What to Expect with a Foot and Mouth Disease Outbreak

Ted Ferris  
Dept. of Animal Science  
Dan Grooms  
Dept. of Large Animal Clinical Sciences  
Nancy Frank  
Peggy Roth  
Michigan Department of Agriculture

The recent outbreak of foot and mouth disease (FMD) in the United Kingdom (U.K.) brings attention once again to this devastating disease. Although safeguards are in place, there remains a risk that FMD could be introduced into the U.S. either accidentally or intentionally. A FMD outbreak in Michigan or any state will impact your business. The steps that government officials would need to take to control this disease are very involved and require support from producers and industry. Knowing what to expect and what your role may be will help the livestock industry deal more effectively with such a devastating disease should we need to. This article focuses on what government officials may need to do to control a FMD outbreak and suggests several supporting roles you as dairy producers may play.

Why is FMD Important?
FMD is a highly contagious viral disease that affects cloven-hoofed animals including cattle, hogs, goats and sheep. We have not had FMD in the United States since the 1920’s. FMD outbreaks result in severe economic losses, international trade embargoes and loss of consumer confidence. Quick eradication is needed to reduce financial losses. FMD spreads quickly, and animal movement will be stopped because of quarantines used to reduce the risk of disease transmission. An outbreak can last weeks or months if disease spread is not detected and stopped quickly. Although the likelihood of a FMD outbreak is low, the consequences are severe, making it a disease for which we need to be prepared. Just as importantly, being prepared for FMD translates into being prepared for other diseases.

How is FMD Spread?
Foot and mouth disease is transmitted primarily by direct contact between infected and susceptible animals. Following infection it takes 2-14 days before signs of the disease appear. This incubation period facilitates the spread of the disease. Daily movement of animals in the U.S. could spread FMD to many states before the first animals show signs of the disease. FMD also can be spread by: people wearing contaminated clothes or footwear; contaminated equipment coming in contact with infected and susceptible animals.
tact with susceptible animals; use of contaminated facilities or vehicles to hold or move susceptible animals; exposure of susceptible animals to materials such as hay, feedstuffs, hides, or water sources contaminated with the virus; vaccines contaminated with live FMD virus; and insemination with semen from an infected animal. Under appropriate conditions, FMD virus can survive in animal derived products. With high enough concentrations, FMD can be spread to neighboring farms through the air or surface water. Animals that recover from foot and mouth disease can become carriers of the virus. People exposed to FMD infected animals can become a carrier of the virus as it can remain in their mouth and throat for up to 2 days and they could serve as a source of virus transmission. Although the virus can be isolated from humans, it is rare that people contract the disease.

**Signs of FMD**

Foot and mouth disease infection should be considered when animals exhibit excess salivation and lameness with the formation of blisters (vesicles) in the mouth or along the border of the hoof wall and skin (2, 4). The vesicles progress to erosions and also may be found in nostrils, muzzle, and teats. Prior to this, cattle will often develop fever, depression, anorexia, serous nasal discharge, decreased milk production, and reluctance to move. Images of FMD signs are at [http://www.cfsph.iastate.edu/DiseaseInfo/ImageDB/imagesFMD.htm](http://www.cfsph.iastate.edu/DiseaseInfo/ImageDB/imagesFMD.htm) (3).

**What to Expect in the Case of a Suspected FMD Outbreak**

If a case of FMD is suspected, the following would likely occur:

- The owner or an employee sees animal(s) with signs consistent with FMD.
- The herd veterinarian should immediately be called to examine animals in the herd.
- If signs are consistent with FMD, the herd veterinarian calls the State veterinarian’s office at the Michigan Department of Agriculture.
- The State veterinarian places herd under quarantine and contacts the Michigan USDA APHIS VS Area Veterinarian in Charge.
- A veterinarian specially trained as a Foreign Animal Disease Diagnostician (FADD) is designated to visit the farm and examine the animals and if warranted, collects tissues and submits them for testing to confirm FMD.

Once a positive case of FMD is determined, the United States Department of Agriculture (USDA) and Michigan Department of Agriculture (MDA) officials will move quickly to identify the source and all premises that are infected, and control the spread of FMD. Their strategies may include:

- Setting up quarantine areas (1) around known or suspected FMD infected herds where livestock would be examined and tested for presence of FMD, and animal movement restricted or stopped. Quarantine areas would expand if other farms are found with suspected or confirmed case(s).
- Setting up of surveillance areas (1) surrounding the quarantine area where animal movement is restricted and livestock on farms are monitored for presence of FMD. The situation could be evaluated for the possible use of FMD vaccine to slow and stop the spread of an outbreak in what is termed “ring vaccination” around an infected area.
- Livestock on many farms will be examined and tested for presence of FMD, infected farms will be depopulated, and neighboring farms to infected farms will be evaluated for risk and possible depopulation. Indemnity will be paid for livestock that are ordered depopulated.
- The degree of stopping animal movement and traffic will depend upon the situation. Animal movement may be stopped in a wide area of the U.S. All animal movement across the U.K. was stopped immediately with the discovery of the initial herd in early August. Industry and government worked together on this. We could be faced with the same situation. Restricting movement of vehicles on and off farms to limit disease spread as much as possible may also occur as the outbreak is initially investigated. This could last from several days to several weeks.
- For Michigan, a unified incident command structure will be established with USDA, MDA and the Michigan State Police.

You also can expect:

- Media attention which may include unpleasant TV coverage.
- Questions from friends and neighbors. People may think FMD is a human disease but human cases are extremely rare.

**Dairy Producers’ Roles**

Your role in a FMD outbreak would include:

- Surveillance and knowing who to call. Be diligent in examining your animals daily for signs of FMD. Immediate reporting is crucial to limiting spread of an outbreak.
- Screening and/or stopping traffic, cleaning and disinfecting vehicles and equipment on and off your farm to make sure you reduce the risk of the virus accidentally being introduced onto your farm.
- Being aware of official status reports and notices from authorities
- Cooperating and working with authorities as requested. Controlling an FMD outbreak will require a rapid re-
Failure to act quickly could have dire consequences for the entire U.S. livestock industry.

Summary

FMD is in the news again due to the outbreak in the U.K. However, it is endemic in many countries and the risk to the U.S. is ever-present. It may be unlikely that FMD will infect your premises but if it occurs in the U.S., you will be affected because of the devastating economic impact. FMD can spread from animal to animal as well as being carried by people, vehicles, equipment, water, and through the air.

Knowing what to expect if a FMD outbreak were to occur in the U.S. and Michigan puts you in a better position to use good judgement and to assist in effective response and recovery efforts. Knowing what to expect may also reduce surprises and stress. You should know the signs of FMD infection in animals, train your employees, and develop a plan to screen visitors and vehicles. In the case of an outbreak, pay attention to official reports and notices from authorities and cooperate with officials who are working to stop the outbreak.

In the January 2008 issue of Michigan Dairy Review we will examine ways to review your biosecurity efforts and include steps in your emergency management plans to deal with a FMD outbreak.

References


Online Resources

The Michigan Department of Agriculture’s Emergency Preparedness Pages are available at <https://www.michigan.gov/mda/0,1607,7-125-2961_22384--00.html>.

Michigan Veterinary Medical Association Emergency Preparedness resources are compiled at <http://www.michvma.org/index.cfm?id=222>.

The Center for Food Security and Public Health at Iowa State University: <http://www.cfsph.iastate.edu/>.