

 <p>Institutional Animal Care and Use Committee Guiding Principles and Procedures</p>	<p>Effective: 11/26/2019</p> <p>Revised:</p>
<p>Title: Biosecurity</p>	<p>Page 1 of 6</p>

Guiding Principle

The use of animals in research and teaching is a privilege granted to institutions, investigators, staff and students that commit to meeting high ethical and regulatory standards. In accordance with federal regulations and guidelines, NDSU requires investigators and facilities to develop and maintain biosecurity plans to identify, contain, prevent, and eradicate known or unknown infections that may impact animal welfare.

Requirements

Guide for the Care of and Use of Laboratory Animals, ILAR, NAS, Eight Edition 2011, pg 109. Animal biosecurity refers to all measures taken to identify, contain, prevent, and eradicate known or unknown infections that may cause clinical disease or alter physiologic and behavioral responses or otherwise make the animals unsuitable for research.

Guide for the Care and Use of Agricultural Animals in Research and Teaching, Federation of Animal Science Societies, 3rd Edition 2010 pg. 25 The term biosecurity in an agricultural setting has historically been defined as the security measures taken to prevent the unintentional transfer of pathogenic organisms and subsequent infection of production animals by humans, vermin, or other means (i.e., bioexclusion). Biosecurity is also applied in the same context to agricultural animals used in the field of agricultural research, teaching, and testing... It is essential that the agricultural animal care staff maintain a high standard of biosecurity to protect the animals from pathogenic organisms that can be transferred by humans.

Beef Quality Assurance, Cattle Care & Handling Guidelines, Code of Cattle Care, 2015, pg. 2. Provide disease prevention practices to protect herd health, including access to veterinary medical care.

Dairy Quality Assurance, Section IV-B. – Dairy Health and Husbandry: About biosecurity, pg. 41. Biosecurity is a system of management procedures designed to prevent or greatly reduce the risk for the introduction of new diseases to a dairy operation.

PQA Plus Education Handbook, Chapter 1: Food Safety: Establish a Good Herd Health Management Plan: Biosecurity, pg. 9. Biosecurity is a combination of management practices

designed to prevent the introduction and transmission of diseases and disease-causing agents into a herd.

The Sheep Safety and Quality Assurance Program, Chapter 2: SSQA Safety Criteria Achieved by Implementation of Written SOPs, S.7 Implement biosecurity procedures to prevent introduction and/or transmission of animal diseases, pg. 10. In the context in which it is used in the SSQA program, biosecurity is defined as measures, management, and hygiene practices that decrease the risk of introducing or spreading infectious diseases or pathogens.

Information Manual for Implementing Poultry Biosecurity, Feb 2019, Biosecurity responsibility, pg.6. The biosecurity program should include training materials that cover both farm site-specific procedures as well as premises-wide and/or company-wide procedures as appropriate.

Introduction

Biosecurity is a system of management procedures designed to prevent or greatly reduce the risk for the introduction of new diseases to an animal facility. Biosecurity affects food safety, diseases that pose a risk to public health, and animal health, well-being and performance.

A biosecurity program is like an insurance policy for the health and productivity of the animal group. Animal health professionals must make decisions about the risk tolerance level they will accept, based on the chances of a disease occurring and the expected economic losses from the disease. When the risk tolerance level is determined, then appropriate risk management measures can be initiated. Biosecurity levels and concerns will differ with production and marketing strategies. Many diseases can cause decreased production and reproduction, sickness and death, and loss of marketing options.

Biosecurity has five major components

1. Assessment 2. Resistance 3. Isolation 4. Traffic Control 5. Sanitation

Assessment of the potential for disease organisms to enter a group of animals.

Resistance refers to an animal's ability to reject or contend with an infectious agent. An animal's resistance involves both specific immune training (vaccines) and general metabolic resistance mechanisms (nutrition, handling and environment).

Isolation refers to the prevention of contact between animals within a controlled environment. Minimize commingling and movement of animals. This includes all new groups as well as commingling between established groups. Facilities should be properly cleaned and disinfected between groups.

Traffic Control includes traffic entering an operation and traffic patterns within an operation. All people and animals must be considered. Regardless of the disease, it is always important for transport methods to have been adequately cleaned and disinfected. If possible, separate

equipment should be used for handling feedstuffs and feces. If equipment is used for a non-feedstuff task it must be properly cleaned and disinfected prior to handling feedstuffs again.

Sanitation addresses the cleaning and disinfection of materials, people and equipment entering the operation and their cleanliness on the operation. Equally important is for operation management to understand a basic fact of human behavior - *typically things that are hard to clean...will not get cleaned.*

Sources of new disease

- Replacement animals, nose to nose contact with neighboring animals, shows, educational events and fairs.
 - Obtain the health/vaccination history of new animals.
- Avoid (through health assessment) introducing animals that are:
 - Clinically diseased.
 - Incubating disease.
 - Potential carriers
- Isolate and observe new animals for a period of time before introducing to the group.
- Be a diligent observer of animals.
 - Know signs of important diseases, which include:
 - Watch for and report any sudden, unexplained death loss.
 - Necropsy every dead animal, unless you are certain of the cause of death.
- Dispose of dead animals properly.
- Minimize facility traffic, including pets, wildlife, rodents, birds, and insects.
 - Evaluate the impact of control efforts on resident wild populations
- Feed and water should be uncontaminated
- Employees moving between groups of animals
- Equipment
- Waste handling.

General Guidelines for Facility Biosecurity Standard Operating Procedures

1. Minimize visitors and traffic at the facility and post signs at the entrance to inform visitors to proceed to a designated area before entering the facility proper.
 - Inform all scheduled visitors of the biosecurity practices before they arrive
 - Provide written biosecurity protocols for regular business visitors (e.g. feed or fuel delivery)
 - Post signage to let people know you have biosecurity measures in place and they should check-in with someone before entering the facility
 - Provide any required site specific protective clothing (e.g. boots, coveralls, gloves, etc) for visitors.
2. Do not share equipment between sites without thoroughly cleaning and disinfecting between each movement.
 - Establish a perimeter buffer area for facility equipment and wash it each time it crosses the perimeter buffer.

- Require parking in designated areas.
 - Always wear clean clothes when coming in contact with animals
 - Use dedicated clothing and separate boots when crossing each line of separation and wash and disinfect them regularly.
3. Make sure healthy animals are kept away from disease exposure (e.g. wildlife, contaminated materials, sick livestock, or sick people). New animals should not be introduced directly into the group. Instead, all new arrivals should be isolated to a different location until they can be inspected and proven to have cleared any illnesses.
 - Only purchase animals from known sources and make sure they appear healthy and have been inspected by a veterinarian.
 - Prevent contact between wildlife and healthy livestock
 - Implement insect control plans
 - Isolate sick animals, work with the attending veterinarian or local veterinarian, and avoid using the same equipment and clothing between sick and healthy animals.
 - Keep open areas and unused buildings clean and tidy to avoid attraction of birds or rodents.
 - Minimize wild birds around buildings and animals
 - Follow rodent control programs and take care of feed storage areas. Spilled feed should be cleaned up immediately to minimize attracting pests.
 4. Routinely clean and disinfect animal housing facilities and equipment.
 - Animal housing areas should be cleaned between each animal group
 - Clean all surfaces exposed to manure, dirt, and debris
 - Reduce large amounts of material with tools first and follow-up with a rinse before proceeding to cleaning. Surfaces cannot be properly cleaned if the surface is compacted with organic material such as manure.
 - Use hot water, if available; apply soaps and disinfectants to surfaces according to the manufacturer's directions.
 5. Observe animals and keep health records.
 - Walk through and observe animals daily so any animal health concerns can be identified quickly.
 - Keep health records on every animals
 - Review and update vaccination and treatment protocols with the attending/local veterinarian at least twice a year
 - Contact the attending veterinarian immediately if there are unusual deaths or illnesses.
 - Dispose of carcasses appropriately
 6. Maintain accurate records related to biosecurity.
 - Keep a log of traffic visiting the facility each day; consider asking individuals for information regarding their recent contact with other animals or facilities.
 - Maintain required records for animal movements both onto and off of the facility
 - Animals should be individually identified to improve the ability for the facility to talk about health status, treatment needs, antibiotic withdrawal, and other individual needs.

7. Educate and train management and employees to recognize and report diseases and require them to follow the biosecurity plan.
 - Educate facility personnel to recognize and report diseases
 - Train facility personnel and require them to follow the biosecurity plan
 - Ensure facility personnel have a way to alert facility manager and/or the attending/local veterinarian of a sick animal or suspected disease
 - Facility visits by employees that are ill should be monitored by the facility manager to minimize human to animal infections

8. Clean feed, water and supplies
 - Always supply animals with a clean and controlled water source
 - Know the source of feed and any potential contamination along the supply chain
 - Store feed in a clean and secure area and keep wildlife and rodents out of feed
 - Always read and follow labels when storing vaccines and medications
 - Some vaccines are sensitive to light and temperature
 - Consult with the attending/local veterinarian if there are questions regarding vaccines or medications
 - Use antibiotics appropriately and with the approval of the attending/local veterinarian. Antibiotic resistance is a serious threat to animal health.

Summary

The goal of biosecurity is to protect animals from disease. This is accomplished through disease resistance and preventing, minimizing or controlling cross-contamination of body fluids (feces, urine, saliva, respiratory secretions, etc.) either directly - animal to animal, or indirectly – such as animal to feed to animal or animal to equipment to animal. Biosecurity management and practices are designed to prevent the spread of disease by minimizing the movement of biologic organisms, such as viruses, bacteria, rodents, etc., within (internal biosecurity) or onto (external biosecurity) an operation. Biosecurity can be very difficult to maintain due to the complex relationships between management, biologic organisms and biosecurity.

All units are required to maintain a facility plan that captures the intent of this document.

References

(Beef) <https://www.bqa.org/Media/BQA/Docs/nationalmanual.pdf>

(Dairy) <https://www.bqa.org/Media/BQA/Docs/dairybqamanual.pdf>

(Swine)

<https://d3fns0a45gcg1a.cloudfront.net/sites/all/files/documents/PQAPlus/V3.0/BinderMaterial/TAB%20201%20PQAhandbook.pdf>

(Sheep) <https://animalagriculture.org/Resources/Documents/Conf%20-%20Symp/Conferences/2015%20Annual%20Conference/Speaker%20Presentations/Small%20Ruminant/SmallRuminant-Logan-sheepqualityassurance.pdf>

(Sheep) <https://d1cqrq366w3ike.cloudfront.net/http/DOCUMENT/SheepUSA/2013%20Updated%20SSQA%20Manual.pdf>

(Laboratory animals) https://www.biosafety.be/sites/default/files/labanimfacilities_sbb_2011_2505_47.pdf

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(Poultry) <http://poultrybiosecurity.org/files/Poultry-Biosecurity-Info-Manual.pdf>