



Extension FactSheet

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Animal Disease Emergencies: Information for Producers

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The introduction of a dangerously contagious animal disease into the United States could cause devastation of the U.S. livestock industry and have far-reaching impacts to the national economy. The 2001 foot-and-mouth disease epidemic in the United Kingdom cost their government over £3 billion, or approximately \$4 billion (U.S.), to contain and eradicate the disease (United Kingdom Parliament, 2003). As part of these disease control measures, over 6 million animals were euthanized. The emotional impact on the agricultural community of the animal and operational losses is incalculable.

While it is hoped that an animal disease episode of that magnitude never occurs in the United States, it is important for producers to understand the critical role they play during these emergencies. Quick action on the part of producers can alert officials to a disease threat before it spreads and significantly reduce the scope and magnitude of a disease outbreak. Producers should see themselves as an important first link in the disease detection network of local, state, and federal officials. Producers also contribute to the effectiveness of response plans when they have an understanding of the basic goals and practices that are used to contain a disease threat. This knowledge enables producers to effectively respond to requests from officials during a disease event. To aid producers in meeting these important responsibilities, this fact sheet will provide basic information on animal disease emergencies and commonly used techniques to contain these threats.

Animal Disease Emergency Process

The animal disease emergency plan for Ohio identifies the roles and responsibilities for state and federal agencies and nongovernmental organizations, such as pro-

ducer groups (Animal Disease Incident Annex, 2002). The Ohio Department of Agriculture is the lead governmental agency in the state of Ohio responsible for the response and recovery from a contagious disease threat. In conjunction with the Ohio Emergency Management Agency, they will mobilize the necessary state resources to address the disease threat. The U.S. Department of Agriculture, Animal and Plant Health Inspection Service (APHIS) will support the state in these efforts. As appropriate, they can access and mobilize necessary technical and financial resources of the federal government.

In general, the goals of an animal disease emergency plan are to “detect, control, and eradicate a highly contagious disease as quickly as possible” (APHIS, 2001). As soon as a disease is detected, the immediate task becomes stopping further spread of the disease by restricting the movement of sick or infected animals and contaminated materials. There are common actions that will be employed in most animal disease emergency plans, regardless of the specific disease. These actions include: 1) disease detection and reporting, 2) control of disease through restriction of animal movement and quarantines, 3) control of disease through an increased focus on biosecurity, and 4) disease management of infected and exposed animals.

This fact sheet provides general guidelines that are followed in a disease incident but producers should follow the specific instruction of emergency management officials during an actual disease event. It is also important to note that many of the disease examples provided in this fact sheet focus on foot-and-mouth disease (FMD) and FMD should be considered a relatively worst-case scenario.

Disease Detection and Reporting

Early detection and response to animal disease is facilitated by Ohio's mandatory reporting laws for highly contagious diseases in domestic animals, including livestock (O.R.C. 941.06). There are currently 27 diseases that have been designated by the Director of Agriculture as "dangerously contagious or infectious and reportable diseases" (O.A.C. 901:1-21-02). This list includes diseases such as anthrax, Exotic Newcastle disease, FMD, transmissible spongiform encephalopathies (e.g., bovine Spongiform encephalopathy, also known as mad cow disease), and brucellosis. The list is based on a determination by the Ohio Department of Agriculture that the listed disease is contagious or infectious and has a harmful effect on the livestock industry or public health (O.R.C. 941.01(A)).

By law, "any person (who) has reason to suspect" that an animal may have a dangerously contagious or infectious disease must notify the Ohio Department of Agriculture or a licensed veterinarian (O.R.C. 941.06(A)). It is important to recognize that an individual does not need to have veterinary training to fall under the reporting requirements. Within the meaning of this law, this "person" could be a farmer, livestock owner, Extension agent, Natural Resources Conservation Service conservationist, or any individual who may think that one of these diseases could be present.

When producers are alert to disease signs and quick to request outside veterinary assistance, they form the first line of defense against an animal disease threat. In the U.K. epidemic, one factor that contributed to the magnitude of the outbreak was the spread of the disease prior to its detection by officials (United Kingdom Parliament, 2003). If a disease can be identified before it significantly spreads, the cost and effort necessary to contain and eradicate the disease is markedly decreased.

Restriction of Animal Movement and Quarantines

Steps to prevent spread of an animal disease can involve quarantines and animal movement restrictions. The Ohio Department of Agriculture has the authority to issue a quarantine when an animal is suspected of having any of the listed diseases (O.R.C. 941.07). A quarantine can be issued at the level of an individual animal, herd, farm, or a geographic area surrounding a potentially affected farm. The degree to which animal movement is restricted will be dependent upon the disease that is being managed and the level of confirmation of the disease at the time the movement restriction is issued. Foreign animal diseases, such as FMD, are likely to result in the greatest level of movement restriction and quarantine.

If FMD were suspected, it is likely that all animal movement from that site would be stopped. As soon as the disease is confirmed, the movement of animals within a 6-mile radius may be stopped and milk production may be restricted within the area.

Restrictions on animal movements would be under the direction of the Ohio Department of Agriculture and enforced by local and state law enforcement personnel. These officers would likely staff checkpoints within movement control zones to ensure that animal movement is not occurring. These checkpoints may also include disinfection stations for individuals and their vehicles to ensure that potentially contaminated materials are not leaving the area.

Increased Focus on Biosecurity

Biosecurity practices are those measures designed to prevent the spread of disease by controlling movement of pathogens, pathogen-containing materials, and infected animals. Pathogens are disease-causing organisms and can be bacterial, viral, or fungal. One key component of biosecurity is preventing the spread of disease through enhanced sanitation practices. This can include disinfection of individuals, clothing, vehicles, animal bedding or feed, and any other materials that may be contaminated. Disposal through burial, landfill, or incineration may be necessary for materials that cannot be disinfected.

The level of ongoing biosecurity measures during a potential or actual disease incident will be dependent upon the disease and the ways that it can be transmitted. For example, FMD, which is highly contagious and easily spreads from animal to animal, also can be spread via materials that have become contaminated by contact with infected animals or their discharges. Contaminated materials at the farm that can serve as a source of FMD infection include: boots and clothing of animal caretakers, hay, feed, drinking water bowls, surface water runoff from areas housing infected animals, semen collected for artificial insemination, vehicles with dirt in their tire treads or wheel fenders, and any organic material that has directly or indirectly contacted the infected animals (APHIS, 2003).

In addition to having FMD virus on their clothing after handling infected animals, people who have been in close contact with these infected animals can also carry the virus in their respiratory tract for more than one day (APHIS, 2003). For this reason, there may be restrictions on the length of time that must elapse before an individual who has been on an infected farm can go to another farm.

It is also important to recognize that livestock may carry the disease without showing easily identifiable signs

and that they can shed extremely high quantities of virus into their surroundings. For example, sheep can shed FMD virus at levels sufficient to infect cattle or swine yet rarely show disease signs serious enough for producers to notice something may be wrong (Ibid.). While swine will show more visible FMD symptoms, they also produce and shed such a large amount of virus that they are considered virus “amplifiers” (Ibid.). Swine infected with FMD can manufacture 30 to 100 times as much virus in respiratory aerosols as sheep or cattle (Ibid.).

The pathogens associated with some diseases can often survive in the environment for extended periods of time after being shed by infected animals. For this reason, it is critical that appropriate cleaning and disinfection of contaminated premises take place even if euthanization and disposal of animals occurs. Depending on the pathogen, removal or treatment of all organic material in buildings and associated areas may be required. Producers may be given assistance by state and local authorities in this process.

However, it is important to recognize that appropriate biosecurity measures are specific to the disease that is suspected or present. FMD requires the highest level of stringency; many other listed diseases may not require as rigorous measures. The Ohio Department of Agriculture and the U.S. Department of Agriculture will determine the appropriate level of biosecurity to be maintained during each disease incident. In addition to these organizations, Ohio State University Extension and affected producer groups will work to get this information to producers as soon as it becomes known.

Disease Management of Infected and Exposed Animals

A disease management strategy to control the threat could include treatment options such as medications, isolation of infected animals, vaccination, animal euthanasia, or a combination of these methods. The Ohio Department of Agriculture and the U.S. Department of Agriculture will determine the best strategy for handling infected, exposed, and potentially exposed animals.

Depending on the disease agent and available treatment methods, some animals may need to be destroyed to prevent further spread of the disease. If depopulation of an infected herd is deemed necessary, an appraisal will take place to allow for adequate compensation of the affected livestock producer. Depending on the type of emergency and available funding, compensation could originate from federal or state sources (Title 9 CFR Part 53 for reimbursement under federal authorities or O.R.C. 941.12 for reimbursement under state authorities).

Given the number and size of animal carcasses that may require disposal, finding appropriate disposal methods that will prevent the further spread of disease and that are environmentally sound is a critical step in these emergencies. The Ohio Department of Agriculture has the authority to prescribe the specific method of carcass disposal during a disease incident (O.R.C. 941.14). These methods include burning the body, burying it not less than 4 feet beneath the ground surface, removing the body through transport in a watertight tank to a rendering establishment, or any other method specified to prevent the spread of disease and minimize environmental damage.

Role of Livestock Producer in Process

Awareness

Producers will be the first to notice signs of disease in their herd. In any of the following situations, a local veterinarian or the Ohio Department of Agriculture should be immediately contacted:

- unexplained increased death rate in herd
- increased abortion rate
- significant drop in production
- any nervous system signs
- erosions or blisters around or inside the animal’s mouth
- excessive slobbering
- foot erosions or blisters
- lameness associated with foot erosions

In addition to these signs, producers should become familiar with the diseases that may pose a risk to their operation. They should learn the “red flag” signs that should prompt an immediate call to their veterinarian. Managers should ensure that all employees and family members who care for animals are also aware of the seriousness of these signs.

Institution of Ongoing Biosecurity Measures

To best safeguard the overall health of your herd and to help protect U.S. agriculture from disease threats, practice good biosecurity measures as part of your normal operating procedures. Ideally, a written plan should be developed and shared with those who care for and have contact with your animals. Specific actions that you can take include providing isolation areas for new additions to the herd, isolating and separating groups of cattle by age or production group, practicing good sanitation, and controlling traffic of vehicles, people, and other animals (Buhman et al., 2000). The biosecurity plan should also include measures to lessen the risk of intentional introduction of disease agents from possible sabotage or acts

of agroterrorism. Contact your local Extension agent for assistance in developing a biosecurity plan for your operation.

Maintain a Working Relationship with a Veterinarian

Everyone recognizes that livestock producers are responsible for the care of their livestock. As part of good husbandry, a professional relationship should be established with a local veterinarian. This veterinarian can keep the producer abreast of new and emerging disease threats, as well as treatments. An additional benefit of this relationship is that it is much easier to contact a veterinarian for questions or a farm visit when you need rapid access to veterinary advice.

Conclusion

A serious animal disease emergency could devastate the U.S. livestock industry and impact the larger national economy. Producers are on the front lines in protecting their industry. They play a critical role in the initial detection of animal disease emergencies, and their continued vigilance and cooperation will be vitally important to the successful response to any disease threat. Steps that producers can take to ensure that they are able to fulfill their important responsibilities include developing an awareness of disease threats to their livestock operation, instituting ongoing biosecurity measures, and ensuring they have a good working relationship with a veterinarian.

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