



Biosecurity for Swine Producers

Biosecurity is a series of management practices with two goals—preventing diseases from entering the operation, and, if one does enter, preventing its spread. Regardless of the size of the operation, the basics are the same: Control movement of animals, people and equipment coming onto the farm, and clean and disinfect as much as possible.

Disease Transmission

- Direct transmission occurs when a susceptible animal comes in direct or close contact with an infected, contagious animal and is exposed to the disease through respiratory air droplets, saliva, nasal, ocular or genital mucus, fetal fluids, feces or urine, milk, skin or blood. Direct transmission also occurs during reproduction and *in utero*.
- Indirect transmission occurs when animals come in contact with infected or contaminated vehicles or equipment; fomites such as soil, feed or water; and vectors such as mosquitoes, flies, birds, rodents, cats and dogs. People also can carry pathogens on clothing, shoes and body.

Immunity

Immunity is an animal's ability to prevent a pathogen from developing or to counteract the effects of toxins. Immune ani-

Jodi Sterle, Associate Professor and Extension Swine Specialist
Angela I. Dement, Extension Assistant for Veterinary Medicine
Floron C. Faries, Professor and Extension Program Leader for Veterinary Medicine
The Texas A&M System





mals carry antibodies that attack and destroy the pathogen before the illness starts. Immunity may be:

- Natural: Exists without exposure to a disease agent
- Active: Acquired through vaccination or after the body battles an infection
- Passive: Acquired when antibodies are passed from one animal to another, as *in utero* or from mother to newborn through colostrum in milk

Vaccinations

After vaccination, an animal's body makes antibodies to protect it from that disease. Vaccines must be used, administered and stored properly to be effective. Before vaccinating a herd, consult a veterinarian and read the label and/or package insert; by law, all vaccines must come with instructions on proper usage. Some vaccines require only a one-time injection; others require two injections a few weeks apart and an annual booster. For best protection, vaccinate animals before, not after, they are exposed to a specific disease. Consult a veterinarian about the proper timing and use of vaccinations as part of an overall herd health plan.

General Biosecurity Practices

Not all biosecurity practices are feasible or necessary for each operation. Producers must assess their risks when deciding which biosecurity practices to adopt. Consider these general practices:

Isolation and testing of new animals

New animals entering a herd may have organisms they might be immune to that animals already in the herd are not. Even healthy-looking animals may be shedding pathogens. Isolate incoming animals for at least 30 and preferably 60 days before introducing them into the herd. Test these animals for diseases that are a major threat, such as porcine reproductive and respiratory syndrome and circovirus, both upon arrival and 30 days later while the animals are still in isolation. Before implementing, discuss these steps with a veterinarian as part of the herd health management plan.

The isolation unit should be as far from the existing herd as possible. Consider wind direction when selecting a site. Isolated animals should be fed and cared for; workers should change clothing and boots between herds.

Footbaths

Step-through footbaths with a commercial disinfectant are relatively inexpensive and easy to maintain. However, disinfectants will not be effective unless the surface is clean. Muddy boots may still carry pathogens, even after they have been through a footbath. Many outside operations have an initial footbath with water and a scrub brush, followed by a disinfecting footbath. Change footbaths regularly and frequently, depending on the amount of traffic, and exposure to sunlight.

Foot Traffic

Limiting the number of people moving between pens and phases of production will decrease the risk of transmitting pathogens. Keep control over any human activities in the different phases of the operation. The boar stud and the farrowing house are the most critical to keep clean. Follow the production cycle—conception to consumption—starting with boars and finishing with market hogs. If going "back up the chain," take steps to reduce the risks of disease transmission. For example, change clothes and boots and wash hands thoroughly before going from the finishing barn to the farrowing house.

All-In, All-Out Production

Cleaning and disinfecting all floors, ceilings, light fixtures, feeders and other equipment between groups of pigs is effective in breaking a disease cycle. If possible,

groups of animals should be moved in and out of a building together, allowing time for cleaning, disinfecting and drying the facility before moving in a new group. Disinfecting organic matter such as dust or manure in this manner is impossible, so remove all organic matter from surfaces before disinfecting.

could risk the health of the herd. Double fencing around the perimeter is recommended, but may not be feasible. Do not let pigs commingle with feral swine.

Visitors

Keep the number of visitors to a minimum, including feed trucks, mechanics, delivery and salesmen, and prospective buyers. Many farms have a specific area where animals for sale are housed. This barn should follow the same rules as the rest of the operation, including using footbaths, cleaning and disinfecting between groups of animals, and using disposable plastic boots for visitors. Animals brought to this area should not be allowed back into the herd without first going through isolation.

Each visitor should:

- Always make and keep an appointment before going to a producer's operation.
- Thoroughly clean and disinfect trailers.
- Spray a disinfectant on truck and trailer tires before reaching the producer's operation.
- Tell the producer if he or she has been around any other pigs recently, including their own pigs, or pigs at a recent sale or at other farms.
- Never enter a barn without the producer.
- Never enter a pen without the producer's permission.

Birds, Rodents and Other Vectors

Birds, rats, mice, cats, dogs, raccoons and other vermin carry pathogens between operations. Cats and dogs should not be allowed in buildings. Netting and mesh covering should be used to discourage birds from entering the facilities, especially for nesting. Rodents and other pests should be controlled.

Feral Swine Exposure

Feral swine can carry both pseudorabies and brucellosis, so exposure to these pigs, even through the fence,



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Issued in furtherance of Cooperative Extension Work in Agriculture and Home Economics, Acts of Congress of May 8, 1914, as amended, and June 30, 1914, in cooperation with the United States Department of Agriculture. Edward G. Smith, Director, Texas AgriLife Extension Service, The Texas A&M System.
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