United States Department of Agriculture

# Foreign Animal Disease (FAD) Response
## *Ready Reference Guide—*
## *Critical Activities & Tools during an FAD Response*

## Overview

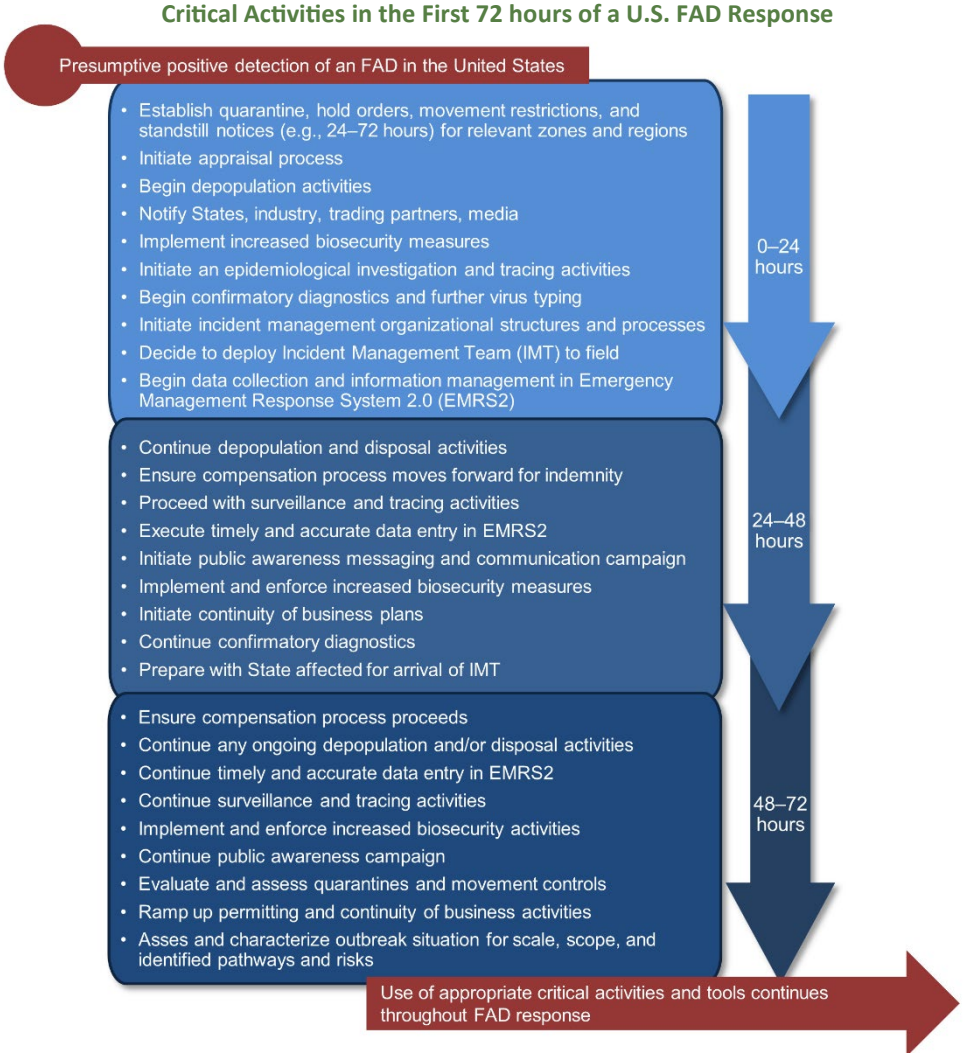
In order to achieve the USDA Animal and Plant Health Inspection Service (APHIS) goals of a Foreign Animal Disease (FAD) response, critical activities and must be implemented. This document provides an overview of these science- and risk-based approaches that will work to protect public health and the environment, and stabilize animal agriculture, the food supply, and the economy in an FAD event. Different methods or approaches will be required per FAD and per incident; each response effort is different.

Detailed information on each critical activity discussed here can be found in the associated Standard Operating Procedures (SOPs) and the National Animal Health Emergency Management System (NAHEMS) Guidelines, along with other FAD Preparedness and Response Plan (FAD PReP) materials and documentation located at www.aphis.usda.gov/fadprep.

## List of Selected Critical Activities during an FAD Response

- Surveillance
- Diagnostics
- Epidemiological Investigation & Tracing
- Information Management
- Communication
- Health & Safety and Personnel Protective Equipment (PPE)
- Biosecurity
- Quarantine & Movement Controls
- Continuity of Business (COB)
- Regionalization for International Trade
- Mass Depopulation & Euthanasia
- Disposal
- Cleaning & Disinfection
- Vaccination
- Logistics
- Wildlife Management & Vector Control
- Animal Welfare
- Appraisal & Compensation
- Modeling & Assessment Tools
- Incident Management

### Critical Activities in the First 72 hours of a U.S. FAD Response



## Surveillance

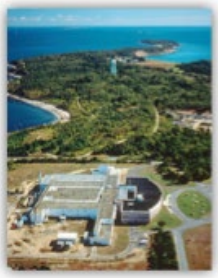
Surveillance activities for an FAD occur throughout the outbreak response. Surveillance plans are intended to

1. define the present extent of the FAD, and
2. detect unknown Infected Premises as quickly as possible.

Surveillance information is used to evaluate whether outbreak control mechanisms are working and to provide information for animal and product movement during the outbreak. Surveillance activities will continue to demonstrate disease freedom and assist to regain disease-free status after eradication of the outbreak.

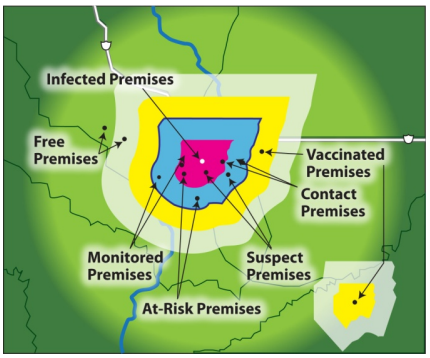
## Diagnostics

Effective and appropriate sample collection, diagnostic testing, surge capacity, and reporting are critical to an effective FAD response effort. All of these activities require extensive resources. Surveillance plan requirements must be fully integrated with current diagnostic sample collection, sample testing, surge capacity, and reporting capabilities. The National Veterinary Services Laboratories (located in Ames, Iowa and Plum Island, New York) will confirm the index case for any FAD outbreak in the United States. In an incident, the Unified Incident Command will provide specific instructions regarding the direction and collection of samples, including sending samples to the National Animal Health Laboratory Network laboratories during the course of the outbreak.



Plum Island Animal Disease Center

## Epidemiological Investigation and Tracing




Epidemiological investigation and movement tracing during an FAD outbreak are critical activities in controlling, containing, and eradicating the FAD. Epidemiology and tracing activities involve identifying cases of disease, locating other animals that may be infected, tracing all contacts with infected animals and premises, and designating zones, areas, and premises.

Typically, trace-back and trace-forward activities are conducted for at least two times the maximum incubation period for highly contagious FADs. Tracing activities include all movements onto and off of Infected Premises with consideration given to potential modes of transmission such as aerosol, direct/indirect contact, and potential wildlife contact. Additionally, the epidemiological investigation will help to elucidate the nature and distribution of the disease, risk factors of transmission, and other outbreak characteristics which will in turn shape the response effort, including the extent of regulatory intervention. These activities will be used to evaluate the effectiveness of the control measures.

## Information Management

Information management systems at the local, State, Tribal, and Federal level

1. facilitate the collection, management, reporting, analysis, and dissemination of critical emergency response information, and
2. give emergency response providers access to shared, accurate, and timely data needed for decision making.

Information including, but not limited to, epidemiological information, diagnostic test results, and resource requests, must be available at intervals as prescribed by Incident Command. Effective information management requires robust information technology systems.

The Emergency Management Response System 2.0 (EMRS2) is the official USDA APHIS system of record in an FAD outbreak. Data should be entered into EMRS2 in as close as real-time as possible; at a minimum, data should be entered in 12-hour intervals during an outbreak. It is critical that data entry is both timely and accurate across field operations.

EMRS Emergency Management Response System

## Communication

Communication, both among responders and to the public, is critical for a successful response effort. Effective communication involves briefing the media, public, industry, Congress, trading partners, and other stakeholders on the status of the outbreak and actions being taken to control and eradicate the FAD. Communication also involves coordinating with Federal, State, and local agencies, Tribal entities, and others to ensure consistent messaging regarding animal health, public health, and food safety. It is imperative that a network of stakeholders and systems for communication are established prior to an FAD incident. More information on communication and key communication messages are included in disease-specific plans and ready reference guides.

## Health & Safety and Personal Protective Equipment

During an FAD response, any number of physical, environmental, and psychological hazards can occur. The specific hazards encountered will depend on the disease agent, type of activities required, the location, the terrain, and time of year. Physical hazards include animal related incidents, musculoskeletal injuries, and fatigue. Environmental hazards include extreme weather and temperatures as well as insect vectors. Responders could be subject to psychological hazards associated with long, unusual hours and emotional stress from activities like depopulation. If the disease agent is zoonotic, personnel should be aware of transmission risks and avoid unnecessary exposure or implement protective measures (vaccination, where appropriate). Additionally, training in animal handling, proper use of PPE, and self-awareness will go a long way to protecting responder health.

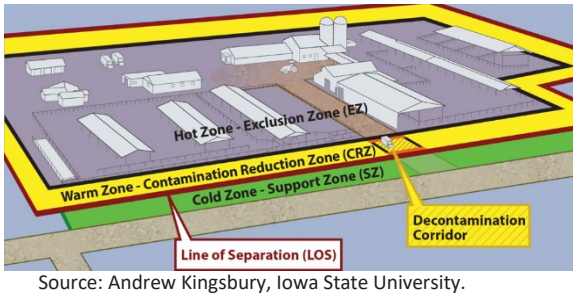
## Biosecurity

In an FAD incident, biosecurity measures will be implemented to (1) contain the agent on infected premises (biocontainment), and (2) prevent the introduction of the agent via movement of personnel and materials to naïve animals and premises (bioexclusion).

Biosecurity measures will be implemented within 24 hours of the identification of an index FAD case, or as soon as possible. In FAD outbreaks, a biosecurity plan is created with information on the roles and responsibilities of key personnel, site security and safety, and biosecurity practices.

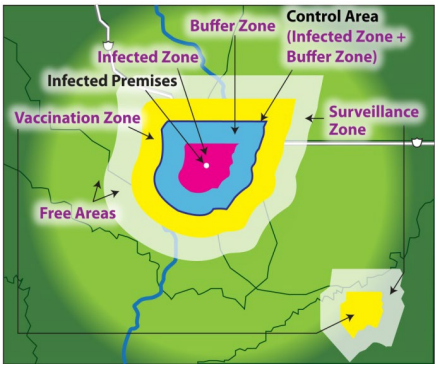
In many responses, personnel may be asked by Incident Command not to travel directly between Infected or Suspect Premises to unknown or non-infected premises. However, it is important to ensure a careful balance is maintained between facilitating response activities and ensuring personnel do not expose naïve animals and premises to the FAD.

**Infected Premises Work Zones**




Source: Andrew Kingsbury, Iowa State University.

## Quarantine and Movement Control




By restricting the movement of infected animals, animal products, and contaminated fomites, quarantine and movement control can be a powerful tool in controlling and containing an FAD outbreak. Transmission of an FAD can occur through infected animals, animal products, and fomites (e.g., equipment, vehicles, bedding, clothing).

When an FAD is detected, State Animal Health Officials and Tribal officials issue a quarantine, hold order or standstill notice for the Infected Premises based on the authority of the State. Certain FADs may result in a National Movement Standstill for at least 72 hours. Additionally, a regulatory Control Area, comprised of an Infected and Buffer Zone, will be established. Within this regulatory Control Area, Infected, Contact, and Suspect Premises are subject to individual premises quarantines; At-Risk and Monitored Premises are subject to movement control restrictions.

Movement control for Control Areas are accomplished through a permit system to allow permitted movement without creating an unacceptable risk of disease. Quarantine and movement control will be implemented simultaneously with COB plans – see next section.

## Continuity of Business

Outbreak control measures have a direct effect on the ability of a farm or food processor to continue key operations for production and distribution of food and products. As such, COB plans focus on the managed movement of non-infected animals and non-contaminated animal products that exist on non-infected premises within regulatory Control Areas. Plans are intended to maintain a continuous supply of animals and animal products to market and reduce negative economic consequences of stalled production. COB plans involve risk assessments, surveillance, biosecurity, and movement controls through permitting. Secure Food Supply Plans for poultry, milk, pork, beef, and sheep and wool have been developed in the event of an FAD outbreak. Separetely, the Secure Zoo Strategy has been produced to assist the exotic animal industry in an FAD outbreak.

SPS SECURE PORK SUPPLY www.securepork.org

SBS SECURE BEEF SUPPLY www.securebeef.org

SPS SECURE POULTRY SUPPLY www.cfsph.iastate.edu/Secure-Poultry-Supply

SMS SECURE MILK SUPPLY www.securemilksupply.org

SSWS SECURE SHEEP AND WOOL SUPPLY www.securesheepwool.org

Secure Zoo https://zahp.aza.org/secure-zoo

**Critical Activities Implemented as an FAD Outbreak Response Progresses**


## Regionalization for International Trade

In the event of an FAD outbreak in the United States, international trade of animals and animal products may be adversely affected for a significant period of time. This can have serious economic implications for the affected industries, as well as the country as a whole.

Regionalization is one possible way to facilitate the reestablishment of international trade as soon as possible after an outbreak. Regionalization is the concept of separating subpopulations of animals in order to maintain a specific health status in one or more disease-free regions or zones. This risk-based process, based on sound science, can help to mitigate the adverse economic effects of an FAD outbreak.

## Mass Depopulation & Euthanasia

During FAD outbreaks, mass depopulation and euthanasia are employed to euthanize affected animals in order to control, contain, and eradicate the diease to protect the nation's food supply, animal agricutlure, and animal health. The goals of euthanasia are to

a) provide humane treatment of animals until they are depopulated;
b) conduct depopulation as quickly, efficiently, and humanely as possible; and
c) minimize the emotional and psychological impact on animal owners, caretakers, and other personnel.

Incident Command provides more information on preferred methods given the disease, incident, resources, and animal species. Depopulation and euthanisia must be conducted by qualified trained personnel.

## Disposal

Proper disposal of animal carcasses and materials (e.g., bedding, manure, litter) is important for preventing or mitigating pathogen spread and containing, controlling, and eradicating the FAD. Disposal must be completed in a manner that does not allow the FAD to spread, that minimizes negative environmental effects, and conserves meat or animal protein if logistically supportable from a biosecurity standpoint. Local and state regulations must be observed or memorandums of understanding must be obtained to ensure disposal capability. Cost effectiveness and stakeholder acceptance must also be considered.

## Cleaning & Disinfection (Virus Elimination)

Many FADs can survive for extended periods of time on both organic and inorganic materials. Therefore, aggressive cleaning and disinfection (virus elimination) measures may be necessary to control and eradicate the FAD agent. Appropriate methods should be selected based on the characteristics of the disease agent, premises, temperature, and other factors. Virus elimination should be completed in the most cost-effective manner possible.

If available personnel or materials are insufficient for cleaning and disinfection efforts, the Incident Commander can request contracted emergency support from the National Veterinary Stockpile (NVS).

## Vaccination

Emergency vaccination can be an effective means of controlling the spread of disease, if available for that particular FAD. The use of vaccination will be strategic, and will likely be paired with other response strategies, such as depopulation. If vaccination is employed it may be necessary to use a vaccine with differentiation of infected and vaccinated animals (DIVA) capabilities, which is often necessary for proving disease freedom. Deciding to vaccinate will take into account economic factors, vaccine suitability, nature of the farm operation, species involved, extent and projected duration of the outbreak, resources available, and public acceptance.

## Logistics

Both personnel and materials should be deployed to the incident site for response activities within 24 hours of an outbreak. The Veterinary Services Logistics Center NVS has contracted access to veterinary countermeasures, including vaccine, as well as contractor support for disposal, depopulation, and decontamination activities in an outbreak. Support can be requested through Incident Command. All deployed resources are monitored throughout the FAD response effort.

## Wildlife Management & Vector Control

In order to effectively contain, control, and eradicate an FAD in domestic livestock and poultry, the response effort must consider the role that wildlife may play. Wild animals may become exposed to the FAD, serve as a reservoir, or spread the disease to naïve domestic livestock or poultry, which may complicate emergency response. In the event that wildlife play a role in an FAD outbreak, APHIS will cooperate with other Federal, State, and Tribal agencies that have primary jurisdiction over wildlife. A wildlife management plan will be developed as soon as possible after identification of the index case in livestock or poultry, based on an assessment of the risk that wildlife poses for the transmission of the FAD to susceptible domestic livestock and poultry.


## Animal Welfare

During any outbreak or incident, humane treatment of animals must be provided given the specific circumstances of the outbreak, particularly from the time animals are identified for destruction or vaccination activities until they are depopulated, euthanized, or slaughtered as prescribed by veterinary authorities of the affected States or Tribal nations.

## Modeling & Assessment Tools

Models and risk assessments can give decision makers valuable insight in a response effort. During an outbreak, one or more multidisciplinary teams will be developed to perform risk assessments or other analyses as requested by the Incident Commander.

## Appraisal & Compensation

The Animal Health Protection Act gives APHIS authority to establish and implement an indemnification program in the event of an FAD outbreak. Indemnity can be a key component of APHIS's disease control programs in that the promise of fair compensation helps to ensure cooperation from the owners of affected livestock or poultry. Such cooperation is important for rapid disease control and eradication.

## Incident Management

### Foundation of Preparedness and Response

Successful FAD response is based on the principles found in the National Response Framework (NRF) and the National Incident Management System (NIMS).

**National Response Framework**

The NRF is a guide to how the Nation conducts all-hazards response through a whole community approach. It describes core capabilities for response, defines specific authorities, and establishes a comprehensive approach for responding to domestic incidents that range from serious, but purely local, events to large-scale terrorist attacks or catastrophic natural disasters. The NRF is one of the five National Planning Frameworks; it builds on NIMS, which provides consistent template for managing incidents. The NRF is available at www.fema.gov/national-response-framwork.

**National Incident Management System**

NIMS is a companion document to the NRF, provides a systematic, nationwide, proactive approach guiding departments and agencies at all levels of government, the private sector, and non-governmental organizations. Its goal is to help these organizations work seamlessly to prepare for, prevent, respond to, recover from, and mitigate the effects of incidents, "…regardless of cause, size, location, or complexity— in order to reduce the loss of life, liberty, property, and harm to the environment." NIMS provides a core set of concepts, principles, procedures, organizational processes, terminology, and standard requirements, including the Incident Command System. NIMS information is available at www.fema.gov/national-incident-management-system.

### APHIS Incident Management—Field Organization

At the beginning of an FAD incident, the State Animal Health Official or designee, and the Veterinary Services Area Veterinarian in Charge, or designee, initially serve as Co-Incident Commanders in a unified Incident Command Structure. APHIS Veterinary Services, to date, has five standing National Incident Management Teams that can be deployed during an outbreak to coordinate the FAD response, manage public messages, and take measures to control and eradicate the FAD outbreak.

Veterinary Services Field Operations is organized into 4 districts to carry out critical activities in the field during an FAD response.