

India Produces More Milk Than Ever. Its Dairy Farmers Have Never Been More Vulnerable

How India's Record Milk Output Left 70% of Dairy Farmers Behind

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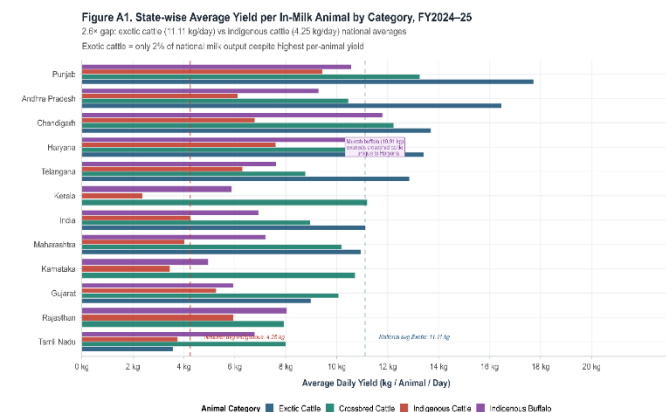
Between 2014 and 2022, India's bovine productivity grew at twice the world rate. But 70% of the national herd-and the farmers who depend on them-remain completely outside the system

In 2025, the Government of India announced something genuinely worth celebrating. Between 2014 and 2022, India's bovine productivity - measured in kilograms of milk per animal per year - grew by 27.39%. The global average over the same period was 13.97%. India grew at nearly twice the world rate, outpacing Germany, Denmark, and China. For a country whose dairy identity was forged in the cooperative revolution of Operation Flood, the number felt like a second chapter. A sequel the country had earned.

It took decades to build. It required ₹3,400 crore under the Rashtriya Gokul Mission, 22 IVF laboratories, 10 million doses of sex-sorted semen, 565 lakh artificial inseminations in a single financial year, and nearly 39,000 trained field inseminators deployed from Assam to Andhra Pradesh. Nobody should pretend otherwise.

But buried three paragraphs deeper in the same government document - after the headline, after the applause - was a number that changes the entire meaning of the achievement. Seventy percent of India's breedable bovines are still serviced by scrub bulls of unknown genetic merit, operating completely outside the program that generated the world record. Two out of every three animals in the national herd. Still waiting.

The 27.39% productivity gain belongs to one-third of the system that the system reached. The rest - and the farming households that depend on them - remain exposed to low yields, volatile markets, and no income protection of any kind when things go wrong. That is not a footnote to India's dairy success story. That is the story.



The 2.6 Times Gap

Stand in any major dairy village in India, and you will likely find, within a few hundred meters of each other, two fundamentally different animals doing the same job.

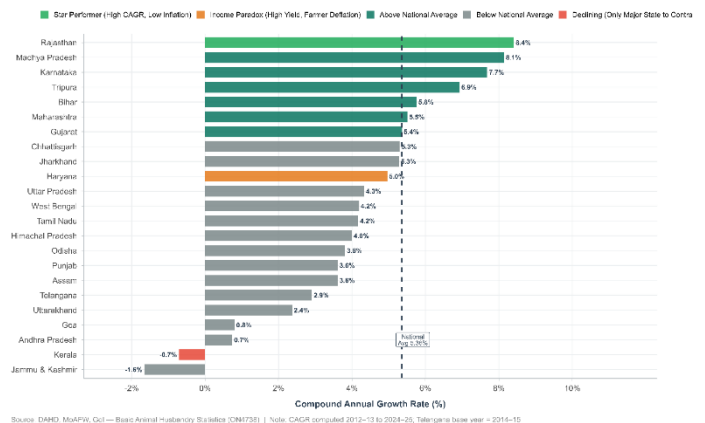
The first is an exotic or crossbred cow - Holstein-Friesian genetics, selected for output, enrolled in a breed improvement program. She produces around 11 kilograms of milk per day at the national average. In Punjab, her equivalent produces nearly 18. The second is an indigenous cattle animal, the backbone of Indian agriculture for thousands of years. She produces 4.25 kilograms per day. Same village, comparable fodder, same farming family. A 2.6 times gap in daily output.

The gap matters more than it first appears because exotic cattle contribute just 2% of India's national milk production. The productive majority - indigenous cattle, indigenous buffalo, non-descript animals - operates at 4 to 7 kilograms per day. This is the herd that feeds the country. And it is largely outside the genetic improvement architecture that is rapidly transforming the minority category.

If breed improvement coverage were extended from one-third of breedable bovines to even half - nudging indigenous cattle yields meaningfully toward crossbred levels - the production gain from existing animals, without adding a single new head of cattle, would exceed 110%. No new land. No new animals. Just reach. The constraint in Indian dairy has never been biology. It has always been infrastructure and access.

The New Map of Indian Milk

Figure A2. State-wise Milk Production CAGR, 2012-13 to 2024-25
 Rajasthan leads at 8.41% CAGR while maintaining India's lowest consumer inflation (1.23%)
 Kerala is the only major state with negative CAGR (-0.71%) over the 12-year period



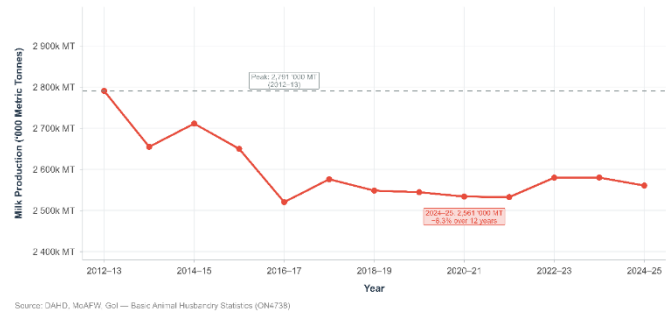
Something shifted in Indian dairy between 2012 and 2025, and almost nobody noticed. The geography of milk production quietly but dramatically reorganized itself.

Punjab, Haryana, and Uttar Pradesh - the states that defined India's dairy story for a generation - kept producing at enormous volumes. But their annual growth rates, between 3.6 and 5%, were at or below the national average. The new engines were elsewhere: Rajasthan at 8.41% compound annual growth, Madhya Pradesh at 8.14%, and Karnataka at 7.68%.

Rajasthan's transformation is the most striking in modern Indian agricultural history. From 13.9 million tonnes of milk in 2012-13 to 36.7 million tonnes in 2024-25 - an addition larger than the entire annual output of Maharashtra, in just twelve years. Yet in the same period, Rajasthan recorded the lowest consumer milk inflation among major states in 2025, at just 1.23%. Simultaneous growth and stable consumer prices. The state's secret is not exotic genetics. It is a deep, district-level cooperative procurement network that connects small farmers directly to urban markets, bypassing intermediary layers that extract margins. Rajasthan is proof that the trade-off most policymakers assume - between supply growth and price moderation - does not have to exist.

correlation of 0.084 and a p-value of 0.712. In practical terms, this means knowing how productive a state's cattle are tells you nothing - absolutely nothing - about how much its consumers pay for milk.

Figure A4. Kerala Milk Production Trend, 2012-13 to 2024-25
Only major Indian state with declining milk production over 12 years
Urbanisation, land conversion, and high farm labour costs cited as primary drivers



Source: DAHD, MoAFW, Govt - Basic Annual Husbandry Statistics (DAHD738)

Karnataka makes this real. It is among the fastest-growing dairy states in the country by production CAGR. It also recorded the highest consumer milk inflation among major states in 2025, at 5.06%. A fast-expanding dairy economy and a high-inflation consumer market are, evidently, in the same place. Rajasthan, growing at a comparable pace, records the lowest inflation. Yield does not separate them. Infrastructure does.

The production numbers that governments announce are not false. But they are measuring the output side of a transaction whose other side - who benefits, and how much - is largely invisible in official statistics. What happens between the farm gate and the retail counter, the procurement network, the cold chain, the processing plant, and the cooperative margin determines whether productivity growth reaches anyone other than the processor.

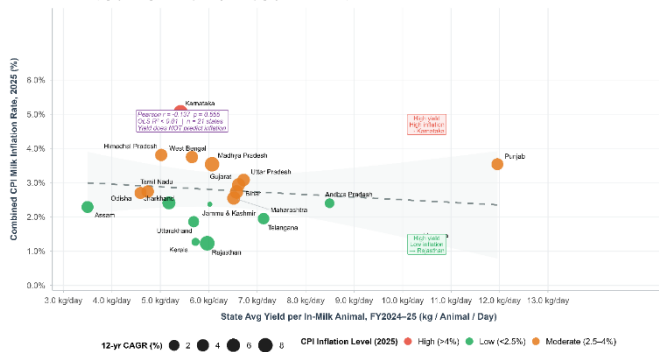
Four Months the Annual Figure Buried

In September 2025, Haryana farmers began receiving less for their milk than they had the year before. This continued through October, November, and December. At the trough, the rural farm-gate price index had fallen 1.69% year-on-year in India's second most productive dairy state.

The annual average inflation figure for Haryana dairy in 2025 was 1.21%. Accurate, and almost entirely misleading. While farmers were absorbing four consecutive months of below-cost returns, urban consumers in the same state were paying between 1.23 and 2.15% more than the previous year. The surplus generated inside the dairy value chain flowed upward. The loss stayed at the farm.

This is not an isolated incident. It is the structural condition of small-holding dairy economics in India: when the market softens - through disease, procurement disruption, seasonal oversupply - the farmer takes the hit without a floor. And the annual average, which policymakers read and report, papers over the monthly reality that farming households actually live through.

Figure A3. State Average Yield per Animal vs CPI Milk Inflation, 2025
First regression coefficients zero relationship (r = 0.084, p = 0.712)
Karnataka (high yield, high inflation) vs Rajasthan (high yield, low inflation)



Source: Yield (DAHD) (DAHD738) | Inflation: MoSPI (State Year 2025=2025) | Note: Composite yield = average across all available animal categories; n = 18 clusters

Kerala, sitting at the opposite end of the table, is proof of something darker. The only major state where milk production declined - down 8.3% over a period when the rest of India expanded by 87% - Kerala shows what happens when industrial growth consumes the conditions small-farm dairy needs to survive. Urbanization swallowed fodder land. Labor costs, the highest in the country, made cattle management progressively unviable. Peri-urban farms sold out to real estate developers rather than the next generation of farmers. For every rapidly urbanizing district in Maharashtra or Karnataka today, Kerala is a slow-motion warning. The process is visible. It is also reversible, but only before it reaches a tipping point.

The Statistic That Should Worry Everyone

Here is the question that India's productivity story is supposed to answer: if farmers are producing more milk per animal than ever before, are consumers paying less for it?

The data across 18 states gives a blunt answer. No.

A statistical test comparing average yield per animal with consumer milk inflation in 2025 yields a Pearson

When A Good Farm Becomes a Poor Household

A three-animal dairy farm - the modal small-holding dairy unit in India - earns approximately ₹11,400 per month in a normal market year. A risk analysis built on six years of actual farm-gate price data maps what happens when markets move against it.

Under moderate stress - when prices fall to levels seen in the worst 5% of historical months - income drops to ₹8,640. Tight, but manageable.

Under severe stress - the simultaneous shock India experienced in 2022, when Lumpy Skin Disease tore through the national herd, causing ₹20,254 crore in sectoral losses while feed prices spiked and procurement chains broke - monthly income falls to ₹6,720. That year happened. Another year, as it will happen. The cattle disease risk calendar is not hypothetical.

In the worst compound scenario - a once-per-decade convergence of climate stress, disease, and market disruption - income falls to ₹4,980 per month for a household of four. The rural poverty line in most Indian states ranges from ₹4,500 to ₹5,500 per month. A productive, well-managed dairy farm, run responsibly, can be pushed to the poverty threshold by one bad year.

No government scheme currently provides income-floor protection designed for this purpose. PM-KISAN covers crop farmers. PMFBY does not extend to livestock income loss. The National Livestock Mission carries no income-floor mechanism. And the Rashtriya Gokul Mission - for all its investment in productivity, genetics, and field infrastructure - does not contain a single rupee of downside protection for the farmer whose improved herd gets caught in a bad market season.

The Workforce That Receives No Targeted Protection

Women constitute 70% of India's dairy farming workforce. Not a plurality. Seventy percent. Daily milking, feeding, veterinary care coordination, cooperative milk delivery - the operational heart of the sector runs on women's labor. When the government celebrates 1.72 crore dairy cooperative members, it is celebrating a network whose daily functioning is overwhelmingly female.

The cooperative system has made genuine progress in visibility. Thirty-five percent of cooperative members are women. More than 48,000 women-led dairy societies operate at the village level. Sixteen of the 23 milk producer organizations supported by NDDDB are entirely women-run, including one that won an international dairy innovation award in Chicago in 2023. These achievements are real and hard-won.

They sit alongside a policy architecture that has no gender-differentiated risk coverage component across its six major dairy development schemes. Not one.

When Haryana farm-gate prices turned negative in September 2025, it was women managing household cash flows from a loss-making enterprise without recourse. When a compound income shock pushes a family toward ₹4,980 per month, it is the woman who prioritizes fodder, school fees, veterinary bills, and debt repayment from a collapsing income stream. She absorbs the shock first. She absorbs it most completely. The income vulnerability of the Indian dairy sector is not gender neutral. The policy response to it still is.

The Second Half of the Job

White Revolution 2.0, launched in December 2024, targets 75,000 new cooperative societies, expanded organized procurement, and ₹1,000 crore in additional mission funding. The ambition is right, and extending AI coverage meaningfully beyond the current 33% of breedable bovines would be the most significant leap in the reach of genetic improvement since Operation Flood itself.

But the measurement framework behind the mission does not yet track whether any of this translates into income security. Bovine productivity, yes. Procurement volume, yes. AI coverage, yes. Net farmer income after costs, no. Farm-gate-to-retail price transmission efficiency: no. Gender distribution of income protection, no. The dashboard of the Indian dairy policy counts the number of animals being improved. It does not count the households still exposed.

Three targeted changes would begin to close this gap. A parametric income floor pilot - triggered automatically when the farm-gate milk price index falls below a defined downside threshold for two consecutive months - could be funded from existing mission allocations, using price data the government already collects monthly. Price transmission efficiency should be added as a mandatory performance metric for every cooperative society formed under White Revolution 2.0. And the 16 women-run milk producer organizations currently supported by NDDDB should become the design prototype for gender-differentiated income support - because the 70% who run the sector daily should not be the last to receive its protection.

India's bovine productivity record is genuine, hard-earned, and worth defending. But a record that covers one-third of the herd, leaves farmers without an income floor in a bad year, and relies on a majority-female workforce with no targeted downside protection, is a record that has more work to do. World-leading is not the finishing line. In India's dairy sector, it may be exactly where the harder work begins.

Data: DAHD/Mo.AFW, Basic Animal Husbandry Statistics (ON4738); MoSPI Monthly CPI Milk & Milk Products 2011-2025 (Base: 2012=100); PIB, Ministry of Fisheries, AHD&D (2025); NDDDB Annual Report 2024-25; Margin-at-Risk Risk Register for Indian Dairy Cooperatives (2026).
