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Biosecurity: The Pig Picture

What is Biosecurity?

Biosecurity is the set of measures that provide security from transmission of infectious diseases, parasites and pests.

Why is Biosecurity Important?

Biosecurity is an essential part of safe and profitable livestock production, whether on a small farm or a large-scale commercial facility.

What are zoonotic diseases?

The World Health Organization (WHO) defines zoonosis as any disease or infection that is naturally transmissible from animals to humans. While it is uncommon for infections to be transferred from livestock to producers, it can happen. There are approximately 30 infections that can be spread to humans through pigs. Proper biosecurity and knowledge are required to protect producers from the risk of infection.

Changes in the swine industry have resulted in an increased size of production facilities and number of animals. There is concern over how these changes in livestock husbandry affect the transmission of disease both among pigs and with production workers. Larger operations require more workers which can lead to an increased risk of infection during an outbreak of zoonotic disease.

How are Diseases Spread?

There are three main methods of disease transfer:

1. **Direct Contact** – occurs between healthy and infected animals (or humans) such as through introducing new stock that is infected
2. **Indirect Contact** – occurs through contaminated objects such as vehicles, clothing, boots, feed or rodents
3. **Airborne** – pathogens carried through the air, such as during transport

The first two methods of disease transfer can be addressed through basic occupational hygiene principles and protocols, but reducing airborne transmission is more challenging. Two of the projects of the *Canadian AgriSafety Applied Research Program* are working to address the issue of airborne disease transmission at production facilities (*Air Quality in Canadian Pig Buildings Project*) and during swine transport (*Reducing Pathogen Distribution from Animal Transport Project*). The outcome of each of these projects will lead to practical applications that reduce the risk of pathogen exposure to swine herds, facility workers and the public. These projects address three key steps in the Hierarchy of Control: 1) hazard identification, 2) risk assessment and 3) engineering controls.

Biosecurity protocols:

- Help prevent spread of disease and introduction of infection
- Protect both humans and livestock from zoonotic disease transfer
- Benefits to production, profitability and health of workers and livestock

Protect Yourself

- Wear gloves and a mask regularly when handling livestock
- Wash hands thoroughly after working with livestock
- Cuts and scrapes should be covered when working with livestock
- Change clothing and footwear when entering farm facilities

Biosecurity Checklist

Regardless of the size of the operation, a biosecurity plan should be in place for animal production facilities to provide workers and visitors with the necessary strategies to reduce the risk of spreading infection. Biosecurity protocols will depend on the risk factors associated with each individual facility and as such each farm should design and develop its own unique biosecurity plan.

Below is an example of a Biosecurity Checklist:

1. Isolation

- Isolate sick animals from the rest of the herd
- Avoid introduction of animals from outside farms or facilities, or quarantine before introducing to herd
- Quarantine/ isolation for newly purchased animals
- Create loading area/ bay at farm

2. Sanitation

- Routinely clean and disinfect buildings, barns, equipment, clothing and footwear
- Promptly dispose of deceased pigs
- Implement a manure management program – composting or spreading
- Have specific clothing and footwear for use only on the farm

3. Traffic Control

- Control visitors' access to livestock
- Require all visitors to wear clean boots, clothing and gloves and dispose of after use
- Maintain records of the movement of people, animals and equipment on and off the premises
- Keep species of livestock separate

4. Herd Health Management

- Monitor herd health
- Report and note any signs of illness
- Keep vaccinations up-to-date

5. Program Maintenance

- Train staff on biosecurity protocols
- Monitor effectiveness of protocols

Disclaimer: Although every care has been taken in providing this information, the authors accept no responsibility or liability for any consequences arising from the use of such information.

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Air quality in Canadian pig buildings project and the *Reducing pathogen distribution from animal transport* project, are two projects of the Animal Housing Environment priority area, under Agrivita Canada Inc.'s *Canadian AgriSafety Applied Research Program*. This priority area is by a national team of researchers from the Centre de recherche de l'Institut universitaire de cardiologie et de pneumologie de Québec at the Université Laval (CRIUCPQ), Prairie Swine Centre (PSC), the University of Saskatchewan College of Engineering, the School of Population and Public Health at the University of British Columbia, the Canadian Centre for Health and Safety in Agriculture (CCHSA), and the Canadian Agricultural Safety Association (CASA).

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