

# Livestock Hauler/Transporter Enhanced Biosecurity Steps for FMD Prevention

Cattle health can be protected by taking steps to prevent livestock disease transfer on trucks, trailers, drivers' clothing, footwear, hats, gloves, and handling equipment. Haulers actions can help stop the spread of animal diseases. Below are enhanced biosecurity steps to follow in a foot-and-mouth disease (FMD) outbreak.

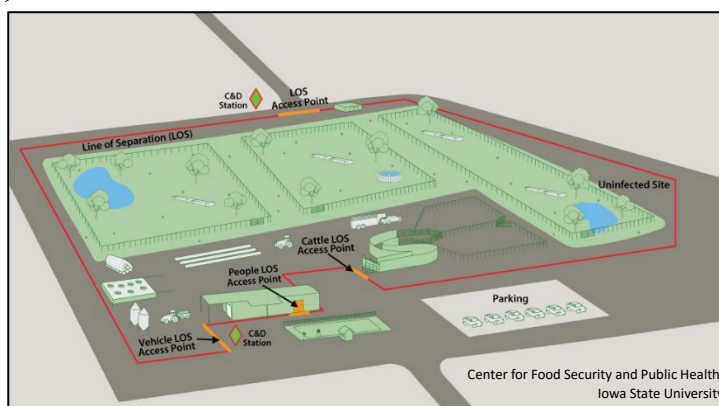
## Learn about FMD, Secure Beef Supply (SBS) and Enhanced Biosecurity

- FMD Overview video: watch (7:36 mins)
- SBS Overview video: watch (6:51 mins)
- Enhancing Biosecurity Against FMD video: watch (5 min)

## Respect the Line of Separation (LOS)

The Line of Separation (LOS) is a clearly identified boundary to separate off-site from on-site movements of vehicles, items, people, and animals (shown by the red line in the graphic). The LOS:

- May be located along the property line or another boundary within the operation.
- For example, near the cattle loading/unloading area.
- Should be clearly marked so all who arrive can easily see it.
- Is meant to separate the outside world (considered “dirty”) from the cattle side (considered “clean”).



Think about the operation as a castle and the LOS is the moat around it. The LOS Access Point is the drawbridge which is opened by the operation. Biosecurity steps, such as those below, must be followed for all animals, vehicles, equipment, and people to limit entry and spread of FMD virus. This helps protect cattle health.

## Before Arrival to Load Cattle

- Ask loading location (feedyard, packer, other) what is expected for trailer cleaning and disinfection (follow steps below at a minimum).
- Read and sign visitor agreement to follow biosecurity steps at cattle origin.
  - For instance, will you be entering the premises, crossing the Line of Separation (LOS), or expected to stay in the cab, or staying outside the LOS to load?
- Clean out the cab and any storage boxes (follow steps below).
- Clean and disinfect handling tools (plastic paddles, sorting sticks, flags, streamers, electric prods, etc.).
- Shower, put on clean clothes and footwear.
- Pack two pairs of clean coveralls, work gloves, and boots or boot covers that are safe on all surfaces.
  - Items should be able to be washed, dried, and disinfected after use or thrown away after use.

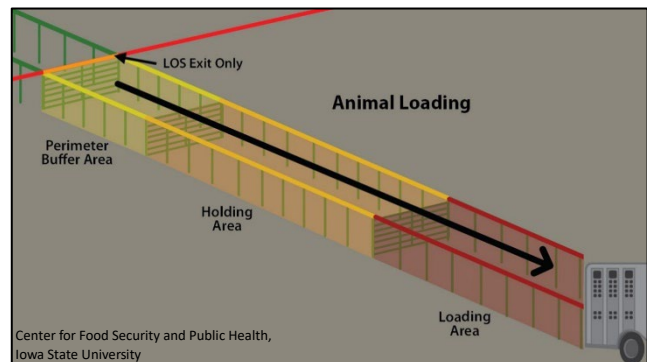
The U.S. Environmental Protection Agency (EPA) registers and [approves disinfectants for use against FMD virus in farm settings](#).

- Pack a clean garbage bag or sealable tote for soiled clothing unless you have a dedicated area outside the cab.
- Pack hand sanitizing wipes with active ingredients like bleach or hydrogen peroxide.
- Avoid livestock contact until arriving to load cattle.
- Do not bring/haul animals in the cab or trailer (dogs, horses, etc.).



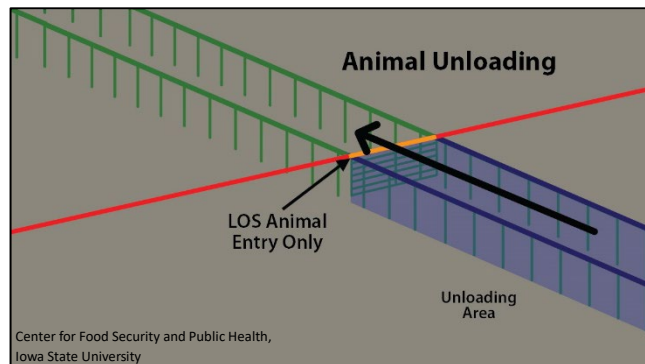
## Upon Arrival to Load Cattle

- Follow posted signs and biosecurity steps.
- Call or check in at scale house or office; weigh if needed.
- If nobody is at the facility to provide directions or instructions, do not proceed to load livestock on your own.
- Fill out record keeping forms (provide route traveled details, any contact with livestock or their areas, hauler contact information).
- Drive only in allowed areas.
  - If driving across the LOS, be prepared for the wheel wells, undercarriage, and tires to be cleaned and disinfected. This will take extra time.
- Prepare to exit the cab (at some facilities, you may be asked to stay in the cab while livestock are loaded for you).
  - If parked inside the LOS, put on clean coveralls, work gloves, and boots or boot covers before exiting cab.
  - If parked outside the LOS, put on clean coveralls, work gloves, and boots or boot covers before opening the trailer door.
- Load animals, following proper handling steps (if directed to load livestock):
  - Stay outside the LOS if loading at the perimeter. Livestock will be brought to you.
  - The operation should have personnel moving cattle across the LOS and stay on the cattle side.
- Watch cattle as they are loading to make sure they are fit for transport.
  - If an animal is unfit and crosses the LOS, stop loading livestock.
  - That animal should be unloaded onto the operation.
  - If the trailer has not been cleaned and disinfected internally, that animal should be quarantined separately from the rest of the animals on the operation.
- When loading is done and BEFORE entering the truck cab, remove coveralls, work gloves, and boots or boot covers. You want to avoid cross contaminating your work clothes, street clothes, and truck cab.
  - Store soiled items in a sealable tote, garbage bag, or dedicated area outside cab.
- Wash hands with soap and water or use hand sanitizing wipes.
- Get a copy of the movement permit (electronic or paper).
  - Best practice for paper documents: Keep clean.
- Follow route described on permit to destination.
  - If the route needs to change, call dispatch or the animal's owner/manager and discuss.



## Upon Arrival to Unload Cattle

- Follow posted signs and biosecurity steps.
- Call or check in at scale house or office; weigh if needed.
- If nobody is at the facility to provide directions or instructions, do not proceed to unload livestock on your own.
- Give the receiver a copy of the movement permit (electronic or paper).
- Drive to the designated unloading area.
  - If driving across the LOS, be prepared for the wheel wells, undercarriage, and tires to be cleaned and disinfected. This will take extra time.
  - If not driving across the LOS, know where the LOS is and do not cross with your truck, trailer, equipment, or yourself.
- Prepare to exit the cab.
  - If parked inside the LOS, put on clean coveralls, work gloves, and boots or boot covers before exiting cab.
  - If parked outside the LOS, put on clean coveralls, work gloves, and boots or boot covers before opening the trailer door.
- Unload animals, following proper handling steps.
  - Respect the LOS if loading at the perimeter.
- When unloading is done and BEFORE entering truck cab, remove coveralls, work gloves, and boots or boot covers.
  - Store soiled items in a sealable tote or garbage bag or dedicated area outside cab.
  - Do not re-wear any footwear that was used to unload until they can be thoroughly cleaned to remove ALL organic matter and disinfected.
- Wash hands with soap and water followed by hand sanitizing wipes.
- If returning to the same origin as the first load of cattle, trailer interior may not need to be washed.



## After Unloading Last Load of Cattle

- Back-hauls are not recommended when hauling livestock out of, within, or into an FMD Control Area unless the interior and exterior of the trailer undergoes full cleaning and disinfection (see steps below).
  - Clean out the cab of truck and any storage boxes (follow steps below).
  - Clean and disinfect handling equipment (plastic paddles, sorting sticks, flags, streamers, electric prods, etc.).
  - Clean and disinfect the interior and exterior of the trailer, the undercarriage of the tractor/vehicle used to pull trailer (see steps below).
  - Clean the cab and storage area (see steps below).
  - \*Do not touch livestock or their areas until after showering.
  - \*Do not wear any clothing, gloves, hats, or footwear around livestock or their areas until they have been thoroughly cleaned and disinfected (see below). Throw away garbage bag or disinfect tote before re-use.
    - Laundry Tip Sheet ([English](#)) | ([Spanish](#)) – English version in Appendix
    - Cleaning and Disinfecting Footwear Tip Sheet ([English](#)) | ([Spanish](#)) – English version in Appendix
- \*These steps are critical if the hauler has cloven-hooved animals of their own to care for after hauling livestock.

## Cab, Storage Area Cleaning Steps

- Remove trash.
- Use compressed air to blow out dust and dirt from seats or vacuum seats, sleeping quarters.
- Remove floor mats, wash with soap and water.
- Use hot water on the floor and pedals, scrub to remove dirt and grime.
- Wipe surfaces with disinfect (see list of EPA-registered disinfectants for FMD).
- Follow the same steps for any storage areas where coveralls, gloves, footwear are stored.
- Create zones—one area for clean clothing and footwear, one for soiled items (storage area or clean sealable tote/garbage bag in cab).



## Truck/Trailer Cleaning and Disinfecting Steps

The steps to clean and disinfect a trailer exterior are shown in this video and handout: [watch \(16 min\)](#) | [handout](#) It does NOT show interior trailer steps but the concepts are the same. More details are described below. In an FMD outbreak, animal health officials may require additional biosecurity steps.

1. Clean out trailer in an area that meets biosecurity and environmental regulations (wastewater/effluent runoff, bedding/manure disposal).
  - a. States may have a list of suitable truck washes.
  - b. Animal health officials may provide acceptable locations in an outbreak.
  - c. The [Livestock Network provides a listing of livestock trailer washouts](#) by state: (NOTE: It is not known if those listed are suitable for use in an outbreak)
2. Make sure the wash area does not have manure or bedding in the wash bay before entering with the trailer.
3. Put on water-resistant boots and coveralls/pants/jacket.
4. Remove organic matter from trailer – scrape out bedding, manure and dispose of properly.
5. Rinse the trailer with water – hot water works best.
6. Apply soap/detergent.
  - a. Exterior: Start at the top then move downward.
  - b. Interior: Start at front of trailer, working towards the back/unloading, top to bottom.
7. Scrub surfaces to remove built on manure, bedding (walls, gates, ceiling, floor) – working from the highest to the lowest level.
8. High pressure (>1000 psi) rinse the exterior, then the interior, working from the top down.
  - a. Pay close attention to corners, crevices, areas where organic matter may hide.
9. Park on a slope to drain off excess water and dry.
10. Apply an EPA-registered disinfectant that will kill FMD virus following label directions.
  - a. Wear protective gear as described on the label.
  - b. Follow contact time.
  - c. Start with the exterior first, then interior working top to bottom.
  - d. Rinse with water if recommended on the label.
11. Allow trailer to dry completely before loading livestock.
12. Disinfect and remove boots, protective gear.
13. Remove coveralls and store in a sealable tote or garbage bag until laundered.
14. Wash hands.

## **Acknowledgements**

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## **Additional Resources**

The Secure Beef Supply website has additional resources available at: [www.securebeef.org](http://www.securebeef.org).

## **Comments**

Please send comments or suggested edits for improvement to: [sbsinfo@iastate.edu](mailto:sbsinfo@iastate.edu)

# Cleaning and Disinfection on the Farm

## LAUNDRY



Soiled clothing can be a potential source of infection for both people and animals.  
Follow these tips to minimize disease risks from laundry on your operation.

### HOW IS LAUNDRY A DISEASE RISK TO ANIMALS AND PEOPLE?

Clothing worn around animals can be an important disease risk for people and animals. Any fabric item has this potential, including clothing such as coveralls, soiled jeans, or jackets, as well as cloths and towels used during birthing events or animal treatments.

Contamination of these items with birthing fluids, blood, urine, feces, or any other body fluids can spread disease to other animals, areas of the operation or even you and your family. Disease-causing bacteria, such as *Salmonella*, *E. coli*, and *Campylobacter* are a few examples.

This makes proper laundering efforts an important step in minimizing disease spread on your operation.

### PREVENT CROSS CONTAMINATION

- **To animals on your operation**
  - Wear clean clothing when working around animals.
  - Change soiled clothing as soon as possible.
- **To those in your home**
  - Remove chore clothing before entering the home.
  - Wash your hands after handling soiled chore clothing.
- **To yourself**
  - Manure or animal body fluids on clothing or fabric items can transfer to your hands.
  - Always wash your hands thoroughly with soap and warm water after handling dirty laundry.
- **Keep chore and home clothing separate.**
  - Use separate containers or baskets for “farm clothing” and “home clothing”. Clean and disinfect baskets after each use.
  - Wash work clothes or fabrics separately from the regular laundry. Wash and dry soiled barn laundry last, after all home laundry is done.



Photos from Renée Dewell, Iowa State University

## WASHING LAUNDRY

Many disease-causing organisms are killed during the laundering process. The dilution with water, loosening by the detergent, agitation, and heat (both in the washing and drying processes) are quite effective against most disease-causing organisms.

- If possible, use a separate washer and dryer for items that have been worn around animals.
- If clothing or items are heavily soiled, loosen and remove as much debris or fecal matter as possible, before washing. Using a stiff brush can help with this step. This step should be done outside the home.
- If items are still soiled after brushing, soak them in water to loosen and remove additional material.
- When ready to launder, use a high-quality, deep-cleaning laundry detergent. Take care not to overfill the washer.
- Wash laundry using the hottest temperature permitted as stated on the item's fabric care label. Whenever possible, select a cycle with a water temperature that reaches at least 100°F, preferably at least 140°F. For reference, hot tap water is generally 120°F.
- When possible, select washing options such as “pre-soak” and/or “stain removal”. If your washer has an extra rinse cycle option, it should be selected.
- Bleach or oxidizers may also be added to the wash cycle to help eliminate harder to kill organisms, such as cryptosporidium.
- When possible, hang laundry to dry in the sun. This can further eliminate pathogens. If a dryer is used, select the highest temperature setting permitted by the fabric care label.
- Clean and sanitize washer and dryer surfaces once you have washed and dried your farm clothing and items.

**Additional information on cleaning and disinfection and farm biosecurity can be found on the Center for Food Security and Public Health (CFSPH) website.**

- [Cleaning and Disinfection Resources](#)
- [Farm Biosecurity Resources](#)



*Photos from Renée Dewell, Iowa State University*

**Acknowledgement:** Development of this material was made possible through a grant from the U.S. Department of Agriculture (USDA), National Institute of Food and Agriculture (NIFA), North Central Region SARE program (AWD-021794-00001) and the National Animal Disease Preparedness and Response Program (NADPRP) (AWD-025393-00001). Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the view of the USDA.

# Cleaning and Disinfection on the Farm

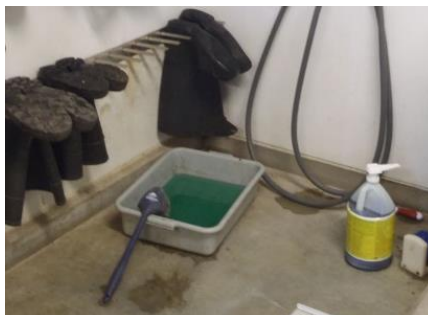
## FOOTWEAR



Cleaning and disinfecting footwear can minimize disease risks on your farm, but proper procedure is needed. Follow these steps to minimize disease transfer by footwear.



1. Dirty boots or footwear can spread diseases to other locations on or off your farm



2. Set up a specific area where boots can be cleaned and disinfected. Place all supplies (detergent, water source) in the area.



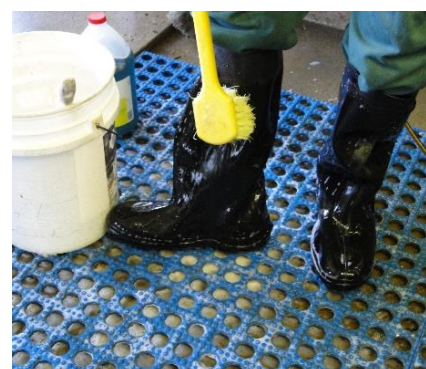
3. Rinse all visible debris off of boots. Most disinfectant are not effective when dirt and manure are present.



4. Wash boots with a soap or detergent solution. Use a scrub brush to get the crevices of the soles cleaned.



5. Rinse the detergent off of the boots. Some disinfectants are inactivated by soaps and detergents.



6. Apply the disinfectant solution to boot surfaces. Let the solution sit on the boot surface for the full contact time.

Photo sources: 1. Renée Dewell, Iowa State University; 2, 4, 5, 6. Danelle Bickett-Weddle, Iowa State University; 3. Pork Checkoff/Flickr, CC BY-NC-ND 2.0

## WHAT ABOUT BOOT BATHS?

Boot baths, solutions of disinfectants that are walked through, are commonly used. However, if not used properly, they not only can be ineffective, but may actually increase organism transmission. If boots have dirt and debris on their surfaces, this will prevent a disinfectant from doing its job. Boots must be cleaned before disinfection application. Additionally, cleaned boots must remain in the solution for the necessary contact time. Freshly prepared disinfectant solutions should be prepared daily. If the solution becomes visibly soiled throughout the day, a fresh solution should be prepared. If these steps are in place, boot baths can be a useful part of a footwear biosecurity plan.



## A NOTE ABOUT DISINFECTANT SOLUTIONS

- When preparing the disinfectant solution.
  - It is important to read the product label and use the recommended concentration. If solutions are too weak, disease-causing organisms may not be killed. If too strong, damage to the boot surface or flooring may occur.
  - Disinfectant solutions should be prepared daily. Many lose their efficacy over time. Using fresh solutions ensures the desired impact.
- When applying the disinfectant solution to boot surfaces.
  - The disinfectant solution must remain on the boot surface for the full contact time. This will be listed on the product label, and is generally 5-10 min. The full contact time is needed to allow the disinfectant to do its job. Additionally, surfaces must remain “wet” with the solution throughout the entire contact time. If surfaces dry before that, reapply, reset the clock.

## WHAT DISINFECTANT SHOULD BE USED?

This depends on a variety of factors. There are many different effective disinfectants for everyday use. If a particular organism is known or trying to be avoided, check the product's label. Organisms a disinfectant is effective against – when used according to product instructions – will be listed on the label.

## OTHER FACTORS TO CONSIDER

- Be sure disinfectants are stored properly. Most list best storage temperature ranges.
- Hard water may negatively impact efficacy of disinfectant.
- Always follow disinfectant label directions regarding contact time, proper storage, dilution rates, and disposal methods.

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