

On the population and characteristics of descript and non-descript goats of India

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ABSTRACT

There are about 21 defined (30% well known) goat breeds in India apart from a large number of non-descript goat populations (70% not studied only documented). Non-descript population includes the cross-bred populations, populations which are mixture of different breeds or the populations which have not yet been studied or described. Non-descript population is greatly contributing to the total Gross Domestic Product from livestock sector. In addition, indigenous animal genetic resources are known for heat and draught tolerance, disease resistance and subsistence on poor feed, opening scope for allele mining for these traits. But apart from these descript breeds there are a large number of goat populations exist in different parts of the country which are knocking to be included in the list of descript goat breeds of India. These populations appear to be distinct from the already known goat population of its area, but it needs systematic studies for their characterization, have not been included among the descript goat breeds. Recently, two additional (Konkan Kanyal and Berari) goat populations from Maharashtra have been registered as a new germplasm. The present review provides a brief description of some of the descript and non descript goats from India, with their characteristics. In this era of IPR, the proper documentation on such populations is essentially required. The complete characterization (phenotypic and genetic) of these populations may indicate the distinctness of some or all of these populations. After confirming the distinctness the population can be assigned the breed status and the useful characteristics of the breed can be utilized for upgrading other non-descript populations. Thus the emphasis should be to describe, characterize and document lesser known populations in the country so that the proportion of non-descript population is considerably transformed in to defined breeds. This will be first step towards planning the organized breeding program for their genetic improvement, conservation strategies and sustainable utilization.

KEY WORDS: DESCRIPT NON DESCRIPT GOATS OF INDIA

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INTRODUCTION

There are about 21 defined (30% well known) goat breeds in India apart from a large number of non-descript goat populations (70% not studied only documented). Non-descript population includes the cross-bred populations, populations which are mixture of different breeds or the populations which have not yet been studied or described. Non-descript population is greatly contributing to the total Gross Domestic Product from livestock sector. In addition, indigenous animal genetic resources is known for heat and draught tolerance, disease resistance and subsistence on poor feed, opening scope for allele mining for these traits. But apart from these descript breeds there are a large number of goat populations exist in different parts of the country which are knocking to be included in the list of descript goat breeds of India. These populations appear to be distinct from the already known goat population of its area, but it needs systematic studies for their characterization, have not been included among the descript goat breeds. Recently, additional (Konkan, Kanyal and Berari) goat populations from Maharashtra have been registered as a new germplasm, along with many others in the past, (Mishra *et al.*, 2012a b, 2013 and Mishra 2015).

DESCRIPT AND NON-DESCRIPT GOAT BREEDS ON THE BASIS OF ECO-ZONES

Temperate Himalayan Region- The goats of temperate Himalayan region where the rainfall is scanty, grow fibre of good quality and finest undercoat called cashmere or pashmina. Gaddi, chegu and Changthangi are good fibre producing goats of this region. Non-descript goat breeds of these regions are Shingari and Non-pashmina goat of Ladakh.

North-western arid and semiarid region- These region belongs to Rajasthan, Punjab, Haryana, Plains of U.P., Gujarat and M.P. Goats found in these regions are dual purpose (meat and milk). Beetal, Barbari, Jamunapari, Marwari, Sirohi, Jhakrana, Mehsana, Gohilwari, Zalawari, Kutchi and Surti goats found in these regions. Non descript goats of these regions are Udaipuri Goat, Jaunpuri Goat, Bundelkhandi Goat, Panjta, Bareilly Goat, Chaugarkha, Tarai.eed i.e. ropes and other items of domestic utility. They are also used for meat production and as pack animals particularly males for transportation of mercantile in hilly terrain.

Southern Region- Attappady, Kanniadu, Malabari, Osmanabadi and Sangamneri are meat goat breeds and non-descript goats of these region are Andaman goat, Teresa goats, Barren goat, Kodi Adu, Bidri goat, Salem

Black Goat, Mahabubnagar Goats and Jharkhand Black Bengal Type goats.

Eastern Region- Black Bengal, Jharkhand Black and Ganjam are meat goat breeds and Assam Hill and Raigarh are non-descript goats of these region.

TEMPERATE HIMALAYAN REGION

Native tract of the breed is Leh, Khaltsey and Nubra blocks of Ladakh. They are commonly reared for meat, manure, wool and milk. It is small, long horned, medium length ear, predominantly white coat coloured and long haired goat. Both sexes are horned and horns are curved, pointed backward and outward. Mean values of adult body weight (kg), body length, height at withers, heart girth, trunk girth, horn length, ear length and tail length (inches) were observed by Roy *et al* (2007).

Shingari: This goat population is found in the Jammu and Kashmir. These goats are reared for meat purpose. The adults are small sized having body weight 25.23 ± 0.56 (male) and 20.35 ± 0.41 kg (female). The coat colour varies white to grey with black and tan colour patches

NORTH- WESTERN REGION

Udaipuri Goat: The Udaipuri goat is a small meat type goat existing in the western Himalaya of Uttarakhand. The native tract is the Ajmer and Udaipur patties (from Dugadda to Yamkeshwar). These goats are small in size with compact body covered with short hairs, which are not shorn. The animals are of tan colour. The head is small in length with small to medium fore-head. The profile of head is convex. The ears are medium and pendulous. The head possess tapering muzzle and Roman nose. Horns are curved and backward down. The top line was almost straight and flank was moderate in size. They have small, lean and straight legs. The tail is thin, short in length and wrapped. The average body weights of adult male and female animals are 24.67 and 22.10 kg respectively (Barwal *et al.*, 2010).

Jaunpuri Goat: The Jaunpuri goats are dual purpose animals reared for milk and meat. The native tract of this type of goat population is Sultanpur and Jaunpur districts of eastern Uttar Pradesh. These goats have been developed by crossing the Jamnapari male with non-descript females of this region before independence. The average body weight, body length, chest girth and body height are reported as 34.83 kg, 56.50 cm, 71.50 cm, 70.66 cm in adult males and 24.47 kg, 50.26 cm, 66.20 cm and 63.25 cm respectively in females (Singh *et al*, 2010a, 2010b).

Pantja: These are dual purpose goats, having brown to tan body colour with black top line and two white strips

on head (on the either side of head). These are found in the Himalayan foothills of Uttarakhand and near by areas. These are medium sized goats. Based on the survey of 275 herds, Pantja goats (32.67%) were next to Black Bengal (51.72%) with an estimated population of 14,543.

Bareilly Goat: These goats are reared in Rohilkhand area around Bareilly district of Uttar Pradesh. These are reared mainly for meat purpose. The goats have black body coat with hair tuft in the breech, broad pendulous ear, twisted short horn and roman nose. Body weight at birth varies from 2-3 kg, 8-10 kg at weaning, 10-15 kg at 6 to 9 months, 20-25 kg at yearling and 35-40 kg at adult. These goat had high twinning rate (>50%).

Tarai: These goats are found in villages of Tarai region of the Uttarakhand state. The colour pattern ranged from black, tan, fawn, white and spots of these colours to others. These goats are small to medium in size and reared for milk and meat. These goats have well set udder with small teats. Milk yield is 1-1.5 kg. These goats kid once a year and have potential for giving birth to twins and triplets (Singh *et al.*, 2010).

SOUTHERN REGION

Jharkhand Black Bengal Type: These goats are found in Jharkhand. The average body weights at birth, 4, 8 and 12 months of age were 1.28 ± 0.11 , 3.45 ± 0.22 , 4.85 ± 0.67 and 6.23 ± 0.43 kg, respectively. The genetic diversity of this population from other known goat breeds of India has been studied by Dixit *et al.* (2009).

Mahabubnagar Goats: The native tract of these goats is Mahabubnagar district and adjacent areas of Nalgonda and Ranga Reddy districts of southern Telangana region of Andhra Pradesh. The predominant colour pattern in Mahabubnagar goats was bicolour with the admixture of black and white (30.88%), brown and white (22.14%) and black and brown (10.38%). 25% animals had single colour and 11.5% show multi colour pattern. In single colour 9.69% animals have black colour, 9.06% brown and 6.23% white. 74.28% animals had straight head profile and 21.01% had slightly convex head. 91.57% animals had pendulous, 4.59% erect and 3.84% horizontal ears. The horn pattern was straight in 56.91% animals and curved in 43.09% animals. The mean diploid chromosome number of Mahabubnagar goats was 60. These goats had 29 pairs of acrocentric autosomes and a pair of sex chromosome. The overall mean relative length of chromosomes ranged from 1.68 ± 0.04 to $5.22 \pm 0.07\%$ for autosomes. The relative lengths of X and Y chromosomes were 5.86 ± 0.08 and $1.36 \pm 0.05\%$, respectively.

Bidri goat: These goats are found in Bidar district of Karnataka. It is a coloured dual purpose strain of goat. The

average body weight at one year of age was 17.38 ± 0.73 kg. the average daily milk yield over different lactations was 0.63 kg per day, with a range from 0.4 kg/day to 1.12 kg/day (Kumar *et al.*, 2008).

Kodi Adu: This breed is distributed in the south-eastern coastal areas of Tamil Nadu. It is black in colour with white spots on the body. These animals are tall, long, lean and leggy. These goats are mainly reared for meat. Twinning is very common (Kanakraj, 2007).

Teresa goats: These goats are found in the Teresa, Katchal and Bambooka Islands of Andaman. The approximate pre-sunami population of these goats is 2000-3000 (Anthra, 2006). They can survive in hot and humid climate. These goats are generally reared in free range system. They generally give birth to twins and triplets. These goats are resistant to common diseases.

EASTERN REGION

Assam hill goats: These are Bengal type goats reared for meat. The animals are sized with short legs. Coat colour varies from black to brown. The ears are small and flat having spots on it. The average body weight is 25.45 ± 2.12 kg for males and 18.31 ± 1.67 kg for females.

Raighar goats: These are found around Raighar, Umarkote and Dabugon area of Koraput district in Orissa. The Gonda and Bhatra tribes of Koraput are the original breeders of these goats. These goats have distinct morphological features different from the Ganjam, Bengal and Malkangiri goats available in Orissa. These goats are maintained on browsing in villages without giving any extra feed. The colour is mostly brown without any patchy pattern. White stripes extending from the forehead upto the nose in both sided is a constant feature.

The udder is well developed with medium sized teats. The age at sexual maturity is around eight months. The interval between two kidding is about 7 months. Twins and triplets are common after the first kidding. Survivability of the young ones is high. The goats yield about $\frac{1}{2}$ to 1 kg of milk/day (twice milking) after feeding the kids. The dressing percentage is around 48.5%. A combination of high prolificacy, survivability and milk yield is found in Raighar goats (Dash, 2007).

Management of animal genetic resources (AnGR) and thus has a prominent role in Strategic Priority. The evaluation of phenotypes and production systems, characterization involves collection and molecular analysis of biological samples in order to yield insight into breed history and to guide breed development, utilization and conservation decisions. The present diversity of livestock species is the result of a combination of various processes, including domestication, migration, genetic

isolation, environmental adaptation, selective breeding, introgression and admixture of subpopulations. Molecular characterization can help unravel the genetic history of a species, which is most relevant for managing the present and future genetic diversity. Different categories of genetic markers are informative for different aspects of a species' genetic history (Groeneveld *et al.*, 2010).

In this era of IPR, the proper documentation on such populations is essentially required. The complete characterization (phenotypic and genetic) of these populations may indicate the distinctness of some or all of these populations. After confirming the distinctness the population can be assigned the breed status and the useful characteristics of the breed can be utilized for upgrading other non-descript populations. Thus the emphasis should be to describe, characterize and document lesser known populations in the country so that the proportion of non-descript population is considerably transformed in to defined breeds. This will be first step towards planning the organized breeding program for their genetic improvement, conservation strategies and sustainable utilization.

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