

Animal genetic resources in Goa: an overview

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Abstract

Goa is adding valuable contribution to the animal genetic resources with newly registered breeds by National Bureau of Animal Genetic Resources (NBAGR), Karnal. The two cattle breeds 'Konkan Kapila' and 'Shweta Kapila' has exceptional significance for draught and milk purpose respectively. The breed of pig 'Agonda Goan' is good for pork and has exceptional mothering instinct. They are adding strength to the genetic resources of India. This review paper will give an overview of current status of nationally registered animal genetic resources found in Goa with their morphological and economic characteristics.

Key words: Animal Genetic Resources; Breeds; Konkan Kapila; Shweta Kapila; Agonda Goan; Goa; India

Introduction

India is one of the 17 Mega-biodiversity countries with 2.5% global land (CI, 1998). It harbours different kinds of ecosystems which include tropical rain forests, high alpine cold deserts, wetlands, grass lands and coastal areas. It is embellished with 10 biogeographic zones. India contributes 7-8% of the world's species with 45,000 and 81,000 species of plants and animal respectively (Chaudhary *et al.*, 2011). As per the latest livestock census 2019, India has total 535.78 million livestock population and 851.81 million poultry population. Individual contribution is 35.94% Cattle, 20.45% Buffaloes, 27.80% Goat, 13.87% Sheep, 1.69% Pigs, 0.23% by the rest other species (Mithun, Yaks, Horses, Ponies, Mules, Donkeys and Camels) to the total Indian livestock population (Fig 1). Till now, total 197 breeds have been registered by National Bureau of Animal Genetic Resources, Karnal in India, which includes 50 breeds for cattle, 17 for buffalo, 34 for goat, 44 for sheep, 7 for horses & ponies, 9 for camel, 10 for pig, 3 for donkey, 1 for yak, 19 for chicken, 2 for duck and 1 for geese as represented in the Table 1.

Animal Genetic Resources of Goa

Goa, western state of India with coastline meeting the Arabian Sea, which is also considered as the smallest state of India by area of about 3702 sq. km (Office of the Registrar General & Census Commissioner, India, 2020). According to Unique Identification Aadhar India, updated on 31st May, 2020 the human population in Goa is estimated to be 1.58 million. The region is also known as "KONKAN" has rich flora and fauna as it is situated on the Western-Ghats range which is classified as a biodiversity hotspot. Recently their native breeds have been registered by the National Bureau of Animal Genetic Resources, Karnal in India. Now, Goa has three registered breeds of livestock. There are two cattle breeds namely 'Konkan Kapila' and 'Shweta Kapila' and one is pig breed 'Agonda Goan'. Each of them has their unique characteristics and shares a valuable contribution to the animal genetic resources of India. Total population of major livestock species of Goa is represented in the Table 2.

Table 1: Species wise Livestock Population India (NBAGR, 2019 and Livestock census, DAHD, 2019)

| Sl. No. | Species | Registered Breeds | Population in 2019 (in millions) | Growth % (over 2012) | Ranking (World) | Top state |
|------------------------|----------------|-------------------|----------------------------------|----------------------|-----------------|-------------------|
| 1. | Cattle | 50 | 192.49 | 0.83 | 1 | West Bengal |
| 2. | Buffaloes | 17 | 109.85 | 1.06 | 1 | Uttar Pradesh |
| 3. | Sheep | 44 | 74.26 | 14.13 | 3 | Telangana |
| 4. | Goats | 34 | 148.88 | 10.14 | 2 | Rajasthan |
| 5. | Pigs | 10 | 9.06 | - 12.03 | | Assam |
| 6. | Camel | 09 | 0.25 | - 37.05 | | Rajasthan |
| 7. | Horse & Ponies | 07 | 0.34 | -45.58 | | Uttar Pradesh |
| 8. | Mules | - | 0.08 | -57.09 | | Uttarakhand |
| 9. | Donkey | 03 | 0.12 | - 61.23 | | Rajasthan |
| 10. | Mithun | - | 0.38 | 26.66 | | Arunachal Pradesh |
| 11. | Yak | 01 | 0.06 | - 25.00 | | Jammu & Kashmir |
| Total livestock | | 197 | 535.78 | 4.63 | | Uttar Pradesh |
| Total poultry | | 19 | 851.81 | 16.8 | 7 (Chicken) | Tamil Nadu |

Table 2: Livestock Population - Major Species of Goa

| Species | Male | Female | Total |
|------------------------------|-------|--------|-------|
| Cattle (indigenous) | 11583 | 32718 | 60220 |
| Cattle (exotic/cross) | 1619 | 25883 | 27502 |
| Buffalo | 4861 | 22346 | 27207 |
| Pig (exotic/cross) | 1762 | 2064 | 3826 |
| Pig (indigenous) | 15659 | 15995 | 35480 |
| Sheep | - | - | 662 |
| Goat | 3108 | 6338 | 9446 |
| Horse | 7 | 8 | 15 |
| Camel | 2 | - | 2 |
| Poultry (backyard) | 27594 | 8803 | 52412 |
| Ducks | - | - | 1024 |

Source- Livestock census, DAHD, 2019

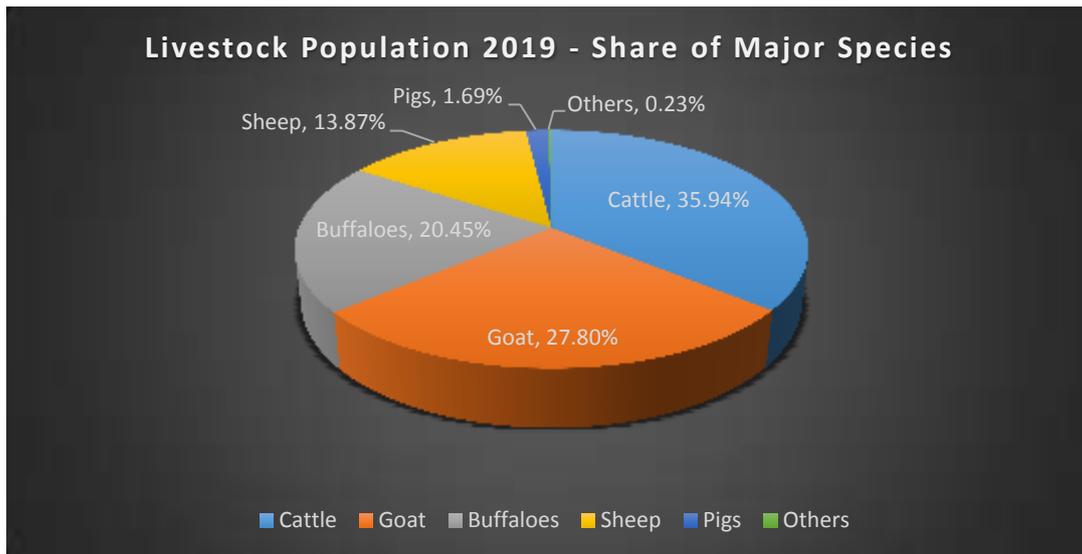


Fig 1: Per cent contribution of different livestock species in India (Livestock census, DAHD, 2019)

Cattle Breeds of Goa

1. KONKAN KAPILA

Synonyms: Konkan Gidda, Konkan

Breeding tract: The breed name is given as it is found in Konkan area of Maharashtra and Goa and “KAPILA” as per the Indian mythology. The native tract is Konkan region, Raigadh, Sindhudurg, Thane, Ratnagiri, Palghar districts of Maharashtra and Goa.

Morphological characters: It is small and compact size animal with small parallel ears and straight forehead. The usual colour is brown to black. But it also found in white, grey, brown, black and mixed. The horns emerges from side and behind the pole region which are short going outward backward and upward direction with pointed tips. Height of animal is 105 cm and 100 cm of male and female respectively. Singh *et al.*, 2019 reported that weight is around 240 kg and 225 kg of male and female respectively. An Adult male and an adult female of Konkan Kapila cattle is shown in Figure 2a, 2b (Source: <http://14.139.252.116/hKKapila.html>).

Economic characters: It yields 450 kg in total lactation with daily 2.23 kg. Fat% is reported average 4.55% but in some animal it also goes up to 7.5%. Singh *et al.*, 2019 reported that average age at first calving is 49.27 months (ranges between 30 to 60 months). He also reported that average calving interval of Konkan Kapila cattle is 17.21 months (ranging from 12 to 18 months). Mainly it is useful for draught purpose in Konkan region and only source of milk in that region.

Population: 600000 (AHVS, Goa, 2012)

2. SHWETA KAPILA

Synonyms: Gaunthi, Gavthi Dhavi

Breeding tract: The breed name is given as it is found in complete white colour. The native tract is whole Goa region. Found on different districts of North and South Goa.

Morphological characters: It is small to medium size animal with straight forehead. It is found exclusively in White (SHWETA) colour with whitish-brown eyelashes and muzzle. The horns are curved medium in size going backward and upward direction with pointed tips. Height of animal is 113 cm and 107 cm of male and female respectively. Weight is around 383 kg and 277 kg of male and female respectively as reported by NBAGR, 2019 (URL: www.nbagr.res.in). An Adult male and an adult female of Shweta Kapila cattle is shown in Figure 3a, 3b (Source: http://14.139.252.116/Shweta_Kapila.html).

Economic characters: It yields 510 kg in total lactation with maximum up to 650 kg. Fat% is reported average 5.21% but in some animal it also goes up to 6.4%. Age at first calving ranges between 35 to 58 months. Calving interval is about 13 to 17 months (NBAGR, 2019; URL: www.nbagr.res.in). It is mainly used for milk purpose only. It is believed in North-Goa that milk of SHWETA KAPILA has medicinal properties. It is also resistant in heavy rainfall. So it has unique characteristics which can be used in future for research purpose.

Population: 39777 (AHVS, Goa, 2012)

Fig 2: Konkan Kapila Cattle Breed; 2a: Adult male; 2b: Adult female



Fig 3: Shweta Kapila Cattle Breed; 3a: Adult male; 3b: Adult female



Pig Breeds of Goa

AGONDA GOAN

Synonyms: Gavthi Dukor

Breeding tract: The breed name is given on the name of AGONDA village of Goa. The native tract is Tiswadi, Bardez and Ternem of North-Goa district and Mormugao, Salcete, Canacona, Quepentalukas of South-Goa district.

Morphological characters: It is wild in nature with small and compact size. The usual colour is black. But it also found with white patches on legs and face. The legs and snouts are small. Bristles are rough. Height of animal is 55 cm and 60 cm of male and female respectively. Weight is around 41 kg [38.91 ± 5.71 kg (Chakurkar *et al.*, 2016)] and 43 kg of male and female respectively. An Adult male and an adult female of Agonda Goan cattle is shown in Figure 4a, 4b (Source: <http://www.nbagr.res.in/Agonda.html>).

Economic characters: It has 72% dressing percentage. Age at first calving ranges between 7 to 14 months. Calving interval is 5.2 to 6.6 months. Litter size it average 7.45 with range of 2 to 13. Slaughter age is 6 to 8 months with 65-67 kg live weight (NBAGR, 2019; URL: www.nbagr.res.in). Mainly used for Pork and sausages known as “Chouris” as only pork of this breed is preferred by the people of Goa. Manure is also used for horticulture. Important for future aspect as it requires low maintenance and it has exceptional mothering instinct.

Population: 37556 (AHVS, Goa, 2012)

Fig 4: Agonda Goan Pig Breed; 4a: Adult male; 4b: Adult female



Conclusion

Goa is contributing to Indian animal genetic resources with only three breeds of livestock but the characteristics of these breeds are unique and having great importance. These characteristics are divergent from the other animal genetic resources, hence can be used for the future research purpose and various breeding programmes for genetic improvement of the country's genetic resources.

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