

David W. Snively
Associate Director

Biosecurity on the Farm

Biosecurity refers to those measures taken to keep diseases out of populations, herds, or groups of animals where they do not currently exist or to limit the spread of disease within the herd. The responsibility for farm-level biosecurity belongs to the producer or herd owner. A successful biosecurity plan must address isolation of new animals brought to the farm, isolation of sick animals, regulation of the movement of people, animals, and equipment, and procedures for cleaning and disinfecting facilities.

The Greatest Risk - Animals New to the Farm

Bringing new animals to your farm usually presents the greatest risk of introducing infectious disease. Producers should purchase animals from sources with a sound herd health program. In addition, producers should:

- Isolate new animals and animals returning from situations where they were exposed to other animals (fairs or shows) for a minimum of two weeks, preferably one month. Isolation should be in a facility separate from other animals if possible. If complete isolation is impossible, use a separate pen or pasture that does not permit nose-to-nose contact or shared feed/water supplies. Boots and coveralls worn while caring for quarantined animals should not be worn while caring for other animals. Have new animals tested before mixing them with your existing herd.
- Work with your veterinarian to develop a health program that includes parasite control and vaccination for diseases most likely to be a problem in your operation.
- Isolate animals showing signs of disease. Contact your veterinarian for appropriate tests and treatment.

Farm Visitors

When visitors to the farm are expected, consideration of relative risks allows you to develop and use practical biosecurity measures.

Low-Risk Visitors- Visitors from urban areas or others who have no contact with livestock present very little risk of carrying diseases. Some precautions for low-risk visitors should include:

- Ask visitors to wear freshly laundered outerwear and clean shoes or boots. You should provide disposable plastic boots and coveralls as an added precaution.
- Do not rely heavily on disinfectant footbaths. They are unreliable unless boots are thoroughly scrubbed before immersion and they are in the disinfectant for adequate contact time. Contact time required varies by product.
- Do not allow visitors to enter pens or feeding areas or to contact animals, if possible.
- Do not allow visitors to bring food with them.
- When visitors leave, provide a plastic bag for disposable items and ask them to wash their hands before leaving.

Moderate-Risk Visitors- People who routinely visit farms but have little or no contact with animals such as salesmen, delivery people, and mechanics present only a moderate risk of introducing disease. In addition to the low-risk visitor precautions, they should also observe the following:

- Wear clean or disposable coveralls and boots if there is any contact with feed, animals, soil, or manure.
- Equipment should be cleaned and disinfected between uses if there is any contact with feed, animals, soil, or manure.
- Dirty boots should be cleaned and disinfected, and coveralls should be removed and placed in a plastic bag or container before visitors reenter the vehicle.

High-Risk Visitors- High-risk visitors include veterinarians, livestock haulers, livestock-owning neighbors, and anyone else who has close contact with animals and their bodily discharges. In addition to precautions for low- and moderate-risk visitors, people in this group should observe the following:

- Vehicles should be clean and free of visible manure on tires and wheel wells. Livestock trucks and trailers should be cleaned and disinfected prior to arriving at the farm.
- Visitors should arrive with clean clothing, boots and equipment. Equipment and instruments that have direct animal contact should be cleaned and disinfected before and after use.
- Disposable sleeves and gloves and other disposable or disinfectable clothing should be worn whenever there is direct contact with animal discharges or tissues.
- Clean and disinfect dirty equipment and footwear with an appropriate disinfectant before leaving the farm. Soiled coveralls should be removed before people reenter the vehicle. Hands and forearms should be washed with antibacterial soap.
- Farm employees who have livestock at their own home should report to work clean and in clean clothes that have not been exposed to their livestock. They could provide their own clean coveralls and boots, or you could supply them with outerwear and boots that are left at the farm.

Risk from Wildlife

Most diseases that livestock producers are concerned with are relatively species-specific. The presence of wild animals in an area should not cause alarm. However, some diseases such as rabies, leptospirosis, and salmonellosis can be carried and spread by some species of wildlife including rats and mice. Take efforts to make barnyards and buildings unattractive to wildlife.

- Keep grain spills and other sources of food cleaned up.
- Clean up old board piles or debris piles and inspect buildings for possible hiding or denning areas.
- Inspect hay storage areas for evidence that cats, raccoons, or other animals are using the hay as denning areas.

Risk from Farm Equipment

Equipment that has been in contact with livestock or their bodily discharges can spread diseases. To help minimize this risk include farm equipment in your biosecurity plan.

- Manure-hauling equipment should not be shared between farms unless thoroughly cleaned and disinfected.
- Front-end buckets and skid steer loaders used for both manure and feed handling should be cleaned and disinfected between uses.
- Vehicle tires and undercarriages that have direct contact with animal discharges should be cleaned routinely.

Approved Disinfectants

The following chart lists disinfectants approved by the United States Department of Agriculture for field use in the event of a foot and mouth disease outbreak. For routine use in farm-level biosecurity programs, producers should consider the major risks they are concerned about, the type of surfaces they will be disinfecting, and the conditions under which the disinfectant will be used. Then, they should select a disinfectant that best suits their needs. Producers should remember that disinfection is only part of a good biosecurity plan.

Product	Dilution	Mixing Instructions	Notes
5.25 Sodium Hypochlorite (NaOCl) household bleach	3%	Add 3 gallons of chlorine bleach to 2 gallons of water; mix thoroughly.	
Acetic Acid*	45%	Add 6.5 ounces of glacial acetic acid to 1 gallon of water; mix thoroughly.	Vinegar is a 4% solution of acetic acid.
Potassium Peroxymonosulfate and Sodium Chloride (i.e., Virkon-S)	1%	Follow label directions	Virkon –S
Sodium Carbonate (soda ash)*	4%	Add 5.33 ounces of sodium carbonate to 1 gallon of hot water (or 1 pound to 3 gallons of hot water); mix thoroughly.	The solution is mildly caustic but can dull paint and varnished surfaces.
Sodium Hydroxide (NaOH) lye*	2%	Add 1/3 cup of NaOH pellets (2.7 ounces of lye) to 1 gallon of cold water; mix thoroughly.	This solution is highly caustic. Use protective rubber clothing, gloves, and safety glasses. WARNING: Always add the lye to the water. Never pour the water over the lye.
*Section 18 application submitted and EPA approval is pending.			
** From <i>National Emergency Response to a Highly Contagious Animal Disease</i> , Executive Summary, March 30, 2001.			

Practical, farm-level biosecurity can be achieved without the total restriction of visitors to the farm. Biosecurity requires that you develop a plan and follow it. Your biosecurity plan should be reviewed regularly and changed as your situation changes or new knowledge is acquired.

In the event of a foreign animal disease outbreak, regulatory officials will mandate the type of disinfectant, cleanup procedures, and routine prevention activities.

References:

On-Farm Biosecurity: Traffic Control and Sanitation, Gary L. Bowman, D.V.M. and William P. Shulaw, D.V.M. Ohio State University Extension Factsheet, 6/2001
<http://ohioline.osu.edu/vme-fact/0006.html>

Disinfection in On-Farm Biosecurity Procedures, Gary L. Bowman, D.V.M. and William P. Shulaw, D.V.M. Ohio State University Extension Factsheet, 6/2001
<http://ohioline.osu.edu/vme-fact/0008.html>

National Emergency Response to a Highly Contagious Animal Disease, Executive Summary, March 30, 2001
<http://www.aphis.usda.gov/oa/pubs/fcc412.pdf>