

## Conservation of Indigenous Bovine Breeds: Preserving India's Heritage

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India, with its diverse cultural tapestry and rich agricultural history, is home to a plethora of indigenous bovine breeds that have been an integral part of the nation's rural landscape for centuries. These native breeds, each with its unique characteristics, have played a vital role in sustaining agriculture, providing livelihoods, and contributing to the cultural identity of various communities. However, low production of native breeds has led to extensive crossbreeding programmes since the time of independence and era of white revolution during 1960s. Now, as the advantages of indigenous cattle breeds are recognised which includes disease resistance, climate resilience and maintenance of production under hardy conditions. The quest to conserve and improve indigenous cattle breeds has taken a faster pace. As per latest National Bureau of Animal Genetic Resources (NBAGR) registration report, there are about 53 native cattle breeds registered including Gir cattle from Gujrat, Kankrej, Tharparkar, Ongole and Vechur cattle which are well characterised and known for their special characters. These breeds have adapted to diverse climates, terrains, and agricultural practices, making them well-suited to the unique challenges presented by different regions of the country. One of the primary threats to breed conservation is the crossbreeding with exotic breeds, which, though introduced with good intentions, led to dilution of genetic purity of native breeds. Additionally, changing agricultural practices, urbanization, and a growing demand for high-yielding breeds have marginalized many indigenous breeds.

### Importance of Conservation:

Conservation of indigenous breeds is important due to following reasons:



- Genetic Diversity:** Indigenous embraces a rich genetic diversity which valuable traits of enhanced disease resistance, adaptability to local conditions, and improved overall robustness. It has been found that indicine cattle show better tick resistance as compared to taurine cattle. Conservation of genetic diversity is necessary for existence of any species during the phase of climate change (Tesfa *et al.*, 2017).
- Cultural Significance:** Native cattle breeds are deeply intertwined with the cultural fabric of rural India. They are an integral part of religious rituals, traditional farming practices, and folklore. Preserving these breeds is essential for maintaining the cultural identity of many communities. Breeds sauch as Punganur cattle of Andhra Pradesh is used for making of sacred prasadam of Tirupathi temple.
- Sustainable Agriculture:** Indigenous breeds are often better adapted to local climates and are more sustainable in resource utilization. They require fewer inputs, making them environmentally friendly and contributing to sustainable agriculture practices. Dwarf breeds such as Vechur cattle produces more milk as compared to its body size.

**Endangered level of breed**

There are many endangered bovine species which are looking for more attention for their conservation and preservation of their germplasm. The criteria for categorisation of endangered species varies across depends on species, local management and rearing system, rate of cross breeding and economic utility of breed. As FAO expert panel on preservation of Animal Genetic Resources considered when the population size of a breed is reduced to 5000 breeding females. There is a need for employment of considerable conservation efforts. A table 1 depicts the categorisation of cattle on basis of its population size under Indian conditions by National Bureau of Animal Genetic Resources, Karnal.

Category	Cattle population
Normal	>25000
Insecure	15000- 25000
Vulnerable	5000-15000
Endangered	2000- 5000
Critical	< 2000

Table 1: cattle under different conservation categories on the basis of population size

It has been reported by Tomar and co-workers in 2004 that cattle breeds such as Red Sindhi, Sahiwal, Tharparkar. Vechur, Punganur, Mewati, Kankatha, Kherigarh, Bargur, Siri, Krishna



valley need significant attention for their conservation. As per Sharma and Niranjana (2016), there is also urgent need to conserve the declining population of cattle breeds such as Vechur, Punganur, Krishna valley, Bargur, Ponwar, Binjharपुर cattle.

**Conservation Strategies:** The conservation strategies for indigenous breeds are now currently at focus. These are major central sector schemes for conservation of indigenous breeds-

**1. National Mission on Bovine Productivity (NMBP):**

The NMBP, launched by the Government of India, aims to enhance milk production and productivity of indigenous breeds. It includes sub-missions such as the National Programme for Bovine Breeding and Dairy Development, which focuses on breed improvement, promotion of indigenous breeds, and increasing the productivity of milch animals.

**2. Kamdhenu breeding centres:**

These centres are developed with aim to conserve and improve indigenous breeds. These centres will serve as reliable resource centre for indigenous germplasm. National Kamdhenu breeding centres are being established in Kiratpur district of Madhya Pradesh in North India and Nellore district of Andhra Pradesh in South India.

**3. Rashtriya Gokul Mission:**

Rashtriya Gokul Mission launched in year 2014 with an aim to conserve and develop indigenous breeds in a focused and scientific manner. It includes establishing Gokul Grams (Gokul Villages) to develop indigenous breeds, setting up Integrated Indigenous Cattle Centres, and promoting breeding programs.

**4. Establishment of Indigenous Breeds Development and Conservation Centers:**

The government has set up centres specifically dedicated to the conservation and development of indigenous cattle breeds. These centres focus on scientific breeding, maintaining genetic purity, and providing support to local farmers.

**5. Livestock Insurance Schemes:**

The government has introduced various livestock insurance schemes to provide financial protection to farmers engaged in rearing indigenous breeds. These schemes mitigate the economic risks associated with livestock farming and encourage farmers to continue conserving indigenous breeds.

**6. Establishment of breed multiplication farm**

There is need for establishment of breed multiplication farms to make available disease-free high yielding heifers/pregnant heifers /cows specifically of indigenous bovine breeds in the



country (free from Tuberculosis, Johne's Disease, Brucella). Pure breed animals will be acquired for respective breeding tract or from recognised farmers rearing indigenous breeds to acquire pure germplasm.

7. **Financial Incentives for Farmers:** The government provides financial incentives to farmers who rear indigenous cattle breeds. These incentives are usually in the form of subsidies for fodder development, assistance for setting up cattle shelters, or support for the purchase of indigenous breeding stock.
8. **International Collaboration:** The government collaborates with international organizations and institutions to access expertise, technology, and funding for the conservation of indigenous breeds. These collaborations contribute to research, exchange of best practices, and capacity building
9. **National Dairy Plan (NDP):** The NDP includes components aimed at improving the productivity of indigenous dairy breeds, enhancing milk production, and supporting the overall growth of the dairy sector.

## Conclusion

Preserving India's indigenous bovine breeds requires a multi-pronged approach. This involves promoting awareness about the importance of these breeds, implementing policies that discourage indiscriminate crossbreeding, and supporting research and development initiatives to enhance the productivity of native breeds. The conservation of indigenous breeds is need of an hour to maintain genetic diversity of indigenous germplasm to comprise the benefits of sustainable livestock farming with production and climate resilience.

## References

- DAHD, 2023 National Kamdhenu Breeding Centre. <https://dahd.nic.in/division/nkbc-national-kamdhenu-breeding-centre>, accessed on 01/11/2023
- NBAGR, 2023. Registered Breeds of Cattle <https://nbagr.icar.gov.in/en/registered-cattle/>, accessed on 01/11/2023
- Sharma, A. and Niranjana, S.K. 2016. National action plan for management of animal genetic resources. In: Compendium of 13th Convention and Symposium of Society for Conservation of Domestic Animal Biodiversity. Feb, 2016. Jammu, India. pp. 8-23.
- Tesfa, A., Kumar, D., Abegaz, S. and Mekuriaw, G. 2017. Conservation and improvement strategy for Fogera cattle: A lesson for Ethiopia ingenious cattle breed resource. Adv. Agric. <https://doi.org/10.1155/2017/2149452>, pp. 1-12.
- Tomar, S.S. 2004. In: Textbook of Animal Breeding. Kalyani Publishers, New Delhi, India, pp. 59-75