

4. Green Fodder Revolution – Environment

India, the world's largest milk producer, is facing a severe shortage of fodder and livestock feed, and risks undermining decades of progress in rural development and nutrition

Overview of India's Dairy Sector

Global Position – India accounts for approximately 23–24% of global milk production, making it the largest milk producer in the world.

Livelihoods– Over 70 million farmers are directly involved in dairying. Dairy contributes to one-third of rural household income, especially for small and marginal farmers who typically own 1–5 animals.

Economic Contribution– Livestock contributes over 5% of India's Gross Value Added (GVA) and more than 30% of the agriculture and allied sector GVA. Dairy supports approximately 80 million rural households, making it central to rural livelihoods and nutrition security.

Significance for Rural Economy– Acts as a stable income source for smallholders even during crop failures. Generates employment in allied activities such as fodder cultivation, veterinary services, and milk collection.

Challenges Facing the Dairy Sector in India

Fodder Crisis

Fodder Deficit–

Green fodder– 11–32% shortfall.

Dry fodder– 23% deficit.

Concentrated feed– >40% deficit.

High-Output States Most Affected– Uttar Pradesh, Bihar, Rajasthan, and Punjab face acute shortages due to high milk production demands.

Low Per-Animal Yield – Despite India's position as the largest milk producer, per-animal yields remain low due to inadequate nutrition and poor feeding practices. Low yield affects income stability and overall productivity.

Economic and Livelihood Impacts

Smallholders are disproportionately affected; a 1-litre drop per cow per day can significantly reduce household income. Poor nutrition extends calving cycles, raises veterinary costs, increases disease susceptibility, and reduces herd longevity.

Causes Behind India's Fodder Gap

Urbanization and Land Use Change– Grazing lands are being converted to urban or industrial infrastructure.

Crop Residue Diversion– Residues like paddy straw are increasingly used for biofuel, mushroom cultivation, or industrial purposes, leaving less for livestock.

Low Nutritional Value of Residues– Some residues maintain animal survival but do not improve productivity.

Climate Variability– Droughts, erratic rainfall, and rising temperatures adversely affect fodder crops like berseem, maize, and sorghum.

Rising Input Costs– High seed and commercial feed prices force farmers to sell livestock prematurely, weakening herd strength.

Importance of Fodder in Dairy Sector

Milk Productivity– Adequate and nutritious fodder ensures high milk yield and quality.

Animal Health– Proper nutrition reduces veterinary costs and susceptibility to diseases like Lumpy Skin Disease.

Environmental Impact– Efficient feed reduces methane emissions and improves feed-to-milk conversion efficiency.

Economic Stability– Fodder security protects smallholder incomes, ensuring stable rural livelihoods and dairy sector growth.

Strategic Way Forward

Policy and Scientific Interventions – Establish village-level dedicated fodder zones. Promote multi-cut, high-yielding, drought-resistant fodder varieties such as sorghum, maize, and Napier grass. Train farmers in silage making, hydroponics, and fodder preservation techniques. Encourage fodder-food crop integration to maximize land use and sustainability. Use satellite mapping and AI forecasting to identify fodder-deficit regions. Develop region-specific fodder packages in collaboration with agricultural and veterinary universities.

Green Fodder Revolution

Inspired by the White Revolution, focus on– Diversifying cropping systems to include high-yield fodder crops and legumes. Promoting agroforestry and silvo pasture, integrating fodder crops with tree cultivation. Investing in fodder banks and cold chains to store surplus fodder. Training farmers in sustainable cultivation and feed management. Providing policy support via subsidies, insurance, and schemes like PM-Kisan.

Role of Cooperatives and Private Players

Cooperatives like Amul and other private dairy companies can–

1. Establish local fodder banks for reliable supply.
2. Distribute fodder seeds and provide advisory services to farmers.
3. Form contract farming partnerships to ensure consistent fodder availability.

Technological and Digital Interventions

Promote precision fodder farming, using sensors, IoT, and AI to monitor crop health and optimize yield. Encourage digital platforms for supply chain linkages between feed producers and dairy farmers.

Long-Term Vision

India's Dairy Security– Ensuring each dairy animal receives adequate, nutritious feed throughout the year to maintain milk productivity.

Rural Livelihood Protection– A robust fodder system safeguards smallholder incomes and stabilizes rural economies.

Sustainable Dairy Growth– By combining policy, technology, and cooperative support, India can maintain its global leadership in milk production while improving per-animal productivity and environmental sustainability.

Food and Nutrition Security– Healthy livestock ensures a steady supply of milk and dairy products for national nutrition programs, contributing to food security.

Source– <https://www.downtoearth.org.in/agriculture/india-needs-agreen-fodder-revolution>