

# Major Livestock Diseases: Foot and Mouth Disease, Bovine Tuberculosis, and More

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## ABSTRACT

Livestock diseases are a major concern for farmers, veterinarians, and communities worldwide, with far-reaching effects on animal health, agricultural productivity, and even public safety. This article takes a closer look at five critical diseases—Brucellosis, Foot-and-Mouth Disease (FMD), Bovine Tuberculosis (bTB), Mastitis, and Peste des Petits Ruminants (PPR)—that continue to challenge livestock management. We explore what causes these diseases, how they spread, their symptoms, and how they are diagnosed and treated. With a focus on prevention and control, the article highlights the importance of early detection and good management practices. As these diseases can also affect humans, understanding them is key to protecting both animals and people. This piece aims to shed light on the ongoing battle against livestock diseases and the vital role veterinarians play in safeguarding our food systems and animal welfare.

**Keywords:** Livestock diseases, FMD, Brucellosis, Bovine Tuberculosis, Bovine Mastitis, PPR

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### Foot and Mouth Disease (FMD)

In animals (hoof divided into two), foot and mouth disease (FMD) are the most common one disease among all animals. It was the 1st animal disease that was identified as a disease, and it was in the year 1897; this disease was first documented during 1897 but observed in the 16th century. Also, it has been established that the Mediterranean area is the prime area of foot and mouth disease. The cause is a virus belonging to the Aphthovirus Genus and the Picornaviridae family. FMD attacks animals and the first sign is a fever followed by rashes and blisters on its feet, tongue and mouth. Though there is no cure, after a sufficient veterinary intervention, vaccination may be the next treatment and effective in controlling the disease from spreading further [1].

### Bovine Tuberculosis (bTB)

*Mycobacterium Bovis* is primarily responsible for bovine tuberculosis, which is also known as bTB, and it is a part of *Mycobacterium tuberculosis* complex. Cattle, sheep, goats, horses, pigs, dogs and even cats all get affected by it, as well as wild animals like antelopes, deers, and wild boars. The germ that gets people infected with tuberculosis, *M. tuberculosis*, was first shown to us by Robert Koch over a century ago. Assimilating Kailai stays as the causative agent of both bovine tuberculosis (bTB) and its zoonotic signs. Some of the common symptoms include weakness, hypophagia, emaciation, periodic febrile episodes, protracted diarrhea, and signs of pneumonia and large visibly palpable tumors. For diagnosis of tuberculosis skin disease in farm animals, the depot skin test remains the test of choice. Another method for diagnostic purposes is the gamma interferon release test. Furthermore, other measures such as exclusion of sick and contact animals, sanitary measures (farm control), individual examination of cows, slaughter of sick animals, local legislation, control of animals traffic and shoulder supervision, remain important [2].

### Bovine Mastitis

Bovine Mastitis refers to an infection of the mammary glands that is caused due to trauma or inflammation and is – *Staphylococcus aureus* primarily present in the milk ducts. This inflammation can also be caused by either physical, chemical or heating forces that cause damage. In cattle, this mostly arises due to unhygienic conditions such as stalls or parlors where milking occurs. The three categories in which this inflammation can be classified based on the level of irritation are- clinical, subclinical and chronic mastitis. The inflammation can change the color and temperature of the breast, and bleed, among other effects. Also, the predominant command in the dairy sector, due to the increasing resistance to bacteria, are antibiotics. However, there is surging inclination towards alternative treatment, such as natural products, among people [3].

### Peste des Petits Ruminants (PPR)

A viral infection caused by morbillivirus that belongs to the Paramyxoviridae family of viruses and is similar to Rinderpest. It affects camels, goats, sheep and many other small animal species. As the reports said this disease was first discovered in Ivory Coast in 1942. Common

symptoms of the disease include fever, rashes, hives, respiratory distress or closure of eyes, erosive oral ulcers, diarrhea, respiratory cough, sore throat, pneumonia, abortions and death. Animal contact or inhalation of the virus are two means of disease infections. Excretions, breath, nasal syncrens and tears are the body fluids when this disease occurs. As it also said that this disease can kill 90% of its survivors. It is a threat to food security and poverty alleviation in places where small livestock is raised in low-income areas. There is a global plan of action developed by the Food and Agriculture Organization (FAO) and the World Organization for Animal Health (WOAH) on control and eradication of PPR by 2030 [4].

### Brucellosis

Brucellosis is a contagious bacterium infection that is transmitted from animals to humans. On the economic front, it has a significant burden on the economic activities of the country. This zoonosis is in fact the result of *Brucella* species and principally the bovine animal gamma. According to the World organization of Animal health (WOAH), brucellosis is an infectious disease that affects pigs (*B. Suis*), sheep and goats (*B. Suis. Melitensis*) and cattle (*B. Abortus*). Brucellosis is acquired mostly during pregnancies or abortion of the livestock. The infected livestock typically have Wereta diangi B in the reproductive fluids. Such bacteria can live outside the livestock body for a number of months, usually in a cool and moist environment. They still live and multiply inside other livestock and continue causing diseases and other illnesses. The virus is also transferred by contact through mucous membranes or skins to animals and humans. This infection is also acquired by unpasteurized animal products, for instance raw milk meat that has not been well cooked and also by contact with infected livestock. *Brucella melitensis* and *Brucella* species account 70 to 75% cases of brucellosis in United States. This includes abortions and risk infecting *Brucella*. Abortion, for the *Brucella* virus, can be caused by consumption of milk beef and raw cheese and other dairy products. This is associated with inflammation, scar tissue formation and low quality of sperm. The common approach is that the infected animals should be culled. In terms of vaccination factors this will include the application of *Brucella* RB51 [5].

### References

- [1] Aslam M, Alkheraije KA. The prevalence of foot-and-mouth disease in Asia. *Frontiers in veterinary science*. 2023 Jun 30; 10:1201578.
- [2] Qureshi MA, Fatima Z, Muqadas SM, Najaf DE, Husnain M, Moeed HA, Ijaz U. Zoonotic diseases caused by mastitic milk. *Zoonosis, Unique Scientific Publishers, Faisalabad, Pakistan*. 2023; 4:557-72.
- [3] Sharun K, Dhama K, Tiwari R, Guggoo MB, Iqbal Yatoo M, Patel SK, Pathak M, Karthik K, Khurana SK, Singh R, Puvvala B. Advances in therapeutic and managerial approaches of bovine mastitis: a comprehensive review. *Veterinary Quarterly*. 2021 Dec 15;41(1):107-36.
- [4] Ahaduzzaman M. Peste des petits ruminants (PPR) in Africa and Asia: A systematic review and meta-analysis of the prevalence in sheep and goats between 1969 and 2018. *Veterinary Medicine and Science*. 2020 Nov;6(4):813-33.
- [5] Abbas RZ, Muqadas ZS, Qureshi MA, Fatima Z. Bovine brucellosis. *Biological Times*. 2024 Jun 3; 6:27-8.