat. Milk yield is low.	
Sangamneri	Derived from Sangamner tehsil of Ahmednagar district Maharashtra. Medium sized, ears are long and drooping, and coat is completely white with mixture of black and brown. It is a multipurpose breed used for milk, meat, leather. Breed has high feed conversion ratio suitable for both grazing and stall fed.	


Kanniadu	Found in Tamil Nadu. It is locally known as Karapuadu and Pullaiadu. Breed is tall and predominantly black in colour with white spot. Kidding % is 80 to 85%. Mainly reared for milk purpose and efficiently grow in draught condition. Milk yield is poor.	
Koddiadu	Breed is native to Tamil Nadu. It is tall and has long slender body. Mainly black coat colour. Reared for meat purpose and used to guide goat flocks during grazing. Best suitable for coastal area.	
Salem Black	Breed is native to Tamil Nadu. It is tall and have long slender body. Mainly black coat colour. Reared for meat purpose and used to guide goat flocks during grazing. Best suitable for coastal area.	
Berari	Breed of Maharashtra (Vidarbha) and Madhya Pradesh (Nimar). Body coat colour is light to dark tan with light and dark colour stripes on the lateral sides extending from the base of the horn to the nostrils and black hair line along the vertebral column up to the tail. Reared for meat purpose by local people. Prolific in nature.	
Bidri	Found in Karnataka (north east part mainly). Black colour is dominant in body coat, muzzle and hooves. Droopy ear, horns positioned towards back and outside. Reared for meat. Twinning occurs except for the first kidding.	
Teressa	Found in Terresa and Bambooka Islands of Andaman. Tall breed having brown coat colour with whitish or blackish spots. Kept in free range as, well suited for hot and humid conditions. Semi-feral and possess common disease resistivity. Required conservation.	
Andamani	Medium sized animal, reared for meat purpose in Andaman and Nicobar Islands (Andman district). Breed is well adapted to tropical hot- humid climate of the Island.	
Konkan Kanyal	Present in Maharashtra (Konkan). Reared by Maratha community to obtain meat. Black coat colour has white marking as 'stockings' in legs, both side of nostrils to ears white band like marking. Broad forehead, droopy ears and cylinder-shaped horns.	




Nandidurga	Reared in Karnataka (southern part). White coat colour with black muzzle and hooves. Backwards outside directed horns. Inside directed horns may reach upto neck. Meat purposes have twinning character.	
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**D. Breeds of Eastern region**

Black Bengal	Present in Bangladesh, Bihar, Assam, and Odisha. Generally black in colour but other like brown and grey coloured also present. Small stature (short legs). Attains earlier sexual maturity. Known for its high-quality meat and skin but lesser milk yield. Highly prolific.	
Ganjam	Breed of Odisha. Smaller shiny hair. Both sexes have upward directed straight long horns and medium tail.	
Assam Hill	Distributed in Assam and adjoining areas of the Meghalaya. Smaller body size and legs with white colour (black patches). Outward upward directed horns. Higher prolificacy with good meat quality.	
Sumi-Ne	Found in Nagaland. White coat colour with blackish spots on head, neck and legs. Conserved by Sumi tribes in range system. Silky fibres are obtained with nil input. Horns and tassels might be present.	
Anjori	It is a medium sized goat, reared for meat purpose. Found in Raipur, Durg, Rajnandgaon, Kanker, Dhamtari, Mahasamund districts of Chhattisgarh state. Mainly brown in colour. Durable and acclimated to the regional weather conditions.	

**Table 2:** Important exotic breeds of Goat

Breed	Characteristics	
Sannen	Originated from Saanen Valley of Switzerland. Also known as milk queen. It has white skin and some small pigmented areas, short breed, erect ears, fringes of long hairs in back and hind quarters. The creature may possess horns or lack them, and it may also have tassels. Extensive management is not effective and is usually raised intensively. Known for milk yield, 2-5kg/day during the lactation period of 8-10 months with 3-4 fat%.	

Anglo Nubian	It is popularly known as jersey of the goat breeds. Developed in England by crossing of Nubian Bucks and Jamunapari Doe from India. Colour varies from black, red, tan and combination of these. Ears are pendulous and roman nose appearance.	
Boer	Origin is from South Africa. It is known for its large size and high yield of meat. White in colour with brown head and neck, ears are long, face is slightly convex. Horns are typically scimitar shaped bending backward.	
Alpine	Originated from French and Swiss Alp region. Variable coat colour is found such black, tan and white, having dished face, ears are small. Breed have better milk yield with average fat content 3- 4%. It performs better in warm climate.	

Toggenberg	Found in Toggenberg valley of Switzerland. Known as Dairy breed. Dished face appearance and wedge-shaped body. Dark chocolate to pale fawn coloured coat. Fine smooth coat. White or creamy markings on different area of body which fades as goat matures. Milch breed.	
Angora	Found in Turkey, produces fine fleece known as Mohair. Small sized breed with shorter legs having sheep like appearance. Squared shape body with back straight. Head is small, flat and pointed ears, bucks have spirally twisted horns. Better performance in extreme dry climatic temperature.	

### Breeds of sheep

#### Distribution of breeds on the basis of agroclimatic region

##### North temperate

Changthangi, Gaddi, Poonchi, Karnah, Bhakarwal, Rampur Bushair, Gurez.

##### North western arid and semi-arid

Chokla, Nali, Marwari, Jaisalmeri, Pugal, Magra, Malpura, Patanwadi, Sonadi, Muzzafarnagri, Jalauni, Panchali, Kajali.

##### Southern peninsular

Nellore, Mandya, Vembur, Tiruchy Black, Deccani, Hassan, Bellary, Madras Red, Coimbatore, Kenguri, Kilakarsal, Mecheri, Nilgiri, Ramnad White, Katchaikatty Black, Chevaadu.

**Eastern region:** Garole, Ganjam, Balangir, Bonpala, Chottanagpuri, Tibetan, Kendrapada, Shahbadi.

#### Classification of Indigenous sheep breeds on the basis of utility Apparel wool type (AW)

Karnah, Nilgiri.

**Carpet wool type (CW):** Gaddi, Bhakarwal, Poonchi, Gurez, Rampur Bushair, Changthangi, Chokla, Nali, Magra, Patanwadi, Tibetan.

**Mutton and Carpet wool (MCW):** Marwari, Jaisalmeri, Pugal, Malpura, Sonadi, Muzzafarnagri, Jalauni, Bellary, Coimbatore, Ganjam, Balangir, Bonpala, Chottanagpuri.

**Mutton type (M):** Kajali, Nellore, Mandya, Vembur, Tiruchy Black, Deccani, Hassan, Madras Red, Kenguri, Kilakarsal, Mechari, Ramnad White, Garole.

**Important exotic breeds of sheep:** Classification on the basis of utility.









**Fine wool breeds:** Merino, Rambouillet.

**Pelt production:** Karakul.










**Mutton type:** Dorset and Suffolk.


**Long course wool:** Lincoln and Leicester.



**Table 3:** Indigenous breeds of sheep

Breeds	Characteristics	
<b>A. North temperate region breeds</b>		
Changthangi	Generally white in colour but brown coloured also present. Pashmina (cashmere, pashm) is obtained which is delicate and soft. Short strong body and legs with pointed ears. Roman nose and drooping long ears. Large outward directed horns which form semi-circular arch inside.	
Bhakarwal	Locally present in Kashmir. Named Bhakarwal by the nomadic tribe. Home tract is not defined. Entirely migratory in nature. Medium size with a typical Roman nose. Coarse, open and white fleece. Coloured fleeces are rarely found. Coarse carpet wool type. Fawn coloured spots on the body. Shorn thrice in year.	
Gaddi	The Gaddi breed, also known as Bhadarwah, is native to the Kishtwar and Bhadarwah Tehsils in the Jammu region of Jammu and Kashmir and is distributed fairly widely over the states of Himachal Pradesh and Uttarakhand. These animals are typically of medium size and commonly have a white coloration, however variations in tan, brown, black, and combinations of these colours are also observed. The fleece is relatively fine and dense.	
Gurej	Found in the Gurej block of Bandipore district in North Kashmir. Largest sheep breed of this area. Breed is generally white in colour, although some animals are brown or black or have brown or black spots. A minority of the animals possess modest, tapered horns. Some animals have multiple horns up to 4 to 6 in number. The fleece is generally coarse and hairy. Ears are long, thin and pointed. Gurej is one of the finest carpet wool sheep breeds of the state.	
Karnah	The Karnah breed is primarily found in Karnah, a mountainous tehsil of Kupwara district in North Kashmir. Large body size with curved horns and prominent nose line. Fleece colour is white. Shorn twice in a year.	
Poonchi	Breed is native to the Poonch and Rajouri districts of the Jammu region of Jammu and Kashmir. Breed is similar to Gaddi but lighter than the Gaddi. Predominantly white in colour, including the face and brown colour is also seen, short legs. Sheep are shorn three times a year.	
Rampur Bushair	Breed is distributed in Shimla, Lahul and Spiti districts of Himachal Pradesh. Medium sized animals, fleece colour is predominantly white, but brown, black and tan colour are also seen on the fleece in varying proportions, ears are long and drooping, face line is convex, giving a typical Roman nose. The fleece is of medium quality and dense. Absence of wool face, belly and leg area.	
<b>B. Breeds of north western arid and semi-arid region</b>		
Chokla (Indian Merino)	Also named as Chhappar and Shekhawati. Locally found in Churu, Jhunjhunu, Sikar, and the border areas of Bikaner, Jaipur and Nagaur districts of Rajasthan. Size varies light to medium. Dark brown face with no wool. This colour may extend upto neck. Small and tubular ears. Polled sexes. Heavy and fine coat covered entire body including most part of legs.	








Jaisalmeri	Found in Jaisalmer, Barmer, and Jodhpur districts of Rajasthan and named on the basis of Jaisalmer region. Taller in size, black brown faced with typical Roman nose, ears droopy and long. Both sexes are polled. White, less dense fleece of medium carpet quality. Largest breed of Rajasthan in body size.	
Jalauni	Breed is found around the Jalaun, Jhansi and Lalitpur districts of Uttar Pradesh. Medium sized. Straight nose line, large, flat and droopy ears. Fleece is coarse and white. Wool absents in the belly and leg part. Breed is upgraded by the Nali breed in terms of increasing the fleece weight and quality.	
Nali	Breed is found in Rajasthan, Haryana and Uttar Pradesh. Large size head and ears (leafy), shorter legs have amber hoof. Face is covered with light brown hair. Both sexes are polled. Shorn twice a year (March and September).	
Magra	Also named as Bikaneri Chokla and Chakri and found in Bikaner, Nagaur, Jaisalmer and Churu districts of Rajasthan. True breed characters are found only in the eastern and southern parts of Bikaner. Size varies from medium to large, white face have light brown patches around the eyes is a peculiar feature. Small and tubular ears. Both sexes are polled. Extremely white and lustrous fleece have lesser thickness.	
Malpura	Breed of Sawai Madhopur, Jaipur and Ajmer districts of Rajasthan. Well-built body with long legs and lighter brown face. Both sexes are polled. White, extremely coarse and hairy fleece. Absence of wool in belly and leg.	
Marwari	Name derived from the home tract: the Marwar region of Western Rajasthan. Migrate to different places in Uttar Pradesh and Madhya Pradesh and Maharashtra. Hardy breed, yields coarser and white wool. Long legs, black face with prominent nose. Wattles, are often present. Short and pointed tail. Possess high resistance to disease and worms.	
Muzzafarnagri	Bulandshahri is another name found in Muzaffarnagar, Bulandshaher, Saharanpur, and Meerut, Bijnor districts of Western Uttar Pradesh, Delhi and Haryana. Large size, Face and body are white with occasional patches of brown, black ears. Both sexes are polled. Rudimentary horns might present in few males. Extremely long tail reaches up to fetlock. Fleece is white, coarse. Heaviest, largest and have well adaptability for irrigated areas.	
Pugal	Named from Pugal tehsil of Bikaner district. Good body structure, black face with small light brown strips on both sides above the eyes. Short and tubular ears. Both sexes are polled. Less dense fleece has medium carpet quality.	
Panchali	Reared for milk & meat (i.e. dual purpose) in Panchal area of Gujarat. Large sizes, long legs and have excellent migration ability. Coat colour is white, head and facial parts are black, brown and light brown in colour. Pendulous ears, long tail. Wool quality is coarser.	





Sonadi	Found in the Mewar area of Rajasthan and Gujarat. Locally named as Laapdi (long flat drooping ears) and Bhagli (of good fortune). Smaller size has long legs, light brown face with the colour extending to the middle of the neck and thin tail. Both sexes are polled. Well-developed udder. Fleece is white, extremely coarse and hairy.	
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Patanwadi	Also called as Desi, Kutchi, Kathiawari, Vadhiyari and Charotari and present in the Saurashtra and Kutch (coastal) part and Mehsana districts of Gujarat. The breed includes three different strains: Non-migratory- small body with red face produces finer fleece. Migratory type- larger body with long legs, typical Roman nose, long tubular ears. Produces coarser fleece and the third one is meat type- heavy body, low stature produces coarser fleece.	
Kajali	Large sized animals with well-built body distributed in Punjab. Breed has two variants: Black (Kali) and White (Chitti) Kajali. Black Kajali, body colour is black and brown. White Kajali i.e. white coat with black or dark brown circle around the eyes, face and ears. Roman nose, long and pendulous ears, and long tail which touches to ground (about 55cm). Mutton breeds.	






### C. Breeds of southern peninsular region






Bellary	Native of Bellary district of Karnataka. Medium sized breed with body colour ranging from white, black and combination thereof. Horned males and polled females. Medium size flat droopy ears. Coarser fleece, hairy.	
Coimbatore	Localised in Coimbatore district of Tamil Nadu, Kerala and Karnataka. Medium size, white colour with black or brown spots. Fleece is white, coarse hairy. Wool purpose breeds.	
Vembur	Breed of Vembur (Tamil Nadu). Taller breeds. White coloured with irregular red and fawn patches all over the body. Droopy ears. Slender and small tail. Polled ewe and horned male. Body is covered with short hairs which are not shorn. Reared for the mutton.	
Deccani	This breed is found in Maharashtra, Andhra Pradesh and Karnataka. Deccani breed is an admixture of the woolly types of Rajasthan and the hairy types of Andhra Pradesh and Tamil Nadu. Sheep is small and hardy, and well adapted to poor pastoral conditions. It possesses a coloured fleece, black and grey colours being more dominant. The wool is of a low grade and is a mixture of hair and fine fibres, mostly used for the manufacture of rough blankets (Kambals). The flocks are maintained chiefly for mutton.	

Hassan	Breed is found in Karnataka. These are small sized animals with white body and light brown or black spots. Ears are medium-long and drooping. 39% of the males are horned, females are usually polled. Fleece is white, extremely coarse.	
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Kenguri	Breed present in Karnataka. Medium sized animals, body colour is mostly dark brown named as (Tenguri), black coloured (Jodka) and mixture of black and brown (Masaka). Males are horned, while the females are generally polled.	
Kilakarsal	Breed of Tamil Nadu. Coat colour is dark tan. Black spots present in head, belly and leg. Short thin tail. Thick twisted horns in males. Most animals of this breed have wattle.	
Ramnad White	It is meat purpose breed of Tamil Nadu. Medium sized body. Mostly white coat colour. Twisted horns in males and polled ewe. Smaller leg and short slender tail.	
Mecheri	Breed of Tamil Nadu used for meat purpose. Medium sized breed has pale purple coat colour. Both sexes are polled but wattle is present. Short hairs present on the body. Skin of Mecheri breed is of highest quality and highly prized in India. Dressing percentage is also higher around 53.4%.	

Madras Red	Breed of sheep is native to Madras district of Tamil Nadu. Medium body size. Body colour is brown mainly i.e. light tan to dark brown. Few have white markings on the forehead, inner thigh area and lower abdomen. Medium long ears. Twisted horns in male and polled ewe.	
Mandya	'Smallest sheep breed of India' found in Mandya (Karnataka). Also known as Bannur and Bandur. White coloured. The complexion is a light brown shade that may also cover the neck. Long, leafy, droopy ears. Mostly wattle is found. Body is compact (reversed U-shape wedge from the rear) which is best mutton type body conformation among the Indigenous breed. Both sexes are polled. Coarser and hairy fleece. High incidence of cryptorchidism seen in Mandya breed.	
Nellore	'Tallest and Best mutton breed of India' found in Nellore and Ongole districts of Andhra Pradesh. This breed resembling to goat. Long face and ears. Dense short hairs on the body except at wither and brisket. Flocks are of fawn or deep red fawn colour mostly. Three varieties of breed on the basis of coat colour are: Palla; pure white or white with light brown spots on head, neck, back and legs. Jodhipi; white with black spots particularly around the lips, eyes and lower Jaw but also on belly and legs and Dora; pure brown. Horned male and polled ewe.	

Nilgiri	It originates from a cross-breed of Coimbatore, the local hairy breed, Tasmanian Merino, Cheviot and Southdown. These are distributed in Tamil Nadu used for wool purpose. Medium sized with white body colour. Polled ewes.	
Tiruchi Black	Found in Tamil Nadu. Small and black coloured body, ears are smaller. Rams are horned and ewes are polled. Fleece is extremely coarse, hairy.	
Katchaikatty Black	Breed of Tamil Nadu. Medium sized with compact body and are black in colour, hairy coat. Meat and manure obtained. Rams are generally known for its fighting ability.	
Chevaadu	Breed of Tamil Nadu. Breed name due to "Brown" coat colour. Small to medium in size have light and dark brown or tan coat colour. Head is erected and high. Light brown horn and curved horizontally outward, backwards. Horn is light brown in colour. Meat and manure purposes. Breed is also important for sociocultural life of the local people (considered as a ceremonial animal for many social rituals). Utilize for meat.	
Macherla	Recent registered breed of sheep. Medium to large in size. Mainly white with large black coat colour and brown patches in the body, face and legs. Nasal bridge is convex, leafy ears; black muzzle and black/brown are predominant. Polled females (some have small horns) and horned males. Meat purpose breed of Telangana and Andhra Pradesh.	
<b>D. Breeds of eastern region</b>		
Garole	Distributed in the Sundarbans region of West Bengal in India. Small in size have higher prolificacy rate and well adapted for saline marshy land of Sundarbans region. Squared body with small head. Usually grey and white coloured. Highly coarse and less dense fleece which covers the whole body.	
Ganjam	Native to Odisha. Medium size. Coat colour varies from brown to dark tan, may have white spots on the face and body. Droopy ears and slight convex nose line. Hairy fleece.	
Balangir	Native to Odisha. Medium sized of white, brown and black colours. Ears are small and stumpy. Males are horned and females polled. Fleece is extremely coarse, hairy and open.	









Bonpala	Southern Sikkim breeds. Tall, small tubular ears. Fleece colour varies from pure white to complete black. Horn present in both sexes. Fleece is coarse hairy.	
Tibetan	Breed is distributed in Sikkim and Arunachal Pradesh. It is of medium size and has predominantly white fur, with a black or brown face. Nose line is convex; ears are small, broad and drooping. The fleece is relatively fine and dense. Tibetan sheep produce excellent, lustrous carpet-quality wool.	
Chhotanagpuri	Breed is mainly found in Jharkhand, Bihar and West Bengal. Small light weight and brown in colour. Ears are small and parallel to the head. Both sexes are polled. Fleece is coarse, hairy which is generally not clipped.	
Kendrapada	Found only in coastal part of Odisha. Locally it is called Kuji Medha. Dwarf breed and coarse hair on body. Primarily mutton purpose. Mostly brown in colour, have horizontal ears, button type horns in few males. Suited for unfavourable weather conditions. Fec. B mutation gene found, which provides prolificacy or multiple birth syndrome to the breed. This characteristic makes them distinctive from other sheep breeds.	
Shahabadi	Found in the Shahabad, Patna and Gaya districts of Bihar. Also known as plain type sheep. Medium sized. Mostly coarser and grey fleece (sometime black spots). Tail is extremely long and thin. Both sexes are polled.	

**Table 4:** Cross-bred sheep of India

Breeds	Characteristics
Hissardale	Developed in Government dairy farm Hisar (Haryana). Cross of Australian Merino ram and Bikaneri (Magra) ewe with 75% Merino inheritance. Produces apparel type wool.
Kashmir Merino	Cross of Merino breed with migratory sheep breeds like Gaddi, Bhakarwal and Poonchi. Highly variable in morphological and production characters have Greecy fleece. Produces fine wool (2-8kg annually).
Kheri	Rajasthan. Evolved in farmers flock under field condition, important migratory breed. Survive in limited coarse feed and regain faster. Better reproduction in favourable conditions.
Munjal	Rajasthan, Punjab and Haryana. Cross of Nali and Lohi sheep breed. Mutton type have heavier body. Attain earlier maturity and less lambing interval in organised conditions.
Avikalin	Originated from Rambouillet buck and Malpura ewe through selection method to obtain greasy fleece. Developed at Central Sheep and Wool Research Institute. Dual-purpose (carpet wool and mutton).
Avivastra	Developed at Central Sheep and Wool Research Institute, Avikanagar for fine wool by crossing Rambouillet with Chokla.
Avimaans	Developed at Central Sheep and Wool Research Institute, Avikanagar, Rajasthan for mutton by crossing Dorset, Suffolk rams with Malpura or Sonadi ewes.
Bharat Merino	Originated by Central Sheep and Wool Research Institute for fine wool by crossing Rambouillet, Merino rams with Chokla, Nali ewes.
Nilgiri Synthetic	Evolved at Sheep Breeding Research Station, Tamil Nadu for Apparel wool by crossing Merino and Rambouillet rams with Nilgiri ewes.
Nellore Synthetic	Developed at Livestock Farm, Andhra Pradesh for mutton by crossing Dorset rams with Nellore ewes.
Indian Karakul	Cross of Merino and Rambouillet ram with Chokla and Nali ewe. Developed in Bikaner for Pelt production.
Patanwadi Synthetic	Developed in Gujarat Agriculture University (GAU) for carpet wool production. Cross of Merino and Rambouillet ram with Patanwadi ewe.
Nali Synthetic	A breed of sheep developed by CSWRI, Avikanagar. It was created by crossbreeding Nali and Chokla ewes with Rambouillet and Merino rams specifically for the production of carpet wool.

Mandya Synthetic	Cross of Dorset and Suffolk with Mandya ewe for mutton production.
Gaddi Synthetic	Developed in CSWRI for fine wool production. Cross of Rambouillet ram and Gaddi ewe.
Avishaan	The prolific cross is a composite cross having 12.5% Garole, 37.5% Malpura and 50% Patanwadi blood. Developed in CSWRI, Avikanagar. More lambs per lambing, higher live weight, higher milk production and high survivability in semi-arid condition.

**Table 5:** Important exotic breeds of sheep

Breeds	Characteristics	Pictures
Merino	Breed of Spain. Produce finest quality wool across the world. White colour in face and feet, horned ram and polled ewe. Hardy in nature and survive under extreme conditions.	
Rambouillet	Breed of France. Derived from Spanish Merino for fine wool production. Large in size with white hairs around the ears and nose. Rams may have horn or polled and ewes are polled. Prolific breeder, fine wool fleece. Fleece is heavy and covering most of the body parts.	
Karakul	Bokhara (Central Asia). Best pelt producing breed in the world. Pelt is mainly obtained from slaughter of lamb within 24-28hrs of birth. Pelt is used for manufacturing of garments.	
Dorset	Native to England. Two strains are found polled and horned. Mutton type breeds. Medium in size, white colour ears, legs and face, lips and pink skin. Face, legs and ears are devoid of wool.	
Suffolk	Native to England. Best mutton breed. Black face, ears and legs, hornless. Face, legs and ears are black. Head and legs are free of wool.	
Southdown	Native of England. Oldest English breed with excellent mutton quality. Broad head with brown coloured face have mousey face appearance. Compact deep body with legs apart.	
Leicester	Breed of England. Purest English breed. Medium size with clean face and legs. Ewes are not much prolific.	
Lincoln	Found in England. Largest and heaviest breed of the world. Large size with broad head, used in crossbreeding. It is very rugged and heavily fleshed. Face and legs are free from wool.	

**Conclusion**

The role of small ruminants, particularly sheep and goats, is crucial for the livelihoods of rural communities, especially in arid and semi-arid regions. Their contribution to food security, income generation, and cultural significance

underscores their importance in the livestock sector. The diverse breeds of goats and sheep in India are well-adapted to local agro-ecological conditions, providing valuable resources such as meat, milk, wool, and fiber. As the livestock population continues to grow, focusing on the sustainable

management and conservation of these indigenous breeds will be vital for enhancing productivity and supporting the socioeconomic development of marginalized farming communities.

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Not available.

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