

Foot and Mouth Disease: What would happen in an outbreak?

The last two outbreaks of Foot and Mouth Disease (FMD) in the United States occurred in California. The good news is that the last one was almost 80 years ago (1929). Two things bring this to mind: (1) Europe, in particular England, has experienced a couple of FMD outbreaks in the recent past, and (2) I recently attended an FMD "exercise" near Washington D.C. put on by the USDA. The USDA exercise was meant to brief media and others with regard to the USDA plan to deal with an FMD outbreak. It was most enlightening in many respects and there were several "take home" messages I would like to share with you all in this column. First, we should probably review some of the facts about FMD.

What causes FMD? FMD is caused by a virus that exists as 7 main virus types and at least 60 subtypes. The FMD virus is resistant to normal environmental conditions and drying. The virus is inactivated by sunlight, low pH (acid), high pH (alkali), and high environmental temperatures. The virus can survive on dirty shoes, boots, or clothing for several days.

What does FMD do to animals? FMD affects all cloven-hoofed animals—pigs, sheep, cattle, goats, deer, etc. but not horses. It causes blisters (vesicles) on the feet, in the mouth, on the nose, and on the teats of animals. The animals become sick (fever, loss of appetite, salivation, depression) and lose productivity (growth, milk production). While young animals can die, most affected animals do not die. Even after recovery from the initial illness, the productivity does not return to normal and abortions and other losses can occur indefinitely.

How does FMD spread? Infected animals shed the virus into their feces, urine, saliva, and can spread the virus by coughing. The FMD virus spreads very rapidly and effectively. It can spread by contact, through the air (aerosol), and through uncooked meat (the virus is present in the blood and muscle tissue). Depending on wind and weather conditions the FMD virus can travel for up to 40 miles over land and up to 180 miles over water. Infected animals, uncooked meat products fed to swine, aerosol spread, contaminated vehicles, contaminated shoes, and contaminated clothing can all be important means by which the virus spreads. The FMD virus is probably the most infectious animal disease that exists.

What countries have FMD? The virus is routinely found in Asia, South America, Africa, and recently parts of Europe. North America is currently free of the disease.

What would FMD cost in California? An outbreak in California would cost us our export markets for meat and milk products for at least a year, which is more than 600 million dollars. The total losses for California have been estimated at \$6–14 billion

before containment. The collateral losses would be devastating—defaults on bank loans, allied industry losses, losses in rural communities—the list is very long.

What would happen in the case of an outbreak? One important consideration with a FMD outbreak is the large number of species that can be affected—cattle, sheep, swine, goats, and deer. Thus, the control strategy must include most livestock species and wildlife. The area affected would come under immediate quarantine and because the virus can spread so easily, the quarantine area might be fairly large to begin with. The USDA and others have been developing and refining a National Incident Management System to coordinate the effort that would be necessary in the face of an outbreak. This system would be very valuable in terms of coordinating the work by national, state, and local (county) groups that would all need to respond. If the outbreak was relatively small and could be contained quickly the affected animals would probably be sacrificed and disposal of the carcasses would occur. This may be easier in some states than in others. For example, in California, the burning, burying, or composting of carcasses may not be as easy to accomplish as in other states. The USDA and other groups have also been working on more effective vaccine technology than was available in the past. Therefore, vaccination of animals to control the spread of the disease may be an attractive option in a future outbreak.

Why don't we vaccinate now to prevent FMD? The vaccine does not prevent infection; it only decreases the death losses and decreases the virus shedding by the infected animals. Also, once a country begins vaccinating they may lose their export markets. Countries that cannot eliminate the virus are forced to vaccinate; however, economic losses continue in vaccinated herds. Vaccination with one virus type does not protect against the other types (there are 7 main FMD virus types and more than 60 subtypes). Another problem is that current blood tests do not differentiate vaccinated animals from infected animals so both would have to be eliminated eventually.

Would we receive indemnity if our cattle were killed due to a FMD outbreak? The USDA and CDFA have both assured the cattle industry that fair indemnity would be paid for all animals killed to stop an FMD outbreak or to eradicate FMD. However, the price could well be staggering and the speed of payment has not been guaranteed; therefore, it is essential that all steps be taken to prevent the introduction of FMD.

What can I do to prevent the introduction of FMD? First, support the efforts of CCA. The California Cattlemen's Association is working with all the agencies to assure good plans are in place to prevent the introduction of FMD and to have appropriate procedures in place to control an outbreak should one occur. Second, practice good biosecurity on your ranches. Do not allow foreign visitors onto your premises or to come into contact with your animals unless they have been checked out ahead of time. They should have been in the U.S. for at least 5 days before coming onto your ranch. Any visitors should wear protective footwear (disposable plastic boots) and have their boots disinfected (bleach solution, vinegar [acetic acid], or Nolvasan). Visitors should avoid direct contact with your animals. You should review your biosecurity plan with your veterinarian, before allowing foreign visitors onto your ranch. Some of the high risk materials include

uncooked meat products from FMD countries, contaminated shoes, clothing or equipment. Bans on all of these items have been put into place by the USDA and other agencies to help keep FMD out of the United States.

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