

United States Department of Agriculture  
Animal and Plant Health Inspection Service

National Emergency Response  
to a  
Highly Contagious Animal Disease

Executive Summary

This document provides guidance for a response to a highly contagious animal disease and includes a Concept of Operations, Movement Control Guidelines, and Foot-and-Mouth Disease Operational Guidelines.

## **Concept of Operations for an Emergency Response To a Highly Contagious Animal Disease**

The goal of an emergency response plan is to detect, control and eradicate a highly contagious disease as quickly as possible to return the United States to free status. A presumptive positive case will generate immediate, appropriate local and national measures to eliminate the crisis and minimize the consequences. A confirmed positive case will generate additional measures on a regional, national and international scale.

During the investigation of a suspect Foreign Animal Disease / Emerging Disease Incident (FAD/EDI), the Foreign Animal Disease Diagnostician (FADD) will use clinical signs, history and professional experience to determine the likelihood of a highly contagious disease (See VS Memorandum 580.4). They will classify the assessment as “unlikely”, “possible” or “highly likely”.

For “unlikely” and “possible” scenarios, the FADD should at a minimum request that the producers voluntarily quarantine themselves until laboratory results rule out an FAD/EDI. A policy of officially issuing a State quarantine until laboratory results rule out an FAD/EDI should be considered. The following focuses exclusively on the “highly likely” scenario.

When the FADD determines that the condition under investigation is “highly likely” to be a FAD/EDI, the FADD notifies and consults with the AVIC and / or State Veterinarian. The samples submitted to an approved laboratory are considered Priority 1 so that a presumptive diagnosis can be reached in less than 24 hours. Based on the outcome of the consultation, a State quarantine will be placed on the farm; an appropriate movement control zone will be established around the farm (see Appendix 1); the local agricultural and emergency officials will be notified; and all contacts to the farm will be traced.<sup>1</sup> Before leaving the farm, the FADD will work with the producer to institute appropriate bio-security and public health measures, if warranted, and will thoroughly clean and disinfect their clothing, equipment and vehicle. Until a presumptive diagnosis is made, the FADD will not go on any other farms of unknown or negative status. If the presumptive diagnosis is positive, the FADD should not go on another farm of unknown or negative status for at least 48 hours.

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<sup>1</sup> Trace-backs should be applied for a minimum of 2 times the maximum incubation period before the onset of clinical signs. Trace-forward should be applied up to the time the quarantine is imposed.

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If a highly contagious FAD/EDI is classified as a presumptive positive or confirmed positive case the following actions would occur.

**Presumptive Positive (Index Case):** clinical signs consistent with an FAD/EDI plus the following: 1) sample is positive (antigen or antibody); 2) other epidemiological information is indicative of the FAD/EDI. Once the laboratory indicates it has positive sample, a cascade of events will occur starting with a conference call between the Laboratory, State Veterinarian, AVIC, FADD, and EMLT. This conference call will outline action steps, some of which are listed below.

The State Veterinarian will:

- Quarantine the affected premises
- Consider stopping movement of animals within the State
- Consider active case finding based on suggestive clinical signs in the States to include the field veterinarians, FSIS, Extension Agents, Industry partners, and public awareness campaigns
- Consider depopulation of affected herd in consultation with USDA, Industry and other stakeholders
- Determine whether wild animals may be a risk factor in the dissemination or persistence of infection
- Notify appropriate contacts (such as Commissioner of Agriculture, State Emergency Management Director, and others deemed necessary) that would be needed to support a response
- Review the operational guidelines for a highly contagious FAD/EDI (see Appendix II, Foot and Mouth Disease Operational Guidelines)
- Identify the joint incident commanders and operations center with local APHIS officials and State Emergency Managers

The Area Veterinarian In Charge (AVIC) will:

- Notify appropriate contacts that would be needed to support a response (e.g., USDA State Emergency Board, field force and others as pre-determined during discussions with the State Veterinarian)
- Prepare to participate in the Joint Incident Command as described in the State Emergency Plan

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The Regional Emergency Animal Disease Eradication Organization (READEO) Director will:

- Notify all AVICs in the region of the presence of an FAD/EDI and traceback findings
- Give the READEO team members notice to be prepared for deployment
- Prepare to support the Joint Incident Command in their actions or be Incident Commander in States unable or unwilling to take appropriate actions to control and eradicate the disease

The USDA, APHIS will:

- Conduct isolation and typing of the highly contagious FAD/EDI agent
- Initiate National and North American Communication Plans
- Place National READEO leaders on high alert
- Alert USDA Crisis Management Staff
- Activate APHIS Emergency Operation Center
- Institute active case finding based on suggestive clinical signs in all States, to include the State Veterinarians, FSIS, Extension Agents, Industry partners, and public awareness campaigns

Industry will:

- Communicate with their constituencies
- Support State and National response efforts

**Confirmed Positive Case:** Agent is isolated and identified

The State Veterinarian, AVIC or Incident Commanders will:

- Initiate depopulation and disposal procedures of the infected herd/flock if not accomplished under presumptive positive diagnosis
- Initiate the process to request a Governor's Declaration of Emergency thus implementing the State Emergency Response Plan
- Continue quarantine and movement restrictions
- Continue active case finding

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The State Emergency Management Director / Emergency Management System will:

- Activate the State Response Plan
- Support local Emergency Management System efforts at the site of the outbreak
- Request a Governor's Declaration of Emergency
- Enforce movement controls within the State
- Evaluate the need for a request for a Presidential Declaration of Emergency thus implementing the Federal Response Plan

USDA will:

- Notify appropriate Federal agencies of the emergency declaration
- Consolidate and present the official daily situation report to the Secretary
- Coordinate the response activities of all USDA agencies to support APHIS and, until Presidential Emergency Declaration, coordinate all requests for the support of other federal agencies
- Impose on the affected State a Federal quarantine for interstate commerce and request enforcement by the affected State and adjoining States
- Identify a source and start evaluating a process of acquiring an effective vaccine
- Coordinate national surveillance activities

The Deputy Administrator of Veterinary Services through the APHIS Emergency Management Operations Center will:

- Provide international and national communication on the status of the situation
- Involve Federal, State and Industry partners in the decision-making process with respect to the consequences of the disease on the US
- Designate the Associate Deputy Administrator of Veterinary Services as the National Incident Coordinator

The Secretary of Agriculture will:

- Declare an emergency or extra-ordinary emergency, if necessary, to release the funds to cover expenses for response activities, including funds for indemnity
- Call on other Federal Agencies to provide assistance
- Mobilize federal agricultural resources to assist the State

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Industry will:

- Communicate with their constituencies
- Support State and National response efforts
- Coordinate efforts with State, national and international industry groups

**Presumptive Positive (Secondary Case)** - Subsequent investigations which identify an animal(s) with clinical signs consistent with FAD/EDI plus one or both of the following: 1) sample is positive; 2) other epidemiological information is indicative of the FAD/EDI, will be treated as confirmed case.

# **Concept of Operations for an Emergency Response To a Highly Contagious Animal Disease**

## **Glossary**

APHIS--The Animal and Plant Health Inspection Service of the USDA responsible for ensuring the health and care of animals and plants.

Area Veterinarian in Charge (AVIC) -- the lead Federal Veterinarian for APHIS Veterinary Services in an Area. Nationwide, there are 42 Areas that encompass one or more States.

Case classification:

- Suspect – Animal with clinical signs, which may be consistent with an FAD/EDI
- Presumptive positive (Index case) - Animal with clinical signs consistent with FAD/EDI plus the following: 1) sample is positive; 2) other epidemiological information is indicative of the FAD/EDI.
- Presumptive positive (Secondary case) -- Animal with clinical signs consistent with FAD/EDI plus one or both of the following: 1) sample is positive; 2) other epidemiological information is indicative of the FAD/EDI.
- Confirmed positive – Agent is isolated and identified

Case Priority Designation - Indicates APHIS response levels, sample handling and testing protocols. Designated 1 to 3 for investigations.

Chief Veterinary Officer (CVO) - The Chief Veterinary Officer of the United States is usually the Deputy Administrator of Veterinary Services

Emergency Management Leadership Team (EMLT) – consists of VS leaders responsible for animal health emergency management.

Epidemiological information – includes tracing all contacts with affected animals and premises including movements of non-susceptible livestock, humans, fomites, animal products or by-products, crops/grains, feedstuffs.

Foreign Animal Disease Diagnostician (FADD)—a veterinarian who has been through the foreign animal disease training course at Plum Island and receives continuing education in FADs and animal health emergency management.

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Foreign Animal Disease/Emerging Disease Incident (FAD/EDI) Investigation--  
On site assessment conducted by FADDs, as part of the national surveillance program for exotic or emerging animal diseases. The assessment includes: a history of clinical and epidemiological findings, results of physical examinations, necropsy findings, specimen collection and submission to approved laboratory, reporting, initiating appropriate control measures, et al.

Highly Contagious Disease – rapidly spreading from animal to animal as well as herd to herd. Transmission can occur via direct and indirect modes; has above normal morbidity/mortality per unit time; could be based on species or production.

READEO – Regional Emergency Animal Disease Eradication Organization – This is a USDA, APHIS, VS organization that has trained animal health emergency managers and can be mobilized to support and fight an outbreak.

State Veterinarian--the veterinary officer for a particular State or territory of the US in charge of animal health activities



# **Concept of Operations for an Emergency Response To a Highly Contagious Animal Disease**

## **Appendix I - Movement Control Zones**

In the declaration of areas the following factors need to be taken into account:

- Industries involved
- Environmental factors
- Livestock movement patterns
- Processing options (livestock and products)
- Natural vs artificial barriers/boundaries
- Nature of the outbreak
- Livestock species involved
- Wildlife involvement
- Effect on non-risk commodities due to intrastate commerce restrictions

### **Infected zone**

The actual distance in any one direction for the zone is determined by factors such as terrain, the pattern of livestock movements, livestock concentrations, the weather and prevailing winds, the distribution and movements of susceptible wildlife, and known characteristics of the agent. The infected zone should extend at least 6 miles (10 kilometers) beyond the presumptive or confirmed infected premises.

In this zone

- Conduct epidemiologic investigation to
  - Identify trace-ins and trace-outs
  - Determine source of infection
- Movement restrictions are in place
- To leave the zone
  - No animals or animal products can leave the zone
  - Vehicles, equipment and people may leave if strict biosecurity procedures are followed
    - Clean and disinfect
    - Shower out
    - Human to animal contact policies are dependent on the agent
- Evaluate the possibility that State authority could depopulate all susceptible animals in this zone

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### **Surveillance or movement control zone**

This zone will surround the infected zone. The exact boundary of the zone will be established to assure containment of the outbreak. Early in the outbreak all movement should be stopped. Once the extent of the outbreak is understood, susceptible livestock can move within that zone with permit but not out of the zone. Non-susceptible livestock or poultry can move within and out of the zone with a permit.

In this zone

- Conduct active case finding
  - Increased awareness by of all animal health professionals
- Conduct surveillance at concentration points
- Non-susceptible livestock and poultry can move out of the zone but require appropriate bio-security such as C&D of vehicles

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## **Appendix II - Foot and Mouth Disease Operational Guidelines**

### Depopulation and Disposal

- Depopulation and disposal operations are linked. If depopulation gets ahead of the ability to dispose of the carcasses, there will be bio-security, animal welfare and pest management issues. Procedure must keep the agent from spreading so it is important that disposal follow euthanasia as soon as possible.
- The preferred method of disposal of carcasses, milk and feedstuff is by burial rather than cremation. Burial is generally easier, quicker, uses fewer resources, and is less polluting. However, several factors, such as topography, soil type, and water-table depth, must be considered in selecting a burial site. Forty-two cubic feet are required to bury 1 bovine, 5 pigs, or 5 sheep.
- Burning, rendering, composting and alkaline hydrolysis are possibilities

### Cleaning and Disinfection

- Remove all organic material
- Follow label directions
- Use appropriate disinfectant. Agents that destroy FMD virus include; (See Appendix III)
  - Acids (eg. as acetic acid)
  - Alkalis (eg. sodium hydroxide, sodium carbonate)
- Any disinfectants or pesticides used must be approved by EPA

### Estimated Personnel Requirements

- Depopulation and disposal crew – 5 for a herd of 40 per day.
- Vaccination Crew - 3 for two herds of 40 per day (consider using farm personnel if the States practice act allows it)
- C&D Crew – 3 and only one farm per day
- Appraisal Crew – 1 person can do a variable number of herds per day depending on appraisal process adopted
- Trace back – 1 person can do 1 to 3 traces per day
- Epidemiological evaluation – 1 person can do 1 to 2 per day
- FAD/EDI Investigation – 1 person

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### **Animal Welfare**

- Animals will be treated humanely from the time animals are identified as presumptive or confirmed positive until they are depopulated. When depopulation occurs, euthanasia must be performed as rapidly and humanely as possible. Consideration must be given to the owners and their families and provided with complete explanation of what to expect.
- Lactating animals must be milked
- Euthanasia will be carried out humanely by chemical, mechanical or electrical means

### **Equipment**

- Sources of equipment: With a Gubernatorial declaration, all States assets are made available. With a Presidential declaration, Federal assets are made available.

### **Indemnity and Appraisal**

- Title 9, Code of Federal Regulations, Part 53
- Three independent appraisals, eliminate the lowest and average the highest two
- Future improvements would explore alternate procedures

### **Milk and Milk products**

- Milk from known infected farms is destroyed on the farm
- Milk from herds not known to be infected could be moved to processing plants within a control zone and processed to eliminate virus and distributed only within control zone

### **Meat**

- Meat products from FMD exposed animals are not a food safety issue
- Clinically normal animals may be permitted to be slaughtered and processed. Fresh, chilled and frozen deboned meat and meat products should be marketed only within the infected zone

### **Zoologic Parks**

- Bio-security plans need to be in place to protect susceptible species
- If infected, all animals will be placed on daily surveillance with sentinel animals to ensure the zoo is free of FMD before the quarantine is released

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### Germplasm Centers

- Semen: FMD may be transmitted by infected semen (virus is shed in semen)
- Embryo Transfer: Follow USDA regulation

## Concept of Operations for an Emergency Response To a Highly Contagious Animal Disease

### Appendix III – Disinfectants for Foot-and-Mouth Disease – Field Use

<b>Product</b>	<b>Dilution</b>	<b>Mixing Instructions</b>	<b>Notes</b>
5.25% Sodium Hypochlorite (NaOCl) (household bleach)	3%	Add 3 gallons of chlorine bleach to 2 gallons of water, mix thoroughly	
Acetic acid*	4 - 5%	Add 6.5 ounces of glacial acetic acid to 1 gallon of water, mix thoroughly	Vinegar is a 4% solution of acetic acid.
Potassium Peroxymonosulfate and Sodium Chloride (i.e. Virkon-S)	1%	Follow label directions	Virkon-S
Sodium Carbonate (soda ash)*	4%	Add 5.33 ounces of sodium carbonate to 1 gallon of hot water (or 1 pound to 3 gallons of hot water), mix thoroughly	The solution is mildly caustic, but can dull paint and varnished surfaces.
Sodium Hydroxide (NaOH) (lye)*	2%	Add 1/3 cup of NaOH pellets (2.7 ounces of the lye) to 1 gallon of cold water, mix thoroughly.	This solution is highly caustic. Use protective rubber clothing, gloves and safety glasses. <b>WARNING:</b> Always add the lye to the water. Never pour the water over the lye.

\* Section 18 application submitted and EPA approval is pending.