

Foot-and-Mouth Disease in India: A Continuing Challenge for Livestock

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Abstract

Foot-and-mouth disease (FMD) is a highly contagious viral disease affecting cattle, buffaloes and other cloven-hoofed animals. It causes fever, mouth and foot lesions, lameness and considerable loss of productivity. India has made substantial progress in controlling FMD through vaccination and surveillance, but the disease continues to occur sporadically. This article briefly describes FMD, its clinical signs, spread, importance in India and the role of vaccination in its control.

Keywords: Foot-and-mouth disease, FMDV, cattle, buffalo, vaccination, India

Why Is Foot-and-Mouth Disease Important?

Foot-and-mouth disease is caused by foot-and-mouth disease virus (FMDV) and affects cattle, buffaloes, sheep, goats and pigs. The disease spreads rapidly and can affect large numbers of animals within a short period. Although adult animals usually survive, FMD can cause severe production losses, including reduced milk yield, weight loss and lameness. Young animals can develop severe disease and may die. For India, where millions of farmers depend on livestock, controlling FMD is therefore important for both animal health and livelihoods.

What Does FMD Look Like?

The most recognisable signs of FMD are **fever followed by blisters or vesicles**. These lesions commonly appear in the mouth, on the tongue, between the claws and around the teats. Affected animals may show excessive salivation, difficulty eating and severe lameness. After the blisters rupture, painful erosions develop. Milk production can fall considerably, while young animals may occasionally develop heart involvement and die.

How Does FMD Spread So Quickly?

FMDV is extremely contagious. It can spread through direct contact with infected animals and through contaminated materials. Infected animals release virus through saliva,

respiratory secretions, milk and other body secretions. The virus can also be carried through contaminated equipment, vehicles, clothing and animal movement. Airborne transmission can allow the virus to spread rapidly, particularly where animals are kept in close contact.

Which FMD Viruses Occur in India?

FMDV occurs as several serotypes, and immunity against one serotype does not necessarily protect against another. In India, serotypes O, A and Asia 1 have been important in disease control programmes, with type O being the most widespread [3]. Recent molecular surveillance in Haryana detected FMDV serotype O in buffaloes during 2024. The viruses belonged to the ME-SA topotype, with evidence of genetic differences from older Indian vaccine strains. This highlights why continuous surveillance is important for selecting and maintaining appropriate vaccine strains [3].

Has India Made Progress Against FMD?

Yes. India has made considerable progress through large-scale vaccination and surveillance. According to the Government of India, reported FMD outbreaks declined from 132 in 2019 to 32 in 2025. Average post-vaccination seroconversion was around 70%, indicating improved population-level immunity. A recent national study also found that India's vaccination programme has

substantially improved seroconversion and population immunity [4,5] over time. These improvements demonstrate the importance of maintaining high vaccination coverage [1].

Why Is Regular Vaccination Important?

FMD vaccination is carried out at regular intervals because protection can decline with time. India's National Animal Disease Control Programme includes mass vaccination, Sero-surveillance, [4] outbreak investigation and monitoring of vaccination coverage. Vaccination does not work in isolation. Proper animal identification, biosecurity, movement control and early reporting of suspected cases are also important for preventing the spread of infection.

What Is the Current Situation?

Although FMD outbreaks have declined substantially, the virus has not disappeared from India. Recent surveillance in Puducherry, involving cattle, buffaloes and goats, demonstrates that monitoring continues to be important for [2] understanding FMD exposure in different livestock populations. The continuing detection of circulating FMDV strains also shows why India needs regular laboratory surveillance alongside vaccination.

Conclusion

India has made significant progress in controlling FMD, but continued vaccination, surveillance and early detection remain essential. Sustaining these efforts will be important for protecting livestock productivity and the livelihoods of millions of Indian farmers.

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