



NAHEMS GUIDELINES: QUARANTINE AND MOVEMENT CONTROL

FAD PReP

**Foreign Animal Disease
Preparedness & Response Plan**



NAHEMS

**National Animal Health
Emergency Management System**



United States Department of Agriculture • Animal and Plant Health Inspection Service • Veterinary Services

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The Foreign Animal Disease Preparedness and Response Plan (FAD PReP)/National Animal Health Emergency Management System (NAHEMS) Guidelines provide a framework for use in dealing with an animal health emergency in the United States.

This FAD PReP/NAHEMS Guidelines was produced by the Center for Food Security and Public Health (CFSPH), Iowa State University of Science and Technology, College of Veterinary Medicine, in collaboration with the U.S. Department of Agriculture Animal (USDA) and Plant Health Inspection Service through a cooperative agreement.

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PREFACE

The Foreign Animal Disease Preparedness and Response Plan (FAD PReP)/National Animal Health Emergency Management System (NAHEMS) Guidelines provide the foundation for a coordinated national, regional, State, and local response in an emergency, complementing non-Federal preparedness activities. These guidelines may be integrated into preparedness plans of other Federal agencies, State and local agencies, Tribal Nations, and additional groups involved in animal health emergency management.

The Quarantine and Movement Control (QMC) Guidelines are a component of Animal and Plant Health Inspection Service's (APHIS') FAD PReP/NAHEMS Guideline Series and are designed for use by APHIS Veterinary Services and other official response personnel in the event of an animal health emergency, such as the occurrence or intentional introduction of a highly contagious foreign animal disease. FAD PReP/NAHEMS Guidelines are designed for use as a preparedness resource rather than as a comprehensive response document. Additional QMC resources are included in the appendixes and in the references at the end of this document.

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Guidelines: Quarantine and Movement Control

1. INTRODUCTION

In a foreign animal disease (FAD) incident, control and containment of the disease agent is essential to eradication and recovery. Quarantine and movement control (QMC) are critical activities to protect animal health, by helping to ensure that the disease agent is not transmitted to non-infected livestock and poultry populations. QMC stops and controls movements in a regulatory Control Area (CA). In an incident, these activities are handled through the unified Incident Command (IC). This document provides a broad overview of QMC activities that could be implemented for an FAD incident.

1.1 Definitions

For the purpose of this document, “quarantine” refers to imposing stringent restrictions on entering or leaving a premises, area, or region where disease is known to exist or is suspected. During an FAD outbreak, a quarantine broadly prohibits the movement of animals, animal products, and fomites (e.g., equipment, vehicles, clothing, footwear) from a specified premises, area, or region. This protects unaffected animal populations by containing the FAD and reducing disease transmission. In the case of a zoonotic disease, a quarantine can also protect public health.¹

A “hold order” is a temporary order, similar in effect to a quarantine, typically implemented while additional diagnostics or investigation is conducted. Hold orders are usually, but not always, under State authority: definition, scope, and terminology may vary by State.

A “standstill notice” is the temporary prohibition of the initiation of any new movement of the susceptible species in a defined area. A standstill notice is typically implemented at a Federal level, put into effect through an official notice and subsequent publication in the Federal Register.

The term “movement control” refers to controlling the movement of animals, animal products, and fomites in a regulatory CA. These movements are from non-infected premises,² often require permits, and are based on meeting specific criteria. These criteria help to ensure that such movement poses a negligible risk of pathogen transmission. For details on permits and permitted movement, please see the *FAD PReP Manual 6-0: Permitted Movement*.

The term “continuity of business” (COB) is for a specific type of movement control known as managed movement. COB typically focuses on a specific commodity and is intended to mitigate the economic effects of a regulatory CA. COB is briefly discussed in this document; more information is available in

¹ For a zoonotic disease, State, Tribal, and Federal authorities exist to quarantine and/or isolate individuals to stop the spread of disease. Therefore, controlling the movement of and/or quarantining of individuals are topics outside the scope of this document; however, the U.S. Department of Agriculture (USDA) will work closely with public health authorities in any zoonotic disease outbreak. For more information on public health authorities, please see the following: <http://www.cdc.gov/quarantine/pdf/legal-authorities-isolation-quarantine.pdf>.

² Non-infected premises are premises that have demonstrated no evidence of infection. If these premises are located within a Control Area, they are At-Risk Premises or Monitored Premises (see [Table 1](#)).

1.2 Purpose and Scope of Document

1.2.1 Purpose

The purpose of this document is to provide stakeholders with a broad understanding of QMC and to explain how QMC activities would occur in an FAD incident, from the perspective of the USDA, Animal and Plant Health Inspection Service (APHIS), Veterinary Services (VS).

This document

- describes the QMC measures that may be considered necessary in an FAD incident,
- provides general information for personnel in a unified IC that may be involved with QMC activities, and
- emphasizes the need for strong cooperation between local, State, and Federal levels, and with private industry, in order to effectively respond to an FAD and conduct QMC activities.

1.2.2 Scope

This document focuses on diseases spread by direct and indirect contact rather than vector-borne diseases, as QMC is not particularly effective at preventing the movement of mobile insect vectors. However, QMC activities can still prevent the movement of infected hosts, which may be important in vector-borne FAD incidents.

While QMC activities are essential to rapidly contain an FAD, these activities can also cause significant disruptions in typical business operations and result in severely restricted intrastate and interstate commerce. It is difficult to quantify the economic impact of potential disruptions, but current agricultural production and marketing systems rely on frequent—even daily—movement. For example, just-in-time production in the swine industry and daily movement of milk in the dairy industry mean that QMC activities would cause major interruptions, even if movement was stopped only for a short period of time. Severe economic consequences would result. In response to this problem, COB plans (also known as managed movement plans) for non-infected animals and non-contaminated animal products—known as the Secure Food Supply Plans—have been established to mitigate economic effects of QMC. These Plans are discussed in Section 6.2, but further information is found in the *FAD PRoP/NAHEMS Guidelines: Continuity of Business*.

This document is written from a USDA APHIS perspective, acknowledging that IC will be a unified IC with Federal, State, Tribal, and local personnel.

1.3 Goals of an FAD Outbreak Response

QMC activities are a critical component of a response effort. The three goals of an FAD outbreak response are as follows:

To: (1) detect, control, and contain the FAD in animals as quickly as possible; (2) eradicate the FAD using strategies that seek to stabilize animal agriculture, the food supply, and the economy, and to protect public health and the environment; and (3) provide science- and risk-based approaches and systems to facilitate COB for non-infected animals and non-contaminated animal products.

Achieving these three goals will allow individual livestock facilities, States, Tribes, regions, and industries to resume normal production as quickly as possible. They will also allow the United States to regain FAD-free status without the response effort causing more disruption and damage than the disease outbreak itself.

1.4 Goals of Quarantine and Movement Control

QMC-specific goals support overall FAD response goals.

1.4.1 Preparedness Goals

Preparedness goals are as follows:

- To work with stakeholders to develop effective plans and processes for affected premises, areas, and regions.
- To work with stakeholders to develop effective managed movement plans for non-infected premises (IP), areas, and regions.

1.4.2 Response Goals

The response goals are as follows:

- Through a unified IC, coordinate the establishment of an Infected Zone (IZ) and a Buffer Zone (BZ) (a CA) within 6 hours of identifying the index case.
- Once a CA has been established, implement QMC in the CA as rapidly as possible.
- Ensure QMC considers competing priorities, weighing the risk of disease transmission against the need for critical movements (e.g., feed trucks) and business continuity.

2. AUTHORITIES

The Code of Laws of the United States of America (U.S.C.) and the Code of Federal Regulations (CFR) are codified authorities representing different stages of the legislative process. The U.S.C. provides the general and permanent statutes of the United States, which are passed by Congress and signed by the President. Executive branch agencies then interpret the U.S.C., developing detailed regulations in the CFR. The CFR is developed through a public rulemaking process, where the public is allowed to comment. For more information, please see the *APHIS Foreign Animal Disease Framework: Roles and Coordination* (FAD PReP Manual 1-0).

In an FAD incident response, the U.S.C. and CFR provide policy, via statutes and regulations, for USDA; interim regulations can be implemented—in the event of an outbreak—to prevent the spread of disease.

2.1 USDA APHIS Authorities for Foreign Animal and Emerging Diseases

An FAD is a terrestrial animal disease or pest, or an aquatic animal disease or pest, not known to exist in the United States or its territories (please see *APHIS FAD Framework: Response Strategies* [FAD PReP Manual 2-0] for more information). An emerging animal disease may be any terrestrial animal, aquatic animal, or zoonotic disease not yet known or characterized, or any known or characterized terrestrial animal or aquatic animal disease in the United States or its territories that changes or mutates in pathogenicity, communicability, or zoonotic potential to become a threat to terrestrial animals, aquatic animals, or humans. An FAD or emerging animal disease may involve livestock, poultry, other animals, and/or wildlife.

On July 2, 2014, APHIS published *VS Proposed Framework for Response to Emerging Animal Diseases in the United States* for responding to such incidents. This document is available at https://www.aphis.usda.gov/animal_health/downloads/vs_emerging_diseases_framework.pdf. This document complements the National List of Reportable Animal Diseases (NLRAD), which proposes a single, standardized list of reportable animal diseases and who will be responsible for reporting. It is likely this list will be published in a proposed rule, establishing a new part in Title 9 of the CFR. More information on the NLRAD is available here: https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/program-overview/ct_national_list_reportable_animal_diseases.

In the event of an FAD or emerging animal disease outbreak in domestic livestock that involves wildlife, USDA APHIS will work in close collaboration, communication, and coordination with State, Tribal, and Federal wildlife agencies that have primary jurisdictional authority and subject matter expertise for wildlife.

For information on the procedures for an FAD investigation and specimen submission, including for foreign animal disease diagnosticians (FADDs), please see *VS Guidance Document 12001* (previously APHIS VS Memorandum 580.4) and the *Foreign Animal Disease Investigation Manual* (FAD PreP Manual 4-0).

2.1.1 Animal Health Protection Act

APHIS receives its permanent and general regulatory authority from the Animal Health Protection Act (AHPA), 7 U.S.C. 8301 *et seq.*

The AHPA enables the Secretary of Agriculture to prevent, detect, control, and eradicate diseases and pests of animals, including foreign animal and emerging diseases, in order to protect animal health, the health and welfare of people, economic interests of livestock and related industries, the environment, and interstate and foreign commerce in animals and other articles. The term “animal” means any member of the animal kingdom (except a human), 7 U.S.C. 8301-8302. The Secretary is specifically authorized to carry out operations and measures to detect, control, or eradicate any pest or disease of livestock, which includes poultry, 7 U.S.C. 8308, and to promulgate regulations and issue orders to carry out the AHPA (7 U.S.C. 8315). The Secretary may also prohibit or restrict the importation, entry, or interstate movement of any animal, article, or means of conveyance to prevent the introduction into or dissemination within the United States of any pest or disease of livestock (7 U.S.C. 8303-8305).

2.1.2 Code of Federal Regulations

Title 9 of the CFR provides detailed USDA APHIS administrative regulations for the control and eradication of animal diseases, including FADs and emerging animal diseases. Below are several key sections of the CFR to safeguard public health, animal health, animal products, interstate commerce, and international trade.³ Please refer to the *APHIS Foreign Animal Disease Framework: Roles and Coordination* (FAD PreP Manual 1-0) for more information or the following CFRs:

- 9 CFR 71.2—Secretary (of Agriculture) to issue rule governing quarantine and interstate movement of diseased animals, including poultry
- 9 CFR 71.3—Interstate movement of diseased animals and poultry generally prohibited
- 9 CFR 53—Foot-and-mouth disease, pleuropneumonia, rinderpest, and certain other communicable diseases of livestock or poultry
- 9 CFR 161—Requirements and standards for accredited veterinarians and suspension or revocation of such accreditation.

2.2 State Authority in an FAD Outbreak

FAD response, and enforcement of QMC, involves State, Tribal, and local authorities and resources. Authority granted to the State Animal Health Official (SAHO) varies from State to State. Legal authority is granted via statute by a legislating body, and regulations are promulgated by an executive agency under this statutory authority. Quarantine on a premises—or movement restrictions—within a CA may be issued, based on an FAD detection or a suspected FAD. These may include quarantines of an individual pen, herd, flock, premises, county, section, or area, depending on the specific State authority. Since

³ While this section focuses on USDA APHIS authority, please note that the Centers for Disease Control and Prevention has the authority, per the Public Health Service Act, and 42 CFR 70.2 to “take such measures to prevent such spread of diseases as he/she deems reasonably necessary, including inspection, fumigation, disinfection, pest extermination, and destruction of animals or articles believed to be sources of infection.”

statutes and regulations vary by State, it is important to become familiar with and follow the laws, regulations, and terminology of your State, Tribal Nation, and/or locality. State quarantines are used to stop and control the spread of an infectious or contagious disease within a State.

2.3 Extraordinary Emergency

While typically States control intrastate movements, it is important to recognize that if the U.S. Secretary of Agriculture declares an Extraordinary Emergency, the Federal government is then authorized to control *intrastate* movement, in addition to *interstate* movement and *international* movement. Please note in the highly pathogenic avian influenza (HPAI) outbreak in 2014–2015, the largest animal health incident ever in the United States, there was no Extraordinary Emergency declaration.

Additionally, an FAD outbreak in the United States may result in emergency regulatory intervention by State, Tribal Nations, and Federal authorities via a unified IC.

3. RESPONDING TO AN FAD: GENERAL INFORMATION

3.1 Epidemiological Principles of Response

The need for QMC activities is based on the three basic epidemiological principles of response. These three principles form the foundation of any FAD response strategy to contain, control, and ultimately eradicate the disease in the U.S. domestic livestock or poultry population.

1. *Prevent contact between the disease and susceptible animals.*
 - a. This is accomplished through quarantine of infected animals, movement controls in the IZ (s) and BZ (s) (CAs), and biosecurity procedures to protect non-infected animals.
 - b. Certain circumstances may warrant accelerating the depopulation of animals at risk for exposure to the disease to decrease the population density of susceptible animals.
 - c. There is a serious but lesser transmission risk posed by people, material, conveyances, and non-susceptible animals that may have been in contact with the disease and serve as mechanical vectors. Contact with susceptible animals should be prevented and transmission risk mitigated through biosecurity and cleaning and disinfection measures.
2. *Stop the production of the disease agent.* This is accomplished by the slaughter or mass depopulation (and disposal) of infected and potentially infected animals.
3. *Increase the disease resistance of susceptible animals or reduce the shedding of the disease agent in infected or exposed animals.* This can be accomplished by emergency vaccination if a suitable vaccine is available and can be administered in a timely manner.

3.2 Critical Activities

During an FAD response, many activities must be conducted simultaneously to achieve the goals of an FAD response. Box 1 lists some of the critical activities which occur in an FAD outbreak, including QMC. Other activities, such as surveillance, diagnostic testing, COB, disposal, and vaccination will also help to rapidly and effectively control, contain, and eradicate the disease.

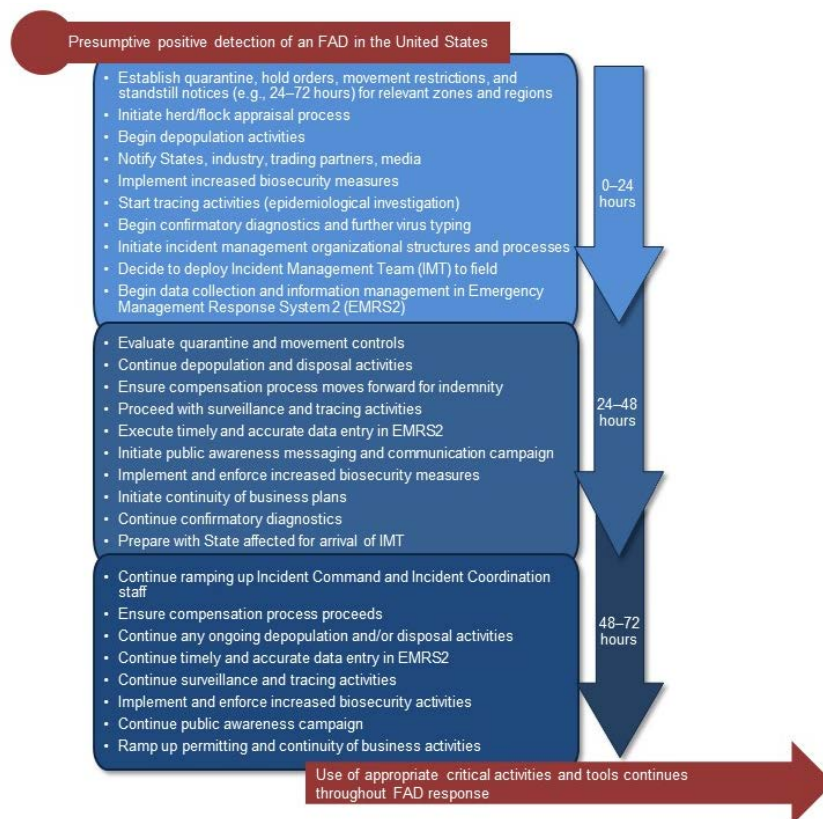
Box 1. Critical Activities and Tools for an FAD Response

Critical Activities and Tools for Containment, Control, and Eradication

- Public awareness campaign
- Swift imposition of effective QMC
- Rapid diagnosis and reporting
- Epidemiological investigation and tracing
- Increased surveillance
- COB measures for non-infected animals and non-contaminated animal products
- Biosecurity measures
- Cleaning and disinfection measures
- Effective and appropriate disposal procedures
- Mass depopulation and euthanasia (as response strategy indicates)
- Emergency vaccination (as the response strategy indicates)

Figure 1 shows the critical activities that will take place within the first 72 hours of an outbreak. These critical tasks are fundamental to the rapid control and containment of the disease.

Figure 1. Critical Activities in the First 72 Hours of an FAD Outbreak



3.3 Zone, Area, and Premises Designations

Immediately after an FAD detection, a regulatory CA—comprised of an IZ and BZ, is designated. Quarantines are implemented for Infected, Contact, and Suspect Premises (SP) in this regulatory CA. As the epidemiological investigation continues, the incident is likely to become more complex, demanding additional resources. Response zones and areas are likely to change over the course of an incident. For a summary of these designations, please see Table 1, Table 2, and Figure 2. Table 3 provides information

on minimum zone sizes for most FADs; and Table 4 provides information on minimum zone sizes for mosquito or culicoides-borne diseases.

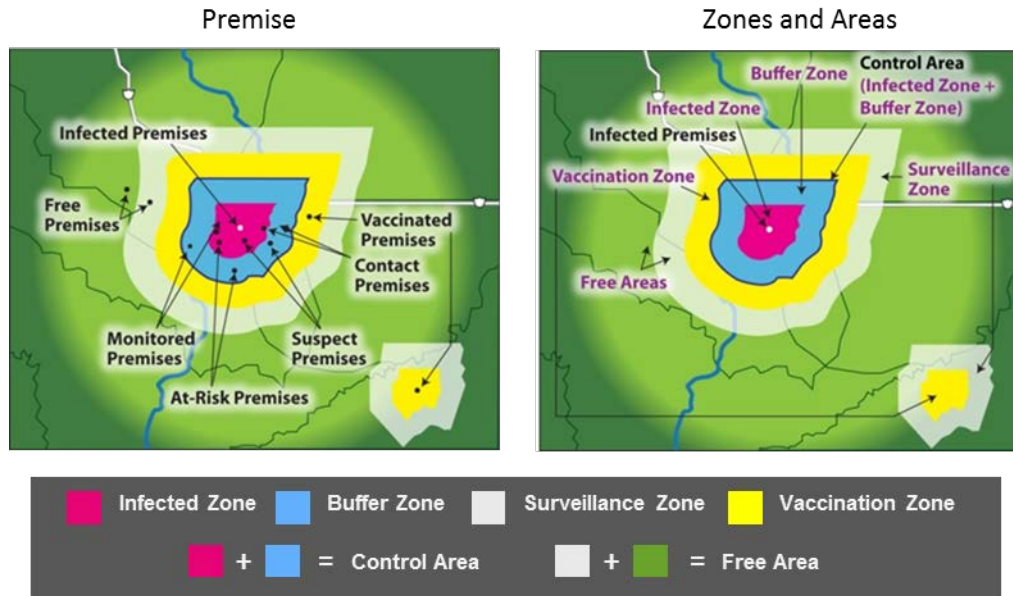
Table 1. Summary of Premises Designations

Premises	Definition	Zone
Infected Premises (IP)	Premises where a presumptive positive case or confirmed positive case exists based on laboratory results, compatible clinical signs, case definition, and international standards.	Infected Zone (IZ)
Contact Premises (CP)	Premises with susceptible animals that may have been exposed to the FAD, either directly or indirectly, including but not limited to exposure to animals, animal products, fomites, or people from IP.	IZ, Buffer Zone (BZ)
Suspect Premises (SP)	Premises under investigation due to the presence of susceptible animals reported to have clinical signs compatible with the FAD. This is intended to be a short-term premises designation.	IZ, BZ, Surveillance Zone (SZ), Vaccination Zone (VZ)
At-Risk Premises (ARP)	Premises that have susceptible animals, but none of those susceptible animals have clinical signs compatible with the FAD. Premises objectively demonstrates that it is not an IP, CP, or SP. APR may seek to move susceptible animals or products within the CA by permit. Only APR are eligible to become Monitored Premises (MP).	IZ, BZ
Monitored Premises (MP)	Premises objectively demonstrates that it is not an IP, CP, or SP. Only APR are eligible to become MP. MP meet a set of defined criteria in seeking to move susceptible animals or products out of the CA by permit.	IZ, BZ
Free Premises (FP)	Premises outside of a CA and not a Contact or SP.	SZ, Free Area (FA)
Vaccinated Premises (VP)	Premises where emergency vaccination has been performed. This may be a secondary premises designation.	Containment VZ, Protection VZ

Table 2. Summary of Zone and Area Designations

Zone/Area	Definition
Infected Zone (IZ)	Zone that immediately surrounds an Infected Premises.
Buffer Zone (BZ)	Zone that immediately surrounds an Infected Zone or a Contact Premises.
Control Area (CA)	Consists of an Infected Zone and a Buffer Zone.
Surveillance Zone (SZ)	Zone outside and along the border of a Control Area. The Surveillance Zone is part of the Free Area.
Free Area (FA)	Area not included in any Control Area. Includes the Surveillance Zone.
Vaccination Zone (VZ)	Emergency Vaccination Zone classified as either a Containment Vaccination Zone (typically inside a Control Area) or a Protection Vaccination Zone (typically outside a Control Area). This may be a secondary zone designation.

Figure 2. Example of Zones, Areas, and Premises



Note: Figures are not to scale. The VZ can be either a Protection VZ or Containment VZ.

Table 3. Minimum Sizes of Zones and Areas

Zone or Area	Minimum Size and Details
Infected Zone (IZ)	Perimeter should be at least 3 km (~1.86 miles) beyond perimeters of presumptive or confirmed Infected Premises. Will depend on disease agent and epidemiological circumstances. This zone may be redefined as the outbreak continues.
Buffer Zone (BZ)	Perimeter should be at least 7 km (~4.35 miles) beyond the perimeter of the Infected Zone. Width is generally not less than the minimum radius of the associated Infected Zone, but may be much larger. This zone may be redefined as the outbreak continues.
Control Area (CA)	Perimeter should be at least 10 km (~6.21 miles) beyond the perimeter of the closest Infected Premises. Please see Table 5 for factors that influence the size of the Control Area. This area may be redefined as the outbreak continues.
Surveillance Zone (SZ)	Width should be at least 10 km (~6.21 miles), but may be much larger.

Table 4. Minimum Sizes of Zones and Areas for Mosquito or Culicoides-Borne Diseases

Zone or Area	Minimum Size and Details
Infected Zone (IZ)	Perimeter should be at least 10 km (~6.2 miles) beyond perimeters of presumptive or confirmed Infected Premises. Will depend on disease agent and epidemiological circumstances. This zone may be redefined as the outbreak continues.
Buffer Zone (BZ)	Perimeter should be at least 20 km (~12.4 miles) beyond the perimeter of the Infected Zone. Width is generally not less than the minimum radius of the associated Infected Zone, but may be much larger. This zone may be redefined as the outbreak continues.
Control Area (CA)	Perimeter should be at least 30 km (~18.6 miles) beyond the perimeter of the closest Infected Premises. Please see Table 5 for factors to consider in determining the size of a Control Area. This area may be redefined as the outbreak continues.
Surveillance Zone (SZ)	Width should be at least 20 km (~12.4 miles) but may be larger depending on the known geographic range of vector.

3.4 Establishing a Control Area

There are many factors which will be considered in determining the size of a regulatory CA during an incident. These factors are listed in Table 5. In an incident, these factors may need to be considered and evaluated routinely as more information becomes available.

Table 5. Factors Used to Determine Control Area Size

Factors	Additional Details
Jurisdictional areas	<ul style="list-style-type: none"> Effectiveness and efficiency of administration Multi-jurisdictional considerations: local, State, Tribal, and multistate
Physical boundaries	<ul style="list-style-type: none"> Areas defined by geography Areas defined by distance between premises
FAD epidemiology	<ul style="list-style-type: none"> Reproductive rate Incubation period Ease of transmission Infectious dose Species susceptibility Modes of transmission (such as, fecal-oral, droplet, aerosol, vectors) Survivability in the environment Ease of diagnosis (for example, no pathognomonic signs; requires diagnostic laboratory testing) Age of lesions
Infected Premises characteristics	<ul style="list-style-type: none"> Number of contacts Transmission pathways and transmission risk <ul style="list-style-type: none"> Extent of animal movement Number of animals Species of animals Age of animals Movement of traffic and personnel to and from premises (fomite spread) Biosecurity measures in place at time of outbreak
Contact Premises characteristics	<ul style="list-style-type: none"> Number and types of premises Susceptible animal populations and population density Animal movements Movement of traffic (fomites) and personnel to and from premises (fomite spread) Biosecurity measure in place prior to outbreak
Environment	<ul style="list-style-type: none"> Types of premises in area or region Land use in area or region Susceptible wildlife and population density Wildlife as biological or mechanical vectors
Climate (for aerosol spread diseases)	<ul style="list-style-type: none"> Prevailing winds Humidity
General area, region, or agricultural sector biosecurity	<ul style="list-style-type: none"> Biosecurity practices in place prior to outbreak Biosecurity practices implemented once outbreak detected
Number of backyard or transitional premises	<ul style="list-style-type: none"> Types of premises, animal movements, and network of animal and fomite movements
Continuity of business	<ul style="list-style-type: none"> COB plans and processes in place or activated at beginning of outbreak (such as surveillance, negative diagnostic tests, premises biosecurity, and risk-assessments) Permit processes, memorandums of understanding, and information management systems in place or activated at beginning of outbreak

4. GENERAL CONSIDERATIONS FOR QUARANTINE AND MOVEMENT CONTROL

QMC activities are important interventions to control and contain an FAD. Usually Federal quarantines and movement restrictions are instituted to control *interstate* and *international* movement of infected animals and contaminated animal products; States implement State quarantines and restrict the *intrastate* movement of animals, animal products, equipment, and other items.

Individual, independent State actions that result in disparate QMC policies are most likely to occur at the beginning of an FAD outbreak, when there is insufficient information to make sound decisions. It is reasonable to assume high risk activities will fall under a stop movement order,⁴ and that movement controls or COB (managed movement plans) will be applied to critical movements (e.g., for animal welfare) and/or lower risk movements, depending upon the situation. Again, the mitigation to prevent disparate State (or region) approaches to QMC is to further develop, evaluate, exercise, and implement plans and policies ahead of an incident. This includes the Secure Food Supply Plans, which have been developed through a State-Federal-Academic-Industry collaboration.

4.1 Coordination and Cooperation

A highly contagious FAD involves Federal authority, resources, and expertise closely coordinated with State, local, and Tribal government authority and resources. In addition, partners in the private sector (e.g., industry and academia) are also involved in any response effort. These stakeholders need to respond in a coordinated and mutually supportive manner. The SAHO and the APHIS VS Assistant Director (AD) at the District need to cooperate on all aspects of a significant disease response. In addition to State imposed quarantines, Federal quarantines are implemented as required by the situation or requested by the SAHO. The difference in a State and Federal quarantine is discussed in Section 5.1 and 5.2.

Additionally, Federal officials and SAHOs need to work closely with emergency management agencies that may assist in identifying and coordinating support from State and local resources, including, but not limited to, public works departments, departments of transportation, departments of wildlife and natural resources, law enforcement, public health, universities, and local contractors. Veterinary reserve groups, such as the National Animal Health Emergency Response Corps or APHIS Volunteer Emergency Ready Response Corps may be activated. Please see Section 4.3 which describes the IC organizational structure in which these different responders would be integrated in an incident.

It is important that the goals of controlling, containing, and eradicating the FAD are shared and consistent across all involved in responding to the incident.

4.2 Planning

The economic impact of a highly contagious disease of livestock or poultry is directly affected by the time it takes to control, contain, and eradicate the outbreak. QMC is complex, involving multiple agencies with different areas of authority and responsibility. Livestock and poultry producers and processors need to cooperate and collaborate in the planning and implementation process. Planning for an emergency is critical in order to develop a consistent, systematic approach to respond to a regional or multi-State disease outbreak.

State protocols (and in some States, local protocols) for imposing quarantines do exist, but vary from State to State based on a State's legal authority. Few States have comprehensive plans covering all the complexities of QMC during an animal health incident. Planning at every level, including industry, should

- Determine the legal authority and procedures for issuing, enforcing, and lifting a quarantine.
- Clarify the agencies with the authority for aspects of movement control, such as biosecurity, cleaning and disinfection, permitting, traffic control, enforcement, and road maintenance.
- Identify resources that are trained and ready; resources that need to be developed; private resources that may be or could be available.
- Identify major agricultural routes (livestock and pick-up/delivery of products such as milk and feed) and suitable checkpoint sites on those routes.

⁴ State terminology for "stop movement" may vary, such as hold order, embargo, temporary standstill, or standstill.

- Develop a communications plan to include the ability to exchange information between checkpoints, as well as through the chain of command to the Incident Commander.
- Develop a communications plan, in coordination with IC, to communicate to the public about QMC activities.
- Ensure appropriate personal protective equipment (PPE) and disinfectants are available for use during QMC activities (or developing a plan for acquiring such materials).
- Develop agreements with other agencies for sharing resources.
- Understand the different roles and responsibilities of those involved in the response.

4.3 Response Incident Command Structure

Incident response will be handled through the Incident Command System (ICS), based on the National Response Framework and the National Incident Management System. Coordination of priorities and resources will be conducted through ICS in an incident. The Animal Movement and Permits Group, or other personnel as designated by the Incident Commander, will be assigned responsibility for QMC activities; there is also a Permitting Unit within the Planning Section (Appendix B includes an example ICS structure, with the Animal Movement and Permits group under the Disease Support Branch of the Operations Section).

4.4 Understanding the Continuum of Activities

The purpose of QMC activities are to keep an FAD out of non-infected livestock and poultry populations (e.g., herds, flocks, or other groups of animals) to stop the spread of a disease. This controls and contains the spread of the FAD, leading to eradication. QMC stops or severely limits the movement of animals, products, fomites, vehicles, and equipment. QMC can affect the ability of a producer or processor to continue key operations during an outbreak; business processes, including the production and distribution, may be disrupted.

COB, on the other hand, manages the movement of non-infected animals and non-contaminated animal products in a regulatory CA. Managed movement involves the development and implementation of science- and risk-based systems and protocols to help agriculture and food industries maintain essential business functions, or return to business during an FAD response, while the risk of disease spread and threat to animal health and public health is effectively managed. The ultimate goal of COB is to minimize unintended negative effects of the disease and disease response on the affected industries and consumers while still achieving the goals of a disease response.

Box 2 explains how QMC and COB (managed movement) are integrated in an FAD outbreak; Figure 3 provides an illustration of how the activity may change as the outbreak progresses. QMC and COB both help to achieve the goals of an FAD response.

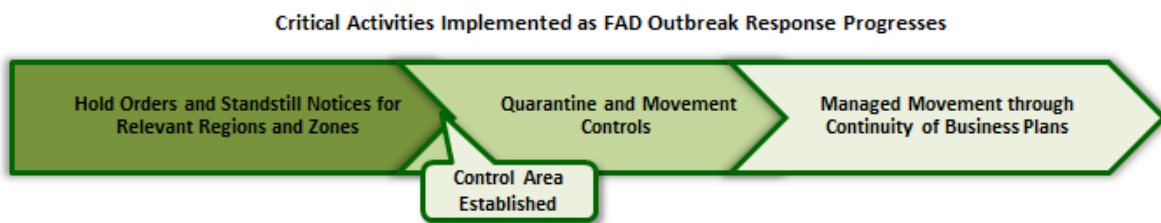
Box 2. Quarantines, Movement Controls, and Continuity of Business (Managed Movement)

How does COB Work with QMC?

Quarantines, movement controls, and COB have the same ultimate goal: to prevent the transmission of the FAD to non-IP, particularly those outside the Control Area. While quarantines and movement controls are highly effective at limiting the spread of disease, they also impede typical business operations—this is when COB plans enter into response efforts to effectively manage movement.

- **Quarantines and movement controls** are applied to premises in the regulatory Control Area to ensure infected animals, fomites, and products do not leave premises. Quarantines are applied to Infected, Contact, and SP. Movement controls are applied to At-Risk and Monitored Premises. Consideration will be given to critical movements (i.e., feed trucks).
- **COB or managed movement** is intended to manage movement for the non-IP (At-Risk and Monitored Premises) in a regulatory Control Area, and to facilitate movement within and out of the Control Area.

Figure 3. Conceptual Progression of Activities during an FAD Outbreak



Transitioning between these phases requires effective preparedness planning ahead of an event between all relevant partners; in many cases, this progression can occur or may need to occur very quickly in an FAD outbreak to control and contain the FAD and manage the associated consequences.

4.5 Competing Priorities

There are many activities that compete for limited resources in an event; a major challenge in preparing for and responding to FAD outbreaks is successfully managing these interests during the response. A priority of preparedness planning should be to discuss, mitigate, or resolve competing priorities prior to an incident. This can be accomplished by identifying required resources, establishing mutually accepted response goals and objectives amongst stakeholders, and increasing the awareness of these competing priorities. As each agriculture sector develops their disease specific COB plans, it is critical that incident goals, guidelines, strategies, and procedures are coordinated with Federal, State, Tribal, and local planning efforts.

5. QUARANTINES

In an FAD outbreak, there may be both State quarantines and Federal quarantines. A response effort begins locally, involving local, State, and Tribal authority and resources. If needed, Federal authority and resources will then be employed.

The unified IC should make a strong effort—including clear communication and appropriate educational materials on disease transmission—to gain voluntary compliance from producers, families, and others involved in the QMC activities.

5.1 Individual Premises Quarantine (Typically State Quarantine)

5.1.1 Issuance of Individual Premises Quarantine

States typically issue quarantines to individual Infected, Suspect, and CP; quarantine decisions may be made based on a presumptive positive diagnosis, pending laboratory confirmation, or only on the basis of a confirmed positive. Depending on State authority, it may be preferable to initially institute a “hold order” on a premises; this hold order effectively quarantines a premises and stops animal and fomite movement while diagnostic testing or additional epidemiological investigation is being completed to determine whether an official (and less temporary) quarantine notice is necessary. This “hold order” may be called a stop movement order, embargo, temporary standstill, or another term by States. All premises, including At-Risk and MP, in the CA are subject to movement control restrictions—some States may also choose to quarantine these premises. The authority of the SAHO varies by State, and is typically codified in statute or legislation.

An individual premises quarantine or hold order is typically requested by an FADD who has conducted an investigation and determines the findings are consistent with “High Suspicion of an FAD” as stated in APHIS VS Guidance 12001. This determination is made when “the findings are consistent with an FAD and are generally inconsistent with an endemic disease/condition, or are discordant with an endemic disease/condition.”

While the quarantine may initially be verbal, a written and signed quarantine order should be presented to the owner or manager of the premises as soon as possible, or as required by the laws of the State involved. The SAHO and APHIS VS AD should be notified immediately of either a verbal or a written quarantine or hold order. They should also be made aware of any support that may be necessary from outside the premises to enforce the quarantine or hold order and begin disease control and eradication operations on the premises.

5.1.2 Steps for Implementing Premises Quarantine

Most commonly, IP, CP, and SP are those that are subject to individual premises quarantine. Quarantines may be imposed on facilities with live animal inhabitants (farms or feedlots); States may also quarantine premises that have products or known contaminated equipment. Box 3 summarizes the steps involved in implementing a premises quarantine.

Box 3. Steps Involved in Implementing Premises Quarantine

Steps Involved in Implementing Premises Quarantine

(Please note: Order of implementation may vary based on circumstances and needs.)

- Applying a quarantine and notifying the owner/agent
- Securing a quarantined premises
- Establishing biosecurity procedures
- Developing contingency plans
- Restricting movement (e.g., animals, animal products, fomites)
- Permitting movement, depending on risk (e.g., essential and critical movements)

A team of personnel, led by a Site Manager (while this position is typically called a Site Manager, it may also be termed a Team Leader, Premises Liaison, etc.), is assigned to one or more quarantined locations, and responsible for on-site implementation and enforcement of quarantine procedures and restrictions. This is accomplished in cooperation with other unified IC groups also involved in essential response activities, such as biosecurity and cleaning and disinfection.

5.1.2.1 Notifying Owner/Agent

Ideally, quarantine notices should be personally served to an individual with immediate control of the animals or the premises where the animals are located. This could be the animal owner, but may be a resident, agent, property owner, property manager, or any combination thereof. At least three attempts to serve the notice should be made at different times of the day. Phone calls may be warranted. Document all attempts to deliver the quarantine notice.

In a large outbreak, it may not be possible to deliver notifications in person. The SAHO may authorize the action required by the notice on epidemiological grounds, if the disease situation requires immediate action. However, it is important to verify that notification has been received by owners/agents and those in immediate control of the animals or premises where the animals are located.

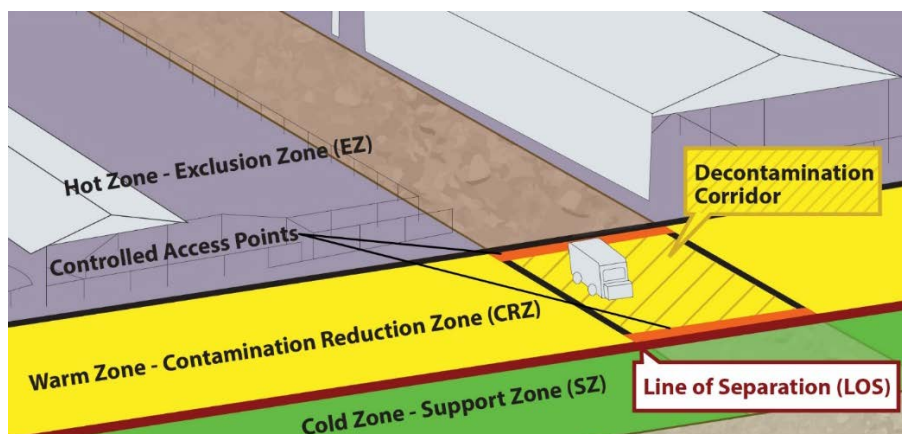
5.1.2.2 Securing a Quarantined Premises

A quarantined premises must be secured to ensure prohibited movement on and off the premises does not occur. Gaining owner cooperation is helpful, as the owner can control activity associated with the premises in order to maintain security. Animals on a quarantined premises should be accounted for in a premises census. This is important to prevent the spread of disease, including preventing the accidental escape or intentional removal of any animal from the premises. A sufficient supply of highly visible, weatherproof signs should be on hand so that adequate numbers of signs can be displayed to warn of restricted access and the security in place. Some States have the authority to enlist local law enforcement to help maintain and enforce a State-ordered quarantine.

5.1.2.3 Establishing Biosecurity Procedures

Biosecurity protocols are established to inhibit the spread of the pathogen. This includes the proper maintenance, decontamination, and/or disposal of PPE. Work zones (Figure 4) will be established to enter and leave a quarantined premises. These work zones include the Hot Zone (Exclusion Zone), Warm Zone (Contamination Reduction Zone), and Cold Zone (Support Zone); a Line of Separation (LOS) separates the Cold Zone from the other zones. A Decontamination Corridor restricts access through control access points, while allowing for essential movement. Response activities require some essential personnel to enter and exit the premises. Prior to entering a premises, authorized personnel should ensure they have all the proper equipment and supplies. A complete log of all movements should be established and monitored, including responders, employees, any emergency personnel, owners and their family, as well as any animals, animal products, vehicles, equipment, and other materials. Biosecurity is the most critical element in the successful execution of QMC activities because of the necessity for certain personnel and items to move across the LOS between contaminated areas of a quarantined premises and the outside (and non-infected) world.

Figure 4. Work Zones



The risk of a quarantine being compromised by wildlife and/or vectors should be evaluated on a case-by-case basis. Consideration should be given particularly to wildlife identified on, or near, an IP, based on species susceptibility to the FAD, risk of the species acting as a fomite, and their pattern of movement. APHIS cooperates with State and Federal agencies with primary jurisdiction for wildlife through IC.

5.1.2.4 Contingency Planning

If a person on a quarantined premises is injured or becomes seriously ill, every effort must be made to aid and obtain medical care for the person as quickly as possible. This includes emergency transport to a medical facility; health and safety is the top priority. Assuming the risk of pathogen transmission exists, the team assigned to the quarantined premises should coordinate decontamination of the victim, if possible to do so without interfering with essential treatment. Authorities at the medical facility may need to be informed of the risk of pathogen transmission, and cleaning and disinfection supplies and/or expertise may need to be provided for medical personnel, transport, and clothing.

For more information on health and safety issues that responders may encounter, and ways to plan for such events including a site-specific Health and Safety Plan (HASp), consult the *FAD PReP/NAHEMS Guidelines: Health and Safety* and the *FAD PReP Standard Operating Procedure (SOP): Health and Safety & Personal Protective Equipment*. Also see Section 8 on personnel.

5.1.2.5 Movement

5.1.2.5.1 Critical and Essential Movements

While movement must be restricted to limit the spread of disease, allowances must be made for the humane care of animals (such as feed delivery) and other necessary or critical activities. This care is necessary from the time the status of the animals is determined until they are released from quarantine, sent to slaughter, or depopulated. Depending on risk, these movements may require specific permits issued by the unified IC during an FAD outbreak.

People residing on the quarantined premises need to enter and leave the site, as may some employees working on the premises. Response crews need to enter and leave the site at least once per day in order to conduct response activities on the premises. The most important measures required to accommodate such essential movements are the use of clean clothes and footwear, any PPE deemed appropriate, along with cleaning and disinfection of vehicles and equipment.

For additional information on biosecurity measures or cleaning and disinfection, please see the *FAD PReP/NAHEMS Guidelines: Biosecurity*, *FAD PReP/NAHEMS Guidelines: Cleaning and Disinfection*, *FAD PReP SOP: Biosecurity*, and the *FAD PReP SOP: Cleaning and Disinfection*.

5.1.2.5.2 Animals, Animal Products, and Fomites

Under an individual premises quarantine, movement from IP, CP, or SP is generally prohibited except under specific circumstances determined and authorized by IC. Movements determined necessary by IC will be granted a specific permit for one-time movement. All movement requires stringent biosecurity and cleaning and disinfection measures as specified by the unified IC.

For further information, please see Table 6, Table 7, and Table 8 in Section 6 which provide an overview of movements into, within, and out of the CA.

5.2 Area or Region Quarantine (Control Area)

Historically, individual premises quarantines as discussed in Section 5.1 are applied under State authority rather than Federal authority. A regulatory CA for a specific area or region can be established by the State and/or the unified IC. Additionally, a Federal quarantine (or a Federal area quarantine) may be issued

when requested by a SAHO, or as directed by the U.S. Secretary of Agriculture. As defined in 9 CFR 71, a quarantined area is as follows:

The States, Territories, or the District of Columbia or portions thereof quarantined by the Secretary of Agriculture for the specific contagious, infections, or communicable animal disease mentioned in each part”

CAs were established around Infected and CP during recent FAD outbreaks (HPAI) in the United States; Federal area quarantines were not established in HPAI, and may/may not be established during an FAD outbreak.

5.2.1 Establishing a Regulatory Control Area

The State and/or unified IC establish a regulatory CA around Infected and CP; depending on the epidemiological situation, SP may also have a CA established around them, though these premises are often re-designated as another premises type prior to CA establishment. Section 3.3 provides additional guidance on the size of a CA and other considerations. Factors used to determine this area are complex (see Table 5), and may be based on characteristics of the disease agent, trading partner considerations, State-specific issues, and the epidemiology of the outbreak. This CA indicates that all of the premises with susceptible animals within the CA are subject to additional requirements due to their geographical location in reference to the IP and/or CP.

5.2.2 Implementing a Federal Area Quarantine

If established, Federal area quarantines are typically applied to what was defined above as a regulatory CA. If a Federal area quarantine is implemented, Federal personnel work, through the unified IC, with State officials and others to determine the most appropriate CA for quarantine in an FAD outbreak. Federal area quarantines must appear as a Federal Register Notice. IC supplies the information necessary to the Documentation Unit (or designee) for a Federal Register Notice. However, Federal area quarantines can go into effect before the Federal Register Notice is published. Example of a Federal quarantine notice is provided in Appendix C.

A Federal quarantine may exist in addition to individual premises quarantines under State authorities. Under a Unified Command, State and Federal personnel are likely to be involved in establishing, securing, and maintaining a Federal quarantine. USDA may request that the affected States contribute resources to maintain and enforce the quarantine; USDA reimburses States for this effort via cooperative agreement.

The documentation and process for implementing a Federal area quarantine requires the publication of a Federal Order. If the State and unified IC can effectively implement a regulatory CA without the implementation of a Federal area quarantine on top of this CA, this may be a preferred solution for all stakeholders, depending upon the animal disease, interstate commerce reactions, international trading partner reactions, and overall ability to manage the incident or outbreak.

5.2.3 Implementing a Standstill

Prior to, or simultaneously with, the implementation of a Federal area quarantine, a standstill of livestock movements may be put into effect through a Federal Register Notice. A standstill notice would likely cover a broad geographical area, in order to limit animal movement (limiting disease spread), and facilitate a rapid evaluation of the epidemiology of the outbreak. To date, a Federal standstill notice has not been issued in past U.S. outbreaks.

During a standstill, the initiation of *new* movements of the susceptible animal species would be prohibited for a short period of time. Standstill after disease detection, such as the likely 24-hour standstill notice described in the *Foot-and-Mouth Disease Response Plan*, will have significant impacts on commerce, as

well as unaffected producers and consumers. The benefits and consequences of a standstill, particularly in relation to length, should be considered carefully by IC. In spite of the drawbacks, a standstill notice can be an important tool to significantly limit animal movement and potential spread of disease while a CA is being defined.

In order to implement a standstill, it is likely that a declaration of an Extraordinary Emergency would be required. The Federal government may also request that States voluntarily implement a standstill through State authority.

5.2.4 Note on State Area Quarantine Authority

States, in some cases, may elect to establish an additional quarantine area (which may be called a State CA, protection zone, or other term), which may exist outside the boundaries of a Federal area quarantine. This may be to protect their State from disease incursion, or as a result of real or perceived disease-freedom by trading partners. In the event that States decide to do so, the establishment of this additional quarantine area—potentially including checkpoints or employing other resources—may or may not be supported by Federal resources or personnel, depending on the situation. States have widely varied plans, requirements, and resources for such activities; some States would immediately request Federal resources, while others would be unlikely to request Federal resources at all. However, it is a Federal goal to support States for the implementation of science- and risk-based QMC measures, such as the Secure Food Supply Plans, or other collaborative State activities.

5.3 Quarantine Violations and Appeals

5.3.1 Violations

Violations of a State quarantine order are usually handled by the State, and the investigation and penalties are conducted and levied based on State laws and authorities. Violations of a Federal quarantine order are handled through APHIS Investigative and Enforcement Services (IES) through a referral by IC. Investigations and penalties are handled by IES. Documentation of the investigation of the violation would be tracked through the Emergency Management Response System 2.0 (EMRS2). There may be cases in which IC provides Federal resources, including IES, to States, to handle individual premises quarantine violations.

Documentation of violations should be as thorough as possible, including information on the name of the individual or company, vehicle license plate number, type and number of items or animals transported, and time of arrival/departure.

5.3.2 Appeals

The appeal process may vary for quarantines imposed by the State. An appeal can be made by a property owner (or legal designee) in response to a Federal quarantine being imposed. The Incident Commander (or designee) should be immediately notified of any request for appeal. A hearing will take place, focusing on whether the animal population in question is infected, has been exposed to, is carrying, or is at risk of infection due to epidemiological evidence.

The hearing must usually occur within 48 hours of the request, and can be held by conference call. The hearing should include the Hearing Officer (designated within IC, may be part of the Animal Movement and Permits Group), Epidemiologist, Incident Commander (or designee), and the owner. The SAHO may shorten the time for requesting an appeal as required to address the situation.

5.3.3 Non-Cooperative or Threatening Owners/Producers

During some incidents, it is necessary for response personnel to gain access to private property in order to carry out their duties, including imposing premises quarantine. Personnel should always travel in teams.

Owner's reactions to a request to enter their property may vary. In the event that the actions, behavior, and/or language of an owner/occupant of a premises or another member of the public causes concern for any team member's personal safety, personnel should leave the premises immediately. Depending on the severity and urgency of the situation, the team should call their supervisor or local law enforcement (police or sheriff). Field teams must document all non-compliance issues and safety concerns. The IC may engage additional USDA personnel (as available) or law enforcement assistance as necessary to assess and manage security issues.

Personnel should do the following when confronted with a non-cooperative or threatening owner:

- Remain calm.
- Remember personal safety is the first priority.
- Avoid confrontation; a situation can escalate without warning.
- Depending on the threat, call their supervisor or local law enforcement.
- If law enforcement is required, the supervisor should also be notified.
- The public may be informed that they are interfering with a government employee performing official duties, and are in violation of U.S.C. Title 18 Section 111.

5.4 Releasing Quarantine

State and Federal quarantine authorities have different administrative processes for removal of a quarantine. Hand delivery or certified mail is the preferred method for quarantine release notices, particularly for small outbreaks. For larger outbreaks, or widespread outbreaks, other methods may be acceptable.

5.4.1 Individual Premises Quarantine

Individual premises may remain under quarantine even after the CA has been lifted; this is at the discretion of the State. There are multiple steps involved in releasing individual premises from quarantine; the State and unified IC need to have a high level of confidence that the premises, and surrounding premises in close proximity, are free from the disease agent.

Release of individual premises quarantine may come after the following activities occur (all activities may not be necessary, depending on the type of premises):

- depopulation,
- disposal of animals and contaminated products and materials,
- appropriate disposition of non-susceptible animals,
- complete cleaning and disinfection,
- downtime where the premises has been without animals,
- verification of the health status of the animals on the premises (may include visual and diagnostic surveillance),
- laboratory confirmation that there is no evidence of the disease agent, and
- period of restocking, where disease surveillance occurs.

In some cases, particularly when premises plan to restock, the State may keep the premises under quarantine until restock is complete and associated restock diagnostic testing has occurred—this can delay the release of individual premises quarantine.

For more information on these requirements, please see the relevant *FAD PReP/NAHEMS Guidelines: Biosecurity, Cleaning and Disinfection*, and *Disposal*, as well as the *FAD PReP SOPs* on these subjects. Epidemiologists with IC provide documentation to the teams assigned to the quarantined premises indicating that quarantine may be released.

5.4.2 Control Area Release

When a CA is implemented, but a Federal area quarantine is not implemented on top of this CA, the unified IC—with guidance from the national Incident Coordination Group—determine when the CA can be released and under what conditions. Depending on the size and shape of the regulatory CAs, they are most likely lifted over a period of time directly related to what is going on inside and directly outside that CA. They do not need to be lifted all at once. The CA may be released prior to individual premises quarantine release. For HPAI, there was specific guidance developed on CA Release for the 2014–2015 outbreak that is available at www.aphis.usda.gov/fadprep.

5.4.3 Federal Area Quarantine

Regional or area quarantines can be released before or after individual premises are released. However, when a Federal area quarantine has been implemented in the past, it has typically remained in place until the end of an incident. A Federal Register notice indicates the release of Federal quarantine. Decisions to release Federal quarantine are based on multiple considerations and available information.

The entire area of a Federal quarantine does not need to be released simultaneously. There may be reasons—including, but not limited to trade considerations or epidemiologic information—to release portions of the Federal quarantine before complete release of the entire Federal area quarantine. For example, if the country has been regionalized (trading partners are accepting animal products from specific areas of the country), and removing the Federal quarantine would result in trading partners denying U.S. exports, it may be necessary to maintain the Federal quarantine until trading partners agree that this portion of the country can also be considered disease-free.

6. MOVEMENT CONTROL

Movement controls are the critical activity which accompanies quarantines. The term “movement control” refers to controlling the movement of animals, animal products, and fomites in a regulatory CA. Criteria help to ensure that any movement does not transmit the FAD to a non-IP. Movements are restricted on all premises inside a CA: Infected, Contact, and SP (usually under individual premises quarantine) face the most stringent requirements; however, At-Risk and MP are also subject to varying degrees of movement controls. In an incident, the unified IC oversees movement control (and subsequent permitting)

6.1 General Guidance for Moving Into, Out of, and Within a Control Area

Table 6, Table 7, and Table 8 provide broad guidance for moving into, out of, and within a regulatory CA. For Infected, Contact, and SP, movement is prohibited unless a specific permit is issued by IC for a critical (for animal welfare) or essential movement (directly related to the completion of response activities). On the other hand, for At-Risk and MP, movements are allowed by COB permits (either as an operational permit or Secure Food Supply permit), based on specific criteria. Note that not only is movement control for movements *off of* these types of premises, but also *on to* these types of premises and *between* these types of premises. This ensures biosecurity and reduces the risk of further infected animals and disease transmission; note that “appropriate biosecurity” features prominently in each table, as continued movement during an outbreak makes biosecurity the most important aspect in implementing QMC to control and contain the FAD.

Table 6. Movement Into a Control Area from Outside a Control Area (to Specific Premises)^a

Item Moving into a Control Area to a/an...	Infected Premises	Suspect Premises ^b	Contact Premises ^b	At-Risk Premises	Monitored Premises
Susceptible livestock or poultry	Prohibited, except under certain circumstances as determined by the IC, such as slaughter.	Prohibited, except under certain circumstances as determined by the IC, such as slaughter.	Prohibited, except under certain circumstances as determined by the IC, such as slaughter.	Permit for movement must be approved by the IC with appropriate biosecurity measures.	Permit for movement must be approved by the IC with appropriate biosecurity measures.
Susceptible animal products	See disease specific or COB plans for information on susceptible animal products, or guidance as determined by IC.				
Other animals (non-susceptible livestock or poultry) from premises with susceptible species	Prohibited unless permit approved by IC and appropriate biosecurity measures.	Prohibited unless permit approved by IC and appropriate biosecurity measures.	Prohibited unless permit approved by IC and appropriate biosecurity measures.	Allowed with appropriate biosecurity measures. IC may require a permit for movement depending upon FAD and characteristics of destination premises.	Allowed with appropriate biosecurity measures. IC may require a permit for movement depending upon FAD and characteristics of destination premises.
Other animals or animal products (non-susceptible livestock or poultry/products) from premises without susceptible species	IC will determine movement restrictions based on FAD and characteristics of destination premises.	IC will determine movement restrictions based on FAD and characteristics of destination premises.	IC will determine movement restrictions based on FAD and characteristics of destination premises.	Allowed with appropriate biosecurity measures. IC may require a permit for movement depending upon FAD and characteristics of destination premises.	Allowed with appropriate biosecurity measures. IC may require a permit for movement depending upon FAD and characteristics of destination premises.
Equipment, vehicles, and other fomites from premises with susceptible species	Allowed with appropriate biosecurity measures.	Allowed with appropriate biosecurity measures.	Allowed with appropriate biosecurity measures.	Allowed with appropriate biosecurity measures.	Allowed with appropriate biosecurity measures.
Semen, embryos from susceptible livestock or poultry	Prohibited.	Prohibited.	Prohibited.	Allowed with appropriate biosecurity measures.	Allowed with appropriate biosecurity measures.

^a Movement control and permit processes will change over time depending on situational awareness and operational capabilities.

^b CP and SP are intended to be short-term premises designations. Ideally these Premises should be re-designated before movement occurs.

Table 7. Moving Within a Control Area^a

Item Moving within a Control Area from a/an...	Infected Premises	Suspect Premises ^b	Contact Premises ^b	At-Risk Premises	Monitored Premises
Susceptible livestock or poultry	Prohibited, except under certain circumstances as determined by the IC, such as slaughter.	Prohibited, except under certain circumstances as determined by the IC, such as slaughter.	Prohibited, except under certain circumstances as determined by the IC, such as slaughter.	Allowed to move by permit approved by the IC; surveillance, negative diagnostic tests, premises biosecurity, and risk-assessment may be required for permit.	Allowed to move by permit approved by the IC; surveillance, negative diagnostic tests, premises biosecurity, and risk-assessment may be required for permit.
Susceptible animal products	See disease specific or COB plans for information on susceptible animal products, or guidance as determined by IC.				
Other animals (non-susceptible livestock or poultry) from premises with susceptible species	Prohibited unless specific permit granted by IC and appropriate biosecurity measures.	Prohibited unless specific permit granted by IC and appropriate biosecurity measures.	Prohibited unless specific permit granted by IC and appropriate biosecurity measures.	Allowed to move by permit approved by the IC; surveillance, negative diagnostic tests, premises biosecurity, and risk-assessment may be required for permit.	Allowed to move by permit approved by the IC; surveillance, negative diagnostic tests, premises biosecurity, and risk-assessment may be required for permit.
Other animals or animal products (non-susceptible livestock or poultry/products) from premises without susceptible species	Not applicable (N/A) (IP have susceptible species)	N/A (SP have susceptible species)	N/A (CP have susceptible species)	N/A (APR have susceptible species)	N/A (MP have susceptible species)
Equipment, vehicles, and other fomites from premises with susceptible species	Prohibited unless specific permit granted by IC and appropriate biosecurity measures.	Prohibited unless specific permit granted by IC and appropriate biosecurity measures.	Prohibited unless specific permit granted by IC and appropriate biosecurity measures.	Allowed by permit approved by IC and appropriate biosecurity measures.	Allowed by permit approved by IC and appropriate biosecurity measures.
Semen, embryos from susceptible livestock or poultry	Prohibited.	Prohibited.	Prohibited.	Allowed by permit approved by IC and appropriate biosecurity measures.	Allowed by permit approved by IC and appropriate biosecurity measures.

^a Movement control and permit processes will change over time depending on situational awareness and operational capabilities.

^b CP and SP are intended to be short-term premises designations. Ideally these Premises should be re-designated before movement occurs.

Table 8. Movement from Inside a Control Area to Outside a Control Area (from Specific Premises)^a

Item Moving out of a Control Area from a/an...	Infected Premises	Suspect Premises ^b	Contact Premises ^b	At-Risk Premises	Monitored Premises ^c
Susceptible livestock or poultry	Prohibited, except under certain circumstances as determined by the IC.	Prohibited, except under certain circumstances as determined by the IC.	Prohibited, except under certain circumstances as determined by the IC.	APR must become MP to move susceptible livestock or poultry out of a CA.	Allowed to move by permit approved by IC; surveillance, negative diagnostic tests, premises biosecurity, and risk-assessment may be required for permit.
Susceptible animal products	See disease specific or COB plans for information on susceptible animal products, or guidance as determined by IC.				
Other animals (non-susceptible livestock or poultry) from premises with susceptible species	Prohibited unless specific permit approved by IC and appropriate biosecurity measures and risk-assessment.	Prohibited unless specific permit approved by IC and appropriate biosecurity measures and risk-assessment.	Prohibited unless specific permit approved by IC and appropriate biosecurity measures and risk-assessment.	Allowed to move by permit approved by IC; surveillance and negative diagnostic tests for susceptible animals on premises, premises biosecurity, and risk assessment may be required for permit.	Allowed to move by permit approved by IC; surveillance and negative diagnostic tests for susceptible animals on premises, premises biosecurity, and risk-assessment may be required for permit.
Other animals or animal products (non-susceptible livestock or poultry/products) from premises without susceptible species	N/A (IP have susceptible species)	N/A (SP have susceptible species)	N/A (CP have susceptible species)	N/A (APR have susceptible species)	N/A (MP have susceptible species)
Equipment, vehicles, and other fomites from premises with susceptible species	Prohibited unless permit approved by IC and appropriate biosecurity measures.	Prohibited unless permit approved by IC and appropriate biosecurity measures.	Prohibited unless permit approved by IC and appropriate biosecurity measures.	Allowed by permit approved by IC and appropriate biosecurity measures.	Allowed by permit approved by IC and appropriate biosecurity measures.
Semen, embryos from susceptible livestock or poultry	Prohibited.	Prohibited.	Prohibited.	APR must become MP to move semen, embryos from susceptible livestock or poultry out of a CA.	MP only allowed by permit approved by IC and appropriate biosecurity measures.

^a Movement control and permit processes will change over time depending on situational awareness and operational capabilities.

^b CP and SP are intended to be short-term premises designations. Ideally these Premises should be re-designated before movement occurs.

^c COB plans may apply.

6.2 Continuity of Business

COB or managed movement is a specific type of movement control, which establishes specific criteria for the permitted movement of commodities from premises. Participating in managed movement plans is *voluntary*. If producers choose to participate, specific criteria are *required* to receive a permit for permitted movement. However, COB activities are essential in mitigating the economic impact of the Federal area quarantine in an FAD outbreak. These movements are science- and risk-based, weighing the risk of disease transmission. Developed by public-private-academic partnerships, the criteria for these permitted movements typically require surveillance, cleaning and disinfection, biosecurity measures, and epidemiological information. For more information on COB, please see the *FAD PreP/NAHEMS Guidelines: Continuity of Business* as well as Appendix E.

6.3 Checkpoints

Checkpoints can help to enforce movement control requirements. Conveyances moving out of the CA (or Federal area quarantine) may need to be accompanied by a permit for permitted movement. This permit provides verification that any criteria for movement has been met, such as that a vehicle is properly cleaned and disinfected and is transporting animals, fomites, or products in accordance with State and Federal laws and regulations.

For the Federal quarantine area, checkpoints could be staffed with Federal or State personnel, through the IC. Law enforcement personnel or Department of Transportation personnel may also be engaged through IC. Specific SOPs for checkpoints are provided through IC; this section only provides a broad overview. Checkpoints are maintained until the IC decides they are no longer needed. Clear guidance must be given to any personnel and organizations that are supporting/enforcing movement restrictions due to quarantines or a CA. Checkpoints can be time and resource intensive; the State and unified IC should evaluate whether checkpoints are the best use of limited resources in an FAD outbreak.

Further regulations for traffic control are available from the Federal Highway Administration in [23 CFR 655](#).

6.3.1 Locations

If established, the specific location of a checkpoint should be determined by IC, based on key access points to the regulatory CA, location of agricultural facilities, and logistical factors (such as space). The site should have the ability to immediately communicate to IC.

6.3.2 Inspections

When an inspector identifies a conveyance that may be transporting livestock, it should be directed to an animal inspection area where other personnel can determine whether an appropriate permit has been issued. Inspectors should collect information, including but not limited to name, contact information, company, vehicle license plate number, and origin and destination of cargo. If a copy of any documentation (such as the permit for movement) is available, it should also be collected as required by unified IC.

Drivers should be provided with written information providing the reason for the checkpoint, alternate routes around the CA (as appropriate), information on obtaining a permit, basic biosecurity requirements, and concise information on the animal health emergency response effort. All checkpoint personnel should communicate clearly and effectively with drivers, and ensure their interactions are informative and remain respectful. The driver should be provided with an estimate of their delay. For more information on interacting with non-cooperative individuals, see Section 5.3.3.

6.3.3 Cleaning and Disinfection

It may be necessary to conduct cleaning and disinfection activities on conveyances, and ideally there is a cleaning and disinfection station within reasonable distance of a checkpoint. All personnel responsible for the inspection of conveyances must work to mitigate transmission of the disease agent; if the conveyance (including the driver, animal, or piece of equipment within the conveyance) poses an obvious biosecurity risk, it should not be allowed to pass the checkpoint.

6.3.4 Disposition of Conveyances

Ideally, a vehicle will be stopped briefly, have the proper permit documentation, and be allowed to continue. If necessary, personnel may return the conveyances to the point of origin, or to a cleaning and disinfection station. If returned to the premises of origin, the driver should be provided with instructions on how to obtain a permit. Every effort should be made to avoid holding at a checkpoint; the conveyance

should be returned to the premises of origin (if it cannot be permitted), or sent to its destination (if permitted), or the unified IC provides further instructions. Every effort should be taken to avoid a situation which ultimately may threaten animal welfare.

6.3.5 Violations

Violations, including failure to have the necessary permit, should be reported to the appropriate officials. Procedures discussed in Section 5.3.1 will generally be followed.

7. PERMITTING

Permitting in an incident will primarily be either specific, covering critical and essential movements on and off quarantined Infected, Suspect, and CP, or COB permits to facilitate business and operational continuity for non-infected (At-Risk and Monitored) premises inside the regulatory CA. Permitting is likely to require significant resources and information management capabilities during an outbreak. All permitting with regard to the CA is overseen by the unified IC; States may also have permitting systems and processes.

Permitting lessens the risk of transmitting the disease agent by considering risk assessments, surveillance information, biosecurity procedures, as well as national and World Organization for Animal Health standards. It is essential that personnel responsible for permitting have access to the most recent information about the outbreak, as changes in epidemiological and situational information may change permitting requirements (such as a change in the size of a CA, or the designation of a new premises status).

For more detailed information on permitting, please see *FAD PReP Manual 6-0: Permitted Movement* available at <http://www.aphis.usda.gov/fadprep>.

7.1 Processes

It is important to ensure the unified IC has clear processes for issuing permits for various types of movement (i.e., specific permits, blanket permits, and COB permits), and that this information is clearly communicated to those affected by the disease response effort. It is equally important that producers have information about their location relative to the CAs, and that this information is communicated in a clearly and timely manner. It may be necessary to use social media to provide information on permitting processes.

It is essential that the unified IC, through a Permitting Unit, can efficiently respond to and process permit requests through the EMRS2 Customer Permit Gateway (preferred for all COB permits), telephone, e-mail, or other methods. The unified IC can also encourage companies to work to implement temporary alternative arrangements for quarantined premises. For example, a customer could perform a meter reading, or mail may be delivered to a safe access point or held at the post office. Certainly there will still be the need for both operational movements as well as critical/essential movements, even with substitute or short-term measures.

7.2 Information Management

For even a medium-sized outbreak, particularly when COB plans are implemented, there is a significant need for information management systems for permitting. Data collection, management, and analysis capabilities are required.

The APHIS VS' EMRS2, is the primary information management system involved in permitting. EMRS2 is the "system of record" for an animal health emergency response. USDA APHIS personnel use EMRS2 for all permitting processes, including issuing permits and documenting movements once a CA has been

established. EMRS2 also provides the capability to retrieve records of permits and permitted movements and filter (or further analyze) them based on date, origin, destination, owner, species, reason for movement, and other criteria. While USDA APHIS recommends the use of EMRS2 for all permits and permitted movements during an FAD incident, if States have the capabilities to use their own information management systems, all permits and permitted movement information is uploaded into EMRS2. It is critically important that data is entered in a timely and accurate manner. For permitting, electronic or paper forms may be used. For example, a sample permit is found in Appendix F. In some cases, especially for specific permits from Infected, Contact, and SP, the unified IC may opt to use a VS 1-27 form or other designated form to accompany movement. Please see the *FAD PReP Manual 6-0: Permitted Movement* for more information.

7.3 Vaccinates

For movement of animals that are vaccinated as part of an emergency response effort, consideration must be given to any national or international standards or conditions for such movement.

8. PERSONNEL

8.1 Responsibilities and Coordination

Typically, personnel in the Animal Movement and Permits Group perform QMC activities, though others are involved, such as the Permitting Unit, EMRS2 National Coordinator, and EMRS2 Specialist(s). These personnel may be assigned to different types of teams for executing their responsibilities. Carrying out QMC activities falls to both policy and operational personnel. All personnel involved in QMC responsibilities should learn as much as possible about the procedures discussed in this document and in other resources, including State-specific guidance. Educational sessions and emergency response exercises can also help personnel expand their knowledge.

8.1.1 National Incident Coordination Group Responsibilities

The APHIS National Incident Coordination Group (ICG) is responsible for gathering resources, evaluating policy options, and implementing response strategies as related to QMC. The ICG will:

- Coordinate agencies, authorities, and resources to effectively execute QMC activities.
- Facilitate communication and cooperation amongst affected and non-affected State(s) on QMC issues during an outbreak.
- Provide advice and recommendations to State(s) and the unified IC on
 - planning for premises, area, State, and Federal quarantines,
 - establishing the size of the CA,
 - formulating guidance or requirements for permits and allowable movements, and
 - providing information and analyses on QMC activities, including permitting, to internal and external stakeholders.

8.1.2 Incident Management Team Responsibilities

The Incident Management Team (IMT) handles the operational side of QMC activities—in other words, what occurs in the field to execute QMC. IMT personnel serve as the first line of communication with owners and agents of animals subject to QMC. Additionally, they will:

- Collaborate with other authorities involved in QMC activities through the unified IC, such as law enforcement and transportation authorities.
- Coordinate with other ICS personnel responsible for biosecurity, depopulation, disposal, cleaning and disinfection, wildlife management and vector control, and surveillance.
- Perform tasks, such as
 - ensuring personnel have proper authorization to enter quarantined premises to conduct control and eradication activities.

- implementing premises quarantine and working with the Biosecurity Group to ensure that biosecurity measures associated with area and premises quarantines are followed.
- permitting allowable movements of animals, animal products, vehicles, equipment, and other materials.
- staffing quarantine checkpoints, if established, to ensure compliance with the permit system.
- ensuring all personnel conducting response activities, as well as premises owners, managers, and workers, are aware of their responsibilities to prevent disease transmission.

It is important that personnel responsible for QMC activities coordinate closely with those responsible for the welfare and continued care of quarantined animals, as this may necessitate the delivery of feed and other supplies using biosecure methods. Critical movements to maintain the welfare of animals, such as providing feed, must be given priority in an incident.

8.2 Specific Activities

This section provides a brief overview of a number of specific QMC activities that may be conducted in an incident. The extent to which these activities are conducted varies, depending on the size and scope of the incident, the personnel available, and the decisions of the unified IC. In the event of a large outbreak, particularly of a highly contagious disease such as foot-and-mouth disease, there may be significant resource and logistical limitations that make widespread QMC activities difficult to implement and/or enforce.

8.2.1 Premises Quarantine

Personnel may be assigned to be on site to notify animal owners, and agents when a quarantine is issued or lifted. They work closely with a Biosecurity Team to establish premises biosecurity, may develop a list of all people, animals, vehicles, and equipment authorized to enter or leave the property; enforce resultant movement restrictions and biosecurity/cleaning and disinfection protocols; and ensure that movements on to or off of the premises are authorized. The number of personnel assigned varies depending on the requirements of the situation and on availability. Employees of the premises assist in these activities.

8.2.2 Permitting

Personnel will be assigned to administer the permitting for movement control activities; USDA APHIS can assist State(s) if EMRS2 expertise, support, or personnel are required. Permitting facilitates the biosecure movement of animals, animal products, vehicles, equipment, and other materials without creating an unacceptable risk of disease spread. The number of personnel assigned this responsibility will range depending on need. Permitting activities include the following:

- Handling requests in the permit queue in EMRS2.
- Assisting States with permitting activities.
- Responding to EMRS2 questions and issues from the VS Districts.
- Entering and managing data within EMRS2.
- Issuing permits through EMRS2.
- Tracking permitted movements in EMRS2.

The State(s) and unified IC require ready access to epidemiological and biosecurity information so that changes to the permitting criteria can be made as necessary. Permitting requirements may be fluid throughout an incident, particularly as the geographical area of the event expands or contracts.

8.2.2.1 Managing Information

Efficient large-scale permitting activities requires sufficient information management systems; USDA APHIS uses EMRS2 for information management during an FAD outbreak. Documentation of permits and movements should be preserved, tracked, and reviewable. Significant work has been completed to

develop processes to import data from State or other information management systems into EMRS2 so that permitting can be efficiently implemented in a widespread disease incident.

8.2.3 Checkpoints

Checkpoints may be required depending on the scope of the event. Checkpoints are intended to ensure compliance with the permit system to allow the permitted movement of animals, animal products, vehicles, equipment, and other materials. Based on authority, checkpoints may be staffed by transportation authorities and local law enforcement officials.

8.3 Waiting Period

Personnel working on the depopulation, cleaning, or disinfection of a quarantined premises must complete a personal disinfection regimen prior to departure from the premises. Additionally, personnel who leave quarantined premises may be required to comply with an appropriate waiting period, as defined by the unified IC. During this time, personnel should not come into contact with any susceptible animal species that are not known to be infected. The waiting period is based on the disease, the task assignment, and the level of biosecurity required. It is important that personnel understand this condition in order to avoid the actual or perceived transmission of the disease to naïve premises.

8.4 Hazards

All personnel responsible for QMC activities should receive a complete orientation and briefings covering the various hazards that may be encountered. Team members may be assigned to a variety of tasks that could present hazardous situations; site-specific protocols should be developed based on an analysis of these hazards.

8.4.1 Responder Safety

Of primary importance is the personal safety of each responder. This is particularly important if a zoonotic disease is involved. Orientation and briefings should cover specific, necessary safety precautions and hygiene requirements. Responders face physical and environmental hazards, such as sharp edges, uneven ground or slippery flooring, and extreme temperatures. Those assigned to farms or production facilities are likely to encounter chemical hazards. PPE, which may include outerwear, safety goggles, and respirators, may be required. Apparel may also need to meet transportation industry standards for visibility. The local Department of Transportation can advise on the American National Standards Institute International Safety Equipment Association's standard for high-visibility safety apparel and headwear (The American National Standard for High-Visibility Safety Apparel and Headwear [ANSI/ISEA 107-2004]).

The Safety Officer ensures safe working conditions for responders and develops the incident specific HASP. For more information on health and safety and PPE, as well as steps to follow for completing an HASP, please see the *FAD PReP/NAHEMS Guidelines: Health and Safety*, *FAD PReP/NAHEMS Guidelines: PPE*, and the *FAD PReP SOP: Health and Safety/PPE*.

8.5 Training

While this document focuses on QMC from the perspective of APHIS, other agencies may also participate in QMC activities. It is important that personnel from a wide variety of agencies are trained and exercised for these activities, in order to account for personnel turnover, and to develop a robust cadre of trained responders.

Exercises simulate real events in order to evaluate existing plans and identify needed areas of improvement. Potential responders should be encouraged to participate in exercises in order to understand the complex response efforts that are required. Exercises also help to underscore the need to develop and

maintain communication and strong collaborative relationships within the emergency management community, vertically (Federal-State-local), horizontally (interagency), and with industry stakeholders.

8.6 Biosecurity

The hazard of spreading disease while implementing QMC activities must be addressed through biosecurity. Response personnel may work in known contaminated areas, may be responsible for evaluating the biosecurity of movements, or may unknowingly come into contact with infected animals at checkpoints. To ensure complete compliance with applicable biosecurity measures, and to properly evaluate movement permit applications, personnel must fully understand pathogen transmission routes. Site Managers should identify means that would allow the pathogen to escape quarantined premises with infected animals and brief their personnel on maintaining awareness for any ways that biosecurity could be comprised when carrying out QMC activities.

When movement of people, equipment, vehicles, and other articles is essential, proper disinfection is necessary. The establishment of work zones to enter and leave quarantined premises control access and help prevent contamination of clean areas. Even after thorough personal cleaning and disinfection have been completed, those who leave the premises should not come into contact with susceptible animals for a specified period of time, defined by IC.

Ultimately, biosecurity is the most essential element of QMC, as its principles make for an effective quarantine and minimize the risk of allowed, controlled movements spreading disease. For more detailed information on biosecurity, the transmission of disease, and work zones, see *FAD PReP/NAHEMS Guidelines: Biosecurity* and *FAD PReP SOP: Biosecurity*.

9. Acknowledgments

The *Guidelines: Quarantine and Movement Control* for the FAD PReP/NAHEMS reflects the efforts of a number of people including USDA APHIS staff members, the Center for Food Security and Public Health (CFSPH) at Iowa State University and a wide range of reviewers and subject matter experts. Authors from the CFSPH, College of Veterinary Medicine at Iowa State University include:

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10. Photo and Illustration Credits

Figure 4: Work zones shown over a farm with the various zones and decontamination corridor labeled.
Graphic illustration by: Dani Ausen and Andrew Kingsbury, Iowa State University.

Glossary

Continuity of business

The managed movement of non-infected animals and non-contaminated animal products in an FAD outbreak to facilitate agriculture and food industries in maintaining normal business operations while also mitigating the risk of disease spread.

Hold order

A hold order is a temporary order, similar in effect to a quarantine, that is typically implemented while additional diagnostics or investigation is being conducted.

Movement control

Activities used to control the movement of animals, animal products, and fomites in an area subject to certain criteria.

Non-infected premises

Non-IP are premises that have no evidence of infection. If these premises are located within a CA, they are APR or MP.

Permitting

System that approves and documents necessary movements into, within, and out of a regulatory CA without creating an unacceptable risk of disease spread.

Standstill

Temporary prohibition of the initiation of any new movement of the susceptible species in a defined area.

Quarantine

Imposed restrictions on entering or leaving a premises, area, or region where disease exists or is suspected.

Acronyms

AD

Assistant Director

AHPA

Animal Health Protection Act

APHIS

Animal and Plant Health Inspection Service

ARP

At-Risk Premises

ASF

African swine fever

BZ

Buffer Zone

CA

Control Area

CAHFS

Center for Animal Health and Food Safety
(University of Minnesota)

CFR

Code of Federal Regulations

CFSPH

Center for Food Security and Public Health
(Iowa State University)

COB

continuity of business

CP

Contact Premises

CSF

classical swine fever

EMRS2

Emergency Management Response
System 2.0

EPI

Epidemiologist

FA

Free Area

FAD PReP

Foreign Animal Disease Preparedness and
Response Plan

FAD

foreign animal disease

FADD

foreign animal disease diagnostician

FMD

foot-and-mouth disease

FP

Free Premises

HASP

Health and Safety Plan

HPAI

highly pathogenic avian influenza

IC

Incident Command

ICS

Incident Command System

IES

Investigative and Enforcement Services

IIAD

Institute for Infectious Animal Diseases
(formerly the FAZD Center)

IMT

Incident Management Team

IP
Infected Premises

IZ
Infected Zone

MP
Monitored Premises

NAHEMS
National Animal Health Emergency
Management System

NLRAD
National List of Reportable Animal Diseases

PPE
personal protective equipment

QMC
quarantine and movement control

SAHO
State Animal Health Official

SBS
Secure Broiler Supply

SES
Secure Egg Supply

SMS
Secure Milk Supply

SOP
standard operating procedure

SP
Suspect Premises

SPS
Secure Pork Supply

STS
Secure Turkey Supply

SZ
Surveillance Zone

TDD
telecommunications device for the deaf

U.S.C.
United States Code

USDA
U.S. Department of Agriculture

VP
Vaccinated Premises

VS
Veterinary Services

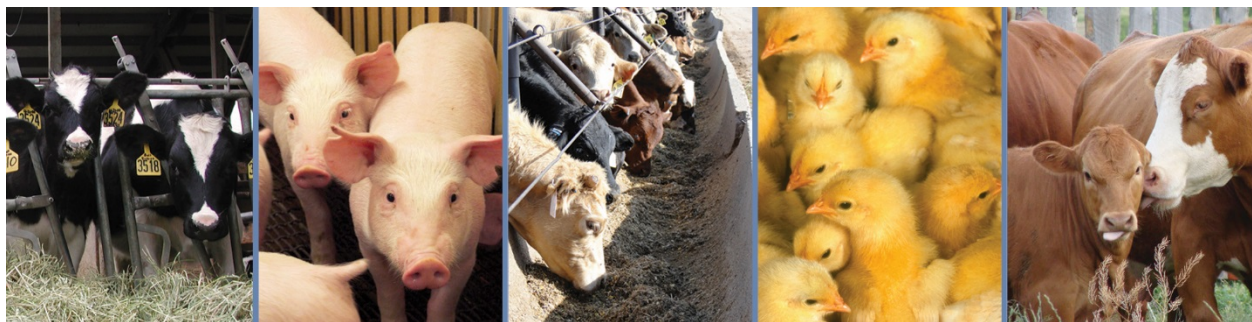
VZ
Vaccination Zone

APPENDIX A: THE IMPERATIVE FOR FOREIGN ANIMAL DISEASE PREPAREDNESS AND RESPONSE

Why Foreign Animal Diseases Matter

Preparing for and responding to foreign animal diseases (FADs)—such as highly pathogenic avian influenza (HPAI) and foot-and-mouth disease (FMD)—are critical actions to safeguard the nation’s animal health, food system, public health, environment, and economy. FAD PRoP, or the *Foreign Animal Disease Preparedness and Response Plan*, prepares for such events and provides guidance for activities during a response.

The 2014–2015 HPAI outbreak in the United States cost \$850 million, just for indemnity payments and response activities on premises. Studies have estimated a likely national welfare loss between \$2.3–69 billion¹ for an FMD outbreak in California, depending on delay in diagnosing the disease.² The economic impact of an FAD outbreak results from lost international trade and disrupted interstate trade, as well as from costs directly associated with the eradication effort, such as depopulation, indemnity, disposal, and virus elimination. In addition, there are direct and indirect costs related to foregone production, unemployment, and losses in related businesses. The social and psychological impact on owners and growers can be significant. Diseases with zoonotic potential, such as HPAI and Nipah/Hendra, may also pose a threat to public health.



Challenges of Responding to an FAD Event

Responding to an FAD event—large or small—is complex and difficult, challenging all stakeholders involved. Response activities require significant prior preparation. There are imminent and problematic disruptions to interstate commerce and international trade.

A response effort must have the capability to be rapidly scaled up or down according to the needs of the specific incident. This involves many personnel, resources, and possibly veterinary countermeasures. Not all emergency responders have specific food and agriculture skills required in areas such as biosecurity, quarantine and movement control, epidemiological investigation, diagnostic testing, depopulation, disposal, and possibly emergency vaccination.

Establishing widely communicated and understood response goals and guidelines, as accomplished by the FAD PRoP materials, helps to broaden awareness of common objectives as well as potential problems.

¹ Carpenter T.E., O'Brien J.M., Hagerman A.D., & McCarl B.A. 2011. "Epidemic and economic impacts of delayed detection of foot-and-mouth disease: a case study of a simulated outbreak in California. *J Vet Diagn Invest.* 23:26–33.

² Estimates based on models may vary: Ekboir (1999) estimated a loss of between \$8.5 and \$13.5 billion for an FMD outbreak in California. Ekboir J.M. 1999. "Potential Impact of Foot-and-Mouth Disease in California: the Role and Contribution of Animal Health Surveillance and Monitoring Services." *Agricultural Issues Center.* University of California, Davis.

Lessons Learned from Past FAD Outbreaks

The foundation of FAD PReP is the lessons learned from past FAD incidents. FAD PReP is based on the following:

- Providing processes for emergency planning that respect local knowledge.
- Integrating State-Federal-Tribal-industry planning processes.
- Ensuring that there are clearly defined, obtainable, and unified goals for response.
- Having a unified Incident Command with a proper delegation of authority that is able to act with speed and certainty.
- Employing science- and risk-based management approaches to FAD response.
- Ensuring that all guidelines, strategies, and procedures are communicated effectively to responders and stakeholders.
- Identifying trained personnel and resources that are required for an effective incident response.
- Working to resolve competing interests prior to an outbreak and addressing them quickly during an outbreak.
- Achieving rapid FAD detection and tracing.

FAD PReP Mission and Goals

The mission of FAD PReP is to raise awareness, expectations, and develop capabilities surrounding FAD preparedness and response. The goal of FAD PReP is to integrate, synchronize, and deconflict preparedness and response capabilities as much as possible before an outbreak by providing goals, guidelines, strategies, and procedures that are clear, comprehensive, easily readable, easily updated, and that comply with the National Incident Management System.

In the event of an FAD outbreak, the three key response goals are to: (1) *detect, control, and contain the FAD in animals as quickly as possible*; (2) *eradicate the FAD using strategies that seek to stabilize animal agriculture, the food supply, the economy, and to protect public health and the environment*; and (3) *provide science- and risk-based approaches and systems to facilitate continuity of business for non-infected animals and non-contaminated animal products*. Achieving these three goals will allow individual livestock facilities, States, Tribes, regions, and industries to resume normal production as quickly as possible. They will also allow the United States to regain FAD-free status without the response effort causing more disruption and damage than the disease outbreak itself.

FAD PReP Documents and Materials

FAD PReP is not just one, standalone FAD plan. Instead, it is a comprehensive U.S. preparedness and response strategy for FAD threats, both zoonotic and non-zoonotic. This section provides examples of the different types of FAD PReP documents available.

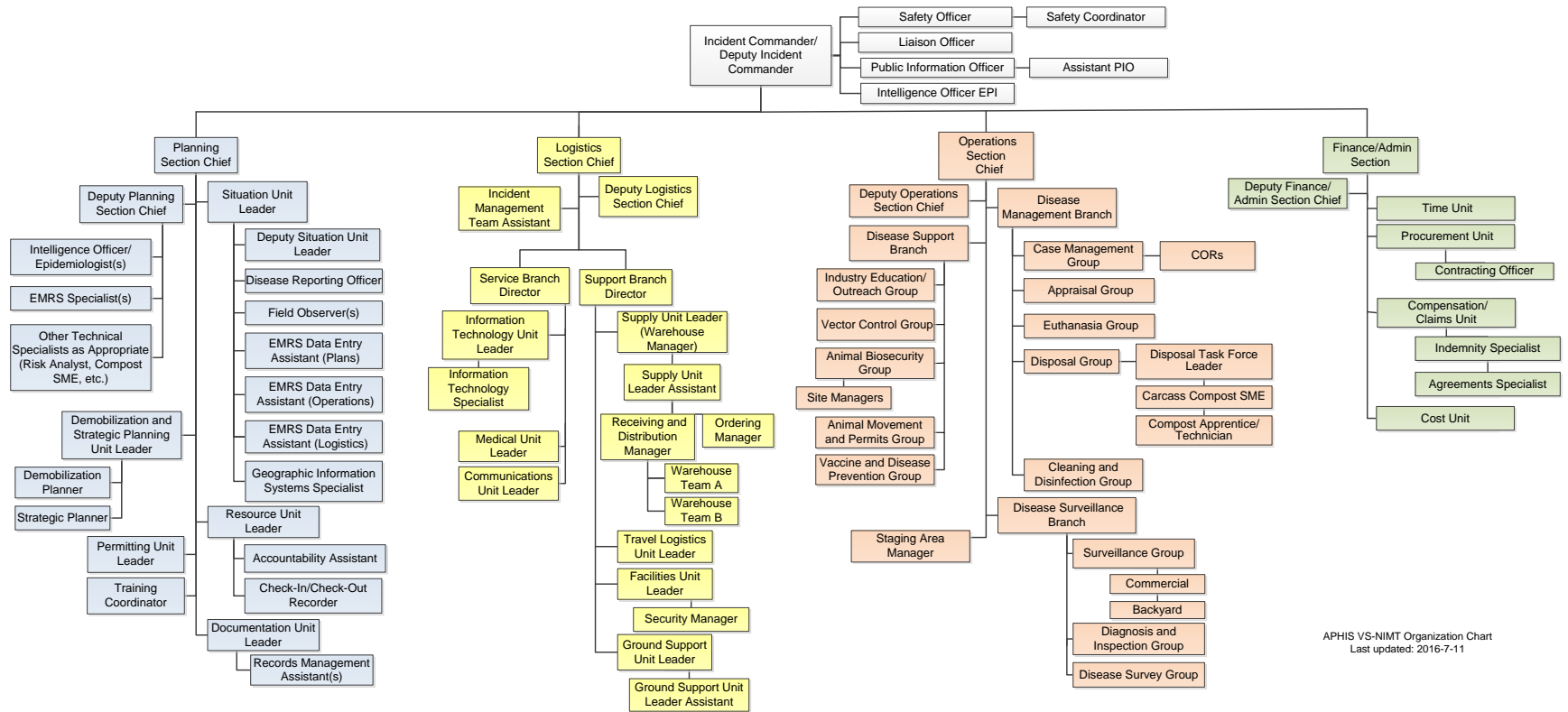
- Strategic Plans—Concept of Operations
 - *Animal and Plant Health Inspection Service (APHIS) Foreign Animal Disease Framework: Roles and Coordination* (FAD PReP Manual 1-0): This document provides an overall concept of operations for FAD preparedness and response for APHIS, explaining the framework of existing approaches, systems, and relationships.
 - *APHIS Foreign Animal Disease Framework: Response Strategies* (FAD PReP Manual 2-0): This document provides significant detail on response strategies that will be conducted in an FAD outbreak.
 - *Incident Coordination Group Plan* (FAD PReP Manual 3-0): This document explains how APHIS headquarters will organize in the event of an animal health emergency.
 - *FAD Investigation Manual* (FAD PReP Manual 4-0): This field-ready manual provides detailed information on completing an FAD investigation from start to finish.
 - *A Partial List of FAD Stakeholders* (FAD PReP Manual 5-0): This guide identifies key

- stakeholders with whom the National Preparedness and Incident Coordination (NPIC) Center collaborates.
- National Animal Health Emergency Management System Guidelines
 - These documents describe many of the critical preparedness and response activities, and can be considered as a competent veterinary authority for responders, planners, and policy-makers.
 - Industry Manuals
 - These manuals describe the complexity of industry to emergency planners and responders and provide industry a window into emergency response.
 - Disease Response Plans
 - Response plans are intended to provide disease-specific information about response strategies. They offer guidance to all stakeholders on capabilities and critical activities that would be required to respond to an FAD outbreak.
 - Standard Operating Procedures (SOPs) for Critical Activities
 - For planners and responders, these SOPs provide details for conducting critical activities such as disposal, depopulation, cleaning and disinfection, and biosecurity that are essential to effective preparedness and response to an FAD outbreak. These SOPs provide operational details that are not discussed in depth in strategy documents or disease-specific response plans.
 - Continuity of Business Plans (commodity specific plans developed by public-private-academic partnerships)
 - Known as the Secure Food Supply Plans, these materials use science- and risk-based information to facilitate market continuity for specific products in an outbreak.
 - APHIS Emergency Management
 - APHIS Directives and Veterinary Services Memorandums provide important emergency management policy. These documents provide guidance on topics ranging from emergency mobilization, to FAD investigations, to protecting personnel from HPAI.

These documents are available publicly at <http://www.aphis.usda.gov/fadprep>.

APPENDIX B: EXAMPLE INCIDENT COMMAND SYSTEM STRUCTURE

Figure B-1. Animal and Plant Health Inspection Service Veterinary Services National Incident Management Team



APHIS VS-NIMT Organization Chart
Last updated: 2016-7-11

Note: PIO = public information officer, SME = subject matter expert, EPI = epidemiologist

APPENDIX C: EXAMPLE OF QUARANTINE NOTICE

First, this appendix provides an example of a Federal order to expand the quarantined area during a disease outbreak. (Source: <http://www.federalregister.gov/articles/2003/04/16/03-9322/exotic-newcastle-disease-additions-to-quarantined-area#p-3>.)



18531

Rules and Regulations

Federal Register

Vol. 68, No. 73

Wednesday, April 16, 2003

This section of the FEDERAL REGISTER contains regulatory documents having general applicability and legal effect, most of which are keyed to and codified in the Code of Federal Regulations, which is published under 50 titles pursuant to 44 U.S.C. 1510.

The Code of Federal Regulations is sold by the Superintendent of Documents. Prices of new books are listed in the first FEDERAL REGISTER issue of each week.

DEPARTMENT OF AGRICULTURE

Animal and Plant Health Inspection Service

9 CFR Part 82

[Docket No. 02-117-5]

Exotic Newcastle Disease; Additions to Quarantined Area

AGENCY: Animal and Plant Health Inspection Service, USDA.

ACTION: Interim rule and request for comments.

SUMMARY: We are amending the exotic Newcastle disease regulations by quarantining El Paso and Hudspheth Counties, TX, and Dona Ana, Luna, and Otero Counties, NM, and prohibiting or restricting the movement of birds, poultry, products, and materials that could spread exotic Newcastle disease from the quarantined area. This action is necessary on an emergency basis to prevent the spread of exotic Newcastle disease from the quarantined area.

DATES: This interim rule was effective April 10, 2003. We will consider all comments that we receive on or before June 16, 2003.

ADDRESSES: You may submit comments by postal mail/commercial delivery or by e-mail. If you use postal mail/commercial delivery, please send four copies of your comment (an original and three copies) to: Docket No. 02-117-5, Regulatory Analysis and Development, PPD, APHIS, Station 3C71, 4700 River Road Unit 118, Riverdale, MD 20737-1238. Please state that your comment refers to Docket No. 02-117-5. If you use e-mail, address your comment to regulations@aphis.usda.gov. Your comment must be contained in the body of your message; do not send attached files. Please include your name and address in your message and "Docket No. 02-117-5" on the subject line.

You may read any comments that we receive on this docket in our reading room. The reading room is located in room 1141 of the USDA South Building, 14th Street and Independence Avenue SW., Washington, DC. Normal reading room hours are 8 a.m. to 4:30 p.m., Monday through Friday, except holidays. To be sure someone is there to help you, please call (202) 690-2817 before coming.

APHIS documents published in the *Federal Register*, and related information, including the names of organizations and individuals who have commented on APHIS dockets, are available on the Internet at <http://www.aphis.usda.gov/ppd/red/webrepor.html>.

FOR FURTHER INFORMATION CONTACT: Dr. Aida Boghossian, Senior Staff Veterinarian, Emergency Programs Staff, VS, APHIS, 4700 River Road Unit 41, Riverdale, MD 20737-1231; (301) 734-8073.

SUPPLEMENTARY INFORMATION:

Background

Exotic Newcastle disease (END) is a contagious and fatal viral disease affecting the respiratory, nervous, and digestive systems of birds and poultry. END is so virulent that many birds and poultry die without showing any clinical signs. A death rate of almost 100 percent can occur in unvaccinated poultry flocks. END can infect and cause death even in vaccinated poultry.

The regulations in "Subpart A—Exotic Newcastle Disease (END)" (9 CFR 82.1 through 82.15, referred to below as the regulations) were established to prevent the spread of END in the United States in the event of an outbreak. In § 82.3, paragraph (a) provides that any area where birds or poultry infected with END are located will be designated as a quarantined area, and that a quarantined area is any geographical area, which may be a premises or all or part of a State, deemed by epidemiological evaluation to be sufficient to contain all birds or poultry known to be infected with or exposed to END. Less than an entire State will be designated as a quarantined area only if the State enforces restrictions on intrastate movements from the quarantined area that are at least as stringent as the regulations. The regulations prohibit or restrict the movement of birds, poultry, products,

and materials that could spread END from quarantined areas. Areas quarantined because of END are listed in § 82.3, paragraph (c).

On October 1, 2002, END was confirmed in the State of California. The disease was confirmed in backyard poultry, which are raised on private premises for hobby, exhibition, and personal consumption, and in commercial poultry.

In an interim rule effective on November 21, 2002, and published in the *Federal Register* on November 26, 2002 (67 FR 70674-70675, Docket No. 02-117-1), we amended the regulations in § 82.3(c) by quarantining Los Angeles County, CA, and portions of Riverside and San Bernardino Counties, CA, and restricting the interstate movement of birds, poultry, products, and materials that could spread END from the quarantined area.

In a second interim rule effective on January 7, 2003, and published in the *Federal Register* on January 13, 2003 (68 FR 1515-1517, Docket No. 02-117-2), we further amended § 82.3(c) by adding Imperial, Orange, San Diego, Santa Barbara, and Ventura Counties, CA, and the previously non-quarantined portions of Riverside and San Bernardino Counties, CA, to the list of quarantined areas. Because the Secretary of Agriculture signed a declaration of extraordinary emergency with respect to the END situation in California on January 6, 2003 (see 68 FR 1432, Docket No. 03-001-1, published January 10, 2003), that second interim rule also amended the regulations to provide that the prohibitions and restrictions that apply to the interstate movement of birds, poultry, products, and materials that could spread END will also apply to the intrastate movement of those articles in situations where the Secretary of Agriculture has issued a declaration of extraordinary emergency (new § 82.16).

On January 16, 2003, END was confirmed in backyard poultry on a premises in Las Vegas, NV. Therefore, in a third interim rule effective January 17, 2003, and published in the *Federal Register* on January 24, 2003 (68 FR 3375-3376, Docket No. 02-117-3), we amended § 82.3(c) by quarantining Clark County, NV, and a portion of Nye County, NV, and prohibiting or restricting the movement of birds, poultry, products, and materials that

Second, it provides an example “Notice of Quarantine” from Rhode Island. State notices will vary based on State authority. (Source: http://www.dem.ri.gov/topics/erp/6_13_3.pdf.)

NOTICE OF QUARANTINE

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

ESTABLISHMENT OF A QUARANTINE RELATING TO [BOTANICAL OR ZOOLOGICAL TAXON, COMMON NAME] IN THE STATE OF RHODE ISLAND

Pursuant to the authority vested in the RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT by Rhode Island General Laws (RIGL) § 2-16-3(3), I, [Name of DAG Chief], in my capacity as Chief of the Division of Agriculture, Department of Environmental Management (“DEM”), pronounce and declare that [botanical or zoological taxon], also known as “[common name],” constitutes a “plant pest” as defined by RIGL § 2-16-2(a)(4). I further find that the presence of [botanical or zoological taxon] in the State of Rhode Island would present an imminent threat to the agricultural industry, general environment, and public welfare of the state.

Based upon information provided to DEM by the United States Department of Agriculture (“USDA”), one or more shipments of [kind of plants that are at-risk] from the [name of supplier] in [location of supplier] have been traced to establishments in Rhode Island. The USDA has identified these plants as part of a shipment that originated in [country of origin] and that have tested positive for [botanical or zoological taxon]. The discovery of [botanical or zoological taxon] in plants connected with this shipment has already necessitated the [remedial action, such as destruction of greenhouse stock] in [states].

Accordingly, pursuant to the authority of RIGL §2-16-3(5) and §2-16-10, I hereby establish a temporary quarantine of the following Premises:

[Name, address of premises]

Locations at these premises have been identified as containing plants that are part of or that have come into contact with the suspect shipments. No plants, plant parts, or related articles shall be moved from any greenhouse, field, or surrounding area, as determined by the Chief, that contains plants, plant parts, or related material originating from a source or location where [botanical or zoological taxon] is known to be present, unless it is determined by the Chief that the movement of such articles does not constitute a risk of spreading [botanical or zoological taxon] within the State. I find that it is necessary to establish this quarantine on a temporary basis without prior notice or hearing, as permitted by RIGL § 2-16-10, in order to effectively prevent or retard the spread of [botanical or zoological taxon] into other premises or communities to the detriment of the welfare of the agricultural economy of the State.

This quarantine shall be effective for a period of thirty (30) days, through and including [date that is 30 days from the beginning of the quarantine]. During this period, the Premises and the plants therein shall be subject to inspection and testing for the presence of [botanical or zoological taxon]. During this thirty (30) day period a public hearing shall be advertised and held for the purpose of discussing the continuation and maintenance of said quarantine beyond the thirty (30) day period.

WHEREFORE, in order to protect the agricultural industry, general environment, and public welfare, I find that the attached quarantine shall become effective immediately. Notice of the date, time and place of a public hearing within thirty (30) shall be advertised in accordance with RIGL § 2-16-10.

Consistent with the provisions of RIGL § 20-16-11, a penalty of up to two hundred dollars (\$200) per violation of the quarantine, may be imposed.

Signed this [number, 1st to 31st] day of [month, year],

[Name of DAG Chief], Chief, Division of Agriculture, RI DEM

APPENDIX D: FOOT-AND-MOUTH DISEASE RESPONSE QUARANTINE, MOVEMENT CONTROL, AND CONTINUITY OF BUSINESS READY REFERENCE GUIDE

This appendix contains the Foot-and-Mouth Disease Response Ready Reference Guide for Quarantine, Movement Control, and Continuity of Business. This document is available at:

<http://www.aphis.usda.gov/fadprep>.

In an FMD outbreak, quarantine, movement control, and continuity of business (managed movement) help to achieve the goals of an FMD response. In particular, these critical activities work to control and contain FMD, striving to eradicate the virus while providing science- and risk-based approaches to facilitate the movement of non-infected animals and non-contaminated animal products to stabilize animal agriculture, the food supply, the economy, and protect public health.

Quarantine and Movement Control in an FMD Outbreak

In an FMD outbreak, quarantine and movement control are critical activities for an effective FMD response effort. By restricting the movement of infected animals, animal products, and contaminated fomites, quarantine and movement control play a significant role in stopping the spread of FMD. Quarantines will be implemented for Infected, Suspect, and Contact Premises. Movement controls will be implemented for At-Risk and Monitored Premises within a Control Area (CA).

Continuity of Business (Managed Movement) in an FMD Outbreak

This helps to facilitate agriculture and food industries in maintaining business operations, while also mitigating the risk of disease spread. Continuity of business planning can

- ◆ protect animal health by preventing the transmission of FMD from an infected to a naïve animal subpopulation,
- ◆ protect food security by facilitating the movement of food products to processing, and
- ◆ help to mitigate the impact of quarantines on non-infected premises in regulatory CAs.

How Does Continuity of Business Work with Quarantine and Movement Control?

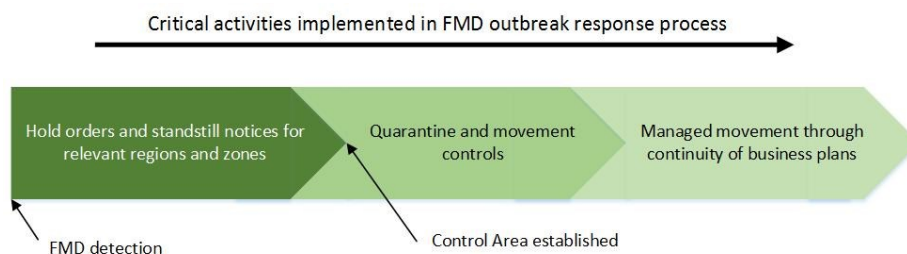
Quarantine, movement control, and continuity of business have the same ultimate goal: to prevent the transmission of FMD to non-infected premises, particularly those outside the CA. While quarantine and movement restrictions are highly effective at limiting the spread of disease, they also impede typical business operations—this is when continuity of business plans enter into response efforts to effectively manage movement.

- ◆ **Quarantines and movement controls** are applied to premises in a regulatory CA to ensure infected animals and contaminated fomites and products do not leave premises. Quarantines are applied to Infected, Contact, and Suspect Premises. Movement controls are applied to At-Risk and Monitored Premises. Consideration will be given to critical movements (i.e., feed trucks).
- ◆ **Continuity of business or managed movement** is intended to manage movement for non-infected premises (At-Risk and Monitored Premises).

Implementation of Quarantine, Movement Control, and Continuity of Business in an FMD Outbreak

Immediately after FMD detection, a regulatory CA, comprised of an Infected and Buffer Zone, will be designated. Quarantines will be implemented for Infected, Contact, and Suspect Premises in this regulatory CA. Continuity of business plans—ideally developed in advance—will be implemented to facilitate the managed movement of commodities and animals from At-Risk and Monitored Premises existing within this regulatory CA, helping these industries continue business operations. At all times, consideration will be given to critical movements, like feed trucks.

In an FMD outbreak, a Unified Command would be established to manage the incident. The animal health emergency response plan of every State and Tribal Nation should describe the implementation of quarantine and movement controls, including a permit system. USDA may also impose a Federal quarantine for the management of interstate commerce from infected States.



In an FMD outbreak, there will be competing priorities for resources in order to conduct the critical activities required to control, contain, and eradicate FMD. Planning is vitally important to ensure that limited resources are used effectively and efficiently.

FMD-Specific Challenges

The FMD virus is highly contagious and can spread easily through fomite movement. In addition, an outbreak of FMD would have significant economic implications in terms of interstate trade and international commerce. The capabilities required to respond to an FMD outbreak are extensive. Any response effort, whether the outbreak is large or small, will require significant operational capabilities.

Critical Activities and Tools

In addition to quarantine and movement control and continuity of business, other critical activities will be implemented in an FMD outbreak to contain, control, and eradicate the virus. These include

- ◆ a public awareness campaign,
- ◆ epidemiological investigation and tracing,
- ◆ rapid diagnosis and reporting,
- ◆ increased surveillance,
- ◆ biosecurity measures,
- ◆ cleaning and disinfection,
- ◆ appropriate disposal procedures,
- ◆ mass depopulation and euthanasia (as response strategy indicates), and
- ◆ emergency vaccination (as response strategy indicates).

Continuity of Business Is a Public, Private, Academic Partnership

Continuity of business planning requires the active collaboration, communication, and coordination of public officials, private industry, and academia/extension experts. Prior to an outbreak, these groups work together to develop the processes by which non-infected premises can move non-infected animals and non-contaminated animal products. Collaboratively, proactive risk assessments will be used to develop the requirements for movement of commodities out of a regulatory CA. These requirements can include biosecurity measures, cleaning and disinfection procedures, and surveillance sampling prior to movement. With the backing of regulators, the support of industry, and the expertise of academia, the development of continuity of business plans is a critical activity in effective FMD preparedness and response.

Preparedness and Response Goals for Continuity of Business

- ◆ Provide science- and risk-based approaches and systems for the continuity of business involving non-infected animals and non-contaminated animal products.
- ◆ Establish a transparent and effective system for risk assessments, surveillance requirements, biosecurity procedures, and a permit process in order to promote stakeholder acceptance and compliance with regulatory interventions by State, Federal, and Tribal authorities.
- ◆ Work with industry and Incident Command to facilitate and permit movement of non-infected animals and non-infected animal products throughout the outbreak. Enter permits and movements in EMRS 2.0 in a timely fashion (at least 24-hour intervals).
- ◆ Perform proactive risk analysis or risk assessments for the movement of animals and/or animal commodities that are potentially disrupted or affected by a disease response.
- ◆ Establish capabilities to prove disease-freedom and flock or herd health production parameters for interstate trade.
- ◆ Implement continuity of business plans (the Secure Food Supply Plans) when a CA is established.

What Are the Current Continuity of Business Planning Initiatives for FMD?

There are a number of successful efforts underway where the government, private sector, and academia are collaborating to improve continuity of business planning for an FMD outbreak. Current planning initiatives include the:



Secure Milk Supply: In progress. Goal of planning is to avoid and mitigate interruptions in raw milk movement from dairy farms to processing during an FMD outbreak.

Secure Pork Supply: In progress. Goal of planning is to avoid and mitigate interruptions in the movement of pork and pork products during an FMD, classical swine fever, African swine fever, or swine vesicular disease outbreak.

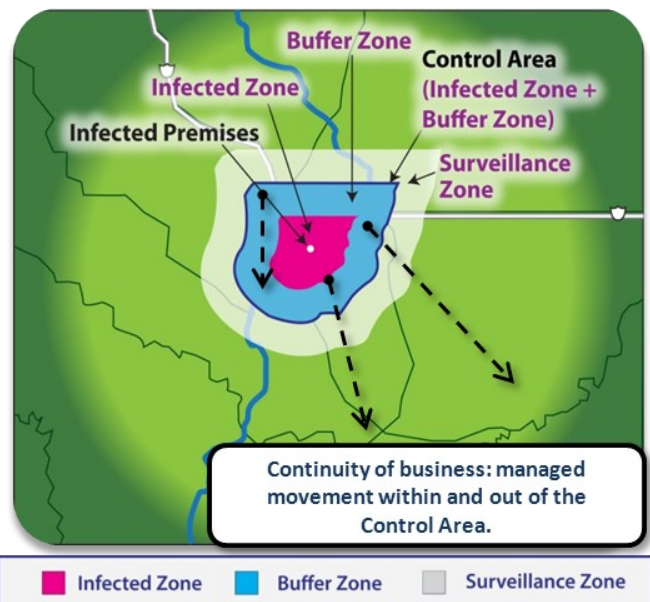
Secure Beef Supply: In progress. Goal of planning is to avoid and mitigate interruptions in the movement of beef and beef products during an FMD outbreak.

Please see the Overview of the Secure Food Supply Plans Ready Reference Guide for more information on these and other projects.

What Are Key Elements of Continuity of Business Plans for Managed Movement?

Continuity of business plans will vary, depending on the industry and specific commodity of interest. However, a number of common elements will appear, some of which are listed here:

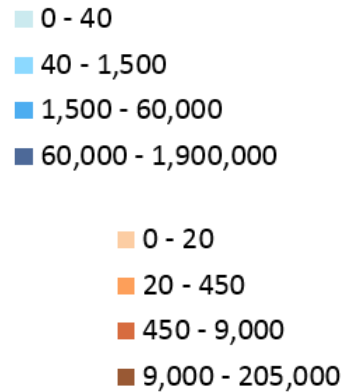
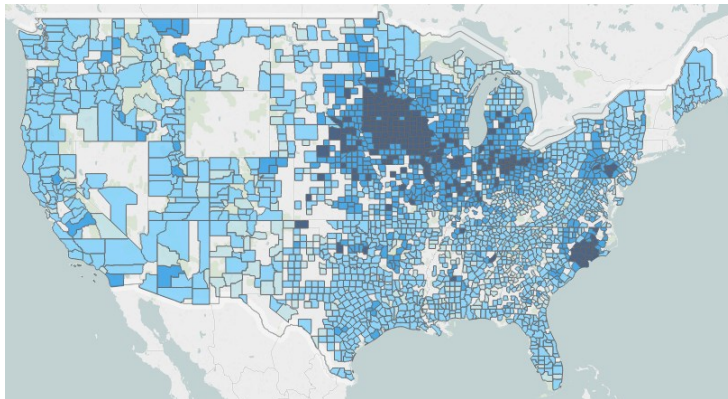
- ◆ **Risk assessments:** Proactive risk assessments can help determine the disease transmission risk of specific product movements.
- ◆ **Surveillance requirements:** How frequently samples will be collected, from what populations, and for how long.
- ◆ **Biosecurity guidelines:** Appropriate precautions, personal protective equipment, and specific steps for various fomites and equipment.
- ◆ **Cleaning and disinfection procedures:** Cleaning requirements for various fomites and equipment, including information on appropriate disinfectants.
- ◆ **Epidemiological information:** Information on routine and non-routine movements to and from premises, as well as information on the number of animals, species, and age of animals.
- ◆ **Permitting guidance:** Transparent, explicit guidance for Incident Command regarding movement requirements for various commodities.



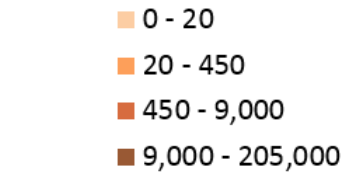
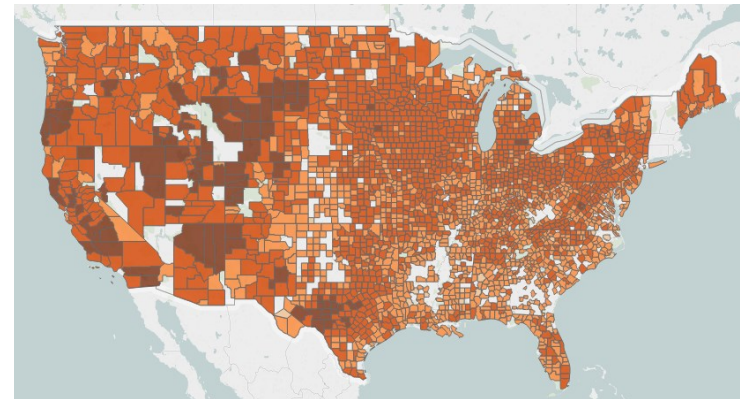
Overview

The previous page highlights the importance of quarantine and movement control measures and continuity of business (managed movement) plans in the event of an FMD outbreak to contain, control, and eradicate FMD while stabilizing animal agriculture, the food supply, the economy, and protecting public health. The maps on this page provide a common picture of livestock densities and distributions to understand the potential impact of quarantines, movement controls, and understand the imperative for continuity of business planning. The degree of interstate commerce and international trade in the United States (continued on the next page) means that an FMD outbreak would have a significant economic impact as movement of animals (and products) slows dramatically or even halts, particularly in the beginning of an outbreak.

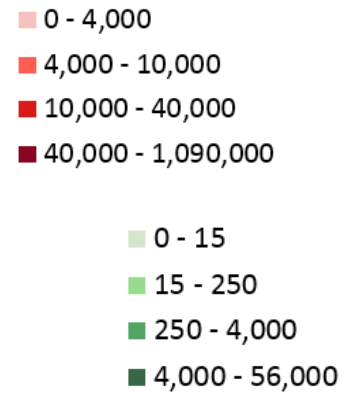
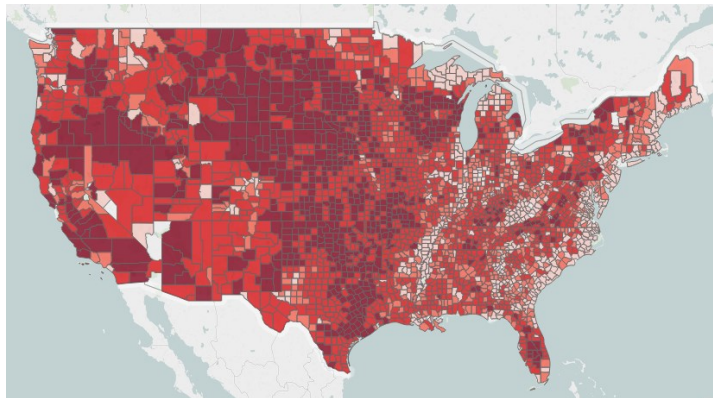
Swine Population by County



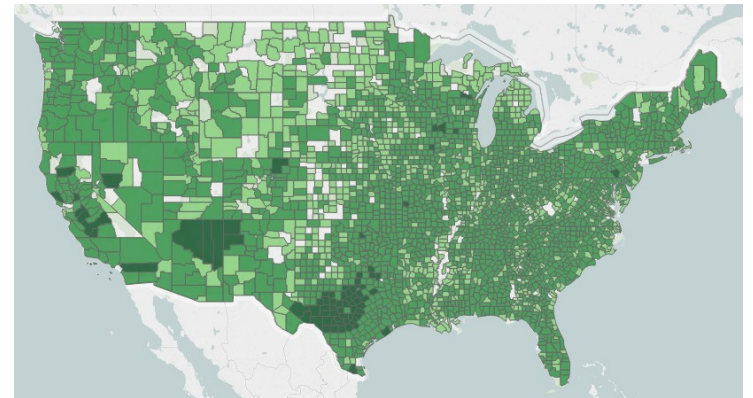
Sheep Population by County



Bovine Population by County



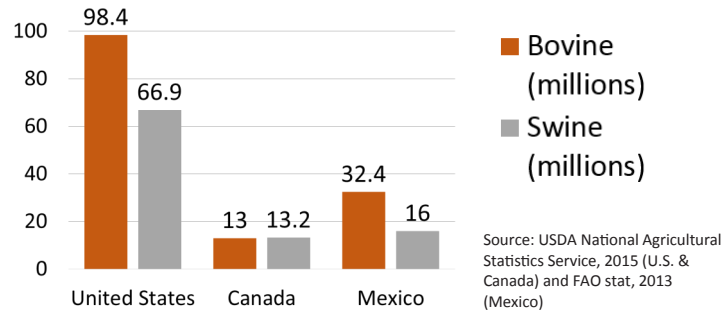
Goat Population by County



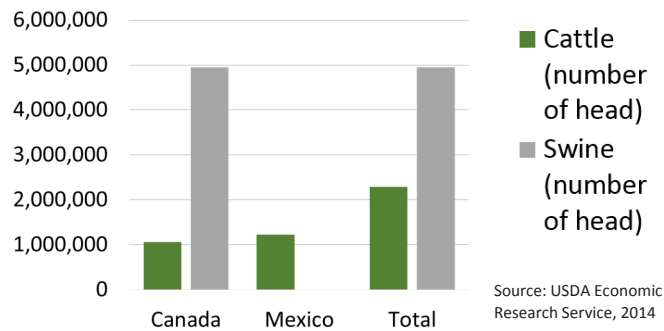
Data may be incomplete. Best available data incorporated.

Source: National Agricultural Statistics Service, 2012

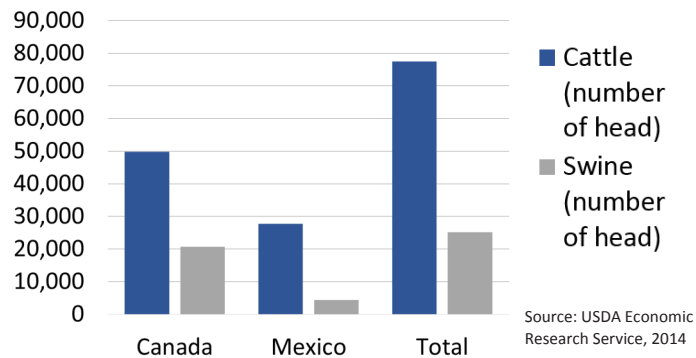
Swine and Bovine Inventory—North America



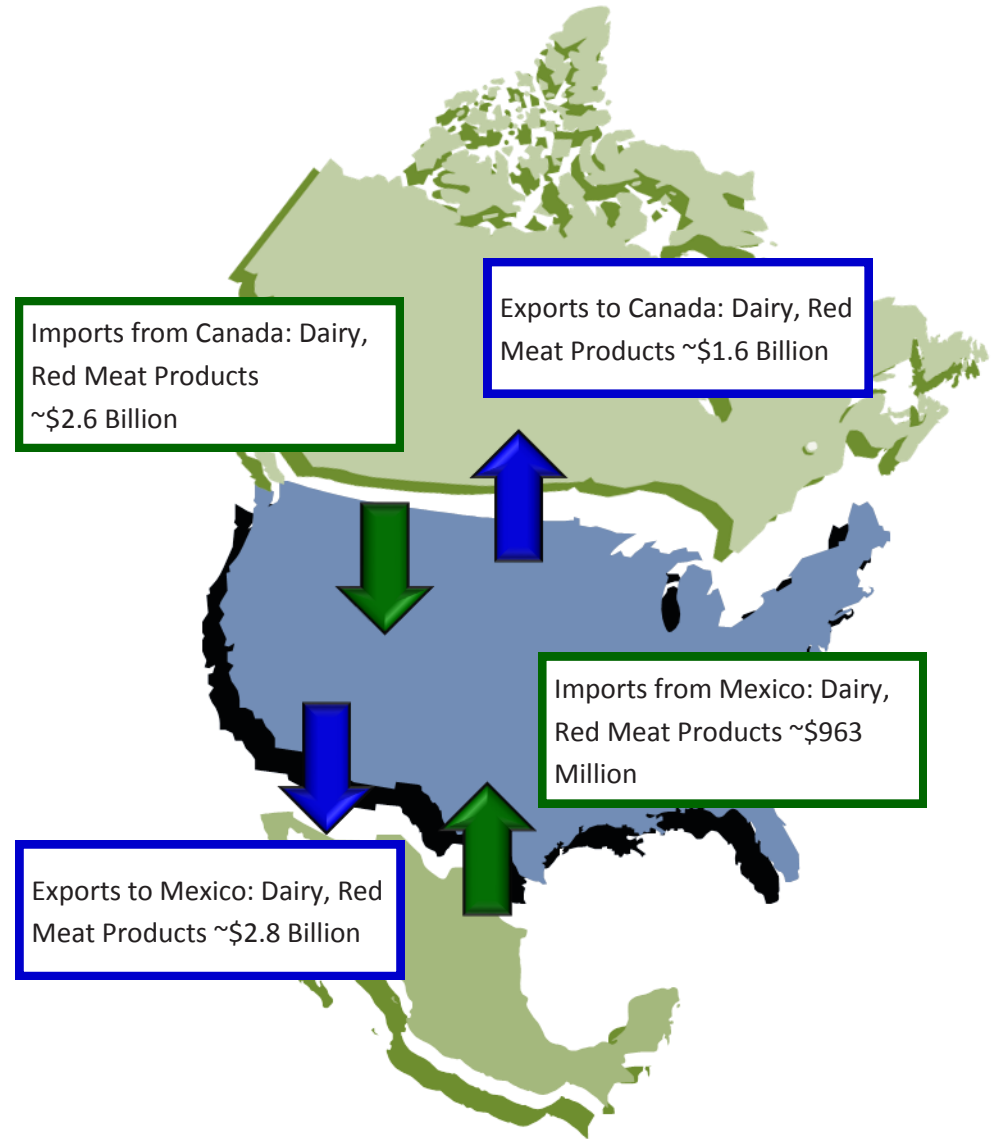
U.S. Imports from Mexico and Canada (Live Animals)



U.S. Exports to Mexico and Canada (Live Animals)



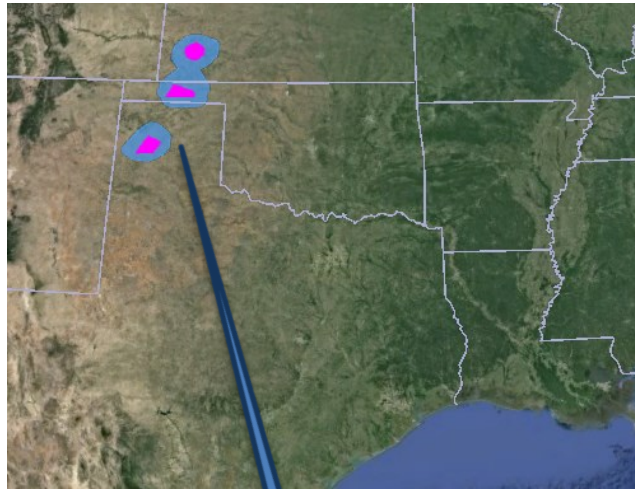
U.S. Product Imports and Exports to Canada and Mexico (Value)



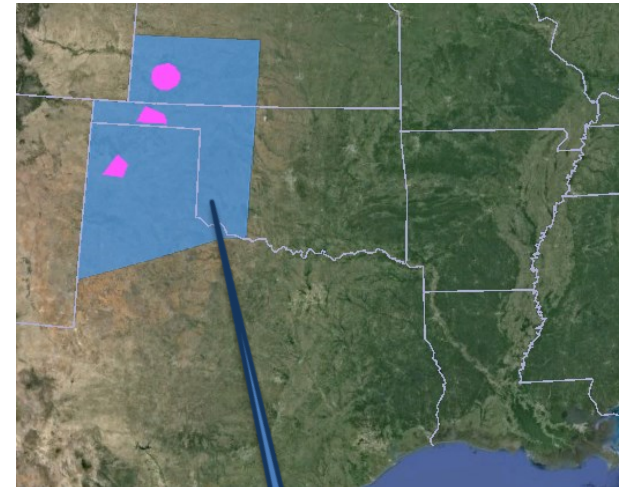
Source: USDA Foreign Agricultural Service, 2014

Control Areas in an FMD Outbreak (Small and Medium)

There are many different factors that will be considered in determining the size of a Control Area. Smaller Control Areas may mean that fewer premises and animals are affected by quarantines and movement controls, however, if premises or animals are infected but undetected, there is a higher chance they may exist outside the Control Area (increasing the risk of disease spread).



Small Control Areas
Affected:
~4.6 million livestock
~4,500 operations



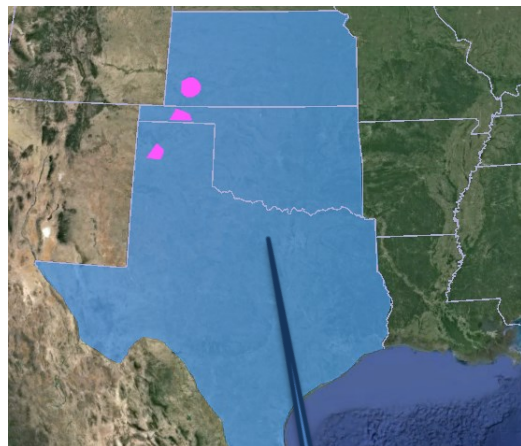
Medium Control Areas
Affected:
~10 million livestock
~27,000 operations

Data source: National Agricultural Statistics Service, 2012.



Control Areas in an FMD Outbreak (Large)

There are many different factors that will be considered in determining the size of a Control Area. Large Control Areas may mean that many more premises and animals are affected by quarantines and movement controls, however, if premises or animals are infected but undetected, it is likely that they may exist within the Control Area rather than outside of it, limiting the spread of disease.



Large Control Areas

Affected:
~28 million livestock
~283,000 operations

Data source: National Agricultural Statistics Service, 2012

Minimum Sizes of Zones and Areas

Zone or Area	Minimum Size and Details
Infected Zone (IZ)	Perimeter should be at least 3 km (~1.86 miles) beyond perimeters of presumptive or confirmed Infected Premises. Will depend on disease agent and epidemiological circumstances. This zone may be redefined as the outbreak continues.
Buffer Zone (BZ)	Perimeter should be at least 7 km (~4.35 miles) beyond the perimeter of the Infected Zone. Width is generally not less than the minimum radius of the associated Infected Zone, but may be much larger. This zone may be redefined as the outbreak continues.
Control Area (CA)	Perimeter should be at least 10 km (~6.21 miles) beyond the perimeter of the closest Infected Premises. This area may be redefined as the outbreak continues.
Surveillance Zone (SZ)	Width should be at least 10 km (~6.21 miles), but may be much larger.



Regulatory Control Areas: Examples of the Upsides and Downsides to Large and Small Control Areas

Small Control Area	Large Control Area
Certainty that all Infected Premises are contained in Control Area is lower.	Certainty that all Infected Premises are contained in Control Area is higher.
Likelihood of disease spread to outside the Control Area may be higher.	Likelihood of disease spread to outside the Control Area may be lower.
Quarantine and movement controls easier to manage, less resources required, less animals and premises to manage.	Quarantine and movement controls harder to manage, more resources required, more premises and animals to manage.
Potentially less impact to normal business.	Potentially more impact to normal business.

APPENDIX E: CURRENT SECURE FOOD SUPPLY PLANS

The Secure Food Supply Plans are public-private-academic partnerships. The goals of the Secure Food Supply projects are to (1) avoid interruptions in animal/animal product movement to commercial processing from premises with no evidence of infection in an foreign animal disease (FAD) outbreak, (2) provide a continuous supply of wholesome food to consumers, and (3) maintain business continuity for producers, transporters, and food processors through planning for an FAD response.

Current collaborations and Secure Food Supply projects include the following (please see Table E-1 for further information):

- Secure Poultry Supply Plan: <http://www.securepoultrysupply.com>
 - Secure Egg Supply (SES) Plan: <http://secureeggsupply.com/>
 - Secure Broiler Supply (SBS): <http://www.securebroilersupply.com>
 - Secure Turkey Supply (STS): <http://www.secureturkeysupply.com/>
- Secure Pork Supply (SPS): <http://securepork.org/>
- Secure Milk Supply (SMS) Plan: <http://www.securemilksupply.org/>
 - National Working Groups:
 - Biosecurity
 - Movement Plans
 - Risk Assessment
 - State/Regional SMS Projects: <http://securemilksupply.org/state-regional.php>
 - Colorado SMS
 - California SMS
 - Mid-Atlantic SMS (DE, MD, NC, NJ, PA, SC, TN, VA, WV)
 - New England SMS (CT, MA, ME, NH, RI, VT)
 - Oregon, Washington SMS
 - Wisconsin SMS.

Key academic contributors to continuity of business projects include the

- Center for Food Security and Public Health (CFSPH), Iowa State University;
- Center for Animal Health and Food Safety (CAHFS), University of Minnesota;
- University of California, Davis, Department of Veterinary Medicine and Epidemiology; and
- Institute for Infectious Animal Diseases (IIAD), Texas A&M University.

Table E-1. Summary of Secure Food Supply Projects

Commodity Plan (targeted FAD)		Members (in alphabetical order)	Progress	More Information
Secure Poultry Supply (HPAI)	Secure Egg Supply	<ul style="list-style-type: none"> • Association of Veterinarians in Egg Production • Egg sector veterinarians and officials • IIAD • Iowa State University (CFSPH) • State Animal Health Officials (SAHOs) • United Egg Producers • University of Minnesota (CAHFS) • U.S. Department of Agriculture (USDA)-Animal and Plant Health Inspection Service (APHIS) Veterinary Services (VS) 	<p>The following have been created:</p> <ul style="list-style-type: none"> • proactive risk assessments, • permit guidance and sample permits, • surveillance guidelines, • cleaning and disinfection guidelines, • epidemiological questionnaire, • biosecurity checklist, • website to facilitate data collection, and • informational videos. <p>At this time, the focus is on simplifying existing guidance and creating a unified Secure Poultry Supply Plan with harmonized recommendations across different industries.</p>	<ul style="list-style-type: none"> • The Secure Egg Supply website: www.secureeggssupply.com
	Secure Broiler Supply	<ul style="list-style-type: none"> • Association of Veterinarians in Broiler Production • Industry • State Animal Health Officials (SAHOs) • University of Minnesota • USDA-APHIS VS 		<ul style="list-style-type: none"> • The Secure Broiler Supply website: www.securebroilersupply.com
	Secure Turkey Supply	<ul style="list-style-type: none"> • Association of Veterinarians in Turkey Production • Industry • Iowa State University (CFSPH) • National Turkey Federation • State Animal Health Officials (SAHOs) • University of Minnesota (CAHFS) • USDA-APHIS VS 		<ul style="list-style-type: none"> • The Secure Turkey Supply website: www.secureturkeysupply.com
Secure Milk Supply (FMD)	National	<ul style="list-style-type: none"> • IIAD • Industry • Iowa State University (CFSPH) • State Animal Health Officials (SAHOs) • University of California, Davis • University of Minnesota (CAHFS) • USDA-APHIS VS 	<ul style="list-style-type: none"> • National working groups <ul style="list-style-type: none"> – Biosecurity – Movement plans – Risk assessment • Proactive risk assessments • Biosecurity performance standards • Development of tools to facilitate movement and permitting decisions • Materials to support milk movement 	<ul style="list-style-type: none"> • The Secure Milk Supply website: www.securemilksupply.org
	Regional	<ul style="list-style-type: none"> • California • Colorado • Mid Atlantic—DE, MD, NC, NJ, PA, SC, TN, VA, WV • New England—CT, MA, ME, NH, RI, VT • Oregon, Washington • Wisconsin 		<ul style="list-style-type: none"> • This page contains contact information to each regional Secure Milk Supply Group: http://securemilksupply.org/state-regional.php
Secure Pork Supply (FMD, CSF, ASF, and swine vesicular disease)		<ul style="list-style-type: none"> • American Association of Swine Veterinarians • IIAD • Industry • Iowa State University (CFSPH) • National Pork Board • National Pork Producers Council • State Animal Health Officials (SAHOs) • University of Minnesota (CAHFS) • USDA-APHIS VS 	<ul style="list-style-type: none"> • Proactive risk assessments • Biosecurity performance standards, guidelines, and illustrations • Active observational surveillance information • Factors to consider in implementing controlled movement of swine 	<ul style="list-style-type: none"> • The Secure Pork Supply website: www.securepork.org

Note: HPAI = highly pathogenic avian influenza, CSF = classical swine fever, FMD = foot-and-mouth disease, ASF = African swine fever. Secure Food Supply documents, plans, and other guidance information are considered as “DRAFTS,” materials are updated as required/appropriate, guidance may evolve in an outbreak situation.

APPENDIX F: EXAMPLE MOVEMENT PERMIT

This appendix contains an example movement permit for managed movements that may be used in a disease incident. The Emergency Management Response System 2.0 (EMRS2) generates physical permits (either electronic or hard copy) through templates, which easily puts on all relevant information (e.g., origin and destination premises, permit number, issuance date, and conditions). There is a list of permit templates in EMRS2 that can be selected: origin States can supply their own permit templates to EMRS2 personnel (ideally ahead of the outbreak) for use. This allows States to include State-specific language and logo on the permit.

Safeguarding Animal Health

PERMIT

RELEASE OF RENDERED (HEAT TREATED) POULTRY PRODUCT FROM PLANT

Permit Information	
Premises number:	
Rendering Plant: (name, address)	
Destination:	ALL LOGGED SITES IN THESE STATES:
Issuance Date:	
Expiration Date:	
Plant Contact:	

Conditions	
1	Product has been heat treated to 260 degrees Fahrenheit for a minimum of 45 minutes.
2	All customers picking up must provide destination(s) of product before leaving the plant.
3	All customer trucks must be cleaned and sanitized before leaving the rendering facility.
4	Truck drivers must wear disposable plastic boots if they get out of the vehicle. Plastic boots should be disposed of on the plant premises.
6	Logs must be kept, detailing destinations, dates, and vehicle identification (truck license plate, trailer license plate, driver name).
7	Logs must be submitted weekly or upon request for investigation purposes.

Authorized by:	Date:
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