

Foot-and-Mouth Disease

Foot-and-mouth disease (FMD) is a severe and highly contagious viral disease. The FMD virus causes illness in cows, pigs, sheep, goats, deer, and other animals with divided hooves. It does not affect horses, dogs, or cats. FMD is not a public health or food safety threat. It is also not related to hand, foot, and mouth disease, which is a common childhood illness caused by a different virus.

FMD is a worldwide concern as it can spread quickly and cause significant economic losses. While many countries across the globe are dealing with FMD in their livestock populations, the United States eradicated the disease here in 1929. As part of our mission to safeguard American agriculture, the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) works to ensure the continued health of our Nation's livestock. These efforts include preventing FMD from reentering the country.

What Is FMD?

Animals with FMD typically have a fever and blisters on the tongue and lips, in and around the mouth, on the mammary glands, and around the hooves. These blisters, called vesicles, pop and turn into red areas called erosions. Pain and discomfort from the vesicles and erosions lead to other signs of illness such as depression, anorexia, excessive salivation, lameness, and reluctance to move or stand. Most affected animals will not die from FMD, but the disease leaves them weakened and unable to produce meat and milk the way they did before becoming sick.

FMD causes production losses and hardships for farmers and ranchers. It also has serious impacts on livestock trade—a single detection of FMD will likely stop international trade completely for a period of time. Since the disease can spread widely and rapidly and has grave economic consequences, FMD is one of the animal diseases livestock owners dread most.

What Causes FMD?

FMD is caused by a virus. After an animal is infected with the virus, the first signs of illness usually appear within 2 to 14 days.

The virus survives in living tissue and in the breath, saliva, urine, and other excretions of infected animals. It can also survive in contaminated materials and in the environment

for several months under the right conditions. Time, extreme temperatures, and pH changes will inactivate (i.e., kill) the virus.

There are 7 known types and more than 60 subtypes of the FMD virus. Immunity to one type does not protect an animal against other types or subtypes.

How Does FMD Spread?

FMD can spread when infected animals bring the virus into physical contact with susceptible animals (i.e., divided hoof animals). An outbreak can also occur when susceptible animals:

- Are held in contaminated facilities;
- Are moved in contaminated vehicles;
- Are fed raw or improperly cooked food waste containing infected meat or animal products;
- Have contact with people wearing contaminated clothes or shoes or using contaminated equipment;
- Are exposed to contaminated materials such as hay, feed, hides, or biologic products;
- Drink contaminated water; or
- Are inseminated with semen from an infected animal.

Signs of Illness

The best known signs of the disease include vesicles, which are similar to blisters, that quickly pop and cause erosions in the mouth or on the feet, resulting in excessive salivation or lameness. Because they pop quickly, these blisters are not always easy to see.

These signs may appear in affected animals during an FMD outbreak:

- Great increase in body temperature for 2 to 3 days
- Vesicles that rupture and discharge clear or cloudy fluid, leaving raw, eroded areas surrounded by ragged fragments of loose tissue
- Sticky, foamy, stringy saliva
- Eating less due to painful tongue and mouth blisters
- Lameness with reluctance to move
- Abortions
- Low milk production in dairy cows
- Heart disease and death, especially in newborn animals

It will take many months for animals to regain weight lost during illness. Animals that recover seldom produce the same amount of milk as before, and conception rates may be lower.

Confusion With Other Diseases

Diseases involving blisters show similar signs. As a result, FMD may be confused with other vesicular but less harmful diseases, including vesicular stomatitis, bluetongue, bovine viral diarrhea, foot rot in cattle, and swine vesicular disease. The only way to tell if the vesicles are caused by the FMD virus is through laboratory testing. If you observe mouth or feet blisters or other typical disease signs in your animals, please report them immediately so that the appropriate testing can occur.

Where FMD Occurs

While the disease is widespread around the world, North America, Central America, Australia, New Zealand, Chile, and many countries in Europe do not have FMD. Various types of FMD virus have been identified in Africa, South America, Asia, and some parts of Europe.

Prevention and Control

FMD is one of the most difficult animal diseases to control. Because the disease occurs in many parts of the world, there is always a chance of FMD being introduced into the United States. As a result, many animals and animal byproducts from areas known to be affected with FMD face import restrictions or are prohibited entry into this country.

Livestock animals, including those in the United States, are highly susceptible to FMD viruses. If an FMD outbreak occurs here, the disease could spread rapidly to all regions of the country through routine livestock movements—unless it is detected early and eradicated immediately. The economic impact of unchecked FMD spread could reach billions of dollars in the first year.

Vaccines for FMD are available but must be matched to the specific type and subtype of virus causing the outbreak. In the event of an outbreak, animal health officials will carefully consider use of vaccination. If it becomes apparent at any point that a “stamping-out” strategy will not effectively eliminate the disease, we will immediately consider alternate strategies, including vaccination. It could then be used to help slow the spread of the FMD outbreak or to protect specific animals, depending on the situation.

How You Can Help

There are many ways you can support our efforts against FMD:

- Watch for excessive salivation, lameness, and other signs of FMD in your herd.
- Immediately report any unusual or suspicious signs of disease to your veterinarian, State or Federal animal disease control officials, or your county agricultural agent.
- When traveling outside the United States, make sure that you do not bring back prohibited animal products or other at-risk materials.

If FMD appears in your animals, an eradication program will be initiated to protect our Nation’s livestock herd.

Your participation is vital. Both the early recognition of disease signs and the prompt notification of veterinary officials are essential to a successful eradication program. Your early reporting could prevent FMD from becoming established in the United States, or if it does spread, reduce the time and money needed to eliminate it.

Learn More

For more information about FMD, contact APHIS Veterinary Services’ District Offices at 1-866-536-7593.

Current information on animal diseases and disease outbreaks is also available on our website at www.aphis.usda.gov.