

## RABIES BEYOND DOGS: THE OVERLOOKED RISK IN LIVESTOCK FARMINGS

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DOI: <https://doi.org/10.5281/zenodo.17286892>

### ABSTRACT

Rabies causes an estimated 59,000 deaths annually, with developing countries such as India bearing the heaviest burden. While dogs remain the primary source of human infections, the disease also affects cattle, buffalo, sheep, and goats, threatening rural livelihoods and causing major economic losses. Farmers and farmworkers face particularly high occupational risks due to close contact with animals, making rabies both a public health and economic challenge. Outbreaks in countries like Brazil and India underscore the urgent need for integrated solutions. Adopting a One Health approach—combining veterinary care, public health initiatives, and community participation—can strengthen prevention efforts. Key measures include vaccination, awareness programs, prompt reporting, and effective surveillance. Such a comprehensive strategy not only saves lives but also safeguards food security, rural economies, and community well-being.

**KEYWORDS:** Rabies, Zoonotic disease, Livestock health, Public health

### INTRODUCTION

Although rabies is often thought of as a disease that primarily affects dogs, it can also have a serious impact on livestock, which are frequently overlooked. The 2025 World Rabies Day theme, “*Rabies: All for 1, One Health for All*,” emphasizes the interdependence of environmental, animal, and human health and the need for a comprehensive strategy that includes livestock.

Emerging cases highlight the vulnerability of livestock and the importance of heightened awareness and monitoring. For example, Nigeria recently reported its first confirmed rabies infection in a sheep that developed neurological symptoms following a dog bite, while in India, a calf presented severe rabies symptoms without any obvious bite. These incidents underscore the hidden risks of rabies transmission in livestock.

Animal rabies can cause significant financial losses, particularly in regions where vampire bats act as vectors, infecting cattle and occasionally leading to human cases. While dog vaccination remains critical,

additional measures such as livestock vaccination and proper farm management practices are essential. Rural communities often bear the greatest burden, making it crucial to adopt a One Health approach that integrates veterinary and public health efforts.

Ignoring rabies in livestock not only threatens farming communities' financial stability but also undermines broader public health initiatives. Despite progress in dog vaccination programs, rabies continues to persist in livestock, reinforcing the need for ongoing surveillance and innovative control strategies. Ultimately, addressing rabies across all animal populations is vital to holistically combat this zoonotic disease.

### RABIES: MORE THAN A DOG DISEASE

An estimated 59,000 people die from rabies every year, making it a major global health concern, particularly in developing nations like India. While dog bites remain the primary source of transmission, rabies also affects livestock such as cattle, buffalo, sheep,

and goats, showing that its impact extends well beyond household dogs.

Globally, dog bites are responsible for 99% of rabies deaths, with India alone accounting for about 35% (21,068 deaths annually). Beyond mortality, rabies is responsible for the loss of 3 to 7 million Disability-Adjusted Life Years (DALYs), with Asia bearing the greatest share of this burden.

Although often considered a canine disease, rabies in livestock presents a serious threat to both public health and farming livelihoods. Outbreaks in cattle, buffalo, sheep, and goats not only jeopardize farmers' income but also fuel the transmission cycle, as infected animals can spread the virus to humans and other animals. This spillover effect highlights the urgent need for a One Health approach that integrates veterinary care, public health systems, and community action to manage rabies in domestic, wild, and livestock populations.

For farmers, rabies represents a significant financial risk. The death of a valuable dairy cow, for instance, can result in losses exceeding ₹50,000 per animal, once reduced milk production and loss of potential offspring are considered. In addition to these direct losses, families face hidden costs such as veterinary bills, psychological stress, and reduced food availability.

Rabies imposes a burden comparable to other livestock diseases in India. For example:

- Brucellosis causes reproductive and production losses of between ₹3,169 crore and ₹19,041 crore annually.
- Foot-and-mouth disease (FMD) contributed to estimated losses of ₹20,897 crore in 2013–14.
- Milk fever costs farmers about ₹1,068 per affected cow due to lower milk yield and treatment expenses.

In this context, rabies stands out as both a public health hazard and an economic threat to rural households. Farmers, shepherds, and their families face heightened occupational risks when working closely with infected animals. Handling sick goats, milking

infected cows, or managing livestock with neurological symptoms can directly expose them to the virus.

To mitigate these risks, timely immunization programs, robust disease management strategies, and widespread awareness campaigns are essential. Protecting both humans and animals through integrated One Health measures is key to reducing losses and ensuring the long-term sustainability of livestock farming in vulnerable communities.

## RISK FACTORS AND OCCUPATIONAL EXPOSURE

Farmers and farmworkers are particularly vulnerable to zoonotic diseases because of their frequent interaction with livestock. A study in England revealed high seroprevalence of zoonotic infections among farmers, underscoring serious occupational risks. In the United States, zoonoses such as rabies continue to pose threats to livestock workers' safety.

Informal agricultural laborers are also at risk due to limited access to protective equipment, poor working conditions, and unsafe handling practices. Such vulnerabilities increase the likelihood of rabies transmission through contact with infected animals.

## INFLUENCE OF RABIES OUTBREAKS

Rabies outbreaks illustrate the dual health and economic burden on farming communities:

- In Punjab, India, an outbreak caused significant livestock deaths and highlighted the urgent need for rabies education and prevention in rural areas.
- In Brazil, rabies in herbivores such as goats and cattle continues to harm the livestock industry, posing both economic and public health challenges.

Containment of such outbreaks requires a combination of vaccination campaigns and public awareness initiatives.

## PREVENTION AND CONTROL METHODS

Effective rabies control relies on integrated strategies that combine vaccination, education, and surveillance:

- Vaccination campaigns remain the cornerstone of rabies prevention, significantly reducing transmission rates.
- Awareness initiatives help rural communities recognize symptoms, adopt preventive behaviors, and practice responsible pet ownership.
- Surveillance and reporting are crucial for outbreak management, enabling timely responses by veterinarians and public health officials.

Farmers also play an important role in prevention by:

- Avoiding the consumption of unpasteurized milk and undercooked meat from potentially infected animals.
- Informing family members about rabies risks and prevention strategies.
- Participating in local vaccination drives, which align with international efforts to eliminate rabies by 2030.

## THE ONE HEALTH PERSPECTIVE

The One Health framework emphasizes the interdependence of human, animal, and environmental health. Rabies exemplifies this interconnection, as the disease is transmitted from animals to humans and perpetuated in the environment if uncontrolled.

Key actors in this approach include:

- Veterinarians, who play a central role in vaccination and disease control.
- Dairy cooperatives and agricultural extension services, which can facilitate community engagement and raise awareness about rabies prevention.

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- Healthcare professionals, who are vital in spreading knowledge about zoonotic disease prevention in rural settings.

Despite the proven effectiveness of vaccination and awareness campaigns, implementation remains challenging in resource-limited settings. Sustained progress requires:

- Consistent funding,
- Policy advocacy, and
- International collaboration.

Achieving a rabies-free world demands collective action. By adopting preventive practices—vaccinating dogs, reporting cases, avoiding unsafe animal products, and participating in immunization programs—farmers and their families can protect themselves, their livestock, and their communities from this preventable zoonotic disease.

## CONCLUSION

Rabies is more than just a dog disease—it is a complex threat that endangers livestock, human health, and rural livelihoods. The heightened vulnerability of farmers and agricultural workers, who stand on the front lines of exposure, underscores the urgency of action. Effective control requires a comprehensive One Health approach that extends beyond dog vaccination to include livestock immunization, farmer education, safe food practices, and strong collaboration between veterinary and public health sectors. While challenges remain in resource-limited areas, consistent vaccination, timely reporting, and widespread awareness campaigns can significantly reduce risks. With collective commitment across nations, professions, and communities, the vision of a rabies-free world by 2030 is both achievable and within reach.

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**Cite this article:**

- G. Bhuvanewari, Siddanna Manashetti, P. Ponnuvel. (2025). Rabies beyond dogs: the overlooked risk in livestock farmings. *Vet Farm Frontier*, 02(09), 4–7. <https://doi.org/10.5281/zenodo.17286892>

