

# Managed Movement of Susceptible Livestock Species during a U.S. Foot and Mouth Disease (FMD) Outbreak: Considerations for Regulatory Officials



November 2019

## Purpose

This document:

- Provides considerations for managing the movement of susceptible livestock species that have no evidence of FMD infection during an outbreak in the United States (U.S.).
- Highlights issues that each state should consider when drafting emergency preparedness and response plans.
- Focuses on the movement of live animals rather than animal products or conveyances.
- Provides guidance only, recognizing that Responsible Regulatory Officials (local, state, Tribal, and federal animal health officials, as appropriate) will make decisions based on the characteristics of the outbreak as it evolves.

The response to an FMD outbreak in the U.S. will depend on variables such as the extent of the outbreak and individual state capabilities and resources. Thus making blanket recommendations for managing movement is difficult and potentially inappropriate.

## Introduction

In the absence of an FMD outbreak, extensive movement of livestock occurs throughout the U.S. between many different types of production phases and through a variety of marketing channels. Nearly 3 million head of susceptible livestock species are transported to slaughter every week<sup>1</sup> with countless more animals being transported between production phases.

Movement restrictions<sup>2</sup> of susceptible livestock species is one strategy for the control and containment of FMD a U.S. outbreak. However, prolonged movement restrictions will negatively impact the livestock industry and animal welfare. Livestock operations *affected* by movement restrictions yet *not infected* with FMD will need to restart movement as soon as possible to support business continuity in a way that is consistent with mitigating the risk of spreading FMD.

The Secure Food Supply (SFS) Plans for Continuity of Business<sup>3</sup> provide guidance for producers and industry stakeholders and allies regarding the development of business continuity plans for premises with susceptible livestock species with no evidence of FMD infection located in a regulatory Control Area. The plans must be credible to Responsible Regulatory Officials. Numerous states have made progress in pre-planning movement restrictions in the event of an FMD outbreak. For example, a 72-hour national movement standstill recommendation has been incorporated into multiple state and national outbreak exercises. In a 2018<sup>4</sup> survey of State Animal Health Officials, 24 out of the 36 responding states (66.7%) indicated that state-wide intrastate

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<sup>1</sup> Source: United States Department of Agriculture - Agricultural Marketing Service, March 7, 2019, [https://www.ams.usda.gov/mnreports/sj\\_ls711.txt](https://www.ams.usda.gov/mnreports/sj_ls711.txt)

<sup>2</sup> In this document, the term “movement restrictions” will be used as a general term to encompass the language and implementation differences among federal movement recommendations and individual state plans.

<sup>3</sup> The Secure Food Supply Plans for Continuity of Business applicable to an FMD outbreak include Secure Beef, Milk, Pork, and Sheep/Wool Supply.

<sup>4</sup> Hanthorn, Christy J, and Michael W Sanderson. “Emergency Response Plans for Managing Livestock Movement in a North American Foot and Mouth Disease (FMD) Outbreak.” Scientific Session Epidemiology I. 61st Annual Conference American Association of Veterinary Laboratory Diagnosticians, 20 Oct. 2018, Kansas City, MO.

movement restrictions would be issued if FMD were diagnosed in their state, and two additional states indicated that movement restrictions would be issued within regions of their states. In that same 2018 survey, 14 (39%) of the 36 responding states indicated that, in the event of an FMD outbreak in the U.S., they would issue a stop movement order and immediately close their state borders. Another 14 responding states indicated that they would issue a delayed stop movement order (e.g., a grace period before implementation). If a shipment of livestock is not able to reach its destination nor return to its origin due to regulatory restrictions or owner refusal to claim the animals, several states (13/36) indicated that they would establish temporary off-loading sites to either quarantine or euthanize high-risk truckloads of animals. While movement restrictions are an important part of the national outbreak response strategy, the focus of the SFS Plans is to resume movement as quickly as possible without contributing to the spread of FMD virus.

## Phases of Livestock Movement Restrictions

FMD response strategies will be assessed and adjusted as the outbreak progresses and will depend on specific outbreak characteristics. Referencing pre-defined phases (a temporal state) of an FMD outbreak is helpful when considering response strategies. These phases are described in the FAD PReP document: *Classification of Phases and Types of a Foot-and-Mouth Disease Outbreak and Response*, and are referenced throughout this document.

Managing movements of susceptible livestock species during an FMD outbreak could be approached similarly to the management of air traffic immediately following the September 11, 2001 terrorist attacks. The Federal Aviation Administration issued a “national ground stop” – planes in the air were safely landed at the nearest airport, and no new flights were initiated until the authorities could characterize the extent of the assault. Some commercial flights were allowed to resume in an orderly way three days later, with enhanced safety protocols in place and under heightened security.

Similarly, early in an FMD disease outbreak, movement restrictions may be implemented that will “land” shipments of livestock in transit and “ground” any new movements until the extent of the outbreak can be characterized, and movements of susceptible livestock can resume under heightened biosecurity<sup>5</sup>.

Figure 1 illustrates a timeline of managed movement events early in an FMD outbreak. In Phase 1 of an outbreak, the goals<sup>6</sup> will be to:

- Halt movement of susceptible livestock species from the Control Area and perhaps state-wide or nation-wide, and
- Determine an acceptable destination for susceptible livestock already in transit.

During the remainder of Phase 1, the extent of the outbreak will be assessed to guide response and intervention plans. Once the initial extent of the outbreak is defined and movement permitting systems are established, goals during Phase 2 of an outbreak will be to:

- Restart movements for operations outside of Control Areas that may have been halted during initial movement restrictions, and
- Maintain continuity of business for operations within a Control Area with no evidence of infection, who have documented practices in place to reduce the risk of spreading FMD virus.

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<sup>5</sup> Enhanced biosecurity resources for cattle or pigs can be found at <http://securebeef.org/beef-producers/biosecurity/> or <http://www.securepork.org/pork-producers/biosecurity/>

<sup>6</sup> FAD PReP Strategy Document: Classification of Phases and Types of a Foot-and-Mouth Disease Outbreak and Response, 2013, <http://www.cfsph.iastate.edu/pdf/phases-and-types-of-an-fmd-outbreak>

**FIGURE 1. TIMELINE OF EARLY MANAGED MOVEMENT EVENTS IN AN FMD OUTBREAK**

TESTING SUSPECT CASE	PHASE 1	PHASE 2
<ul style="list-style-type: none"> <li>• Suspect case identified</li> <li>• Immediate quarantine placed on suspect premises</li> <li>• Trace back and trace forward efforts initiated</li> </ul>	<ul style="list-style-type: none"> <li>• Suspect case confirmed</li> <li>• Control Area established around infected premises                             <ul style="list-style-type: none"> <li>- Stop movement in Control Area</li> </ul> </li> <li>• National movement standstill of susceptible species may be recommended</li> <li>• In transit livestock movement managed</li> <li>• Mobilization of permitting system</li> </ul>	<ul style="list-style-type: none"> <li>• Extent of outbreak characterized</li> <li>• Efforts to restart permitted movement initiated</li> </ul>
DAY 0	DAY 1	DAY 3 OR LONGER
		ONGOING

Constructed from information contained in the Foot and Mouth Disease Response Plan, The Red Book, 2014 and the FAD PReP Strategy Document: Classification of Phases and Types of a Foot and Mouth Disease Outbreak and Response, 2013

## Phase 1 – Initial Response Actions

The primary goal of managed movement during Phase 1 of an FMD outbreak will be to “land” livestock conveyances that are in transit while:

- Not increasing the risk of spreading the virus (enhanced biosecurity and disease monitoring),
- Limiting additional transport time which could adversely impact animal welfare, and
- Complying with state-issued movement restrictions.

## STATE RESPONSE

State-specific movement restrictions extending beyond a Control Area may be issued during Phase 1 of an outbreak. They could remain in effect until the extent of the outbreak is reasonably characterized (goal of within 96 hours<sup>7</sup> of first diagnosis). State Animal Health Officials and managers of destination premises for non-terminal movements may put additional requirements on movement of animals from outside of a Control Area within their states and to their premises.

## CONSIDERATIONS FOR LIVESTOCK IN TRANSIT DURING AN FMD OUTBREAK

### Ownership considerations

Some of the livestock in transit will be moving to a livestock market or buying station. For shipments where ownership of the animals has yet to change hands, returning the livestock to the origin premises should be considered in order to limit disease spread. Length of transport time for the animals and driver must be considered; alternative locations with appropriate biosecurity<sup>8</sup> and disease monitoring<sup>9</sup> capabilities should be identified where animals that have, or will have, met their regulatory limit for transportation hours can be off-loaded to rest. Emergency waivers or extensions of current transportation hour limits may also need to be considered.

### Origin of shipment

If a shipment of livestock originated from an infected, suspect or contact premises, returning to the origin premises should be strongly considered. If returning to the origin premises is not possible or not advisable, the

<sup>7</sup> USDA Red Book – FMD Response Plan, 2014,

[https://www.aphis.usda.gov/animal\\_health/emergency\\_management/downloads/fmd\\_responseplan.pdf](https://www.aphis.usda.gov/animal_health/emergency_management/downloads/fmd_responseplan.pdf)

<sup>8</sup> See biosecurity resources referenced under footnote 5

<sup>9</sup> Disease monitoring resources for cattle or pigs can be found at <http://securebeef.org/beef-producers/disease-monitoring/> or <http://www.securepork.org/pork-producers/disease-monitoring/>

shipment may be diverted to an acceptable diversion quarantine site established by the state to be either isolated and monitored or euthanized. Diversion and quarantine sites should have plans in place to supply adequate feed and water as well as plans for timely euthanasia.

### **Destination of shipment**

Production operations may be unwilling to accept non-terminal shipments of livestock during Phase 1 of an FMD outbreak. In a 2018 survey<sup>10</sup> of seven large feedlot companies, nearly all (6 of 7 companies) indicated that they would refuse shipments of cattle in transit to their feedlots from infected states, especially if the infected state was a neighboring state (7 of 7 companies). If operations will not accept shipments of livestock, an acceptable diversion quarantine site established by the state will need to be identified. If this course of action is taken, issues may arise with truckers and animals surpassing their lawful time limits for being on the road without rest or off-loading.

### **Abandonment**

Issues may also arise with animals being abandoned either at commingling sites, such as livestock markets/buying stations, or at diversion and quarantine sites established by the state. More work needs to be done to develop options for shipments of livestock that are not accepted at their intended destination and cannot be returned to their origin premises.

### **Communicating with Livestock Transporters**

After the first case of FMD in the U.S. is confirmed, transporters with loads of livestock in transit need to be quickly informed about movement restrictions and next steps. Reliance on existing communication systems and dispatchers will be needed for effective and rapid notification of transportation companies and their drivers. Livestock producers, transporters, and state officials should establish communication plans in the event animals are on the road during a standstill/stop movement order to prevent animal welfare concerns and overtime hours for drivers.

## **Phase 2 – Restarting Movement**

Once the extent of the outbreak can be reasonably characterized, the response will shift to Phase 2 (See Figure 1). The highest priority goals will be to prevent the spread of FMD virus while also restarting movements that were halted by movement restrictions in Phase 1. In some circumstances, this goal may be achieved by using enhanced/emergency permitting systems. Any livestock movement in a Control Area, regardless of its destination, will be required to have a valid movement permit. The scale of the outbreak, choice of response strategy (e.g., stamping out, vaccination), and type of production premises affected (e.g., feedlot, farrowing unit, or dairy, etc.) will impact movement needs. The guidance in the SFS Plans is for operations located in a Control Area with no evidence of FMD infection to prepare to meet movement permit requirements while reducing the risk of spreading the FMD virus<sup>11</sup>.

It will take time to gather the information needed to establish Control Areas at the beginning of an outbreak and communicate with all those impacted. New infected premises may be identified frequently outside of existing Control Areas. There may be a lack of confidence that premises outside of Control Areas are truly not infected. State Animal Health Officials and managers of destination premises for non-terminal movements may put additional requirements on movement of animals from outside of a Control Area within their states onto other premises.

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<sup>10</sup> Hanthorn, Christy J, and Michael W Sanderson. “Emergency Response Plans for Managing Livestock Movement in a North American Foot and Mouth Disease (FMD) Outbreak.” Scientific Session Epidemiology I. 61st Annual Conference American Association of Veterinary Laboratory Diagnosticians, 20 Oct. 2018, Kansas City, MO.

<sup>11</sup> For more information regarding movement permit guidance for cattle or pigs, see: <http://securebeef.org/regulatory-officials/permit-guidance/> or <http://www.securepork.org/regulatory-officials/permit-guidance/>

## TERMINAL (SLAUGHTER) MOVEMENT

### Outside of a Control Area

Livestock outside of a Control Area and with no evidence of infection should be allowed to move **directly to slaughter** outside of Control Areas provided the movements can be completed without passing through a Control Area<sup>12</sup> and the receiving premises is willing to accept them. Packing plants outside of Control Areas that do not receive shipments from inside a Control Area should be aware that the status of premises and shipments and the designation of Control Areas may change rapidly. Enhanced biosecurity practices and heightened disease monitoring are encouraged for all premises and movements. If animals are moving from outside a Control Area in an infected state to another state, the origin premises must comply with the requirements of the destination state.

### Into a Control Area

Livestock with no evidence of infection moving **directly to slaughter** from a premises outside a Control Area to a packing plant inside a Control Area should be allowed as long as the movement can meet permitting requirements for entering the Control Area and the receiving premises is willing to accept them. No additional disease monitoring requirements should be imposed on the animals moving directly to slaughter at a packing plant within a Control Area as ante- and post-mortem inspection processes currently in place at packing plants should be sufficient.

### Into or Within a Control Area

For packing plants located inside a Control Area, livestock movements **directly to slaughter** should continue to the plant in order for the plant to maintain continuity of business and for clinically healthy animals to be processed as quickly as possible. Packing plants within the Control Area may consider preferentially harvesting animals from within the Control Area to decrease the number of susceptible animals at risk of contracting FMD.

### Out of a Control Area

Any premises inside a Control Area that wants to move livestock **directly to slaughter** out of the Control Area must meet all requirements to obtain a movement permit. If the desired movement is destined for another state, the origin premises must comply with requirements of the destination state and the destination premises. Livestock moving directly to slaughter may be required to follow a pre-determined transportation route in order to minimize risk of exposing susceptible animals to the virus.

Packing plants should consider mitigation steps for employees to minimize potential cross-contamination of personal vehicles and carrying virus on employees' apparel and footwear, but also does not monopolize cleaning and disinfection resources. The North American Meat Institute (NAMI) is developing enhanced biosecurity recommendations<sup>13</sup> (as of November 2019) that are achievable for the plants and credible to the USDA Animal and Plant Health Inspection Service (APHIS).

## NON-TERMINAL MOVEMENT

In order to support continuity of business for livestock operations in a Control Area, non-terminal movements of livestock to their next production phase will need to resume in a manner that does not increase the risk of spreading FMD virus and accounts for animal welfare needs. Regulatory Officials will be responsible for determining when and how to resume movements of livestock destined for non-terminal production phases that were impacted by movement restrictions during Phase 1 of an outbreak.

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<sup>12</sup> The recommendation of not passing through a Control Area is made to decrease pressure on permitting and conveyance cleaning and disinfection systems rather than to mitigate disease spread.

<sup>13</sup> NAMI FAD guidance documents are available at: <https://www.meatinstitute.org/index.php?ht=d/sp/i/157365/pid/157365>

### **Outside of a Control Area**

Similar to terminal movements, livestock from premises outside of a Control Area and with no evidence of infection should be allowed to move to other premises outside of Control Areas provided the movements can be completed without passing through a Control Area. Enhanced biosecurity practices and heightened disease monitoring are encouraged for all premises and movements. If animals are moving from outside a Control Area in an infected state to another state, the origin premises must comply with the requirements of the destination state. Even though a USDA movement permit may not be required for animals outside of a Control Area, State Animal Health Officials and managers of destination premises may put additional requirements on movement of animals from outside of a Control Area within their states onto other premises.

### **Into, Within, and Out of a Control Area**

In general, non-terminal animal movements into a Control Area are strongly discouraged as they will expand the population of susceptible animals, thus increasing the potential for outbreak spread. The necessity and risk of non-terminal livestock movements out of a Control Area should also be carefully evaluated. Any premises inside a Control Area that wants to move livestock must meet all requirements to obtain a movement permit. If the desired movement is to another state, the origin premises must confirm that the movement also meets the requirements of the destination state and destination premises.

Non-animal movements, such as feed and supply deliveries, to premises into, within, or out of a Control Area will also require a movement permit. That is beyond the scope of this document. It is critical that enhanced biosecurity measures are implemented on non-infected premises to minimize the risk of virus entry.

### **ACKNOWLEDGMENTS**

This document was developed by Kansas State University College of Veterinary Medicine in conjunction with the Center for Food Security and Public Health (CFSPH), Iowa State University (ISU), College of Veterinary Medicine and reviewed by representatives from industry, academia, and state and federal agencies including USDA Cattle Health Center, USDA Centers for Epidemiology and Animal Health, USDA Food Safety Inspection Service. This material was made possible, in part, by a Cooperative Agreement from the United States Department of Agriculture's Animal and Plant Health Inspection Service (APHIS).

### **ADDITIONAL RESOURCES**

There are additional resources on the various Secure Food Supply Plan websites:

- Secure Beef Supply: [www.securebeef.org](http://www.securebeef.org)
- Secure Pork Supply: [www.securepork.org](http://www.securepork.org)
- Secure Milk Supply: [www.securemilk.org](http://www.securemilk.org)
- Secure Sheep and Wool Supply: [www.securesheepwool.org](http://www.securesheepwool.org)