



Do Foreign Animal Disease Response and Indemnity Programs need to be Strengthened?

BACKGROUND

Foot and mouth disease (FMD) is the most important transboundary animal disease in the world and presents the greatest economic threat to United States animal agriculture. The size, structure, efficiency, and extensive movement inherent in the U.S. livestock industry will present unprecedented challenges in the event of an FMD outbreak. No country with a livestock industry comparable to that of the U.S. has had to deal with an outbreak of FMD. An outbreak of FMD in the U.S. would have a devastating impact on the U.S. economy extending far beyond animal agriculture.

The U.S. had nine outbreaks of FMD between 1870 and 1929. All nine were controlled by stopping all movement of animals in the area of the outbreak, quickly killing all susceptible animals on the infected premises, and those on nearby premises that may have been exposed. This is referred to as “stamping out.” Stopping movement and stamping out was successful in the past and until recently was the planned method for controlling an FMD outbreak in the U.S. However, the structure of modern animal agriculture in the U.S., including extremely large herds and extensive intra- and inter-state movement of animals and animal products will make it nearly impossible to control an FMD outbreak in livestock dense areas using stop movement and stamping out.

ISSUE

The following three factors may indicate the need to change the planned response to FMD:

- **Herd Size** - The U.S. has some very large herds including feedlots with greater than 50,000 head of cattle, dairies with greater than 5,000 lactating cows, dairy calf ranches with greater than 70,000 head of calves, and swine farms with greater than 20,000 sows. These premises are too large to rapidly depopulate to stamp out the disease. If it were possible to depopulate them, carcass disposal would present enormous environmental problems.
- **Diversity of Operations** - The diversity of herd size also presents problems in FMD control. In the U.S., 49 percent of hog operations have fewer than 100 head, whereas 62 percent of the inventory of swine is on operations with more than 5,000 head. Similarly, 18,800 dairy farms have less than 30 cows, however, 1,800 dairy farms with more than 1000 animals account for nearly 50 percent of the U.S. dairy cow population. An FMD control program will need to include operations of all sizes. Federal and state resources will be quickly overwhelmed.
- **Animal Movement** - Once FMD is detected, an essential tool for control is to stop all animal movement in the affected area. Livestock production in the U.S. depends on extensive movement of animals. Approximately 400,000 cattle and one million swine are estimated to be on the road in trucks each day, either being delivered to packing plants or to other stages of production. Approximately 40 million swine are shipped into a new state each year (~110,000 each day). In an FMD outbreak, State Animal Health Officials may prohibit animals from an FMD positive area from entering their state. Modern swine production depends on extensive animal movement on a regular basis. If animal movement is stopped, animals will need to be euthanized for welfare reasons because facilities will rapidly become overcrowded.

- There is also extensive movement of people, feed, manure, and equipment on livestock premises each day. Wildlife, including birds, can spread disease. There are estimated to be more than 5 million feral swine and 30 million deer in the U.S.; these animals are susceptible to FMD and can often move freely between herds of livestock. If FMD infection is not detected quickly, it is likely to spread rapidly due to extensive animal and related movements.

An outbreak of FMD will shut down exports of fresh beef, pork, or dairy products. In 2014, beef exports totaled \$7.1 billion, pork exports totaled \$6.7 billion, and dairy exports totaled \$7.1 billion.

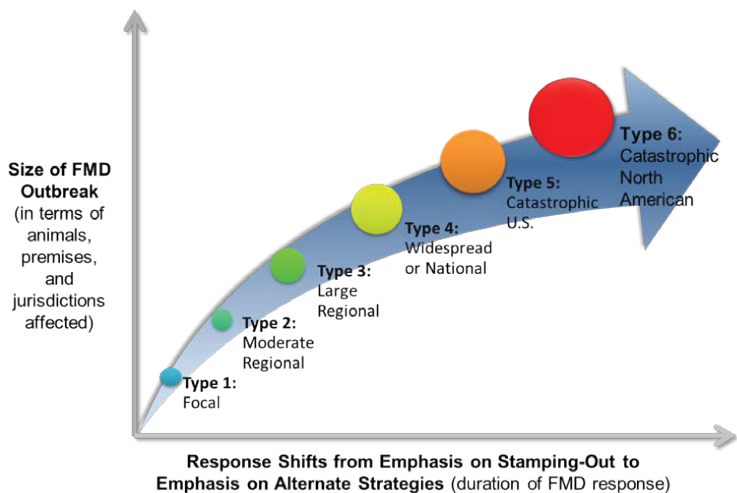
Approximately 11 percent of U.S. beef production and 22 percent of U.S. pork production are exported. In 2003, beef exports dropped due to a single case of mad cow disease (BSE); the cumulative loss in U.S. beef trade is estimated to have been \$16 billion. The increasing export of beef and pork products in recent years significantly contributes to the value of cattle and swine. As exports increase, the industry becomes more vulnerable to the sudden and extended loss of exports that would result from an FMD outbreak. The price for pork and beef will drop dramatically due to the excess product on the domestic market. That will also impact the price of poultry products and the price of grain.

In 2011, Dr. Dermot Hayes and colleagues at the Center for Agriculture and Rural Development at Iowa State University published “Economy Wide Impacts of a Foreign Animal Disease in the United States” which had been funded by the National Pork Board. They estimated that over ten years, the cumulative loss due to an uncontrolled FMD outbreak would be \$199.8 billion. Losses estimated include: Pork – \$57 billion; Beef – \$71 billion; Poultry - \$1 billion; Corn - \$44 billion, Soybeans – \$25 billion; Wheat – \$1.8 billion.

USDA has been working with states, industry and academia to address these challenges of a potential FMD outbreak. Progress has been made in developing Secure Food Supply Plans to help ensure business continuity for non-infected poultry and livestock premises and affiliated industries in a foreign animal disease outbreak and provide a continuous supply of safe and wholesome food to consumers. The Secure Egg Supply and Secure Turkey Supply plans are credited with enabling premises in Highly Pathogenic Avian Influenza (HPAI) control areas to demonstrate that they are not infected so they could continue to move product to market in the 2015 outbreak in the Upper Midwest. The Secure Pork, Beef and Milk Supply plans are intended to help producers whose farms are not infected with FMD stay in business. However, without adequate FMD vaccine, it will be nearly impossible to keep farms, especially beef and dairy farms in livestock dense areas, from becoming infected. The USDA working with states, industry and academia, developed “Guidelines for Classification of Phases and Types of an FMD Outbreak and Response.”

These guidelines were developed to aid rapid decision making as an FMD outbreak unfolds. Strategies for the response to, and management of, an FMD outbreak will change as the outbreak progresses and will depend upon the magnitude, location, and other characteristics of the outbreak. The response will shift from an emphasis on stamping out in a small outbreak to alternative strategies in larger longer duration outbreaks. Vaccine will be an essential tool to control any outbreak larger than a small focal outbreak. Without an adequate supply of rapidly available FMD vaccine, it will be very difficult to prevent an outbreak from progressing to a catastrophic North American outbreak.

Six Types of FMD Outbreak



In summary, the size, structure, efficiency, and extensive movement inherent in the United States livestock industry will present unprecedented challenges in the event of an FMD outbreak. It will be nearly impossible to control an FMD outbreak in livestock dense areas without the rapid use of tens of millions of doses of FMD vaccine.

At this time, those doses are not available for U.S. use and it would take many months to obtain the volume of vaccine needed. Without sufficient vaccine to aid in the response, FMD could rapidly spread across the U.S., resulting in the destruction and need to dispose of potentially millions of animals. It would become an endemic disease in livestock with spread potentially facilitated by deer, feral swine, or other free-living animals. A long term, very expensive and extensive control program similar to the Brucellosis, bovine tuberculosis, or pseudorabies programs would be needed. Those control programs were/are for one species of livestock. An FMD control program would involve all cattle, swine, and small ruminants and it could take many years to eradicate.

There are some important differences to consider when comparing potential responses to HPAI and FMD. HPAI typically kills a very high percentage of infected poultry. HPAI also has the potential to mutate and cause infection in people. Therefore, there is no choice other than to stamp out all flocks infected with HPAI to stop disease spread. FMD is highly contagious and will infect a high percentage of animals in a herd. The mortality rate can be high in young calves and pigs. Most adult animals will survive and recover. However, they may have chronic consequences such as secondary bacterial infections, reduced rate of gain and reduced milk production. Some severely affected adult animals may need to be euthanized for humane reasons. Allowing herds to recover and return to productivity is an option in a large FMD outbreak. However, that option essentially ensures that it will be many years before the U.S. can return to an FMD free status.

Rapid availability of tens of millions of doses of FMD vaccine will be essential to assist in controlling an FMD outbreak. However, the USDA has stated that the amount of vaccine available in the North American FMD Vaccine Bank (which is controlled and shared by the U.S., Canada, and Mexico) is far below what would be required for an outbreak in a single livestock dense state. It would require many months to produce/obtain the volume of vaccine needed. Without sufficient vaccine to aid in the response, FMD could rapidly spread across the U.S. infecting domestic livestock and wildlife. An extensive control program would be required and it could take many years to eradicate the disease.

In a rapidly spreading FMD outbreak, federal, state, and local resources for responding would be rapidly overwhelmed. This problem became obvious in the 2015 highly pathogenic avian influenza outbreak in the upper Midwest. An outbreak of FMD would be many magnitudes more difficult to handle. There would be a severe shortage of personnel and equipment needed to control the outbreak. Including for:

- Implementing biosecurity on farms, processing plants, and for livestock and milk trucks
- Conducting surveillance testing and epidemiologic studies to find additional infected premises
- Conducting stamping out (assuming stamping out is implemented and continued)
- Carcass disposal (even without stamping out there would likely be an increase in death loss)
- Cleaning and disinfection needed to return infected premises to FMD free status

In addition, funding for indemnity programs, which needs to be appropriated may be insufficient for full indemnification of euthanized animals. Furthermore, there may be reduced or no indemnity available for vaccinated animals or animals that are eradicated by commercial slaughter.

As with all infectious diseases, it is the producer's responsibility to protect their animals from becoming infected. This will be very difficult in livestock dense areas for animals that are not kept in bio-secure buildings.

Steps to Better Prepare for an FMD Outbreak

- Establish a national FMD vaccine stockpile with adequate surge capacity to respond to a rapidly spreading FMD outbreak
- Ensure that all stakeholders are aware of the consequences of an FMD outbreak and the plans for response.
- Enhance biosecurity of livestock production units, livestock haulers, the feed industry, and packer/processor industries.
- Increase availability of resources needed by state and federal authorities to respond to FMD.

- Enhance the testing capacity of the State Veterinary Diagnostic Laboratories for surge capacity testing for FMD.
- Ensure that the financial services industry is prepared to extend credit to livestock producers to ensure that they can care for their animals in an FMD outbreak.
- Ensure that Congress understands the consequences of an FMD outbreak and will quickly provide financial assistance to U.S. agriculture.

OPTION #1

Should all livestock producers be covered by USDA indemnity programs in the event of depopulation which is a part of a foreign animal disease emergency response plan?

OPTION #2

Should USDA use taxpayer funds to indemnify foreign-based corporations for losses due to foreign animal disease control and eradication programs that require euthanizing of livestock?

OPTION #3

USDA is working with state animal health officials to develop and update animal emergency management plans. Also, USDA has developed Secure Food Supply plans that provide a framework for determining the course of action to take if an outbreak of a foreign animal disease such as Foot & Mouth Disease were to occur. Are the criteria contained in the species-specific Secure Food Supply plans sufficiently detailed to guide animal health control officials in the event of an outbreak of a foreign animal disease?

OPTION #4

If USDA makes the decision to switch from “eradication to control” to “vaccination to control” FMD, should risk management tools or income support programs be developed for livestock producers who may be affected by these decisions?

OPTION #5

Currently, the U.S. shares a common bank of FMD vaccination materials with Canada and Mexico. This bank of vaccine contains about 10 million doses which must be replaced on a regular basis at considerable cost. Should this vaccine bank be increased to a size that would be sufficient to handle an outbreak of FMD in a livestock-dense state?

OPTION #6

No FMD vaccine is manufactured in the U.S. Should one or more FMD vaccine manufacturing facilities be authorized and developed in the U.S.?