



AGRI MAGAZINE

(International E-Magazine for Agricultural Articles)

Volume: 03, Issue: 10 (October, 2026)

Available online at <http://www.agrimagazine.in>

©Agri Magazine, ISSN: 3048-8656

From Unknown to Recognized: ICAR-NBAGR's Mission Towards Zero Non-Descript Animal Genetic Resources in India

*Vivek Kumar Singh, Sanchitpal Singh, Umashankar Rawat, Vineet Kumar Pandey, Rohit Solanki and Amritanshu Upadhyay

PhD Scholars, ICAR-Indian Veterinary Research Institute (IVRI), Izatnagar, Bareilly, Uttar Pradesh, India

*Corresponding Author's email: vivekvet02@gmail.com

India possesses an extraordinary diversity of animal genetic resources (AnGR), developed over centuries through natural selection, traditional breeding practices and adaptation to local environments. Indigenous cattle, buffaloes, sheep, goats, pigs, poultry and other livestock support rural livelihoods, food security and agricultural sustainability. Many of these populations are well recognized, but others remain insufficiently characterized or lack formal breed recognition. Such animals are commonly described as *non-descript*. Their genetic identity, productive potential and adaptive characteristics may not have been scientifically documented, limiting opportunities for targeted breeding, conservation and development. To address this challenge, the Indian Council of Agricultural Research (ICAR), through the National Bureau of Animal Genetic Resources (NBAGR), Karnal, is working towards the goal of zero non-descript animal genetic resources in India by 2047. The mission aims to identify, characterize and appropriately document the country's livestock and poultry populations, ensuring that valuable genetic resources receive scientific attention and suitable management.

Understanding non-descript animal genetic resources

In animal breeding, non-descript animals are those that cannot be reliably assigned to a recognized breed or belong to populations whose characteristics have not been adequately established. They may occur in regions where uncontrolled mating, crossbreeding, animal movement and the absence of systematic records have complicated breed identification. However, non-descript does not mean inferior or genetically worthless. These animals may possess valuable traits, including heat tolerance, disease resilience, reproductive fitness and the ability to survive under limited feeding conditions. Such characteristics can be important for developing climate-resilient livestock production systems. Not every undocumented population necessarily represents a distinct breed. Scientific investigation is required to distinguish between genuinely distinct populations, mixed populations and animals belonging to already recognized breeds. Thus, the mission emphasizes reliable characterization rather than simply assigning new names to undocumented animals.

ICAR-NBAGR and its role in breed recognition

ICAR-NBAGR is India's nodal institute for the registration, documentation, characterization and conservation of livestock and poultry genetic resources. The Bureau coordinates scientific efforts to identify indigenous populations, maintain breed information and support the sustainable utilization of animal genetic diversity. India's formal animal germplasm registration mechanism was established in 2007, with NBAGR designated as the nodal agency. Breed registration provides an official identity to populations that satisfy the prescribed scientific criteria and helps establish a foundation for breed-specific research, improvement and conservation programmes. The process involves collaboration among

NBAGR, state animal husbandry departments, veterinary and agricultural universities, research institutions and livestock-keeping communities. Such coordination is essential because much of the information required for breed identification is available at the field level.

The mission towards zero non-descript AnGR

Launched on 11 August 2021, the Mission towards Zero Non-descript AnGR of India seeks to reduce the number of inadequately documented livestock and poultry populations through systematic identification and characterization. The year 2047, marking 100 years of India's independence, provides the long-term horizon for this effort.

The mission follows a scientific, stepwise approach:

- a. **Identification:** Locate undocumented or poorly characterized livestock and poultry populations through field surveys and consultation with farmers and pastoralists.
- b. **Phenotypic characterization:** Record observable features such as body size, coat colour, horn shape and other species-specific characteristics, along with available production and reproductive information.
- c. **Genetic characterization:** Use appropriate molecular and genomic methods to investigate genetic diversity, ancestry and relationships among populations.
- d. **Documentation and evaluation:** Compile standardized breed descriptors and assess whether the population meets the criteria for recognition.
- e. **Registration and conservation:** Register eligible populations and develop suitable strategies for their improvement, conservation and sustainable utilization.

Combining field observations, scientific evidence and traditional knowledge is essential to ensure accurate classification.

Progress in recognizing India's livestock diversity

India has made considerable progress in expanding its national inventory of animal genetic resources. In August 2026, ICAR approved the registration of 16 additional indigenous livestock and dog breeds, including Koppal and Mahakaushali cattle, Gomanchali buffalo, several sheep and goat breeds, Nagal pig, Braj donkey, Kashmiri pony and Sikkimese yak. According to ICAR, these registrations brought India's registered livestock and poultry breed inventory to 262, comprising 258 indigenous and four synthetic breeds. This achievement illustrates the importance of coordinated surveys and scientific characterization in bringing previously undocumented populations into the national registry. Nevertheless, breed registration represents only one component of the mission. Continued fieldwork is necessary to identify remaining populations, improve the quality of existing records and determine appropriate conservation priorities.

Why does the mission matter?

Conservation of genetic diversity: Documenting animal populations helps identify resources that may require conservation before their numbers decline or their distinct characteristics are lost.

Climate resilience: Indigenous populations may possess adaptations suited to local climates, feeding conditions and disease pressures. Scientific evaluation can help identify traits useful for future breeding programmes.

Improved breeding strategies: Reliable breed identification and performance records allow researchers to develop breeding objectives suited to specific production environments while maintaining genetic diversity.

Farmers' livelihoods: Official recognition can increase the visibility of local breeds and create opportunities for breed-specific development, product promotion and improved market access, provided these are supported by appropriate infrastructure and policies.

Food security: Well-adapted livestock can contribute to stable production and rural income, particularly in regions where environmental and economic constraints limit the performance of high-input production systems.

Challenges and the way forward

Achieving the 2047 target will require sustained effort. India's vast geographical diversity, remote livestock populations, crossbreeding, incomplete performance records and differences in local breed names make identification challenging. Limited awareness among farmers and inadequate resources for field surveys may further slow progress. A coordinated strategy can address these constraints. State animal husbandry departments and research institutions should undertake systematic surveys and maintain updated inventories of livestock populations. Digital tools, Geotagged records, standardized photographs and molecular data can improve documentation and facilitate information sharing. Equally important is the participation of livestock keepers. Their traditional knowledge can guide researchers towards distinct populations and provide insights into adaptation, behaviour and management. Awareness programmes can encourage farmers to participate in documentation and conservation initiatives. Finally, recognition must be followed by action. In situ conservation, suitable breeding programmes, veterinary support, performance evaluation and, where appropriate, ex situ conservation through stored genetic material can help maintain valuable populations. Monitoring should assess not only the number of registered breeds but also their population status, genetic diversity and continued usefulness to farmers.

Conclusion

India's animal genetic resources represent an important foundation for sustainable livestock development. Yet their potential cannot be fully realized when populations remain inadequately identified or documented. ICAR-NBAGR's mission towards zero non-descript AnGR offers a national framework for systematically identifying, characterizing and recognizing India's livestock diversity by 2047. Progress in breed registration demonstrates that coordinated scientific and institutional efforts can produce meaningful results, but further work is required across species and regions. The ultimate objective is not merely to expand the national breed registry. It is to ensure that valuable animal populations are scientifically understood, appropriately conserved and sustainably utilized. Through collaboration among researchers, policymakers and livestock keepers, India can safeguard its genetic heritage while strengthening the resilience of its livestock sector for future generations.

References

1. ICAR-NBAGR. *Mandate and Activities*. National Bureau of Animal Genetic Resources, Karnal. <https://nbagr.res.in/mandate-activities>
2. ICAR-NBAGR. *Breed Registration Cell*. <https://nbagr.res.in/brc>
3. ICAR. *Annual Report 2022–23*. Indian Council of Agricultural Research. <https://www.icar.gov.in/sites/default/files/2025-04/ICAR-Annual-Report-2022-23-English.pdf>
4. ICAR. (2026). *ICAR registers 16 new livestock and dog breeds*. <https://www.icar.gov.in/en/icar-registers-16-new-livestock-and-dog-breeds>
5. ICAR-NBAGR. *DNA Bank*. <https://nbagr.res.in/dna-bank>