Bio Vet Innovator Magazine
Volume 2 (Issue 6) JUNE 2025
OPEN ACCESS WORLD MILK DAY – 01 IUNE POPULAR ARTICLE

Role of Veterinary Services in Dairy Health and Productivity Enhancement

Kanjanabh Kumar Das
4th year B.V.Sc. & A.H.
College of Veterinary Science, AAU, Khanapara, Guwahati-22
***Corresponding Author:** kumardaskanjanabh@gmail.com
DOI: https://doi.org/10.5281/zenodo.15858924

Received: June 22, 2025
Published: June 27, 2025

Abstract:

India's history of dairy farming is a perfect blend of richness and diversity, much like the country itself, which developed hand in hand with the deep roots of veterinary practice. What had once started as a humble means of supporting a household has now metamorphosed into a global dairy superpower. This article aims to discuss the historical background, the colonial stagnation, the genesis of the milk cooperatives, and the subsequent rise to the peak of the Indian dairy sector while emphasizing the simultaneous development and indispensable role of veterinary services in achieving such distinction.

Key Words: white revolution, veterinary services, dairy industry, Anand Milk Union Limited, Indus Valley Civilization, anthrax, bovine tuberculosis, rinderpest, Key Village Scheme, Intensive Cattle Development Programme, NADCP, silent heat.

The Roots of Indian Dairying & Veterinary Sciences:

To trace the history of the Indian Dairy Industry is a daunting affair since dairying is rooted deep in our culture, moulding itself into cuisines, rituals, and the economy of the Indian subcontinent. The country, once home to humble producers earning their livelihood through backyard rearing of indigenous milch animals, is now a global superpower in terms of organized herd strength and the sheer quantity of milk produced.

The foundation of veterinary sciences goes back even further into the past, developing into its own sophisticated discipline with time. Salihotra, a dominion of equine medicine, was one of the primary figures of veterinary practice in ancient India. In honour of his name, the veterinarians of that age were known as 'Salihotriya'. A further study into the scriptures reveals the impact of Nakul and Sahadeva, members of the mighty Pandavas, in the care of equines and bovines. Even during the era of the 'Rigveda', cows were adored as the 'best wealth of mankind'. Strong archaeological evidence indicates that intricate

animal husbandry practices were followed during the Indus Valley Civilization. A glimpse into Kautilya's 'Arthashastra' reveals the prevalence of subjects like meat science, jurisprudence, animal products, etc during the Mauryan reign. By the 1890s, the country had its first modern veterinary colleges and research laboratories, and hence an era of specialized veterinary care began.

The Historical Synergy:

The success of the Indian Dairy Industry can be predominantly attributed to the large bovine population of the country, consisting of **303.76 million** animals (*20th Livestock Census, 2019*) producing around **239.3 million tons** of milk (*NDDB, 2023-24*). These indigenous cattle and buffaloes are hardy, disease-resistant and adapted to the Indian biomes. Despite these merits, these resources remained largely underutilized due to a lack of a scientific framework for rearing.

India has always been an agrarian country, with thousands depending upon its rich, fertile plains and animal resources as sole sources of income. Unfortunately, this dependency often carried a hefty price in the pre-independence era, owing to widespread diseases and neglect by the colonial rulers. Zoonoses such as 'anthrax' or 'bovine tuberculosis' were dealt with strongly only if they posed an immediate threat to the British-occupied territories. This led to disastrous consequences for the common man's animal, emerging as deadly epizootics and prolonged periods of starvation, which were also highly underreported to escape criticism. Such disasters can be attributed to the preoccupation of skilled personnel in tending to the prized British equines and a deep imbalance in the ratio of veterinarians to the country's livestock population. The colonial government's predisposition towards their quality horses led to the development of premier breeding centres in various parts of the country, while diseases like 'rinderpest' continued to plague the ruminants with little to no measures for prevention and control. It was only by **1892** that the shift in attitude led to the formation of the **Civil Veterinary Department** to safeguard the indigenous cattle population. The indifference towards animal health had finally started to disperse.

By **1946**, through the relentless efforts of the revolutionary **Mr Verghese Kurien**, many of the locally exploited farmers following conventional systems of rearing became organized into cooperatives, the prime example being the genesis of **Anand Milk Union Limited** or **AMUL**, originating in the Anand district of Gujarat. Thus began a pan-India movement of increasingly streamlined production, procurement and sale of dairy products, making dairy farming a booming, self-sustainable industry in the form of the **"White Revolution"**. A shift in mindset followed, highlighting the need for intensive and semi-intensive systems of housing, assisted reproduction technologies, and prompt disease interventions. Naturally, the role of veterinary services became paramount.

Post-independence, veterinary education in India was steadily emerging as a professional academic discipline. The parliament passed the **Indian Veterinary Council Act** of **1984** and the first

veterinary university came into existence as the **TANUVAS**. The once-overlooked sector swiftly made monumental development in the fields of veterinary education, research, and extension.

Taking note of the aforementioned, it can be illustrated that the veterinary and the dairy sectors had a similar history, one with many complications, but they still managed to develop synergistically and drastically to great heights within a very short period of time.

Role of Veterinary Medicine, Nutrition & Animal Husbandry:

Even with its rich genetic pool of animals, the country lacked milch animals with sound productivity, in comparison to exotic breeds. Moreover, due to a lack of awareness and the considerable amount of differentials linked to natural breeding practices, there was a lack of optimization in the reproduction of animals. Therefore, to counter these hinderances, the government announced the **Key Village Scheme (1951-52)** in its **first 5-year plan**, which introduced the technique of **Artificial Insemination (A.I.)** for the first time in the national arena. Artificial Insemination was cheaper, safe when done correctly and yielded better results than natural breeding. It also abolished the dependency of marginal farmers on communal bulls and largely negated the effects of inbreeding depression. This technology paved the way for future genetic upgradation of our local cattle with high-performing exotic breeds, such as Jersey or Holstein-Friesian, without the costly and risky affair of transporting the sire for natural mating.

The Key Village Scheme did not necessarily focus on the healthcare aspect of dairy animals, and thus it was soon replaced and integrated under the **Intensive Cattle Development Programme (ICDP)**, where the themes of **crossbreeding**, **health** and **fodder** optimization took centre stage. Historically, there have been three areas that limited animals from achieving their full lactating potential- **nutrition**, **diseases**, and **genetics**. Thus, with the collaboration of the veterinary fraternity, the government shifted its focus to encourage feed and fodder production to improve domestic animal nutrition, most of which were severely undernourished. By introducing culling practices for inferior bulls and health campaigns to deal with infections, the veterinary sector gained triumph in assembling the dairy farmers of the country into a proficient workforce.

As discussed before, **Rinderpest** was rampant in older times, killing thousands of animals without fruitful intervention. Thus, to prioritize its eradication, the government introduced the **National Rinderpest Eradication Programme** in **1954**, which culminated in **WOAH (**previously **OIE**) declaring India free from infection in **June 2006**- marking a significant success of the veterinary services for the nation. This set off a cascade of numerous centrally-funded vaccination campaigns throughout the country, establishing the foundation of the **National Animal Disease Control Programme (NADCP)**, which aims to eradicate two major animal diseases- **Foot and Mouth Disease (FMD)** & **Brucellosis**, by **2030**.

In the midst of these major initiatives, the veterinary department took note of an intrinsic issue-

livestock fraud and **ownership disputes** of animals. Previously, during widespread free-range type of rearing, multiple farmers let loose their animals in large pastures for grazing. The farmers, who identified their animals based on visual and behavioural characteristics often lost their animals in big herds and fought for ownership against their fellow farmers. Moreover, fraudulent practices of fabricating animal death by **malicious poisoning** were evident. To mitigate such issues, the government-initiated **ear tagging** and other identification practices for livestock, which paved the way for the introduction of **livestock insurance schemes**, reimbursing farmers affected by theft, mortality or invalidating morbidities. This also served the purpose of effectively **monitoring** a herd for diseases by the state veterinary departments, forging stronger prevention and control policies.

Role of Animal Reproduction, Gynaecology and Obstetrics:

In the long history of the Indian dairy sector, the key role played by veterinary **theriogenologists** cannot be overlooked. The development of skilled personnel in the field of animal gynaecology led to accurate monitoring of estrous cycles, which in turn resulted in an increased calf crop per year. Previously, farmers relied on visual signs to detect estrus, which were at times inaccurate or totally absent, a term known to veterinarians as **'silent heat'**. Techniques such as **Per-Rectal Examination (PRE)** and more recently, **transrectal ultrasonography (USG)** have empowered veterinarians to give a confirmative diagnosis of estrus, revealing the best time for natural or artificial service with pinpoint accuracy. These techniques have also supported **early diagnosis** for **pregnancy** and **obstetrical emergencies** such as **uterine torsion** or **pyometra**, prompting quick interventions and minimizing devastating economic losses. Moreover, complex protocols such as **Estrus Synchronization** have now empowered farmers to go for convenient fixed-time A.I. of their animals, while techniques such as **Embryo Transfer Technology (ETT)** and **In-Vitro Fertilization (IVF)** have allowed the design of **transgenic** animals according to one's preferred needs.

Additionally, the expansion in the domain of **veterinary andrology** has enabled the economical storage and distribution of high-quality semen throughout the country, by arranging routine **Breeding Soundness Evaluations (BSE)** for bulls, **cold chain facilities** for semen transport, and **regional processing labs** for processing local germplasm.

Gaps and Bridges in the Current Scenario:

Despite these victories, it is safe to postulate that both veterinary sciences and dairying are still developing industries. As mentioned earlier, the global dominance in milk production is based upon the sheer number of livestock resources in India, and not on the productive qualities of those animals. Therefore, the government must mobilize better veterinary services for breed upgradation and dairy processing optimization, right from the grassroots level. Schemes such as vaccination camps under the **National Animal Disease Control Programme (NADCP)** are shining examples of steps taken in the

right direction to safeguard the country's position as a global dairy superpower.

"The greatest wealth a country can have is its health, and the greatest health any animal can have is its freedom." -Dr. Bernard Rollin

References:

Mishra S. Beasts, murrains, and the British Raj: reassessing colonial medicine in India from the veterinary perspective, 1860-1900. Bull Hist Med. 2011 Winter;85(4):587-619. doi: 10.1353/bhm.2011.0089. PMID: 22506434; PMCID: PMC3477853.

Somvanshi, R. (2012). Veterinary medicine and animal keeping in ancients India. *Vet Helpline India.* (CrossRef)

Thakur, Devesh. (2024). Impact of Veterinary Institutional Access on the Adoption of Scientific Feeding Practices among Women Dairy Farmers in Himachal Pradesh, India. 20. 82-86. 10.48165/ijvsbt.20.1.17.