

India's Indigenous Pigs: Local Genes, Better Livelihoods

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Why conservation and carefully planned crossbreeding must move together

India's pigs are not a single, uniform population. Fifteen registered indigenous breeds have evolved in hills, plains, coasts and islands, each carrying traits shaped by local climate, feed resources and farming traditions. The country's breeding challenge is therefore not to replace local pigs, but to combine conservation, selective improvement and region-specific crossbreeding in a practical field system.

15 registered indigenous pig breeds	9.06 million pigs recorded in the 2019 census	about 79% indigenous and non-descript pigs in 2019
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Why pigs matter in rural India

Pigs combine several biological advantages that are valuable to small farms: they mature early, reproduce rapidly, convert feed efficiently and can use many locally available or unconventional feed resources. For tribal households, land-poor farmers and emerging entrepreneurs, pig rearing can provide meat, manure and relatively quick cash returns. Yet the sector remains smaller and less organized than its livelihood importance suggests. The 20th Livestock Census counted 9.06 million pigs in 2019, compared with 10.29 million in 2012. More importantly, indigenous and non-descript animals formed about four-fifths of the national population. Any national improvement programme must therefore begin with the animals that farmers already keep, not with the assumption that exotic germplasm alone will solve productivity constraints.

India's pig population: local animals remain central

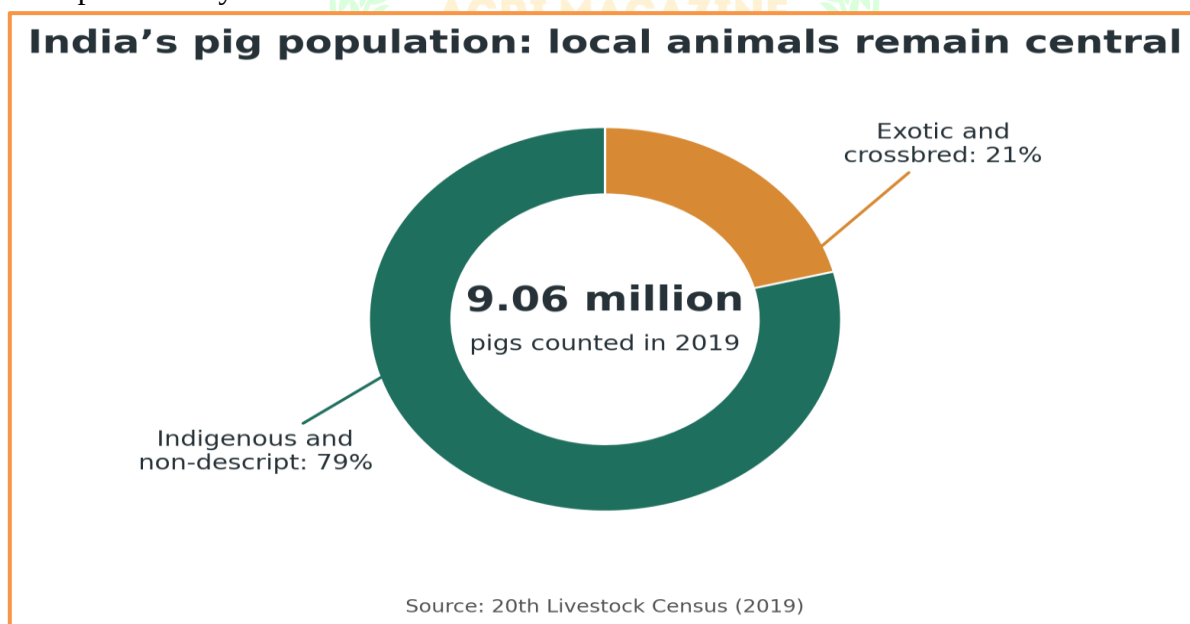


Figure 1. Indigenous and non-descript pigs remain the foundation of India's pig population.

Fifteen indigenous pig breeds

The current ICAR–National Bureau of Animal Genetic Resources registry lists 15 indigenous pig breeds. Their distribution tells an important story: the Northeast alone accounts for seven, while eastern India, the islands, western India and northern India contribute distinct populations of their own. These breeds differ in body size and litter performance, but their real value also lies in adaptation, mothering ability, foraging behaviour, meat preference and survival under low-input conditions.

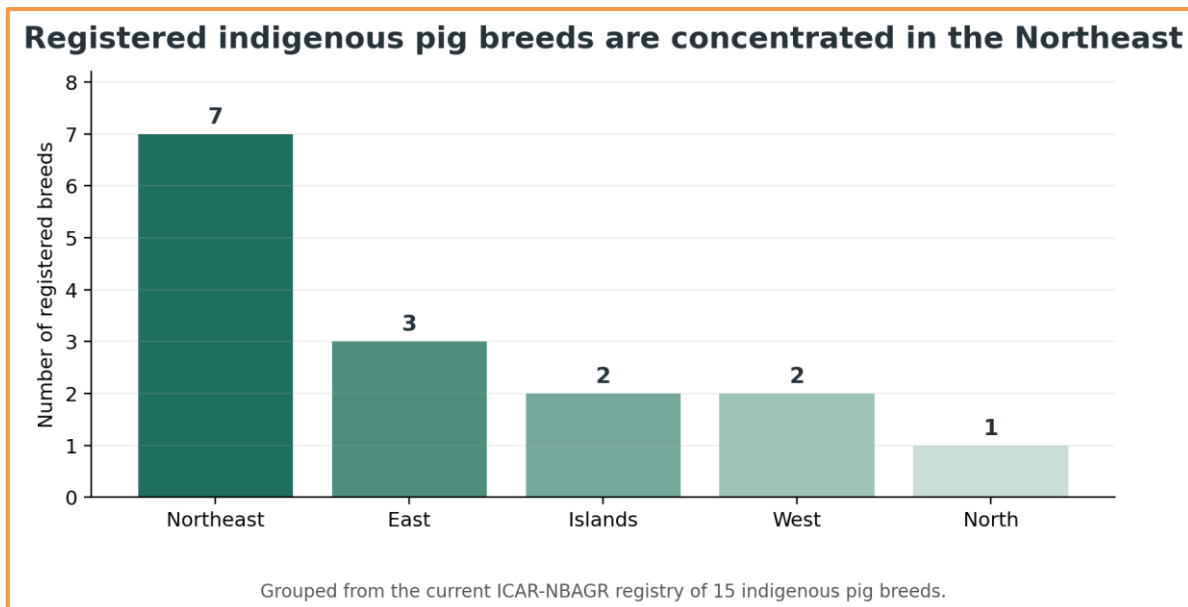


Figure 2. The Northeast contains the largest cluster of registered indigenous pig breeds.

Table 1. India's 15 registered indigenous pig breeds and their broad breeding relevance.

Breed	Home tract	Why it matters for breeding
Ghoongroo	West Bengal	Highly prolific, docile and well suited to low-input or semi-intensive systems.
Niang Megha	Meghalaya	Small hill pig valued for adaptation to the Khasi, Garo and Jaintia ranges.
Agonda Goan	Goa	Coastal backyard pig known for hardy behaviour and locally preferred lean pork.
Tenyi Vo	Nagaland	Early maturing, good mothering ability and suited to low-input hill farming.
Nicobari	Nicobar Islands	Free-ranging island pig closely linked with Nicobari culture and livelihoods.
Doom	Assam	Adapted to migratory scavenging; valued for lean, palatable meat.
Zovawk	Mizoram	Hardy hill pig able to survive in remote, low-input production environments.
Ghurrah	Uttar Pradesh	Locally adapted, hardy sow line used in the development of Landilly.
Mali	Tripura	Medium-sized scavenging pig adapted to the climatic conditions of Tripura.
Purnea	Bihar and Jharkhand	Compact eastern plains pig with strong adaptation to backyard systems.
Banda	Jharkhand	Small, active scavenging pig with locally preferred lean pork.
Manipuri Black	Manipur	Relatively large indigenous pig with good litter performance and strong local demand.
Wak Chambil	Meghalaya	Compact Garo Hills pig adapted to low-input backyard production.
Andamani	Andaman Islands	Sturdy, fast-moving island pig that performs under low-input management.
Karkambi	Maharashtra	Scavenging pig adapted to semi-arid conditions and seasonal feed scarcity.

What local breeds contribute

Judging a breed only by market weight can hide the traits that make it useful. A pig that grows modestly but survives on household waste, forage and seasonal feed may be more profitable to a low-input farmer than a faster-growing animal that requires regular concentrate, cooling, housing and veterinary support. Indigenous pigs provide at least four forms of value. First, they carry adaptation to heat, humidity, hills, islands and scavenging systems. Second, several populations are known for mothering ability, early maturity or piglet survival. Third, local pork often has a strong cultural and market preference. Finally, these breeds preserve genetic variation that may become increasingly important as climate, disease pressure and production systems change. Conservation should therefore be active rather than ceremonial. Breeds must be maintained in their home tracts, recorded for performance and improved through careful within-breed selection. Where possible, farmer herds should be connected with breed societies, nucleus units or community breeding programmes so that the best local animals contribute to the next generation.

Crossbreeding can help—but only under the right conditions

Organized crossbreeding has produced clear gains in growth rate, litter traits and carcass leanness. The most successful Indian varieties were not created by replacing local pigs indiscriminately. They were developed by combining an adapted indigenous female line with an exotic breed chosen for a specific purpose, followed by selection over generations.

Table 2. Representative Indian crossbred varieties and the roles for which they were developed.

Variety	Genetic basis	Main breeding purpose
Rani	Ghoongroo × Hampshire	Breeder line for the Northeast; combines prolificacy with improved growth.
Asha	Rani sow × Duroc terminal sire	Finisher line designed for faster growth and lean carcass production.
Lumsniang	Niang Megha × Hampshire	Hill-adapted crossbred developed for the Eastern Himalayan region.
HD-K75	Doom/local Assam × Hampshire	Regional crossbred for Assam with improved growth and litter traits.
Landlly	Ghurrah × Landrace	Northern crossbred developed at ICAR-IVRI for market growth and leanness.
Mannuthy White / KPM Gold / SVVU-T17	Local sow lines × Large White Yorkshire	Region-specific southern varieties developed under organized farm systems.
GOYA	Agonda Goan × Large White Yorkshire	Coastal line intended to combine productivity with local adaptation.

A different strategy for each production environment

A uniform national formula would ignore India's ecological and management diversity. In the Northeast, where backyard systems and multiple local breeds dominate, conservation and survivability must remain central; Hampshire, Large White Yorkshire or Duroc-based crossing should be used only in structured programmes. In northern and eastern India, local sow lines can support region-specific upgrading where feed and housing are adequate. Southern organized farms are better placed to multiply stable Large White Yorkshire-based varieties. In coastal, island and semi-arid areas, adaptation to climate and feed scarcity should receive as much attention as growth rate. The appropriate question is therefore not "Which exotic breed is best?" but "Which breeding objective, genetic level and management package are suitable for this location and farmer?"

From an elite herd to the farmer: the missing system

Breeding progress cannot be sustained through occasional distribution of piglets or repeated field crossing. It requires a breeding pyramid in which each level has a distinct job.

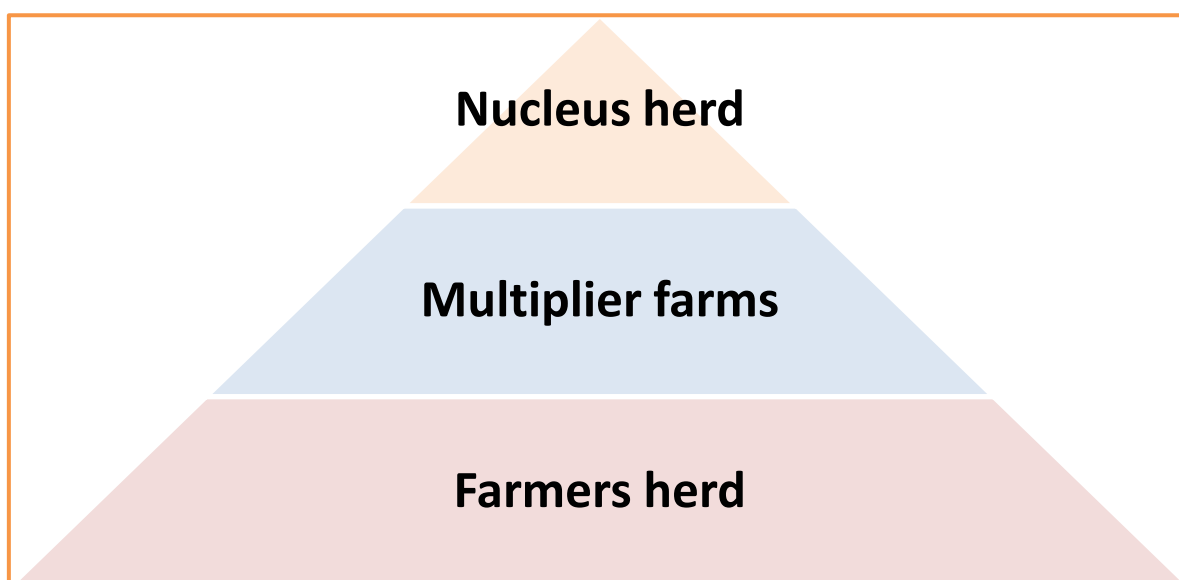


Figure 3. A functional breeding pyramid links selection, multiplication and farmer-level production.

Nucleus herds. These herds maintain pure indigenous breeds, selected exotic breeds or stable crossbred lines. Pedigree, litter size, weaning weight, growth, teat number, reproductive performance, adaptation and health should be recorded. Unrelated sire lines and regular boar replacement are essential to control inbreeding.

Multiplier farms. Multiplier units expand tested germplasm while preserving the planned genetic composition. They should receive replacement stock from the nucleus and produce sufficient numbers of breeding animals for field dissemination.

Farmer herds. Farmers should receive identified, healthy and certified stock, along with clear mating advice. Stable crossbreds should be maintained through controlled inter se mating or approved artificial insemination rather than continued random crossing.

Feedback and traceability. Field performance, survival and reproductive results must flow back to the breeding units. Digital animal identification, pedigree records and disease surveillance can turn piglet distribution into a monitored improvement programme.

Five priorities for the next phase

Protect and improve breeds in their home tracts	
1	Breed-specific nuclei and community herds should conserve local populations while selecting the best animals within each breed.
Characterize the remaining non-descript pigs	
2	India still has many local populations that have not been formally described. Field surveys, phenotypic recording and genomic characterization can identify additional valuable germplasm.
Build a reliable boar and semen network	
3	Boars require pedigree and quality certification, regular semen evaluation, vaccination and planned replacement. Artificial insemination will expand only with trained personnel, dependable liquid-semen logistics and functioning cold chains.
Make recording routine	
4	Digital pedigree, litter, growth, survival, health and carcass records are needed to estimate genetic progress and compare animals across generations and locations.
Treat genetics as part of a production package	
5	Improved animals must be accompanied by nutrition, housing, biosecurity, vaccination, market linkage and farmer training. Without these, even good genetics will underperform.

The way forward

India's pig breeding future should not be framed as a contest between indigenous and exotic animals. Indigenous breeds provide adaptation, resilience, maternal traits and cultural value; selected crossbred lines can add growth, litter performance and carcass merit where management is strong enough to support them. India already has valuable breeds, released varieties and policy guidance. What is needed is a connected system that records, selects, multiplies and distributes germplasm while protecting health and breed identity. With breed

conservation nuclei, region-specific crossbred programmes, stronger multiplier farms, certified boars, digital records and farmer support, pig improvement can raise pork productivity without sacrificing the genetic diversity on which long-term sustainability depends.

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