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## **Foreign Animal Disease Guidance #4: Biosecurity and Cleaning/Disinfection Measures**

### **Section 1: Overview**

Slaughter facilities implement measures every day to ensure the safety of the people and animals involved in their operations. However, in the event of a foreign animal disease (FAD) outbreak, biosecurity measures on all facilities which house animals for even a brief period of time will be heightened. Existing procedures may not account for these increased precautions.

This guidance document will aid beef, pork, and lamb slaughter establishments on the proper biosecurity measures to take in the event of a foreign animal disease finding in their facility. Both structural and operational biosecurity measures must be considered. Since much of the structural biosecurity in slaughter facilities is already in place and cannot be changed, this document will focus on operational measures to prevent FADs from leaving a slaughter facility and spreading to other slaughter facilities, livestock production facilities, or to livestock at the homes of employees.

### **Section 2: Biosecurity Preparedness**

This section outlines actions slaughter establishments can take to prepare themselves for implementation of an FAD response plan before an FAD is detected in the U.S. More information on FAD preparedness can be found in the NAMI FAD Guidance Document #1, FAD Preparedness.

#### **2a. National Premises Identification Number (PIN)**

All livestock operations, including slaughter establishments, are encouraged to obtain a National Premises Identification Number from the office of the state animal health official. This number should be listed in the biosecurity plan. A PIN includes a valid 911 address and a set of matching coordinates (latitude and longitude) reflecting the physical location of the animals on the premises. A PIN will be required for permitting movements during an outbreak, and it will help state and federal government officials identify a premise quickly and easily, and records for that premises will be more readily available. A PIN can be obtained by contacting the state animal health official (usually the state veterinarian) of the

state in which the plant is located.<sup>1</sup> Please note a PIN is not the same as the establishment number issued by the Food Safety Inspection Service upon receiving a Grant of Inspection. A PIN is issued by the state animal health official, while an establishment number is issued by FSIS. An establishment should have both numbers listed in the biosecurity plan.

## **2b. Biosecurity Manager**

Each facility should designate a Biosecurity Manager who is in charge of developing the enhanced biosecurity plan, keeping the plan updated, and training employees on biosecurity measures and how they will be implemented in the event of an FAD outbreak. The Biosecurity Manager should have authority to ensure compliance with biosecurity protocols and take corrective action as needed.

## **2c. Written Biosecurity Plan**

The specific enhanced biosecurity measures implemented will depend upon the location and state-specific requirements, but regardless of where the outbreak occurs, all facilities will be affected in some way. To prepare for such an event, every slaughter facility should have an enhanced, site-specific, written biosecurity plan ready for implementation. This plan should address the specific layout and standard operating procedures of the plant, and how the slaughter facility will implement the heightened biosecurity measures defined in this document.

The enhanced biosecurity plan should clearly define the slaughter facility premises and the animals and animal housing associated with the premises. All slaughter facilities should obtain and keep a premises identification number (PIN) in their biosecurity plan. See Section 2a. for more details on obtaining a PIN.

The Biosecurity Manager should conduct a documented review of the plan at least annually, or whenever the slaughter facility implements a change in operations (i.e. expands, adds a new aspect of the business, etc.). The plan must be continuously adapted to address changing risks or recommendations. The plan should be accessible to authorized individuals with responsibility for implementing the plan, and should be made available to the State Animal Health Official upon request.

## **2d. Biosecurity Training**

The Biosecurity Manager should be well-versed in the content of the United States Department of Agriculture's Foreign Animal Disease Preparedness and

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<sup>1</sup> To download a list of all state animal health officials, please visit this website: <http://www.usaha.org/federal-and-state-animal-health>.

Response Plans.<sup>2</sup> Additionally, they should be well-versed in the State Response plan for the state in which the establishment is located. Other resources are listed in Appendix A. They should use these resources and the facility's biosecurity plan to train essential personnel (i.e. animal handlers, live animal transporters, plant management, etc.) annually about biosecurity in and around the facility and the importance of implementation of the plan during an FAD outbreak. Non-establishment employees such as truck drivers can be made aware of proper biosecurity measures by taking species-specific driver certification courses, or the establishment may choose to post its biosecurity plan in an area where drivers can see it.

## **2e. Control Area Status**

In the event of a FAD outbreak in the U.S., the State will establish control areas around any livestock operation infected with the disease (infected zone) or at heightened risk for the disease (buffer zone). Depending on the establishment's location relative to the control areas, components of a biosecurity plan will differ.

### **2.e.1. Establishments outside the control area**

Establishments outside the control area should continue normal operations, with enhanced biosecurity measures that focus upon prevention of the disease in their facilities. Such measures can include requiring a negative on-farm test for the relevant FAD before receiving hogs, establishing cleaning/disinfection stations at relevant access points into the establishment, and/or requiring that livestock haulers stay in their trucks during the unloading process.

### **2.e.2. Establishments inside the control area**

Establishments in control areas or establishments that have received animals from farms in control areas should focus upon the containment of the disease within their facilities. This document focuses upon the efforts slaughter establishments that have had a confirmed positive FAD on their premises, or that have received animals from a supplier that has a confirmed positive FAD on their farm, should take to address the positive confirmation, clean and disinfect the facility, enhance biosecurity, and return to normal business operations.

## **Section 3: Components of the Biosecurity Plan**

### **3a. Premises map**

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<sup>2</sup> USDA APHIS FAD Preparedness and Response Materials and References.  
[https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/emergency-management/ct\\_fadprep!/ut/p/z/1/04\\_iUIDg4tKPAFJABpSA0fpReYllmemJJZn5eYk5-hH6kVFm8X6Gzu4GFiaGPu6uLoYGjh6Wnt4e5mYGBs6G-l5gjQj9IBPw64iA6oAqh1P6kUZFvs6-6fpRB YklGbzZeWn5-hHJJfFpiSkFRakF-gXZUZE7fRGiw!!/](https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/emergency-management/ct_fadprep!/ut/p/z/1/04_iUIDg4tKPAFJABpSA0fpReYllmemJJZn5eYk5-hH6kVFm8X6Gzu4GFiaGPu6uLoYGjh6Wnt4e5mYGBs6G-l5gjQj9IBPw64iA6oAqh1P6kUZFvs6-6fpRB YklGbzZeWn5-hHJJfFpiSkFRakF-gXZUZE7fRGiw!!/). Accessed September 19, 2018.

An important part of the written response plan is the premises map. A premises map should be an up-to-date diagram or schematic of the facility and grounds (a satellite image is ideal), with the following clearly labeled:

- Line of separation or quarantine line
  - This is an imaginary line drawn by the SAHO and/or APHIS representative to indicate the separation of the establishment premises to establish a quarantine or to separate establishment property from surrounding properties. No product, animals, trucks, employees, or other entity should cross this line until the proper authority lifts restrictions or unless approved by the facility and SAHO.
- Access points (in and out) for:
  - Livestock trucks/trailers
  - Employee vehicles
  - Incoming supply deliveries
  - Outgoing human food product
  - Other products (rendered materials, pharmaceutical product, etc.), incoming and outgoing:
    - Rendered materials
    - Pharmaceutical products
    - Trash waste
- Cleaning and disinfection stations for biosecurity purposes
- Designated parking areas
  - Employees
  - Visitors
  - Trucks/trailers
    - Livestock
    - Product
      - Human food
      - Other products (rendered, etc.)
- Flow of wastewater
- All vehicle movements (i.e. traffic flow for all vehicles in order to assess cross-traffic)

#### *Flow of products*

If an establishment has not done so already, it should create traffic maps to determine animal, product, and employee movement in the plant. This can be done before a FAD outbreak even occurs. If possible, flow of all animals, products, and employees should be one-way. Efforts should be made to eliminate cross-contamination of products and trucks. All biosecurity plans should include flow charts for the following:

- Live animals
- Incoming products
  - Supplies/raw materials

- Of animal origin and otherwise
  - Chemicals
  - Equipment
- Outgoing products
  - Human food
    - Raw
    - Cooked
  - Animal feed/feed ingredients
  - Pet food
  - Pharmaceutical products
  - Hides
  - Other byproducts (fertilizer ingredients, tallow, etc.)
- Employees
  - Employee vehicles
  - Traffic flow for employees working in lairage
- Contractors and Visitors
- Other traffic
  - Laundry service
  - Garbage service
  - Recycling service

#### *Visitors/international travel*

Establishments should have in place a requirement that all personnel and any visitors have had adequate downtime between international travel and any visits to the establishment. Currently, the USDA Foreign Animal Disease Diagnostic Laboratory on Plum Island recommends a 5-day downtime for anyone planning to have contact with susceptible species after working with diseases and animals in an affected area. If an FAD outbreak occurs in the United States, establishments should restrict entry into the plant to only essential personnel, and the 5-day downtime and enhanced biosecurity practices must be followed.

If the establishment must allow non-essential personnel on the premises during an outbreak, those individuals should be aware of the current FAD outbreak situation, and be informed that they have to follow the establishment's enhanced biosecurity procedures, including but not limited to: boot changing or thorough cleaning, changing of clothing, and cleaning of vehicles at the establishment or at the nearest car/truck wash.

#### *Employees*

Employee foot and driving traffic routes should be considered when implementing a FAD biosecurity plan. Parking areas for personal vehicles should not overlap with routes by which contaminated trucks can enter the establishment. Footpaths should be established for all employees to follow when entering/exiting the plant. All street clothing and shoes should be stored in the locker room, and a

clean/dirty line should be established in each locker area. Designated plant clothing and footwear should be removed before entering the clean locker area. Employees should leave the locker area and the plant via the designated clean footpaths established to avoid cross-contamination. Much care should be taken to keep employees from coming into contact with infected or exposed animals outside the work environment.

All employees who work in the receiving and lairage areas should be required to wear plant-issued clothing/outerwear, and to shower and change into clean clothes before leaving the plant premises.

Establishments should also account for employees who may not be assigned to a specific station or area of the plant (such as FSQA, management, maintenance, etc.). This may involve shifting responsibilities or limiting access to certain areas of the plant, or designating certain employees only to certain areas of the plant.

#### *Lairage*

The lairage area is the area where the highest risk of cross contamination and disease spread occurs. A plan for disposal of animals/carcasses that do not pass inspection should be in place. Each state is charged with developing a carcass disposal plan in the event of a FAD outbreak, and the establishment should follow the plan that the state has put in place if it is necessary to dispose of a carcass in lairage. As stated previously, when a plant is determined to be in a control area, it is imperative that no live or dead animals leave the facility after they have been brought onto establishment premises, unless given specific consent and direction from APHIS and/or State Animal Health Officials.

#### *Rendering and other by-products*

A flow chart outlining the flow of blood and other by-products such as pharmaceuticals and the rendering process should be prepared before the event of an outbreak. Such a document should include each product produced, whether or not it is produced in the rendering area, and at what times and temperatures such products are exposed to before leaving the establishment. Many rendering operations already have this information outlined in documents used to demonstrate Food Safety Modernization Act (FSMA) compliance. Such documentation will help the SAHO determine whether or not the material was subject to appropriate times/temperatures which can kill or inactivate the ASF virus, and will allow permitting and movement decisions to be made in a timely manner.

### **Section 4: Cleaning and Disinfection**

The slaughter establishment should have cleaning and disinfection protocols in place or ready to be implemented when it is determined that the establishment is within a control zone and/or has received infected or exposed animals. Cleaning

and disinfection will depend upon traffic patterns and logistics of the plant. Establishments are encouraged to set up cleaning and disinfection sites at all access points for movement into and out of the premises. Employees operating the cleaning and disinfection stations should be well-versed in the company's enhanced biosecurity plan, the safe use of disinfectants, and the personal protective equipment necessary to protect themselves from any harmful effects of the disinfectants (which will be stated on the product label). A list of APHIS and EPA-approved disinfectants can be found in Appendix B of this document.

### *Lairage*

In the event of a confirmed FAD in a slaughter establishment, a thorough cleaning and disinfection of the unloading docks, weigh scales, and lairage area must be performed. All organic material should be removed from the pens, either by skid loaders or manually. All surfaces, including walls and ceilings, should be washed. After a thorough washing of all surfaces an APHIS-approved disinfectant should be applied. Because many lairage areas are mostly composed of concrete, care should be taken to ensure all porous surfaces have sufficient contact time with the disinfectant. The National Pork Board has more information on contact time for disinfectants on porous surfaces.<sup>3</sup>

### *Livestock trucks/trailers*

Livestock trailers should go through a thorough cleaning before leaving the slaughter establishment. Depending on the proximity of the slaughter establishment to a truck wash, SAHOs may direct livestock haulers to a local truck wash, or they may choose to set up a cleaning and disinfection station on establishment premises. If a SAHO works with an establishment to set up a truck cleaning and disinfection station, the Iowa Department of Agriculture and Land Stewardship (IDALS) provides resources specific to setting up and operating a temporary cleaning and disinfection station.<sup>4</sup>

In either case, all organic material should be removed from the trailer, including bedding. Bedding should be rendered or composted, and disposed of in a way that is satisfactory to the SAHO. Trucks and trailers should be washed, and an APHIS-approved disinfectant should be applied after washing. In the case of cold weather, the Canadian Food Inspection Agency has determined that the addition of 40% propylene glycol to various disinfectants can keep them liquid at temperatures as low as -20°C (-4°F).<sup>5</sup>

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<sup>3</sup> National Pork Board. 2015. Disinfection of foreign animal disease viruses on surfaces relevant to the Pork Packing Industry. NPB website: <https://www.pork.org/research/disinfection-of-foreign-animal-disease-viruses-on-surfaces-relevant-to-the-pork-packing-industry/>. Accessed February 23, 2021.

<sup>4</sup> Iowa Department of Agriculture & Land Stewardship Biosecurity website. <https://iowaagriculture.gov/animal-industry-bureau/biosecurity>. Accessed February 23, 2021.

<sup>5</sup> Rohonczy, E, B Brooks, S Theriault, D Carruthers, and L. Miller. 2012. Cold Weather Decontamination (Validation of Decontamination Processes in the Agri-Food Context). 4<sup>th</sup> International Symposium on Managing

### *Trucks/trailers hauling product and by-products*

Trucks and trailers hauling product and by-products will also be subject to cleaning and disinfection, but on a scale less stringent than livestock trucks and trailers. Using the IDALS resources for setting up a cleaning and disinfection station, slaughter establishments can clean and disinfect the wheels, wheel wells, and undercarriages of trucks leaving the premises. Trucks hauling product will be pulling enclosed trailers, and the inside of the trailers should be cleaned and disinfected after product has been delivered, (this includes any pallets, combo bins, etc. that product was shipped on or in).

Further processors receiving product should be aware of the outbreak situation and should have cleaning and disinfection procedures in place for equipment that may come into contact with product. This equipment includes pallets, combo bins, and any other containers that the further processor intends to send back to a slaughter establishment.

### *Employee vehicles*

Ideally, all employee parking at a slaughter establishment will be in a designated spot away from livestock areas, and outside the established quarantine. However, each establishment is different. In the event of a confirmed FAD at a slaughter establishment, cleaning and disinfection stations should be set up at access points for employee parking. Care should be taken to direct employee vehicles in a manner that prevents cross-contamination of vehicles and trucks hauling livestock. At minimum, all employee vehicles and trucks/trailers hauling livestock or product should go through a cleaning and disinfection station before they arrive at any cross-point in vehicle traffic leaving the establishment.

### *Employee workwear*

It is imperative that no contaminated clothing or equipment be brought home with plant personnel. Laundry collection bins can be placed in the dirty side of locker rooms to collect contaminated clothing from employees. All plant-issued clothing should be washed with standard detergent and bleach. All plant-issued equipment should be collected and washed/disinfected at the end of each shift.

## **Conclusion**

This guidance document should aid beef, pork, and lamb slaughter establishments on the proper biosecurity measures to take in the event of a foreign animal disease finding in their facility. Biosecurity plan templates have been

avoided, as all slaughter facilities are different, and will implement plans in different ways. Above all, biosecurity plans should focus on operational measures to prevent FADs from leaving a slaughter facility and spreading to other slaughter facilities, livestock production facilities, or to livestock at the homes of employees.

## **Appendix A: Additional Training Materials on FADs and Enhanced Biosecurity**

- NAMI Foreign Animal Disease Guidance Documents: <https://www.meatinstitute.org/index.php?ht=d/sp/i/157365/pid/157365>
- Secure Beef Supply: <http://securebeef.org/training-materials/>
- Secure Pork Supply: <http://www.securepork.org/training-materials/>
- National Pork Board Foreign Animal Disease Resources: <https://www.pork.org/production/animal-disease/foreign-animal-disease-resources/>
- Pork Quality Assurance: <https://www.pork.org/certifications/pork-quality-assurance-plus/>
- Beef Quality Assurance: <https://www.bqa.org/>
- Pork Transport Quality Assurance: <https://www.pork.org/certifications/transport-quality-assurance/>
- World Organization for Animal Health: <https://www.oie.int/animal-health-in-the-world/oie-listed-diseases-2019/>
- Food and Agriculture Organization: <http://www.fao.org/animal-health/en/>

## Appendix B: List of Disinfectants for Specific FADs\*

Active ingredients	Product name	Manufacturer	EPA #	Susceptible virus
Sodium chlorite, potassium peroxymonosulfate	Virkon S	E.I. DuPont de Nemours & Company	71654-6	FMD, CSF, ASF
Hydrogen peroxide, peroxyacetic acid	Oxonia Active	Ecolab, Inc.	1677-129	FMD
Alkyl dimethyl benzyl ammonium chloride, didecyl dimethyl ammonium chloride, octyl decyl dimethyl ammonium chloride, dioctyl dimethyl ammonium chloride	Lonza DC 101	Lonza, Inc.	6836-86	FMD
Sodium chlorite, sodium dichloroisocyanurate dihydrate	Aseptrol S10-TAB	BASF Catalysts, LLC	70060-19	FMD
Sodium chlorite, sodium dichloroisocyanurate dihydrate	Aseptrol FC-TAB	BASF Catalysts, LLC	70060-30	FMD
o-phenylphenol, potassium salt; p-ter-amyphenol, potassium salt; potassium 2-benzyl-4-chlorophenate	Pheno Cen Germicidal Detergent	Central Solutions, Inc.	211-25	CSF, ASF
o-Pheynylphenol, ethyl alcohol	Pheno-Cen Spray	Central Solutions, Inc.	211-32	CSF
p-tert-amyphenol, sodium salt; sodium 2-benzyl-4-chlorophenate; sodium o-phenylphenate	Tri-Cen	Central Solutions, Inc.	211-36	CSF
Alkyl dimethyl benzyl ammonium chloride, didecyl dimethyl ammonium chloride, octyl decyl dimethyl ammonium chloride, dioctyl dimethyl ammonium chloride	Q5.5-5.5NPB-2.5HW	Central Solutions, Inc.	211-50	CSF
o-phenylphenol, 2-benzyl-4-chlorophenol	Low pH Phenolic 256	Central Solutions, Inc.	211-62	CSF, ASF
Glutaral	Ucarsan Sanitizer 420	Dow Chemical Company	464-689	CSF
Glutaral	Ucarsan Sanitizer 4128	Dow Chemical Company	464-696	
2-benzyl-4-chlorophenol, o-phenylphenol, 4-tert-amyphenol	1-Stroke Environ	Steris Corporation	1043-26	CSF
Chlorhexidine diacetate	Nolvasan Solution	Zoetis	1007-99	CSF
Sodium dichloro-s-triazinetriene	Klor-Kleen	Medentech Ltd.	71847-2	ASF

\*Adapted from the USDA APHIS document entitled "Potential Pesticides to Use Against the Causative Agents of Selected Foreign Animal Diseases in Farm Settings: [https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/emergency-management/ct\\_disinfectants/hut/p/z1/tVNLc5swEP4tPeTlaBEKEkewHcDGdqd-xVwYIYOhBeGA4tT99RWuZ9pJYqeHVrfid\\_aSd7yEUo0cUS34s91yVjeSVrrexnczMgQ-MmJE\\_GprgBk44CagNMDDR5gwY-G5AaAQAhGEIh14wpM4UILRRrMfjeYBND3DoL5wRhLP1w5RF1JoHBK1RjGIh1UEV aMsPRdklopEqkyqpyrTI7ekOOp40z22SN-](https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/emergency-management/ct_disinfectants/hut/p/z1/tVNLc5swEP4tPeTlaBEKEkewHcDGdqd-xVwYIYOhBeGA4tT99RWuZ9pJYqeHVrfid_aSd7yEUo0cUS34s91yVjeSVrrexnczMgQ-MmJE_GprgBk44CagNMDDR5gwY-G5AaAQAhGEIh14wpM4UILRRrMfjeYBND3DoL5wRhLP1w5RF1JoHBK1RjGIh1UEV aMsPRdklopEqkyqpyrTI7ekOOp40z22SN-)

Also see:

- Disinfection of foreign animal disease viruses on surfaces relevant to the pork packing industry: <https://www.pork.org/research/disinfection-of-foreign-animal-disease-viruses-on-surfaces-relevant-to-the-pork-packing-industry/>
- USDA APHIS list of disinfectants recently approved for Section 18 exemption for use in the event of high consequence animal diseases: [https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/emergency-management/ct\\_disinfectants](https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/emergency-management/ct_disinfectants)