INDIA: THE DAIRY POWERHOUSE OF THE WORLD

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ABSTRACT

India has earned global recognition as the world's leading milk producer, contributing more than 24% of global milk output. This transformation, however, goes beyond large numbers. It reflects a symbiotic blend of rural entrepreneurship, dairy policy reform, and veterinary infrastructure. Behind every litre of milk lies a network of animal health professionals, policy planners, and farmers who sustain this vital sector. From mastitis control to breed improvement, veterinary professionals form the backbone of India's dairy economy. This article explores India's dairy journey through a veterinary lens, highlighting challenges, innovations, and future priorities for sustainable livestock health and production.

KEYWORDS: One Health, AMR, rural women, livestock health, dairy cooperatives, e-GOPALA

INTRODUCTION

India's dairy sector is both vast and unique. Unlike many Western countries where large commercial farms dominate, over 80% of milk in India is produced by small and marginal farmers, many owning just 2–3 animals. This decentralized, village-based model thrives due to grassroots-level veterinary support and the robustness of cooperative institutions like AMUL and government initiatives such as Operation Flood.

Veterinary professionals — often unsung heroes — have been instrumental in this transformation. Their services range from animal disease management and reproductive health to public health surveillance, making the Indian dairy model a holistic example of One Health integration.

INDIA'S DAIRY ECONOMY: QUICK FACTS

- **Milk Production (2023–24)**: ~231 million metric tonnes
- **Per Capita Availability**: 444 grams/day (above the global average)
- **Livestock Population (2019 Census)**: 193 million cattle, 109 million buffaloes
- **Employment**: Over 70 million people, with a significant proportion being rural women

India's dominance in the dairy sector has helped alleviate rural poverty, enhance nutritional security, and create a reliable income stream for millions — all underpinned by a foundation of livestock health and welfare.

VETERINARY ROLE IN ENHANCING PRODUCTIVITY

1. Disease Control and Herd Health

Veterinary services in India are responsible for tackling a wide array of endemic and zoonotic diseases, such as:

- Foot and Mouth Disease (FMD)
- Brucellosis
- Mastitis
- Theileriosis and Hemoprotozoan diseases
- Bovine Tuberculosis

Programs like the National Animal Disease Control Programme (NADCP) aim to vaccinate over 500 million livestock against FMD and Brucellosis. The involvement of veterinary staff in mass immunization drives, disease diagnosis, outbreak management, and herd health planning ensures that milk quality and animal productivity remain consistent.

Moreover, field veterinarians are increasingly involved in tele-veterinary services, mobile clinics, and livestock health tracking — all of which improve access to healthcare in remote regions.

3.2 Reproductive Health & Artificial Insemination

Reproductive efficiency is a key determinant of milk productivity. India has made substantial progress in this area due to:

- Widespread use of Artificial Insemination (AI) using quality semen
- Estrus synchronization programs like *Ovsynch and CIDR*
- Veterinary gynecology services in field conditions
- Sex-sorted semen technology, especially in elite dairy regions

AI coverage in India currently stands at 35–40%, but the goal is to reach over 70% in the coming decade. Improved conception rates directly translate into better calving intervals, reduced infertility cases, and higher lifetime milk yield.

MILK QUALITY AND MASTITIS MANAGEMENT

Mastitis continues to be a major production and economic constraint, especially among high-yielding crossbred cattle. It is both infectious and management-related, requiring a combination of veterinary treatment and preventive strategies.

Veterinarians play a crucial role in:

- Detecting subclinical cases using CMT kits or SCC (Somatic Cell Count)
- Administering antibiotics under withdrawal guidelines
- Advising on udder hygiene, milking practices, and proper housing

The estimated annual loss from mastitis in India is ₹13,000–14,000 crore, reinforcing the need for greater investment in veterinary diagnostics, mastitis kits, and farmer training.

VETERINARY INFRASTRUCTURE: CHALLENGES & PROGRESS

While the role of veterinarians is well acknowledged, the system itself faces several limitations:

- India has ~65,000 registered veterinarians, against a requirement of over 150,000.
- The vet-to-livestock ratio is 1:6000, much higher than OIE's recommended 1:1500.
- Rural clinics often lack laboratory support, transport, or digital records.
- Burnout and limited career incentives hinder retention in remote areas.

Positive developments include:

- e-GOPALA App for digital livestock management
- Mobile AI vans under the Rashtriya Gokul Mission
- Establishment of multi-disciplinary veterinary labs at district level
- Enhanced training programs through KVKs and State Veterinary Universities

INDIA'S DAIRY WOMEN: HIDDEN WORKFORCE AND ANIMAL CAREGIVERS

In most Indian villages, women are the primary caregivers of livestock — feeding, milking, cleaning, and sometimes administering basic treatments. They form the invisible workforce behind India's milk success.

Veterinary extension programs are now customizing outreach modules for women farmers through:

- Mahila Dairy Cooperatives
- Animal Health Camps for SHGs (Self-Help Groups)
- Basic training in first aid and heat detection

Empowering women in animal care not only improves herd performance but enhances household nutrition, income autonomy, and rural resilience.

FUTURE PATHWAYS: THE ONE HEALTH APPROACH

India's dairy growth must now align with emerging global concerns such as:

- Climate-resilient dairy production
- Antimicrobial resistance (AMR)
- Zoonotic disease control
- Sustainable feed and fodder practices

Veterinarians are at the forefront of the One Health approach, which links animal health, human health, and environmental sustainability. By addressing antibiotic stewardship, food safety, and disease spillovers, the veterinary community protects not just cows and buffaloes — but consumers and ecosystems too.

CONCLUSION

India's status as the Dairy Powerhouse of the World is not just an economic statistic — it is a socio-cultural and veterinary achievement. From controlling mastitis in a remote Punjab village to

improving buffalo fertility in Maharashtra, veterinary professionals enable dairy systems to thrive and evolve.

As the sector grows, the integration of modern veterinary science, traditional knowledge, and community participation will be key. With the right investments in training, infrastructure, and innovation, India's veterinary ecosystem can ensure that the nation's dairy journey remains not only productive but also humane, safe, and sustainable.

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