



PREPARING *FOR* FMD

While no one wants to encounter foot-and-mouth disease, a U.S. response plan is in place should an outbreak occur.

by Kindra Gordon, field editor



Health & Husbandry

No one wants to think of a tragedy occurring, but history has shown that the unthinkable — from terrorism to natural disasters — can happen. One future scenario that the U.S. livestock industry is bracing for is a foot-and-mouth (FMD) disease outbreak within the country.

The United States has not had an incidence of the disease since 1929, but Jim Roth, veterinarian and distinguished professor in the College of Veterinary Medicine at Iowa State University (ISU) cautions that the FMD risk is very real.

Continued on page 30

Roth explains that 96 countries around the globe deal with FMD regularly. Thus, he says, “It’s out there.”

Given the highly mobile society we live in today, Roth, who is also director for the Center for Food Security and Public Health at ISU, explains, “We are seeing more viruses coming into this country.” He cites avian influenza and porcine epidemic diarrhea (PED) virus as recent examples.

Roth underscores that FMD does not pose a public health or food safety concern. However, because the disease is highly contagious among cloven-hoof animals, the economic impact could be staggering. Once it is identified in a country, livestock movement and exports are typically stopped.

If this were to occur in the United States, cumulative losses to American agriculture through the course of 10 years would equal \$199.8 billion, projected a 2011 study by the Center for Agricultural and Rural Development Food and Agricultural Policy Research Institute. Much of the economic impact is because domestic livestock prices would drop due to loss of exports and consumer confidence would likely falter.

SIX SCENARIOS

Currently, a Foreign Animal Disease Response and Preparedness Plan developed in 2013 by USDA’s Animal and Plant Health Inspection Service (APHIS) and the Center for Food Security and Public Health at Iowa State University, anticipates six different “types” of FMD outbreaks. These include:

Type 1: A focal outbreak, involving one state or small region

Type 2: A moderate regional outbreak

Type 3: A large regional outbreak

Type 4: A widespread or national outbreak

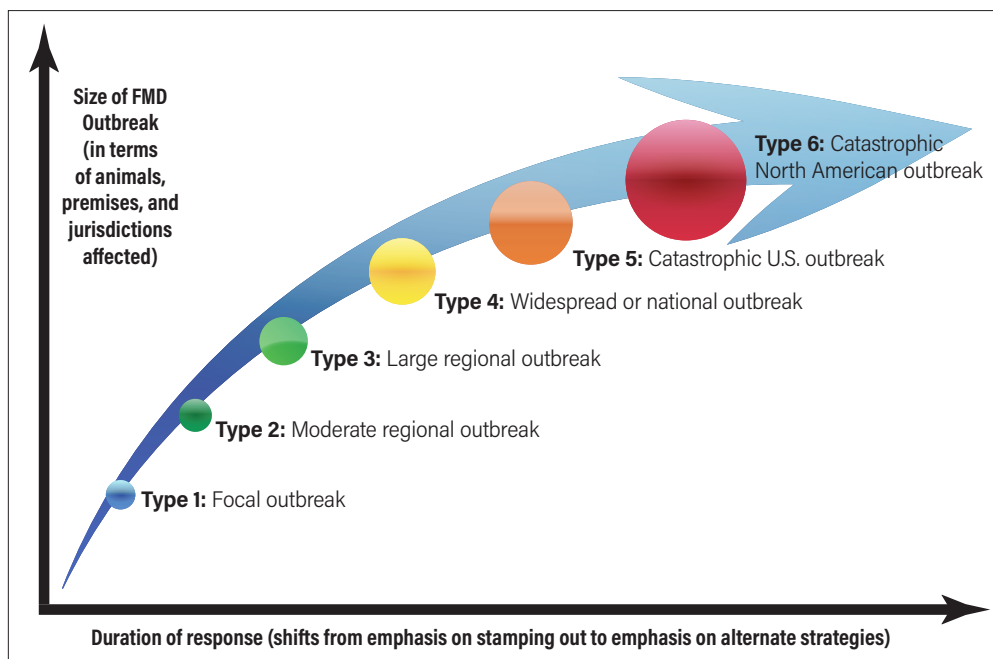
Type 5: A catastrophic U.S. outbreak

Type 6: A catastrophic North American outbreak

Roth explains that as the type of outbreak escalates from Type 1 to Type 6, the strategies to combat the disease — and the length of time to regain markets — will be affected. As an example, a Type 1 outbreak would likely be addressed with a strategy of “stamping out” (euthanizing) affected animals and a time line of three months after the last case before the region is declared FMD-free.

A “stamping out” strategy may not be feasible for a Type 3 or larger outbreak, which thus would involve vaccination of animals and allowing them

Fig. 1: Types of foot-and-mouth disease (FMD) outbreaks



Source: *Foot and Mouth Disease Response Plan, The Red Book*, USDA-APHIS, Veterinary Services, September 2014.

The United States has not had an incidence of the disease since 1929, but Jim Roth cautions that the FMD risk is very real.



to recover or be slaughtered. It could take up to two years from the last case before FMD-free status may be achieved in these scenarios.

RESPONSE PHASES

Should FMD be identified in North America or the United States, the Foreign Animal Disease Response and Preparedness Plan outlines a series of phases, with specific action steps within each phase, that will be followed for dealing with the outbreak. These include:

HEIGHTENED ALERT PHASE: Action steps will be implemented if FMD is identified in either Canada or Mexico with the threat of spreading to the United States. This means control areas with quarantined livestock would be near or crossing over the U.S. border.

PHASE 1: The period of time from the confirmation of the first FMD case in the United States until reasonable evidence exists to estimate the extent of the outbreak. The transition to Phase 2 should be accomplished as soon as possible, with a goal of less than four days (96 hours).

PHASE 2: Surveillance and epidemiology collected to provide timely evidence of the extent and magnitude “type” of outbreak. With this

information, planning and decision-making by Incident/Area Command will occur.

PHASE 3: Recovery — surveillance and epidemiological evidence is collected to determine that the outbreak is under control and a plan is implemented to regain FMD-free status (possibly with vaccination).

PHASE 4: The United States is declared free of FMD (possibly with vaccination). The USDA

continues to work to convince trading partners to accept U.S. exports of animals and animal products.

Roth notes that having these predefined phases and potential types of FMD outbreak scenarios will facilitate rapid decision-making for development of adaptable emergency response and business continuity plans for the U.S. livestock industry. However, even with these plans in place, Roth anticipates that management of an FMD infection will present unprecedented challenges. He explains that while

vaccine exists to help prevent FMD spread to other herds, to be effective the FMD vaccine must match the outbreak strain of the virus. Presently, there are 24 different vaccines to cover all FMD strains.

Thus, it will be essential to isolate the virus and

Table 1: Phases of FMD response

Heightened Alert Phase: FMD outbreak in either Canada or Mexico, but not in United States.
Phase 1: From confirmation of the first case of FMD in the United States until reasonable evidence to estimate outbreak extent.
Phase 2: Surveillance and epidemiology provides timely evidence of outbreak extent to support decisions by incident command.
Phase 3: Recovery — surveillance and epidemiology indicates FMD is under control; plan implemented to recover disease-free status.
Phase 4: United States declared free of FMD, possibly with vaccination.

Source: Foot and Mouth Disease Response Plan, The Red Book, USDA-APHIS, Veterinary Services, September 2014.

Continued on page 32


identify the serotype to select the correct vaccine to manufacture and use for prevention. This means 24 different vaccines must be stockpiled to be available for rapid use during an FMD outbreak.

Roth explains that the North American FMD Vaccine Bank (NAFMDVB) currently stores vaccine antigen concentrate (VAC) for some, but not all serotypes. Vaccine manufacturers can produce 2.5 million doses in four to 14 days upon receiving VAC from NAFMDVB, but additional vaccine production can take as long as 14 weeks. In the event of a North American outbreak, the vaccine in the NAFMDVB must be shared among the United States, Canada and Mexico.

To that end, Roth and other colleagues are advocating that more financial support is needed in anticipation of an FMD outbreak and assuring surge capacity for FMD vaccine production. Specifically, proponents want Congress to authorize in the farm bill annual funding for five years of \$150

million for the vaccine bank; \$30 million for the National Animal Health Laboratory Network; and \$70 million, in block grants, for state animal health agencies to enhance their ability to respond to a foreign animal disease emergency.

Roth encourages livestock producers to visit with their Congressional delegates about supporting funding for FMD in the *2018 Farm Bill*. He acknowledges that a lot of money is being requested, but adds that when considering the potential impacts of FMD to the ag industry, it's a small investment compared to what could be lost.

Read the full *Foreign Animal Disease Response and Preparedness Plan* at <http://bit.ly/2FthGga>. For more about the need for FMD vaccine, a white paper is available for download at <http://bit.ly/2FrBu3J>. 

Editor's Note: Kindra Gordon is a freelance writer and cattlegirl from Whitewood, S.D.

Table 2: Steps United States will take if an FMD outbreak occurs

• The World Organization for Animal Health (OIE) and its member countries would be notified.
• Stop all exports of cattle, swine, sheep, goats and their uncooked products.
• Advise all livestock operations (including auction markets, exhibitions, etc.) in the United States to implement FMD-specific biosecurity plans and continue until freedom from FMD is re-established.
• Establish "control areas" around infected premises and contact premises.
• Activate and deploy appropriate Incident Management Teams.
• Implement controlled stop movement of susceptible animals in the Control Area and restrict other movements in the Control Area (vehicles, etc.) as appropriate and as permitted by specific FMD response and business continuity plans.
• Implement an enhanced national FMD surveillance plan for the Control Area(s) and Free Area.
• Enforce biosecurity protocols within the Control Area.
• Initiate stamping-out of infected and contact herds (unless the number, or the size, of herds precludes stamping-out quickly enough to stop disease spread).
• Identify the strain(s) of FMD viruses and consult with Canada and Mexico to decide whether to activate the North American FMD Vaccine Bank.
• Activate Joint Information Center and coordinate with public hotlines and media resources.
• Activate state livestock emergency response teams or notify to be on "standby."
• Allow movement of milk from premises with no evidence of infection with FMD to processing according to state, regional and national Secure Milk Supply Plans.
• Allow movement of products from non-susceptible animals (including eggs and egg products) from the Control Area (from premises with no infected susceptible species) into commerce with adequate truck and driver biosecurity for the duration of the outbreak.