

Biosecurity Guidance for Dairy Operations

Center for Food Security and Public Health
College of Veterinary Medicine
Iowa State University



IOWA STATE UNIVERSITY®

Overview

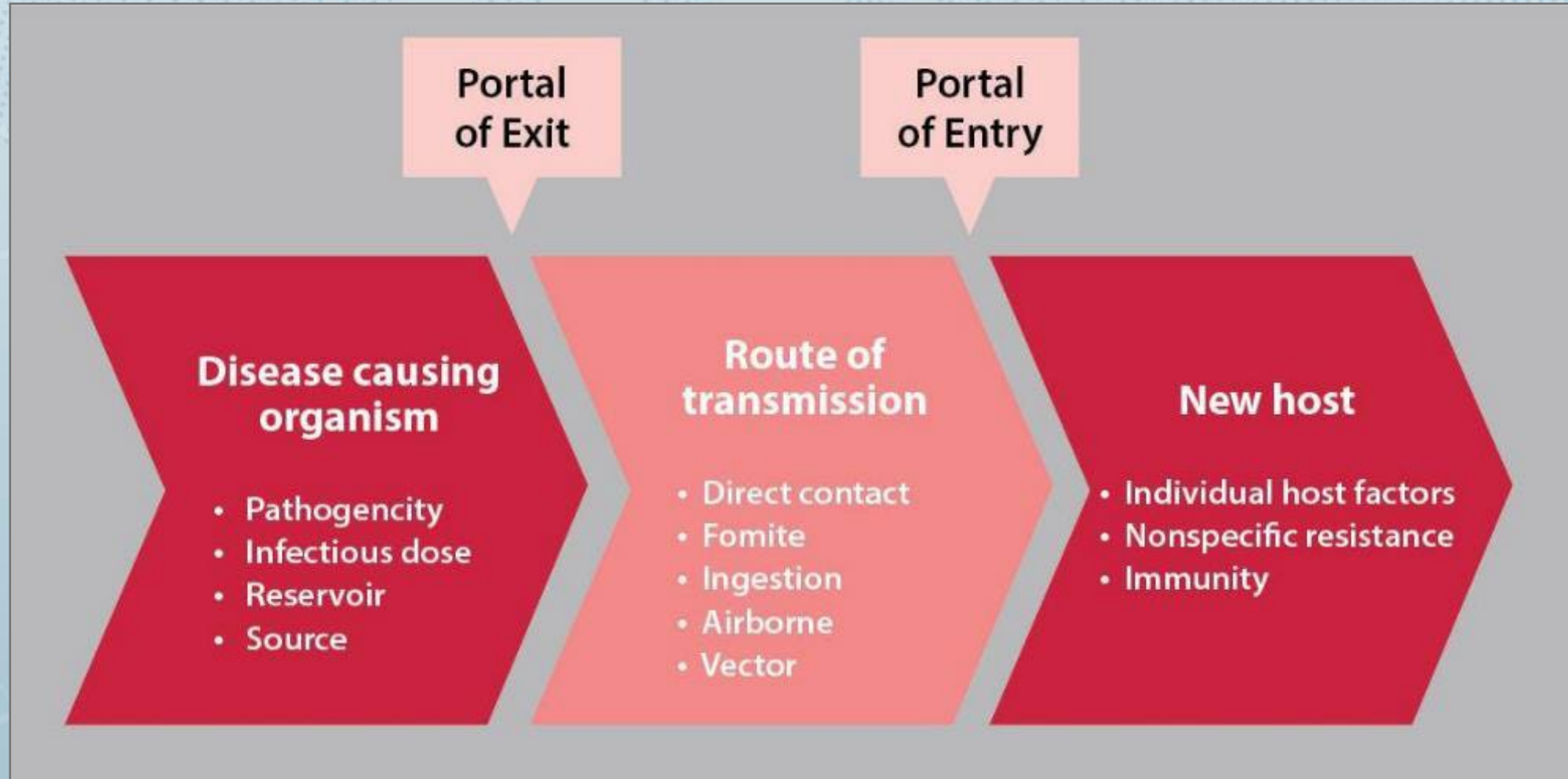
1. Disease spread
 1. Influenza A H5N1
 2. Foot and Mouth Disease
2. Biosecurity
 1. Daily vs. enhanced
3. Resources and outreach materials



Disease Spread



Chain of Infection



Routes of Transmission



**Direct
Contact**



Fomites



Ingestion



Aerosol



Vectors



Influenza A H5N1 Clinical Signs

- Birds
 - H5 and H7 are “Highly Pathogenic” (fatal) ***to wild birds, poultry***
 - Widespread in wild birds worldwide
 - Sporadic outbreaks of H5N1 in US poultry flocks since 2022
- ***Dairy cattle***
 - ***Decreased milk production, decreased feed intake, diarrhea, fever***
- Humans
 - Conjunctivitis, mild flu-like illness (fever, chills, coughing, sore throat)
 - No indicators of unusual flu activity in people, including H5N1 (CDC); ***risk to public is low***
- Other animals
 - Cats- respiratory signs and neurologic signs; some death
 - Other mammals- variable

Animals may not show obvious signs of disease (infected but undetected)



H5N1 Bird Flu Outbreak in Dairy Cows

How is it Spreading?

Wild bird-to-cow

Likelihood of Transmission: **PROBABLE**

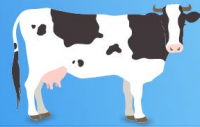


route: unknown
(initial infection)



Cow-to-cow

Likelihood of Transmission: **PROBABLE**



route: unknown



Cow-to-poultry

Likelihood of Transmission: **PROBABLE**



route: unknown



Cow-to-cat

Likelihood of Transmission: **PROBABLE**



route: consumption
(unpasteurized (raw) milk)



Cow-to-human

Likelihood of Transmission: **PROBABLE**



route: unknown



Human-to-human*

Likelihood of Transmission: **NONE REPORTED**



route: large or small respiratory droplets, possible contact transmission



*No human-to-human spread of H5N1 has been detected during the current outbreak in dairy cows.



Influenza A H5N1 Transmission

- Direct contact*, fomites, aerosol*, ingestion* (birds: fecal-oral)
- ***Intramammary– high levels of viral particles found in milk***
 - Also found on teat orifice, nasal secretions, and urine (feces- rarely)
- ***Close contact and closed environments***
- Movement of lactating dairy cattle
- Local spread between dairies and poultry operations

*Research is needed to fully understand exposure

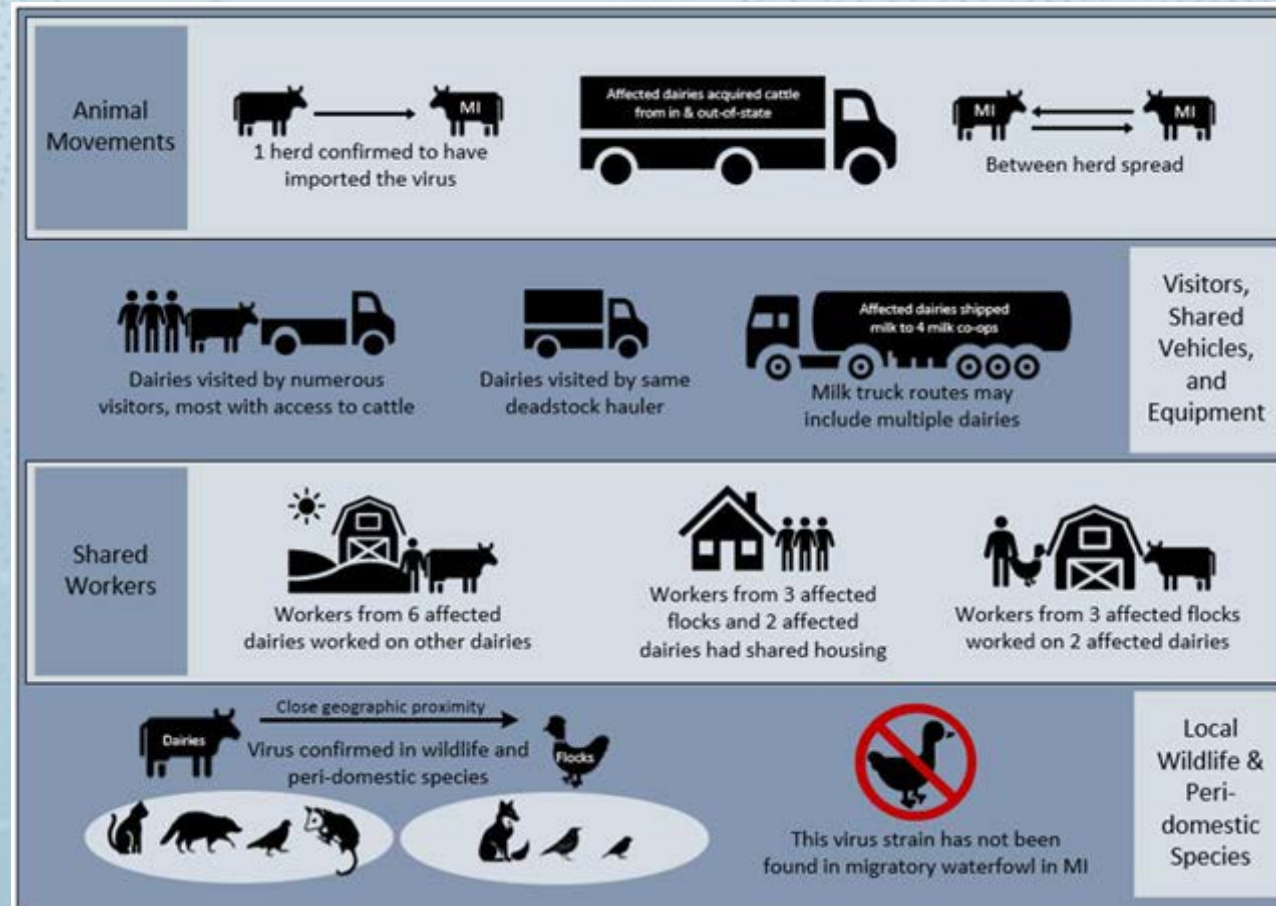


H5N1 Confirmed Cases in Livestock

- <https://www.aphis.usda.gov/livestock-poultry-disease/avian/avian-influenza/hpai-detections/hpai-confirmed-cases-livestock>



Potential Transmission Pathways Supported by Epi Links



Foot and Mouth Disease Clinical Signs

- Susceptible species: cloven-hooved animals
 - Cattle, pigs, sheep, goats, many wild animals (deer, elk, bison)
- Fever, vesicular lesions, epithelial erosions
- Drop in milk production, lameness, salivation
- ~100% morbidity
- ~20% mortality in young animals



Foot and Mouth Disease Transmission

- Direct contact, fomites, aerosol
- Animal-animal contact
 - Pigs are amplifying hosts (excrete large amounts of virus)
 - Cattle can be carriers for several months or more, may infect other animals
- Air/windborne
- Fomites– feed, clothing, footwear, etc.
- Feeding contaminated animal products (meat, milk, waste)





FOOT-AND-MOUTH DISEASE

HOW DOES IT SPREAD?



If you suspect a case of FMD
contact your local authority or
veterinarian as soon as possible.

TRANSMISSION ROUTES

		Direct animal contact.	The most important transmission route.
		Animal products.	The second most important transmission route is through ingestion of infected animal products. E.g. feeding of waste human food or untreated milk to young animals.
		Mechanical transmission.	Other routes of transmission can be through mechanical transmission from virus particles on inanimate objects such as footwear, clothing, veterinary instruments or vehicles.
		Wind.	Transmission by wind is not as common but possible, especially if big pig farms are in the vicinity, and under certain weather conditions. Cool temperatures and higher humidity favor virus transmission by wind.



Biosecurity



Review: What is Biosecurity?

- On-farm management practices that:
 - Prevent disease introduction (keep disease off the farm – also known as bioexclusion), AND
 - Control disease spread (keep disease on the farm from spreading within the herd/flock and to other farms, also known as biocontainment)



Biosecurity

Bioexclusion



Biocontainment



Why is Biosecurity Important?

- Public health risk
 - Some diseases are zoonotic
- Direct costs: reduction in animal supply, products
 - Producers have fewer animals and/or products to sell
 - Transporters have fewer animals to haul
 - Slaughterhouses/processing plants have less animals/products to process
 - Public pays higher prices for meat/milk/eggs
- Indirect costs
 - Longer time to finishing, treatment, etc.



Principles of Biosecurity



SEPARATION



**MOVEMENT
CONTROL**



SANITATION



Daily vs. Enhanced Biosecurity



1. Biosecurity Manager and Written Plan

Biosecurity Manager

- Familiar with facility
- Develops plan with veterinarian
- Communicates biosecurity measures
- Monitors to ensure compliance

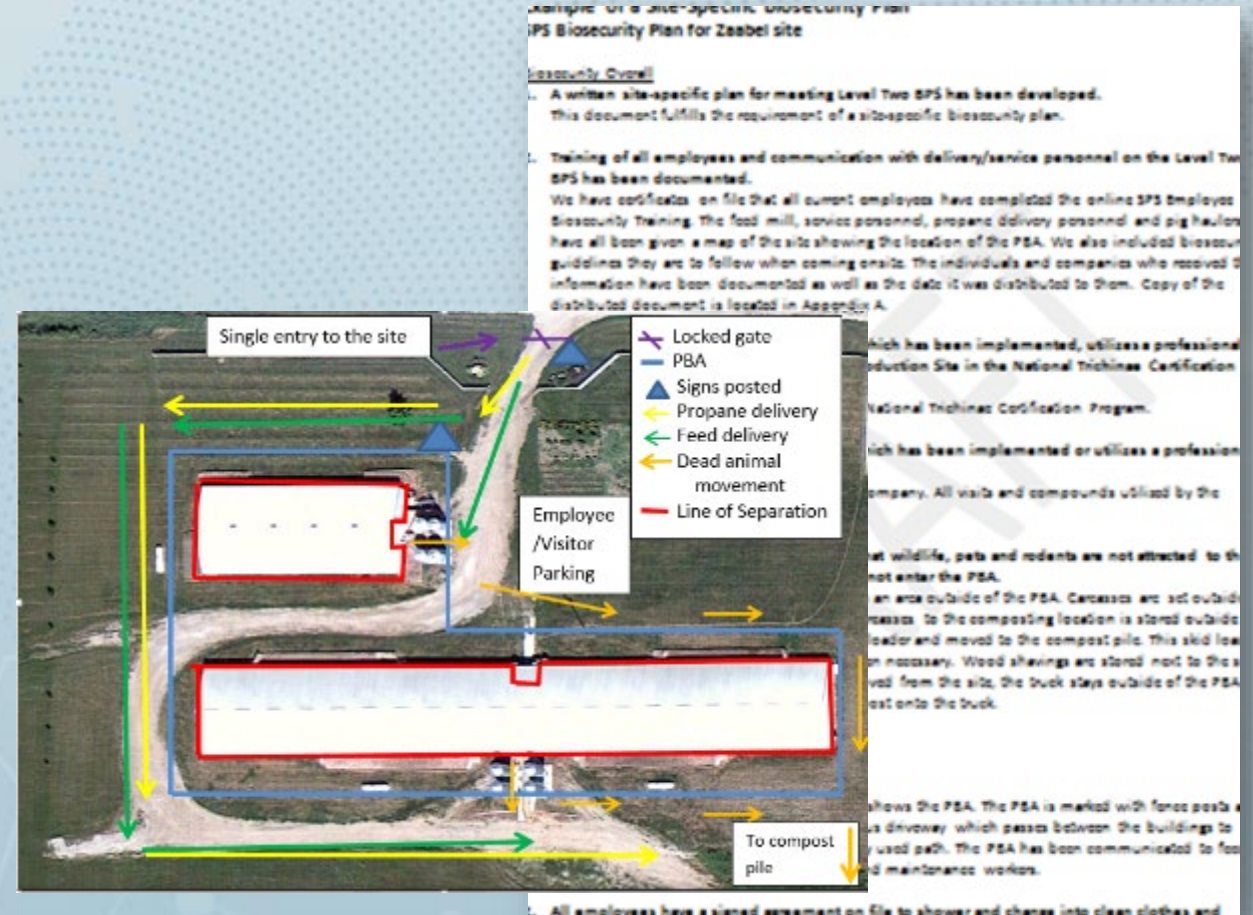
Site-specific biosecurity plan

- Includes labeled premises map
- Is communicated to employees and accessible to others
- Reviewed annually, as changes occur



Writing Biosecurity Plans

- Explain how site meets all biosecurity measures listed in checklist
- Critically and thoroughly evaluate each component
 - ☐ In place: All items addressed and implemented
 - ☐ In progress: Some items addressed, implemented
 - ☐ Not in place: Items not addressed or implemented



2. Training

- Biosecurity Manager, essential personnel trained at least annually; documented



3. Farm Access

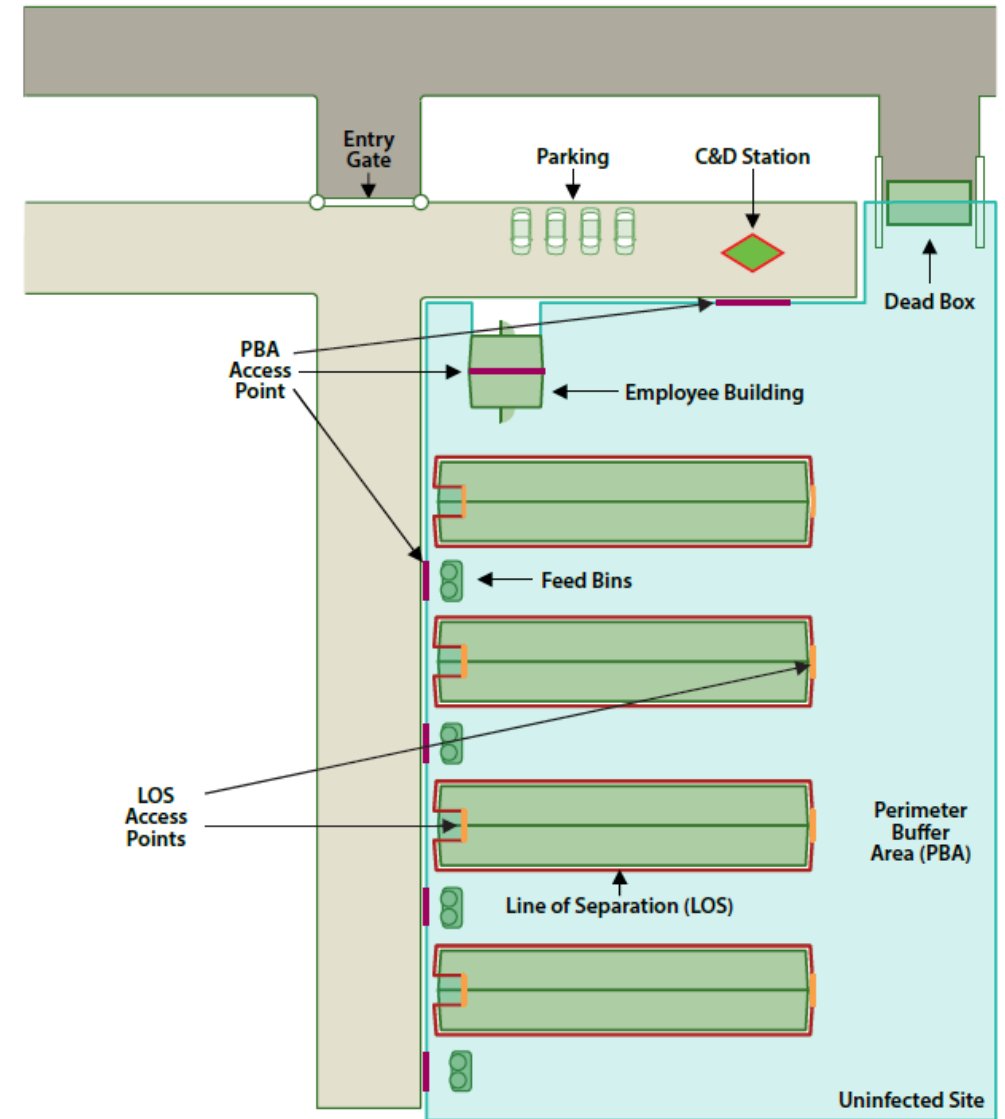
- Daily Biosecurity

- Gates, fencing, barriers
- Signage
- Limiting entry to essential personnel
- Record movements
- Parking away from animal areas

- Enhanced Biosecurity

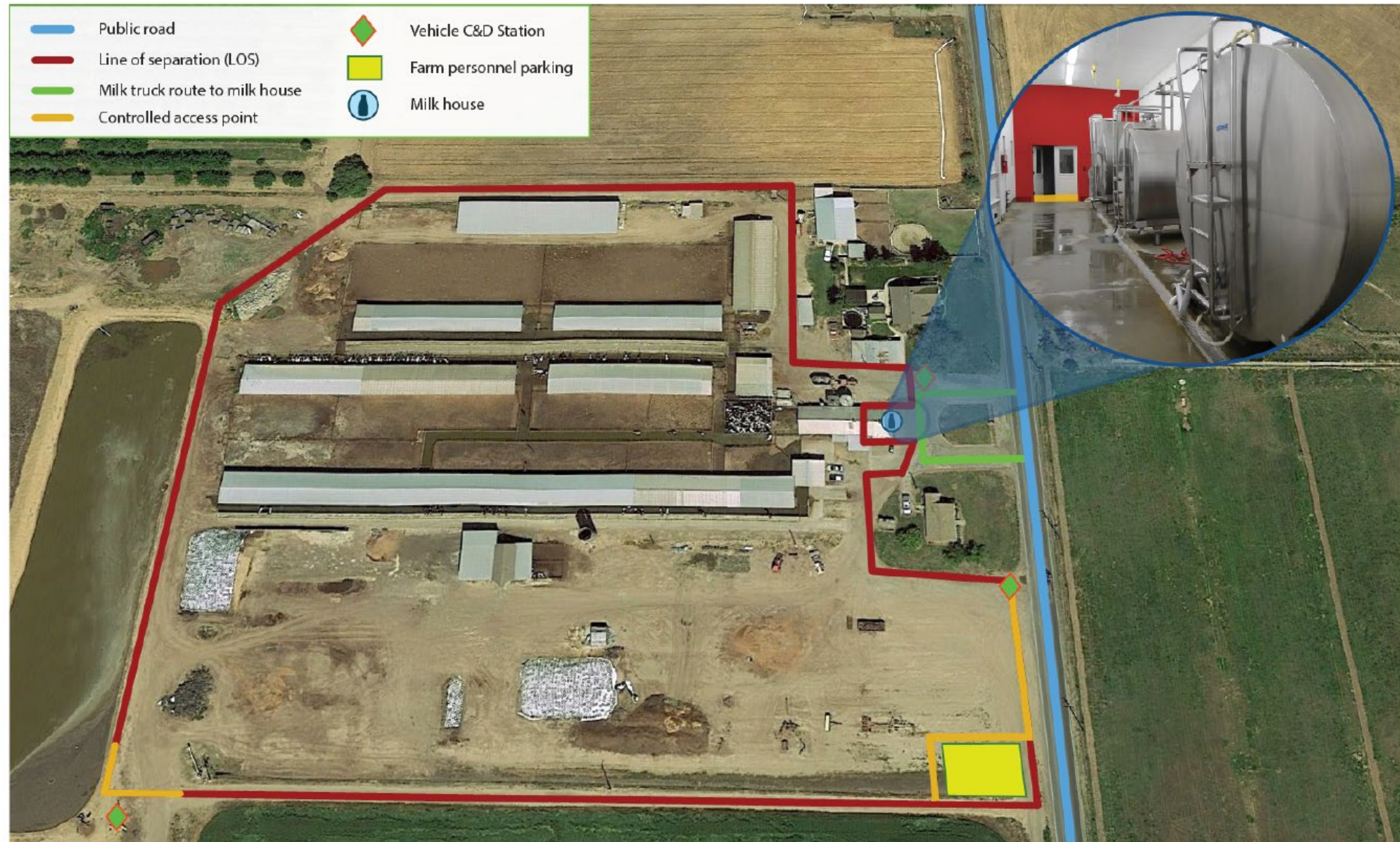
- **Line of Separation (LOS):** outer control boundary to minimize contamination near animals; separate off-farm from on-farm movements of vehicles, people, animals OR walls of building separate animals from all possible sources of infection
- **Perimeter Buffer Area (PBA):** outer control boundary to minimize contamination near animal building(s); separate off-farm from on-farm movements of vehicles, people, animals

Line of Separation (LOS) & Perimeter Buffer Area (PBA)

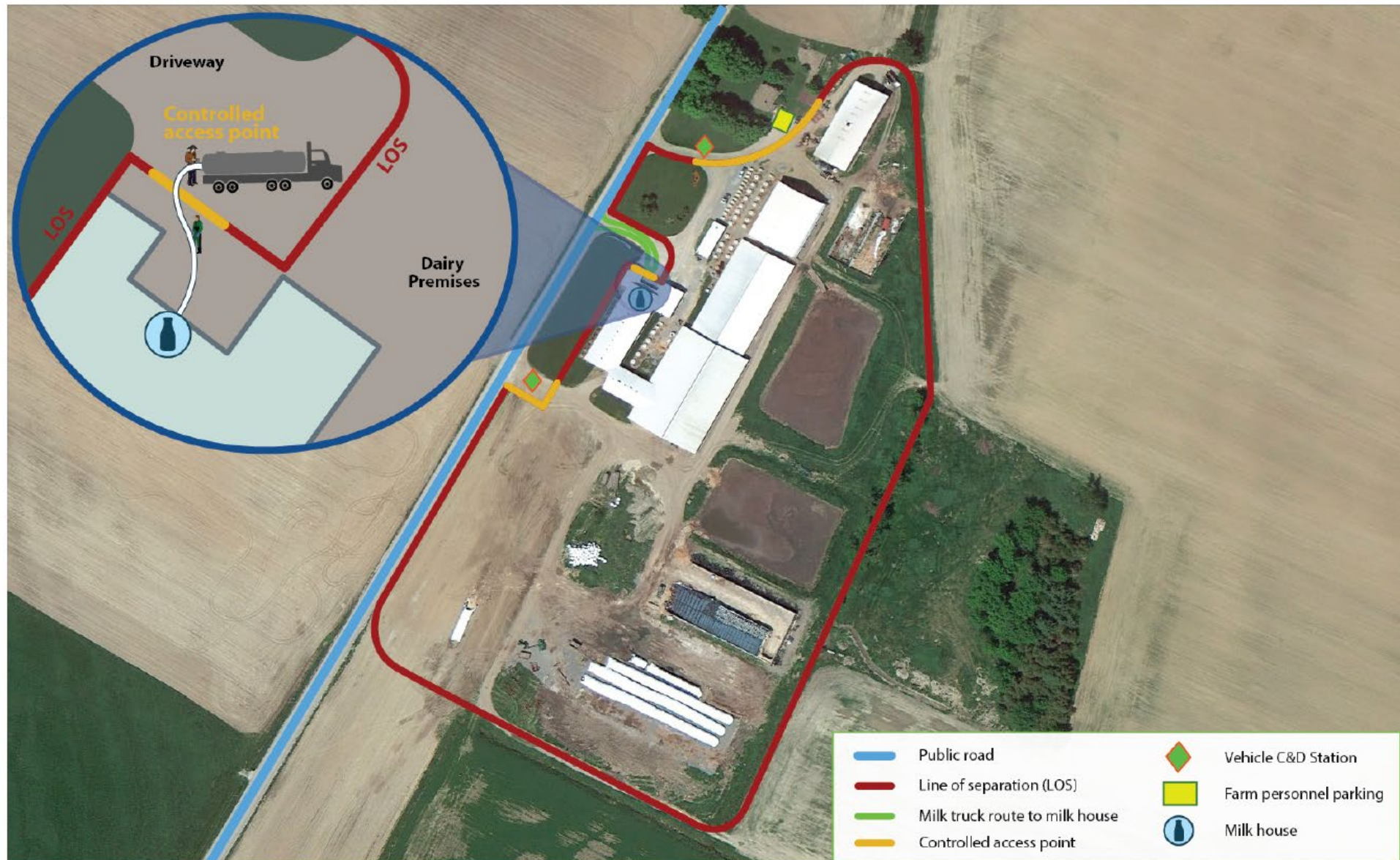


Source: Center for Food Security and
Public Health, Iowa State University

SMS Example: Milk House Outside the Line of Separation (LOS)



SMS Example: Only Milk Transfer Hose Crosses the Line of Separation (LOS)



Determining LOS/PBA

- Minimize number of access points
- Consider inputs/outputs over 30 days
 - Easy to put a perimeter around entire premises
 - Be prepared to C&D everything that crosses
 - Prolonged outbreak, lots of movements
 - Conserve resources (time, water, disinfectants) while protecting critical assets
 - Benefit of LOS/PBA positioning
- H5N1: Hose down and sanitize contact surfaces in the milk house after collection if the milk hauler enters after being on other farms

Inputs/Outputs

Appendix C: Inputs/Outputs to the Operation & Contingency Planning

C&D of vehicles crossing the LOS is time and resource intense. Carefully planning the location of the LOS based on the types, drive path, frequency, and necessity of inputs/outputs can help focus resources to minimize FMD virus entry. Decide if some movements could be modified. For example: Move your garbage bin to the edge of the LOS so the garbage truck can pick it up without crossing the LOS or auger grain across the LOS into a farm wagon that remains inside the LOS.

Below are some input/outputs that may apply to your dairy operation. Evaluating the frequency and travel path can be used to help determine LOS placement. Include the completed chart in your biosecurity plan.

The last column helps with a contingency plan. If movements were limited, determine how long you could go without certain inputs or if some movements could be less frequent and still maintain the operation.

Inputs/Outputs	Frequency of input/output	Path traveled by:	How long could you go without this movement?
Milk truck/tanker	<input type="checkbox"/> More than once/day <input type="checkbox"/> Daily <input type="checkbox"/> Every other day	<input type="checkbox"/> Onsite vehicles <input type="checkbox"/> Equipment <input type="checkbox"/> People <input type="checkbox"/> Animals <input type="checkbox"/> None	<input type="checkbox"/> One day? <input type="checkbox"/> Few days (2-6 days)?
Feed commodity delivery (bulk ingredients, bagged feed, liquid feed)	<input type="checkbox"/> More than once/day <input type="checkbox"/> Daily <input type="checkbox"/> Every other day	<input type="checkbox"/> Onsite vehicles <input type="checkbox"/> Equipment <input type="checkbox"/> People <input type="checkbox"/> Animals <input type="checkbox"/> None	<input type="checkbox"/> One day? <input type="checkbox"/> Few days (2-6 days)? <input type="checkbox"/> Week? <input type="checkbox"/> Month? <input type="checkbox"/> Year?
Ration (mixed feed) delivery to cattle onsite	<input type="checkbox"/> More than once/day <input type="checkbox"/> Daily <input type="checkbox"/> Every other day	<input type="checkbox"/> Onsite vehicles <input type="checkbox"/> Equipment <input type="checkbox"/> People <input type="checkbox"/> Animals <input type="checkbox"/> None	<input type="checkbox"/> One day? <input type="checkbox"/> Few days (2-6 days)? <input type="checkbox"/> Week?
Ration (mixed feed) delivery to cattle off-site (heifers, dry cows, pastured cattle, steers, etc.)	<input type="checkbox"/> More than once/day <input type="checkbox"/> Daily <input type="checkbox"/> Every other day	<input type="checkbox"/> Onsite vehicles <input type="checkbox"/> Equipment <input type="checkbox"/> People <input type="checkbox"/> Animals <input type="checkbox"/> None	<input type="checkbox"/> One day? <input type="checkbox"/> Few days (2-6 days)? <input type="checkbox"/> Week?
Feed harvest (silage, hay, grain)	<input type="checkbox"/> Monthly <input type="checkbox"/> Annually	<input type="checkbox"/> Onsite vehicles <input type="checkbox"/> Equipment <input type="checkbox"/> People <input type="checkbox"/> Animals <input type="checkbox"/> None	<input type="checkbox"/> Week? <input type="checkbox"/> Month?
Bedding inputs	<input type="checkbox"/> Daily <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> Annually	<input type="checkbox"/> Onsite vehicles <input type="checkbox"/> Equipment <input type="checkbox"/> People <input type="checkbox"/> Animals <input type="checkbox"/> None	<input type="checkbox"/> One day? <input type="checkbox"/> Few days (2-6 days)? <input type="checkbox"/> Week?

Inputs/Outputs	Frequency of input/output	Path traveled by:	How long could you go without this movement?
Fuel delivery	<input type="checkbox"/> Daily <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> Annually	<input type="checkbox"/> Onsite vehicles <input type="checkbox"/> Equipment <input type="checkbox"/> People <input type="checkbox"/> Animals <input type="checkbox"/> None	<input type="checkbox"/> One day? <input type="checkbox"/> Few days (2-6 days)? <input type="checkbox"/> Week?
Propane delivery	<input type="checkbox"/> Daily <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> Annually	<input type="checkbox"/> Onsite vehicles <input type="checkbox"/> Equipment <input type="checkbox"/> People <input type="checkbox"/> Animals <input type="checkbox"/> None	<input type="checkbox"/> One day? <input type="checkbox"/> Few days (2-6 days)? <input type="checkbox"/> Week?
Veterinary personnel	<input type="checkbox"/> Daily <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> Annually	<input type="checkbox"/> Onsite vehicles <input type="checkbox"/> Equipment <input type="checkbox"/> People <input type="checkbox"/> Animals <input type="checkbox"/> None	<input type="checkbox"/> One day? <input type="checkbox"/> Few days (2-6 days)? <input type="checkbox"/> Week? <input type="checkbox"/> Month? <input type="checkbox"/> Year?
Pharmaceutical deliveries	<input type="checkbox"/> Daily <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> Annually	<input type="checkbox"/> Onsite vehicles <input type="checkbox"/> Equipment <input type="checkbox"/> People <input type="checkbox"/> Animals <input type="checkbox"/> None	<input type="checkbox"/> One day? <input type="checkbox"/> Few days (2-6 days)? <input type="checkbox"/> Week? <input type="checkbox"/> Month? <input type="checkbox"/> Year?
Mail/package deliveries	<input type="checkbox"/> Daily <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> Annually	<input type="checkbox"/> Onsite vehicles <input type="checkbox"/> Equipment <input type="checkbox"/> People <input type="checkbox"/> Animals <input type="checkbox"/> None	<input type="checkbox"/> One day? <input type="checkbox"/> Few days (2-6 days)? <input type="checkbox"/> Week?
Milking equipment service personnel	<input type="checkbox"/> Daily <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> Annually	<input type="checkbox"/> Onsite vehicles <input type="checkbox"/> Equipment <input type="checkbox"/> People <input type="checkbox"/> Animals <input type="checkbox"/> None	<input type="checkbox"/> One day? <input type="checkbox"/> Few days (2-6 days)? <input type="checkbox"/> Week? <input type="checkbox"/> Month? <input type="checkbox"/> Year?
Milk testing personnel	<input type="checkbox"/> Daily <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> Annually	<input type="checkbox"/> Onsite vehicles <input type="checkbox"/> Equipment <input type="checkbox"/> People <input type="checkbox"/> Animals <input type="checkbox"/> None	<input type="checkbox"/> One day? <input type="checkbox"/> Few days (2-6 days)? <input type="checkbox"/> Week? <input type="checkbox"/> Month? <input type="checkbox"/> Year?
Garbage removal	<input type="checkbox"/> Daily <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> Annually	<input type="checkbox"/> Onsite vehicles <input type="checkbox"/> Equipment <input type="checkbox"/> People <input type="checkbox"/> Animals <input type="checkbox"/> None	<input type="checkbox"/> One day? <input type="checkbox"/> Few days (2-6 days)? <input type="checkbox"/> Week?
Dead animal removal	<input type="checkbox"/> Daily <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> Annually	<input type="checkbox"/> Onsite vehicles <input type="checkbox"/> Equipment <input type="checkbox"/> People <input type="checkbox"/> Animals <input type="checkbox"/> None	<input type="checkbox"/> One day? <input type="checkbox"/> Few days (2-6 days)? <input type="checkbox"/> Week? <input type="checkbox"/> Month? <input type="checkbox"/> Year?

Farm Access– Enhanced Biosecurity

- Specific guidance for movement of
 - Animals
 - People
 - Vehicles, equipment, supplies
- Cleaning and Disinfection station
 - Operational, clearly marked, and equipped
 - Runoff managed
 - Contingency plan for inclement weather

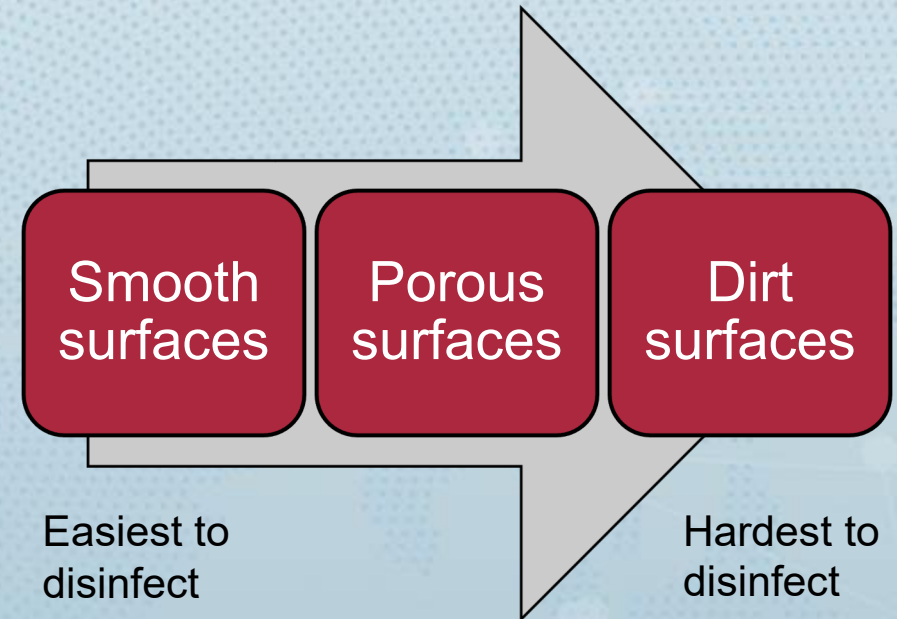


4. Vehicles and Equipment

- Avoid/minimize sharing
 - C&D if sharing required
 - Emphasize tires and wheel wells
 - Or stays outside PBA/LOS
 - Move livestock, carcasses to perimeter for pick-up
- Restrict off-farm vehicles from shared drive paths with on-farm traffic
 - Minimize contact with animals, feed, manure
- *Special procedures for animal transport vehicles

C&D Steps

- Clean
 - Dry clean, wash, rinse, dry
- Disinfect
 - Read the product label (mixing, application, contact time, safety)
 - Apply, contact time, rinse, dry
- Consider surface type



Clean and Disinfect



EPA's Registered Antimicrobial Products Effective Against Avian Influenza [List M]

On this page:

- [Disinfectant Products with Claims for Avian Influenza Virus](#)
- [Products on EPA's Registered Antimicrobial Products Effective Against Avian Influenza \[List M\]](#)
- [How to Use Products on this List Effectively](#)
- [How to Check if a Product is on EPA's Registered Antimicrobial Products Effective Against Avian Influenza \[List M\]](#)
- [Additional Information](#)

Disinfectant Products with Claims for Avian Influenza Virus

EPA has reviewed required laboratory testing data demonstrating that these products kill avian influenza virus.



www.epa.gov/pesticide-registration/epas-registered-antimicrobial-products-effective-against-avian-influenza

Some Disinfectants Effective* Against FMD, Avian Influenza

- Virkon®S
(sodium chloride, potassium peroxymonosulfate)
- Household bleach
(Sodium hypochlorite)
- Accel®
(accelerated hydrogen peroxide)



5. Personnel: Daily Biosecurity

- Strategically assign animal caretaker roles, SOPs
- Clean or dairy-dedicated footwear/shoe covers
- Clean or dairy-dedicated clothing/coveralls
 - *especially important for animal handlers
- Handwashing, gloves
- Biosecure Entry Procedure for crossing LOS



Enhanced Biosecurity

- Entry logbook
 - Downtime following international travel, contact with other livestock premises
- Prohibit visitor entry
 - Plan for deliveries, service personnel
- Personnel should arrive having showered, wearing clean clothing, footwear, personal items since last contacting animals (live or dead), their areas, or raw milk



H5N1 Personnel Biosecurity

- Encourage people to wear eye, nose and mouth protection (e.g., face shield or goggles, masks) when milking cows
- Wash hands after handling cows or raw milk
- Do not drink or eat raw milk dairy products



<https://youtu.be/e1Ar8lqXb9Y?si=0TH3qLt2XEarsuk2>



Precautions for Animal Caretakers

Protect Yourself From H5N1 When Working With Farm Animals

H5N1 is a bird flu virus that could make you sick. Wear recommended personal protective equipment (PPE) when working directly or closely with sick or dead animals, animal feces, litter, raw milk, and other materials that might have the virus.

Wash hands with soap and water, then put on PPE in this order:

1. Fluid-resistant coveralls
2. Waterproof apron, if needed for job task
3. NIOSH Approved® Respirator (e.g., N95® filtering facepiece respirator or elastomeric half mask respirator)
4. Properly-fitted unvented *or* indirectly vented safety goggles or face shield
5. Head cover or hair cover
6. Gloves
7. Boots

Scan to learn how to put on and take off a respirator

While wearing PPE

- Use separate designated clean areas, one for putting on PPE and one for taking off PPE.
- Avoid touching your eyes, mouth, and nose after touching any contaminated material.
- Do not eat, drink, smoke, vape, chew gum, dip tobacco, or use the bathroom.

Follow these steps to safely remove PPE

1. Remove the apron, if worn
2. Clean and disinfect boots
3. Remove boots
4. Remove coveralls
5. Remove gloves
6. Wash hands with soap and water or alcohol-based hand rub
7. Remove goggles or faceshield and then remove respirator
8. Remove head cover or hair cover
9. Wash hands again with soap and water or alcohol-based hand rub

After removing PPE

- Shower at the end of the work shift.
- Leave all contaminated clothing and equipment at work.
- Watch for symptoms of illness while you are working with potentially sick animals or materials. Continue watching for symptoms for 10 days after finishing working. If you get sick, tell your supervisor and talk with a doctor.

Reusable and disposable PPE

- While removing PPE, dispose of all disposable PPE appropriately and set aside reusable PPE
- Clean and disinfect reusable PPE after every use

Scan to find more PPE and worker safety information



6. Animal Movement, Animal Health

Daily Biosecurity

- Recordkeeping
 - Identification
 - Movement logs
 - Source documentation
- Animal health protocols
 - Collaboration with veterinarian
 - Quarantine and isolation
 - Animal flow

Enhanced Biosecurity

- Pre-movement Isolation Period
 - No animal introduction from control area (7) days prior to moving animals out
- Plan for interrupted animal movement
- Maintain directional flow of animals during loading/unloading
- Outgoing animals may not return

H5N1- Movement Control in Dairy Cattle

- Test lactating cattle prior to movement, following federal and state-specific guidance
- Isolate newly introduced lactating cows or those returning from an off-site location for at least 30 days- milk separately or last

Mandatory Testing for Interstate Movement of Dairy Cattle

- Prior to interstate movement, dairy cattle are required to receive a negative test for Influenza A virus at an approved National Animal Health Laboratory Network (NAHLN) laboratory.
- Owners of herds in which dairy cattle test positive for interstate movement will be required to provide epidemiological information, including animal movement tracing.
- Dairy cattle moving interstate must adhere to conditions specified by APHIS.
- As will be described in forthcoming guidance, these steps will be immediately required for lactating dairy cattle, while these requirements for other classes of dairy cattle will be based on scientific factors concerning the virus and its evolving risk profile.

Mandatory Reporting

- Laboratories and state veterinarians must report positive Influenza A nucleic acid detection diagnostic results (e.g. PCR or genetic sequencing) in livestock to USDA APHIS.
- Laboratories and state veterinarians must report positive Influenza A serology diagnostic results in livestock to USDA APHIS.

THEREFORE, IT IS HEREBY ORDERED, under the authority of Iowa Code §163.1, which authorizes IDALS to determine and employ the most efficient and practical means for the control of an infectious or contagious disease, to determine whether an animal has been exposed to a disease, and to limit animal movement for disease control, that:

1. Any Dairy Cattle Originating from an HPAI Affected Herd are prohibited from Exhibition.
2. Any Dairy Cattle intended for any Exhibition must have a Certificate of Veterinary Inspection (CVI) issued within seven (7) calendar days of arrival at an Exhibition.
3. Premises from which any Dairy Cattle intended for Exhibition Originate must comply with the following HPAI Dairy Testing Protocol no more than 7 calendar days before the day of arrival at any Exhibition.

7. Animal Product Movement

Daily Biosecurity

- Semen, embryos, milk
 - Come from sources with documented biosecurity practices
 - Recordkeeping
 - Transported in containers that can be C&D
- Colostrum from source herd or pasteurized

Enhanced Biosecurity

- Specific protocols/options for milk collection (see LOS)
- Colostrum from source herd or pasteurized *for FMD inactivation*
- Milk disposal
 - Plan exists in event raw milk can't be moved off-farm

Semen and embryos have not been linked in the spread of H5N1 to date, and data on H5N1 presence and survival in oocytes, embryos and semen is not currently available.

8. Carcass* Disposal

Daily Biosecurity

- Prevent attraction of wildlife, rodents, other scavengers
 - Cover compost piles whenever possible
- Disposal methods and routes indicated in plan/labeled on map

Enhanced Biosecurity

- Vehicles hauling carcasses to common disposal site do not cross LOS/PBA
- C&D equipment used to move dead animals after use
- Plan in case of large number of die-offs

9. Manure Management

Daily Biosecurity

- Stored and removed to prevent exposure of susceptible animals to disease agents
- Manure handling equipment separate from feed handling equipment (or C&D between use)
- Follow local regulations

Enhanced Biosecurity

- Meets state, local, and Responsible Regulatory Official regulations
- On-site storage plan if cannot be permitted off-site during outbreak

Data on H5N1 presence and survival in cattle manure and lagoons is not currently available.



10. Rodents, Wildlife, Other Animals

Daily Biosecurity

- Clean
- Exclude
- Control

Enhanced Biosecurity

- Dogs, cats, and other pets are not allowed to roam between operations
- Biosecurity measures taken for working animals

H5N1: Focus on small mammals (including cats) and birds as they may be early indicators of H5N1 on a dairy. Some species may be reservoirs (shed the virus) or fomites (carry virus on fur, foot pads, feathers).

Prevent cats from roaming between farms and avoid feeding raw milk to cats



11. Feed and Water

Daily Biosecurity

- Feed
 - Storage, handling
 - Prevent contamination
 - Clean spills immediately
- Disposal methods and routes indicated in plan/labeled on map
- Manure handling equipment separate from feed handling equipment (or C&D between use)

Enhanced Biosecurity

- C&D feed delivery vehicles if cross LOS
- Finished feed stored in closed bins or buildings

Data on H5N1 presence and survival in feed is not currently available.



Implementing the Enhanced Biosecurity Plan

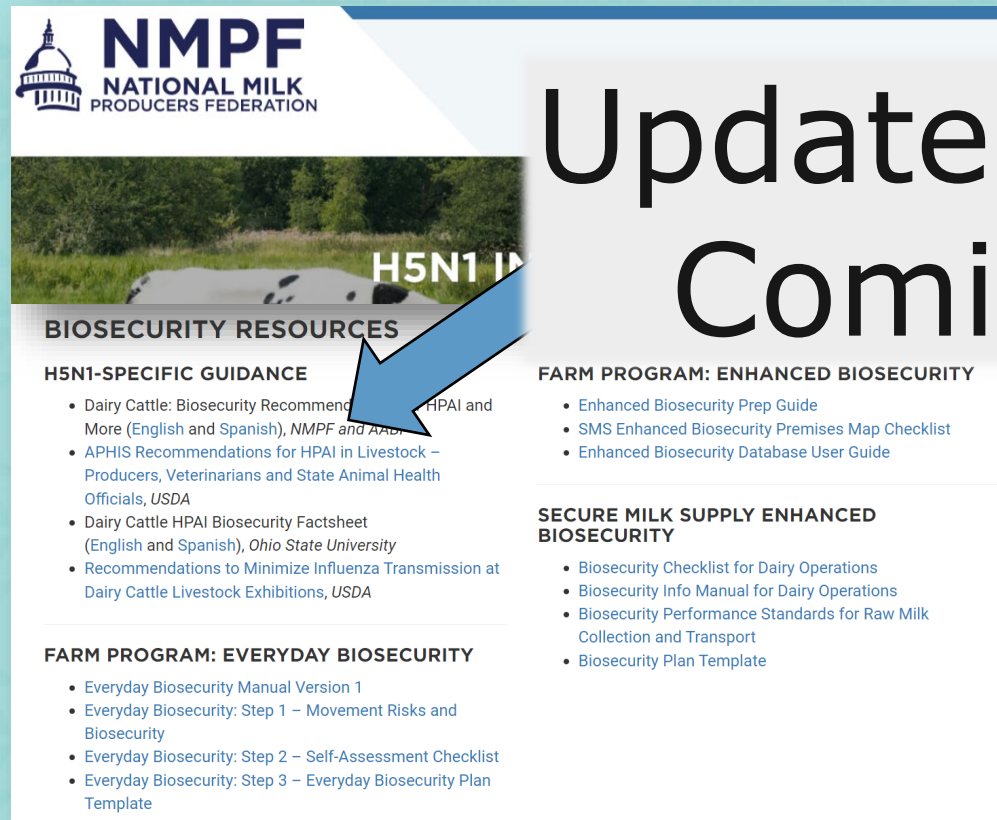
- Once plan is written
 - Absence of FMD (H5N1): Decide which items to implement
 - FMD (H5N1) diagnosed in U.S.: Prepare to implement ALL items
 - Located in FMD Control Area (H5N1?): Officials may REQUIRE all items

Resources and Outreach Materials



Website Resources

NMPF



www.nmpf.org/resources/hpai/

AABP



aabp.org/resources/iaav/

Resource

[SMS PLAN](#)[MILK PRODUCERS](#)[VETERINARIANS](#)[PROCESSORS](#)[REGULATORY OFFICIALS](#)[TRAINING MATERIALS](#)[Milk Producers](#)[Steps to Move](#)[Premises ID Number](#)[Biosecurity](#)[Disease Monitoring](#)[Vaccination](#)[Movement Records](#)[Permit Guidance](#)[Forms and BOPs](#)[Signs and Posters](#)

Biosecurity Resources for Producers

Implementing enhanced biosecurity plans will help prevent exposing cattle to Foot and Mouth Disease (FMD) during an outbreak. Be prepared to share your biosecurity plan with your State Animal Health Official prior to an outbreak (if requested).

Write an operation-specific, enhanced biosecurity plan!

Work with your herd veterinarian and use the resources below to get started.

Already have a biosecurity plan?

Compare it to the checklist below and make sure all the items are included in your plan. If not, enhance your biosecurity plan.

Are essential personnel trained in biosecurity?

Encourage essential personnel to watch the videos available under [Biosecurity Training Materials](#).



Biosecurity Checklist

[Biosecurity Checklist for Dairy Operations](#)



Biosecurity Manuals

[Biosecurity Info Manual for Dairy Operations](#)

[Biosecurity Performance Standards \(BPS\) for Raw Milk Collection and Transport](#)



Protect Your Premises

[Not crossing the Line of Separation \(LOS\): Milk House Outside](#)

[Crossing the LOS: Transfer Hose](#)

[Crossing the LOS: Milk Tanker/Hauler/Driver](#)



Creating a Premises Map

[Premises Map Instructions](#)



Biosecurity Plan Examples

Example: Not Crossing LOS



Secure Milk, Pork, Beef Plans



The screenshot shows the homepage of the Secure Milk Supply (SMS) website. The header features the SMS logo and the URL www.securemilk.org. A navigation bar includes links for SMS PLAN, MILK PRODUCERS, VETERINARIANS, PROCESSORS, REGULATORY OFFICIALS, and TRAINING MATERIALS. The main content area has a section titled "Move Your Milk" with a "LEARN MORE" button and an image of a milk truck. Below this is the "SMS Plan for Continuity of Business" section, which explains the plan's purpose and provides links to various resources.

SMS
SECURE MILK SUPPLY

www.securemilk.org

SMS PLAN | MILK PRODUCERS | VETERINARIANS | PROCESSORS | REGULATORY OFFICIALS | TRAINING MATERIALS

Move Your Milk

LEARN MORE

SMS Plan for Continuity of Business

If foot and mouth disease (FMD) is found in United States livestock, Regulatory Officials will limit the movement of animals and animal products to try and control the spread of this very contagious animal disease.

Foot and mouth disease (FMD) is not a public health or food safety concern. Meat and milk are safe to eat and drink.

The Secure Milk Supply (SMS) Plan for Continuity of Business provides opportunities for the dairy industry, including producers, handlers, and processors, to prepare before an outbreak. This will better position dairy premises with cattle that have no evidence of infection to:

- Move animals to processing or another premises under a movement permit issued by Regulatory Officials, and
- Maintain business continuity for the dairy industry, including producers, handlers, and processors during an FMD outbreak.

Read the SMS Plan: [1 page SMS Plan](#) | [1 page SMS Plan Handout \(English\)](#) | [1 page SMS Plan Handout \(Spanish\)](#)

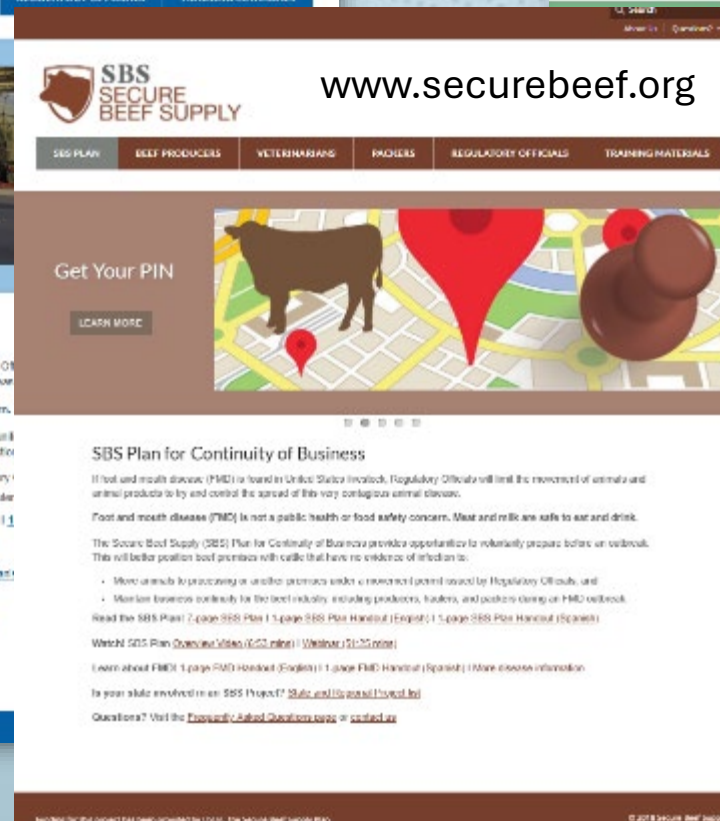
Watch SMS Plan Overview Video (1:24 min) | [Video \(1:24 min\)](#)

Learn about FMD: [1 page FMD Handout \(English\)](#) | [1 page FMD Handout \(Spanish\)](#) | [More disease information](#)

Is your state involved in an SMS Project? [State and Regional Project list](#)

Questions? Visit the [Frequently Asked Questions page](#) or [contact us](#)

Published for SMS projects that were awarded by USDA, The Secure Milk Supply Plan



The screenshot shows the homepage of the Secure Beef Supply (SBS) website. The header features the SBS logo and the URL www.securebeef.org. A navigation bar includes links for SBS PLAN, BEEF PRODUCERS, VETERINARIANS, PROCESSORS, REGULATORY OFFICIALS, and TRAINING MATERIALS. The main content area has a section titled "Get Your PIN" with a "LEARN MORE" button and an image of a cow on a map. Below this is the "SBS Plan for Continuity of Business" section, which explains the plan's purpose and provides links to various resources.

SBS
SECURE BEEF SUPPLY

www.securebeef.org

SBS PLAN | BEEF PRODUCERS | VETERINARIANS | PROCESSORS | REGULATORY OFFICIALS | TRAINING MATERIALS

Get Your PIN

LEARN MORE

SBS Plan for Continuity of Business

If foot and mouth disease (FMD) is found in United States livestock, Regulatory Officials will limit the movement of animals and animal products to try and control the spread of this very contagious animal disease.

Foot and mouth disease (FMD) is not a public health or food safety concern. Meat and milk are safe to eat and drink.

The Secure Beef Supply (SBS) Plan for Continuity of Business provides opportunities for the beef industry, including producers, handlers, and processors, to prepare before an outbreak. This will better position beef premises with cattle that have no evidence of infection to:

- Move animals to processing or another premises under a movement permit issued by Regulatory Officials, and
- Maintain business continuity for the beef industry, including producers, handlers, and processors during an FMD outbreak.

Read the SBS Plan: [7 page SBS Plan](#) | [1 page SBS Plan Handout \(English\)](#) | [1 page SBS Plan Handout \(Spanish\)](#)

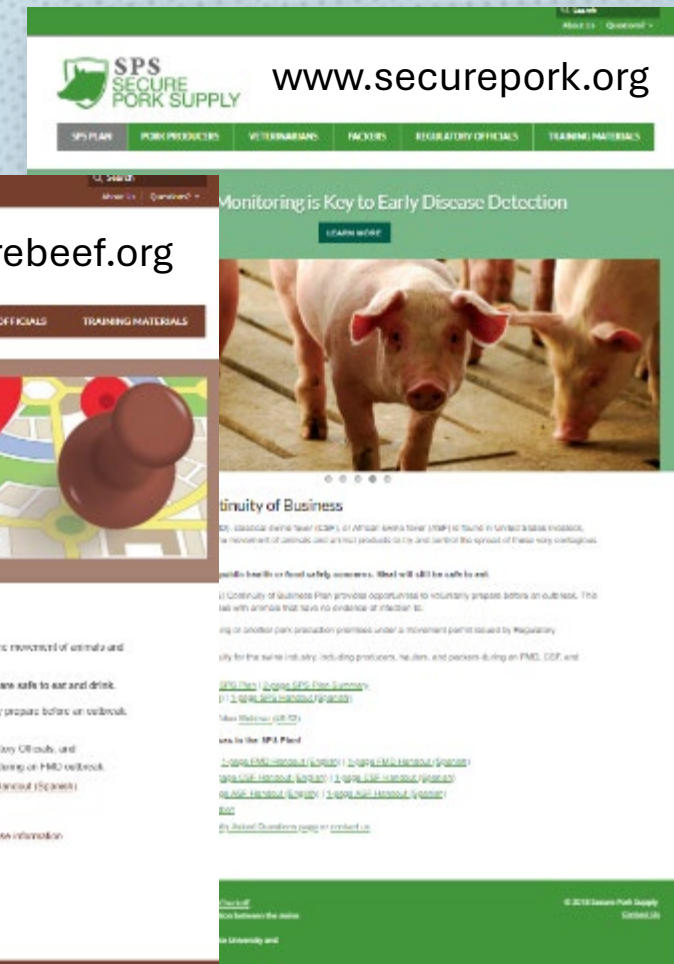
Watch SBS Plan Overview Video (1:24 min) | [Video \(1:24 min\)](#)

Learn about FMD: [1 page FMD Handout \(English\)](#) | [1 page FMD Handout \(Spanish\)](#) | [More disease information](#)

Is your state involved in an SBS Project? [State and Regional Project list](#)

Questions? Visit the [Frequently Asked Questions page](#) or [contact us](#)

Published for SBS projects that were awarded by USDA, The Secure Beef Supply Plan



The screenshot shows the homepage of the Secure Pork Supply (SPS) website. The header features the SPS logo and the URL www.securepork.org. A navigation bar includes links for SPS PLAN, PORK PRODUCERS, VETERINARIANS, PROCESSORS, REGULATORY OFFICIALS, and TRAINING MATERIALS. The main content area has a section titled "Monitoring is Key to Early Disease Detection" with a "LEARN MORE" button and an image of pigs. Below this is the "Continuity of Business" section, which explains the plan's purpose and provides links to various resources.

SPS
SECURE PORK SUPPLY

www.securepork.org

SPS PLAN | PORK PRODUCERS | VETERINARIANS | PROCESSORS | REGULATORY OFFICIALS | TRAINING MATERIALS

Monitoring is Key to Early Disease Detection

LEARN MORE

Continuity of Business

If foot and mouth disease (FMD) is found in United States livestock, Regulatory Officials will limit the movement of animals and animal products to try and control the spread of this very contagious animal disease.

Foot and mouth disease (FMD) is not a public health or food safety concern. Meat and milk are safe to eat and drink.

The Secure Pork Supply (SPS) Plan for Continuity of Business provides opportunities for the pork industry, including producers, handlers, and processors, to prepare before an outbreak. This will better position pork premises with pigs that have no evidence of infection to:

- Move animals to processing or another premises under a movement permit issued by Regulatory Officials, and
- Maintain business continuity for the pork industry, including producers, handlers, and processors during an FMD outbreak.

Read the SPS Plan: [1 page SPS Plan](#) | [1 page SPS Plan Handout \(English\)](#) | [1 page SPS Plan Handout \(Spanish\)](#)

Watch SPS Plan Overview Video (1:24 min) | [Video \(1:24 min\)](#)

Learn about FMD: [1 page FMD Handout \(English\)](#) | [1 page FMD Handout \(Spanish\)](#) | [More disease information](#)

Is your state involved in an SPS Project? [State and Regional Project list](#)

Questions? Visit the [Frequently Asked Questions page](#) or [contact us](#)

Published for SPS projects that were awarded by USDA, The Secure Pork Supply Plan

Enhanced Biosecurity Checklists

Checklist for Self-Assessment of Enhanced Poultry Biosecurity

Recommendations for Biosecurity

Each self-assessment checklist item has three possible responses, described below. Each component is essential to prevent virus entry and protect the health and well-being of the premises.

- In place:** All items are addressed in the biosecurity plan and are implemented by visual inspection or by signed and/or dated documentation.
- In progress:** Some, but not all, of the items are addressed in the biosecurity plan and/or dated documentation, as applicable.
- Not in place:** The items have not been addressed in the biosecurity plan and/or dated documentation, as applicable.

1. Biosecurity Responsibility

The Biosecurity Coordinator is responsible for the development, implementation, and ongoing effectiveness of the biosecurity program. Depending on the type and size of the operation, the Biosecurity Coordinator's responsibility could be at the farm, production or company level. The Biosecurity Coordinator should be knowledgeable in the field. The Biosecurity Coordinator, along with the personnel and caretakers on the farm, are responsible for the implementation of the biosecurity program. The Biosecurity Coordinator should review the biosecurity program at least once during each calendar year and make adjustments as needed.

☐ In place ☐ In progress ☐ Not in place

2. Training

The biosecurity program should include training materials that cover both farm and premises-wide and/or company-wide procedures as appropriate. All personnel that regularly enter the perimeter buffer area (PBA) must complete this training done at least once per calendar year and documented. New poultry caretakers or employees should be trained as stated in Title 9-CFR §145.12(b) and 145.12(c).

☐ In place ☐ In progress ☐ Not in place

3. Line of Separation (LOS)

The Line of Separation (LOS) is a functional line separating the poultry house from exposure to potential disease sources. Generally, it is defined by the use of physical barriers with practical deviations to account for entry points, structural aspects, or other specific biosecurity plan should describe or illustrate the boundaries of the LOS and clearly outline the procedures to be followed when caretakers, visitors, or suppliers cross it. For poultry enclosed in outdoor pens, similar principles for the LOS can be applied for defining and controlling the LOS for each pen. In

Self-Assessment Checklist for Enhancing Poultry Biosecurity – December 2020
<http://www.poultrybiosecurity.org>

www.poultrybiosecurity.org

Self-Assessment Checklist for Enhanced Biosecurity for FMD Prevention: Dairy



Recommendations for Biosecurity

The self-assessment checklist has three possible responses, described below. A critical and thorough evaluation of each component is essential to prevent virus entry and protect the health and well-being of the premises and the operation.

- In place:** All items are addressed in the biosecurity plan and implemented on the dairy operation as evidenced by visual inspection or by signed and/or dated documentation, as applicable.
- In progress:** Some, but not all, of the items are addressed in the biosecurity plan and/or dated documentation, as applicable.
- Not in place:** The items have not been addressed in the biosecurity plan and/or dated documentation, as applicable.

1. Biosecurity Manager and Written Plan

The Biosecurity Manager is identified for the dairy. This individual is responsible for developing the biosecurity plan with the assistance of the herd veterinarian (if the Biosecurity Manager is not a veterinarian) and ensuring biosecurity training of, or communicating biosecurity measures with, all individuals who enter the site. The Biosecurity Manager has the written authority to ensure compliance with biosecurity protocols and take corrective action as needed.

☐ In place ☐ In progress ☐ Not in place

An operation-specific, written, enhanced biosecurity plan has been developed and implemented by the Biosecurity Manager. It is reviewed at least annually and whenever the site goes through a change that affects biosecurity (expansion, adds a new aspect of the business, etc.). The biosecurity plan clearly defines the scope of the operation and includes biosecurity for other susceptible species kept on the premises. The biosecurity plan includes a map of the site indicating the site entry, Perimeter Buffer Area (PBA), Line of Separation (LOS), access points, cleaning and disinfection (C&D) stations, designated parking, and animal disposal/picking location. The map indicates vehicle movements (animal transport vehicles, delivery, etc.) and carcass removal pathways. The Biosecurity Manager ensures that all individuals entering the site frequently (weekly or more often) have access to a copy of the biosecurity plan.

☐ In place ☐ In progress ☐ Not in place

2. Training

The Biosecurity Manager ensures that all individuals entering the site are informed of biosecurity measures they are to follow. Annual caretaker training is mandatory. The training must be in a language understood by the individuals receiving training. Effective training ensures that individuals are aware of the concepts and procedures that apply to their specific areas of responsibility. Training occurs at least annually and is documented. The Biosecurity Manager also ensures that all caretakers, truck drivers, and service personnel are aware of and adhere to the biosecurity measures in the biosecurity plan.

☐ In place ☐ In progress ☐ Not in place

Self-Assessment Checklist for Enhanced Pork Production Biosecurity for Animals Raised Indoors



1. Biosecurity Manager and Written Plan

A Biosecurity Manager is identified for the site. This individual is responsible for developing the biosecurity plan with the assistance of the herd veterinarian (if the Biosecurity Manager is not a veterinarian) and ensuring biosecurity training of, or communicating biosecurity measures with, all individuals who enter the site. The Biosecurity Manager has the written authority to ensure compliance with biosecurity protocols and take corrective action as needed.

☐ In place ☐ In progress ☐ Not in place

An operation-specific, written, enhanced biosecurity plan has been developed and implemented by the Biosecurity Manager. It is reviewed at least annually and whenever the site goes through a change that affects biosecurity (expansion, adds a new aspect of the business, etc.). The biosecurity plan clearly defines the scope of the operation and includes biosecurity for other susceptible species kept on the premises. The biosecurity plan includes a map of the site indicating the site entry, Perimeter Buffer Area (PBA), Line of Separation (LOS), access points, cleaning and disinfection (C&D) stations, designated parking, and animal disposal/picking location. The map indicates vehicle movements (animal transport vehicles, delivery, etc.) and carcass removal pathways. The Biosecurity Manager ensures that all individuals entering the site frequently (weekly or more often) have access to a copy of the biosecurity plan.

☐ In place ☐ In progress ☐ Not in place

2. Training

The Biosecurity Manager ensures that all individuals entering the site are informed of biosecurity measures they are to follow. Annual caretaker training is mandatory. The training must be in a language understood by the individuals receiving training. Effective training ensures that individuals are aware of the concepts and procedures that apply to their specific areas of responsibility. Training occurs at least annually and is documented. The Biosecurity Manager also ensures that all caretakers, truck drivers, and service personnel are aware of and adhere to the biosecurity measures in the biosecurity plan.

☐ In place ☐ In progress ☐ Not in place

Limited number of entry points. Each entry point is protected with a gate or barrier (curb, etc.) which is locked when the facility is not attended. If a locked barrier is not available at the site entrance (such as when a house uses the same driveway), a barrier must be present restricting access of unauthorized vehicles to the pork production facilities within the site.

☐ In place ☐ In progress ☐ Not in place

www.securepork.org

Self-Assessment Checklist for Enhanced Biosecurity for FMD Prevention: Beef Feedlots



Recommendations for Biosecurity

The self-assessment checklist has three possible responses, described below. A critical and thorough evaluation of each component is essential to prevent virus entry and protect the health and well-being of the premises and the operation.

- In place:** All items are addressed in the biosecurity plan and implemented on the feedlot as evidenced by visual inspection or by signed and/or dated documentation, as applicable.
- In progress:** Some, but not all, of the items are addressed in the biosecurity plan and/or dated documentation, as applicable.
- Not in place:** The items have not been addressed in the biosecurity plan and/or dated documentation, as applicable.

The items have not been addressed in the biosecurity plan and/or dated documentation, as applicable.

1. Biosecurity Manager and Written Plan

The Biosecurity Manager is identified for the feedlot. This individual is responsible for developing the biosecurity plan with the assistance of the herd veterinarian (if the Biosecurity Manager is not a veterinarian) and ensuring biosecurity training of, or communicating biosecurity measures with, all individuals who enter the site. The Biosecurity Manager has the written authority to ensure compliance with biosecurity protocols and take corrective action as needed.

☐ In place ☐ In progress ☐ Not in place

An operation-specific, written, enhanced biosecurity plan has been developed by the Biosecurity Manager. It is reviewed at least annually and whenever the feedlot goes through a change that affects biosecurity (expansion, adds a new aspect of the business, etc.). The biosecurity plan clearly defines the scope of the operation and includes biosecurity for other susceptible species kept on the premises. The biosecurity plan includes a map of the feedlot indicating the Line of Separation (LOS), access points, cleaning and disinfection (C&D) stations, designated parking area, and carcass removal pathways. The Biosecurity Manager ensures that all individuals entering the site frequently (weekly or more often) have access to a copy of the biosecurity plan. The biosecurity plan includes a map of the feedlot indicating the Line of Separation (LOS), access points, cleaning and disinfection (C&D) stations, designated parking area, and carcass removal pathways. The Biosecurity Manager ensures that all individuals entering the site frequently (weekly or more often) have access to a copy of the biosecurity plan.

☐ In place ☐ In progress ☐ Not in place

The Biosecurity Manager ensures that all individuals entering the site are informed of biosecurity measures they are to follow. Annual caretaker training is mandatory. The training must be in a language understood by the individuals receiving training. Effective training ensures that individuals are aware of the concepts and procedures that apply to their specific areas of responsibility. Training occurs at least annually and is documented. The Biosecurity Manager also ensures that all caretakers, truck drivers, and service personnel are aware of and adhere to the biosecurity measures in the biosecurity plan.

☐ In place ☐ In progress ☐ Not in place

2. Training

The Biosecurity Manager ensures that all individuals entering the site are informed of biosecurity measures they are to follow. Annual caretaker training is mandatory. The training must be in a language understood by the individuals receiving training. Effective training ensures that individuals are aware of the concepts and procedures that apply to their specific areas of responsibility. Training occurs at least annually and is documented. The Biosecurity Manager also ensures that all caretakers, truck drivers, and service personnel are aware of and adhere to the biosecurity measures in the biosecurity plan.

☐ In place ☐ In progress ☐ Not in place

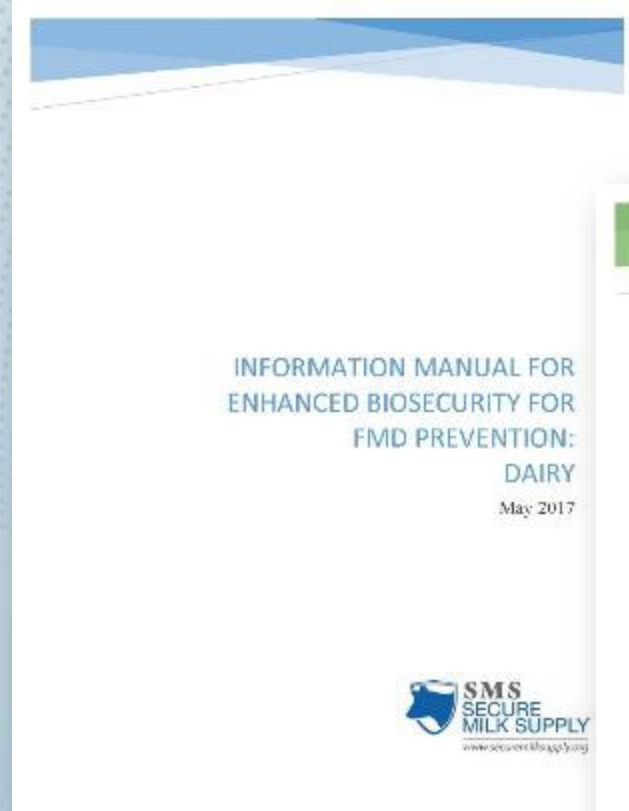
Limited number of entry points. Each entry point is protected with a gate or barrier (curb, etc.) which is locked when the facility is not attended. If a locked barrier is not available at the site entrance (such as when a house uses the same driveway), a barrier must be present restricting access of unauthorized vehicles to the pork production facilities within the site.

☐ In place ☐ In progress ☐ Not in place

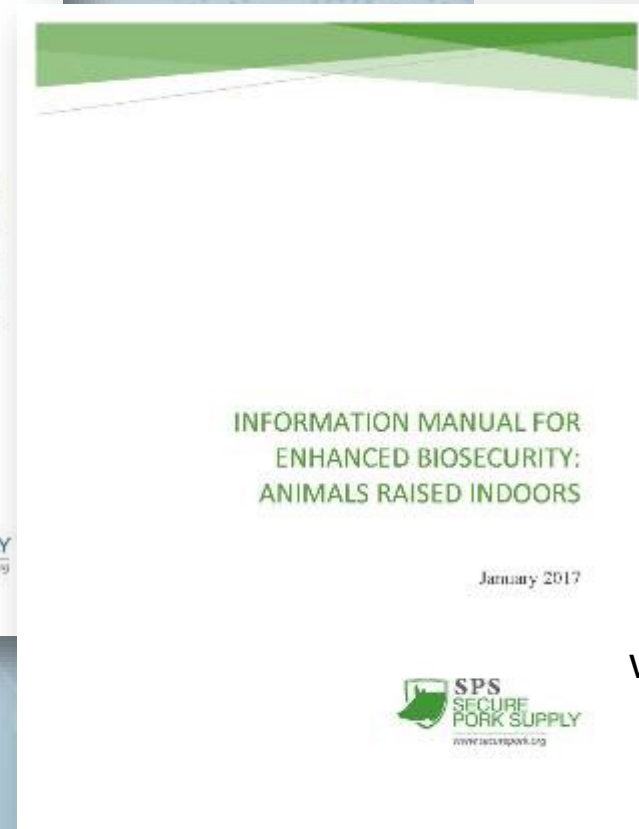
www.securebeef.org



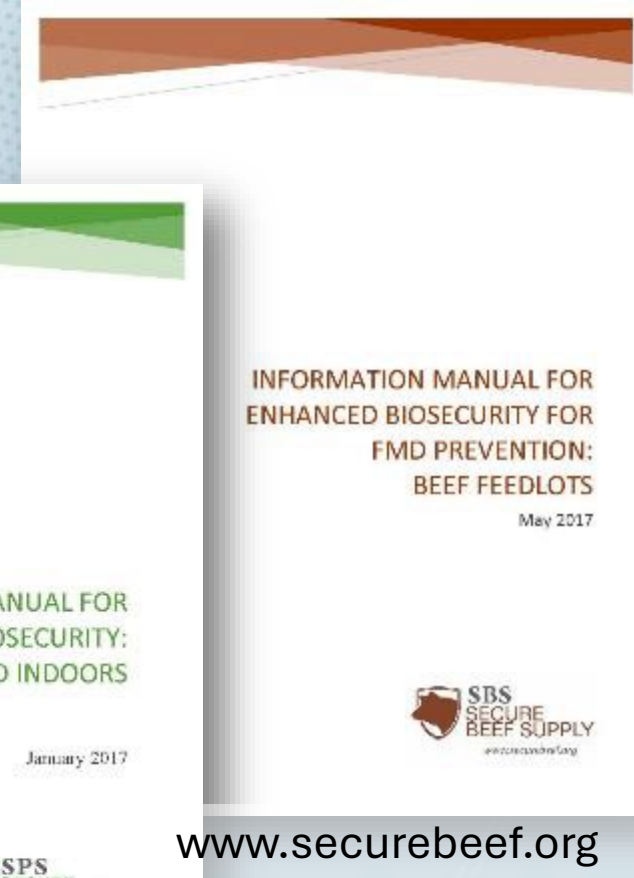
Information Manuals



www.securemilk.org




www.securepork.org




www.securebeef.org

Secure Milk Supply


Milk Truck Does Not Cross the **Line of Separation**



SMS
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MILK SUPPLY



NEW JERSEY
Department of Agriculture



RUTGER
Rutgers University
New Jersey Agricultural
Experiment Station

[illegible]

Biosecurity: Setting up and Operating a Cleaning and Disinfection Station on a Livestock Premises

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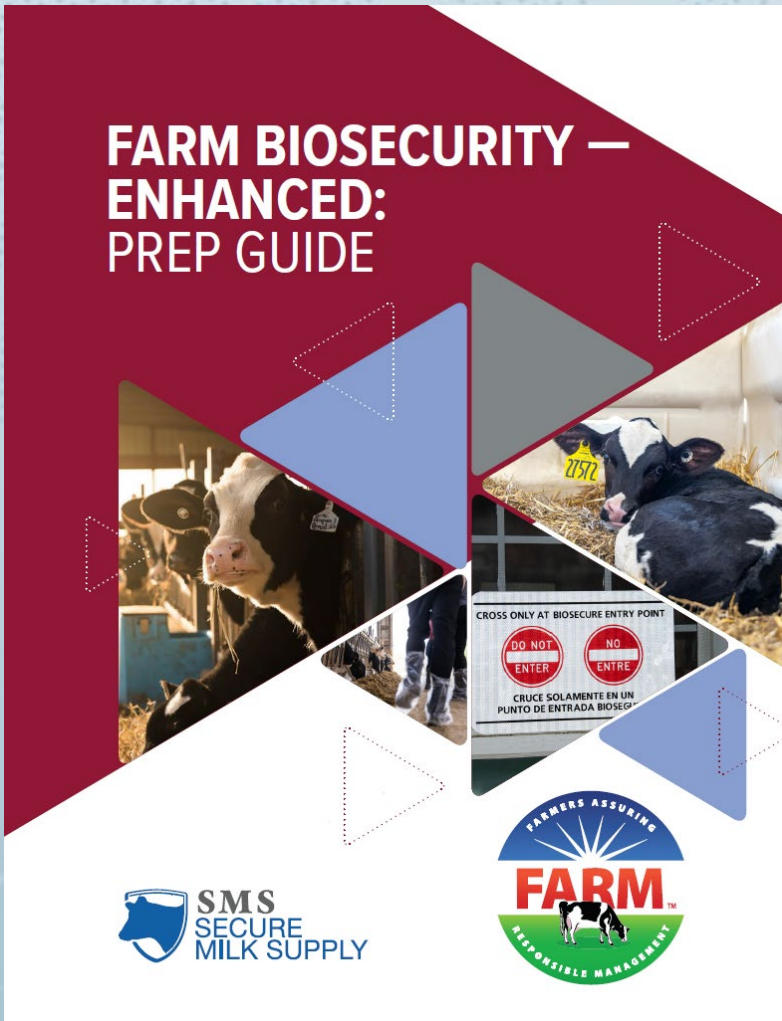


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Templates



- On-farm livestock trailers are used to transport animals to or away from the arriving livestock trailer at a designated cattle crossing LOS Access Point.

5. PERSONNEL

Prior to Arriving at the Dairy

The Biosecurity Manager ensures that everyone crossing the LOS on foot or exiting their vehicle inside the LOS has been instructed to arrive at the dairy

- with a clean vehicle interior (free of all animal manure/excrement) that has not become contaminated by soiled clothes, footwear, or other items.
- having showered and wearing clean clothing and footwear since last contacting susceptible animals.

For individuals that work with animals and live on-site, showering and changing into

is required.

changing into clean clothes and dead, or facilities where they are held

D outbreak include:

anager, Herdsman/person, Feeder, Milk

reement on file agreeing to follow our

gbook posted at the [location], unless

dairy to ensure accurate completion.

ers are maintained and posted

n hands

thing OR put on clean

on and the SOP.

PAGE 5 OF 12

[Name of Dairy] Enhanced Biosecurity Plan for FMD Prevention in [State]

Date [Created or Updated]: [Date MM/DD/YYYY]

This Biosecurity Plan is based off of the Secure Milk Supply (SMS) Plan Self-Assessment Checklist for Enhanced Biosecurity, [May 2017] and the Biosecurity Performance Standards (BPS) for Raw Milk Collection and Transport [April 2018] and was developed using guidance from the SMS Information Manual for Enhanced Biosecurity for FMD Prevention: Dairy. All documents are available at www.securemilksupply.org.

SCOPE OF BIOSECURITY PLAN

- National Premises Identification Number (Farm ID or PIN): [PIN] (request from the office of the State Animal Health Official)
- Premises address: [a valid 911 address]
- Premises GPS coordinates: [Latitude, Longitude]
- Animals* on primary premises: [All Species] and [Number of animals]
- Animal housing types: [e.g., buildings, pastures, dry lots]
- Other business operations on premises? [Yes or No] if yes, what? [e.g., sale of milk/milk products, vegetable stand, sale of feed/fertilizer or compost, hosting farm tours]
- Secondary premises** locations: [list the PINs, 911 addresses, or GPS coordinates (latitude, longitude) where animals associated with this operation reside (e.g., dry cows off-site, heifers on pasture, steers)]

Will be provided if this premises is located in an FMD Control Area

*Animals that are susceptible to FMD include cattle, pigs, sheep and goats. For biosecurity guidance for beef cattle and pigs, see www.securebeef.org and www.securepork.org.

**Work with your State Animal Health Official to determine if separate PINs are needed for all of your associated premises.

1. BIOSECURITY MANAGER AND WRITTEN PLAN

The designated Biosecurity Manager for this premises and their contact information follows:

NAME:
PHONE: [xxx-xxx-xxxx]
EMAIL: [email address]

In the event the Biosecurity Manager is away from the operation, their designee's contact information is:

NAME:
PHONE: [xxx-xxx-xxxx]
EMAIL: [email address]


The Biosecurity Manager's contact information is posted [describe where located].


ENHANCED BIOSECURITY PLAN FOR FMD PREVENTION

PAGE 1 OF 11




IowaFADefense Certification Program

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IowaFADefense Certification Program

Iowa Foreign Animal Disease Defense Program



Dr. Jeff Kaisand

Regional in-person IFAD events

REGISTER NOW

Dates and Locations

- May 2 - Waterloo
- May 15 - Carroll
- May 31 - Bloomfield
- June 10 - LeMars
- July 8 - Ames



ISU VDPAM Biosecurity Trailer

- Contact Grant Dewell,
beef extension veterinarian
gdewell@iastate.edu
515-294-2822
- Ideas
 - Demo for awareness
 - Role play- biosecure entry/exit
 - Farm worker
 - Visitor
 - Donning/doffing PPE



USDA Financial Support- Biosecurity

- For all producers
 - Biosecurity planning and implementation- up to \$1,500 per premises
 - Develop site-specific biosecurity plan
 - Conduct biosecurity trainings
 - Perform audits
- For producers with infected herds
 - PPE supplies, laundering- up to \$2,000 per premises per month
 - Requires participation in workplace/farm worker study
- FSA loans available for biosecurity measures
- Additional support available for milk/animal testing, milk treatment, etc.



Acknowledgements

- USDA
- CDC
- NMPF
- Preventalytics



Resources

- www.securemilk.org
- farmbiosecurity.cfsph.iastate.edu
- www.cfsph.iastate.edu/biosecurity/
- <https://iowaagriculture.gov/animal-industry-bureau/biosecurity>
- <https://www.aphis.usda.gov/livestock-poultry-disease/avian/avian-influenza/hpai-detections/livestock>
- <https://www.nmpf.org/resources/hpai/>



Thank you!



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Questions?



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