

FMD Considerations

APHIS shares current plans of action for potential FMD outbreak, calls for input.

by Kasey Miller

Foot-and-mouth disease (FMD) is a scary thing. The consequences of the disease are severe, and the potential of a disease outbreak in the United States is increasing. This isn't meant to cause undue alarm, but rather to shed light on how important it is to be prepared. Beef producers nationwide are being invited by Animal and Plant Health Inspection Service (APHIS) officials to join in the preparation. Before they can, though, they should be informed on the available options.

"The bottom line is that we have to reexamine the way we look at FMD," asserts Darrel Styles, APHIS veterinary medical officer. "We have to stop making it the specter that it has artificially been made. Is it a serious disease? Yes. But is it one that we have to destroy an industry to try to eradicate? I think that question needs to be re-addressed."

The risks

The threat continues to expand for FMD to reach the United States, says Styles. The last case in the United States was in 1929, but our neighbor to the north had a case in 1952, and our southern neighbor had an outbreak in 1954.

As livestock numbers and confined feeding operations increase, so does the threat. Animals, animal products and humans are incredibly mobile, he says, providing the example that there are about 625,000 head of swine in transit daily. This uptick in mobility means greater chance of disease diffusion.

The world has become smaller. That's great in many ways, but Styles explains that the threat of disease grows. Expatriate urban dwellers and urban livestock — pigs and chickens in urban areas — could be infected by items immigrants bring back from visiting their homeland.

While global human travel is more prevalent, it isn't the only risk. Contraband can be labeled as something else, and as budget cuts have increased, the ability to inspect incoming shipments has subsequently

decreased. This lack of funding results in more unknown unknowns.

To further complicate the issue, FMD is present in approximately two-thirds of the world and is endemic in parts of Africa, Asia, Eastern Europe, the Middle East, and South America, according to 2010 APHIS literature. These endemic areas are also countries that have high numbers of beef cattle. Unfortunately, some of the countries in these regions are not necessarily friendly to the United States, and Styles says that agroterrorism is certainly a concern.

The potential implications of an outbreak are drastic. Many different strains affect livestock differently. Collateral markets would be affected, as well as genetic loss within the agricultural community, public fears causing commodity prices to drop, strained state and federal resources and indeterminate recovery time are all possible effects of a disease outbreak.

Current solutions

Because FMD is an infectious and economically devastating disease, APHIS is working on flexible response plans in case an outbreak occurs. The four strategy options that are approved by the World Organization for Animal Health (OIE) include:

- ▶ Stamping-out only, without vaccination policy;
- ▶ Stamping-out policy modified with emergency vaccination to slaughter/kill;

- ▶ Stamping-out policy modified with emergency vaccination to live; and
- ▶ Vaccination to live policy without stamping-out.

For more information on these strategies, see "Recognized FMD strategies" on page 71.

The traditional response strategy calls for stamping out infected animals and in-contact susceptible animals, generally within 24 hours. Styles asserts that this response is not feasible in today's industry due to sheer size. If an outbreak is found, automatic depopulation and disposal cannot be done for risk of contamination of other resources.

"Even if we could depopulate [large feedlots] by some means in a very rapid fashion, there is no practical means of disposing of them," he explains.

Open, unlined burial isn't an option due to environmental consequences. Even in managed and lined pits, leachate, or decaying material, must be pumped out at a rapid pace to avoid contamination of water and soil. Burning carcasses also isn't an option.

"Remember that about 70% of the cow's body is water. We simply do not have enough fuel to burn all the [infected] animals," he notes. Plus, the smell and smoke from those attempts would cause considerable public dissent. Incineration also poses problems, because of lack of capacity.

Thus, modern strategies must be given serious consideration, so as not to wipe out the entire livestock industry to eradicate the disease. Detection, control and containment are the biggest factors of FMD strategies.

Modern possibilities

"We need to consider all the tools in our armory, not just one approach, which has traditionally been the way people try to manage foot-and-mouth disease. There will be situations where we vaccinate, probably; there will be situations where we will employ some stamping out; and we may have to live with it. It depends," he explains.

The biggest issue with preventative vaccination is the effect of its use on our trade status. Most of our trade partners may be reluctant to import U.S. beef if any evidence of the virus is found, even if it is a vaccine, regardless of OIE compliance, Styles says. "The instant that we first put a vaccine in, it may or may be reluctant to delay the time we can reapply for opening those foreign markets."

Vaccines are also tricky because of the many different FMD strains. Styles says there may not be enough doses of vaccine to vaccinate the entire U.S. livestock industry. There may be potential in storing vaccines in a concentrate so that more can be made,



depending on how much manufacturers can make when needed.

The disease is not known to be a significant zoonotic threat, or transferable from animals to humans, so there are a few managed outbreak possibilities. Should geography and managed movement restrictions allow, there are options to potentially regionalize an outbreak.

Since there may not be enough vaccine, or should there be a shortage if an outbreak occurs, Styles says one strategy is to create a ring around the affected area with the available vaccine (the vaccinated animals serving as a “guard wall” to the outside areas). Depending on the FMD strain, only 2% of adult animals may die from this disease, though young livestock may exhibit high mortality rates. However, this ring vaccination strategy could allow the adult animals inside the vaccinated ring to live through the disease, depopulating only the suffering animals.

In the works are continuity of business plans. In an outbreak, there must be a way for unaffected product to move in a biosecure manner so as not to disrupt the market chain, Styles explains. There are currently plans for pork and milk producers in development, but there are insufficient resources to develop similar plans for beef producers and livestock markets.

The attitude of processors, packers and consumers is another issue to keep in mind. Will they accept or process product from a recovered or a vaccinated animal? After seeing the government stamp out FMD-positive animals for so long, will they trust new government assertions that vaccinated or recovered animals are safe to eat?

Call for input

Styles urges states to have their own management plans, as well as regional approaches coordinated with producers. Livestock sectors need individual biosecurity plans. For instance, he recommends producers tailor peacetime and disease-time biosecurity plans, and livestock markets need individualized operational plans.

APHIS Veterinary Services Emergency Management has reached out to states and producers to partner with them in developing and coordinating plans with other states. However, much work remains to be done.

Once these plans are in place, if an outbreak occurs, producers can be ready when notified about the disease.

“On a national level, APHIS notifies state animal health officials if we’ve had a detection, then notifies our two closest trading partners, Canada and Mexico. Then, OIE is notified at an international level, and,

Recognized FMD strategies

According to Animal and Plant Health Inspection Service (APHIS) literature, these strategies are officially recognized by the World Organization for Animal Health (OIE) as strategies to deal with an outbreak of foot-and-mouth disease.

- ▶ *Stamping-out policy.* Depopulate all clinically affected and in-contact susceptible animals.
- ▶ *Stamping-out policy modified with emergency vaccination to slaughter/kill.* Slaughter or depopulation of all clinically affected and in-contact susceptible animals and vaccinate at-risk animals, followed by the subsequent slaughter or depopulation of vaccinated animals which can be accomplished in a measured, rather than emergency, fashion.
- ▶ *Stamping-out policy modified with emergency vaccination to live.* Slaughter of all clinically affected and in-contact susceptible animals and vaccination of at-risk animals, without subsequent slaughter of vaccinated animals, but allowing those animals to complete their useful lifespan and removed from the population by attrition.
- ▶ *Vaccination to live policy without stamping-out.* Infected and in-contact animals are depopulated, but the remainder of the livestock begins a regimen of routine vaccination for an indeterminate amount of time.

For more information about the APHIS Response Plan, go to www.aphis.gov and search for the *Foreign Animal Disease Preparedness & Response Plan*, and the *Foot-and-Mouth Disease Response Plan: The Red Book*.

at that point, international trade is generally halted,” he explains. “Then our direct trading partners are notified, so it’s a chain of communication that goes down if there is a possible detection.”

The caveat, though, is that a flexible plan is still in the works. However, your input can be heard.

“What we want to tell you as stakeholders is that none of these plans are set in stone. We’re here to solicit input from stakeholders as to which direction may be the most prudent, because these decisions are

economic decisions,” he concludes. “We can make decisions based on the best science. I’m a virologist — I can tell you how to stop the virus. What I can’t tell you is how to save or mend your own industry. There are some difficult decisions that need to be carefully considered because we are all part of a greater food supply chain and decisions by one sector may have repercussions on another.”

