

BIOSECURITY: DAIRY



BASICS

OVERVIEW

- Biosecurity procedures are management practices implemented to prevent the introduction of pathogens, minimize chemical or biological hazard impacts and control the spread of disease within and beyond the borders of any livestock operation. It also has become a good strategy to protect the food chain against bioterrorism attacks.
- A biosecurity program also improves animal and public health. The transmission of diseases such as paratuberculosis, tuberculosis, brucellosis and foot and mouth disease, for example, can all be addressed by a well-designed program.
- The biosecurity principals are: isolation, sanitation and restricted movement. Therefore, stricter quarantine procedures, more thorough sanitation, increased testing for pathogens and less contact between animal groups are all components of the program.
- Implementation of a biosecurity program should start with the identification of the risks and hazards within an operation that can potentially result in disease outbreaks.

GEOGRAPHIC DISTRIBUTION

Worldwide

SIGNALMENT

Dairy cattle

General Considerations

- Biosecurity programs should be designed by the owner with the help of animal health care professionals with the aim of preventing the introduction of new disease(s) onto the farm and helping to prevent the transfer of infectious disease within the farm environment. Biosecurity should be inherent within all production management decisions.
- Biosecurity plans are well outlined in many texts and online sources; however, a biosecurity plan is only as effective as the commitment to its' implementation. The management must both educate their employees and demonstrate their own active practice of posted biosecurity measures. Ongoing training for all members of the production team, including management, is essential. Training, Safety Data Sheets, and management protocols should be made available in languages commonly spoken by all workers involved in the production.

Biosecurity planning

- Decide on whether the farm will maintain an open or a closed farm operation. This decision will direct risk assessment and biosecurity planning. The goal for most dairy operations is to expand through internal growth with the use of artificial insemination,

enabling maintenance of a closed herd. If replacements are bought in or bulls are being used for breeding then biosecurity plans will be more complex.

- Farm priority plans need to be developed allowing each farm enterprise to evaluate and determine risk factors for specific diseases in their area.
- Methods of animal selection will be determined based on the open/closed farm decision.
- Quarantine programs should be in place for all new stock or any animals that have temporarily left the premises. Sufficient time and distance from other stock should be determined on a per farm basis. This often comes into play when dairy heifers are reared in an off-site facility.
- All new animals should have a thorough physical evaluation including relevant serology and fecal testing to exclude or treat those animals carrying specific diseases and parasites respectively. Keep in mind that disease such as Johne's will be difficult to test for in replacement heifers under 2 years old since clinical signs and bacterial shedding are rare in young animals. For such diseases, the health history of the herd from which animals are being purchased is important.

General Farm Biosecurity Management:

- Scrub brushes to remove all organic debris from boots prior to entering and exiting the facilities should be readily available. The scrub brushes should be cleaned and disinfected according to a regular schedule as well.
- Disposable plastic booties can be used over shoes if designated boots for visitors are unavailable.
- Chemical disinfectants or travel-path footbaths should be well laid out.
- Foot bath solution changes should be made regularly, according to use.
- Paper coveralls may be a desirable option depending on the operation.
- Total exclusion of off-farm vehicles via restricting parking to specific zones will eliminate transfer from tires, etc.
- Strict use of a visitor's log: name, date and time of visit logged for tracking purposes in case of disease outbreak should be standard operating procedure.
- Only those individuals with immediate business or a "need to enter" should be allowed on the premises. Creating an area for designated farm business restricts the unnecessary entrance of outside personnel and acts as a good deterrent to disease transmission.
- Posted rules, and written standard operating procedures should be posted at all entrances.
- A plan should be written and all staff trained on what actions should be taken in the event of a disease outbreak. Regular refresher training will decrease knowledge gaps and cultivate a 'safety first' mindset. Veterinarians should be well versed in reportable diseases and local emergency preparedness plans.

- Fences or barriers should be installed to discourage wildlife, rodents and pests. Dogs and cats also may carry abortogenic agents (i.e., *neospora caninum* and *toxoplasma gondii*) and their access to feed areas should be controlled.
- Farm risk assessment should include input from local extension scientists, university animal scientists, local veterinary practitioners, the public health department, as well as other local producers.

Specific Considerations by Target Area:

- Factors constituting potential disease exposure include: new animal arrivals (including new embryos and semen), feed, water, direct animal contact (fence line, show/fair traffic, different age groups intermixing), wildlife (including insects), vaccination/treatment of multiple animals without changing needles, and outside vehicles and visitors entering onto the property.

Purchased animals	Test every new animal and keep them in quarantine until all vaccination and testing regimens are completed. Pregnant heifers should have milk cultures performed directly upon start of lactation, focusing on contagious organisms such as <i>S. aureus</i>. Buy semen, embryos or bulls from suppliers with documented infectious disease control programs in place. Bulls should be tested for BVD, <i>trichomonas foetus</i>, <i>campylobacter fetus</i> and other sexually transmissible diseases prevalent to the region.
Maternity pen	Designate a specific maternity area away from the rest of the herd. Thoroughly clean this area of all organic debris, pressure wash and then use approved disinfectants, ensuring adequate contact time is observed for the chosen disinfectant. The frequency of cleaning depends on the stocking density and bedding material; however, the ideal is to clean individual pens after each birthing.
Feed and water supply	Test every new lot of hay or load of feed. All feedstuffs should be tested for microbial content, including molds, aflatoxin and <i>Salmonella</i> spp. Ask your feed suppliers about quality control measures and if necessary, make an inspection on their site. Do not handle feed with equipment that was used to handle manure. Keep feed and water storage protected from rodents and other potentially diseased animals. Protect wells from run-off and test the water once a year for pollutants/pathogens.
Rodents	Have a written pest control plan in place.
Vaccination	Use appropriate vaccine handling and administration techniques. If vaccinating against <i>Brucella abortus</i> it is important to clean the tattooer in disinfectant after each use so as not to spread blood-borne pathogens. This is true for any procedure involving blood (no reusing needles, scalpel blades, or rectal sleeves if blood is present).
People	Control visits to the facility; provide clean clothes and boots to visitors. Employ boot covers or boot wash stations at both entry and exit. Clearly define and follow traffic patterns throughout the facility. Traffic should be from younger to older animals with boot wash/disinfection between each group.

Vehicles	Restrict vehicle movement. Cars/trucks from outside of the property should stay in a secure entrance area. Feed truck activity should be conducted away from animal areas. Feed workers should wear clean clothes/boots, and employ a boot brush and adhere to disinfecting wash protocols when exiting and entering the vehicle.
Environment	Properly remove, treat and dispose of manure. Avoid run-off through development and implementation of an effective manure and nutrient management plan. Keep animals away from streams and undeveloped/water sources Do not spread manure from livestock shows and fairs
Neonates	Make sure calves receive at least 4L of pathogen-free colostrum soon after birth (within 2 hours is ideal). Prevent mixing of age groups. Buildings (including all equipment, water buckets and utensils) should be thoroughly cleaned and disinfected between use by each age group.
Other animals	Minimize contact with wildlife. Minimize fence contact between animals.
Milking	Sample the bulk tank at least monthly and preferably bi-weekly for problem organisms (i.e., <i>S. aureus</i> , <i>M. bovis</i> , etc.). Animals with mastitis should be milked separately and after the healthy stock. Milking equipment and bulk tanks should be properly cleaned and disinfected after each milking or pick-up respectively.
Sick animals	Immediately segregate sick animals to a hospital pen if possible. This area should have a separate water supply and foot baths for personnel to utilize.
Pesticides and chemicals	Identify and label pesticides and chemicals and store in a secure area. Choose the right disinfectant for the surface and pathogens being targeted. Consult and store current copies of all Safety Data Sheets on the premises.

Zoonotic Risks

- Zoonoses are a very real and present danger in any livestock production system. Specific training needs to be implemented so that all personnel are aware of both risks and methods to prevent transmission. Laws regarding reportable diseases should be a part of this training.

SEE ALSO

- Cleaning and Disinfection (www.fiveminutevet.com/ruminant)
- Biosecurity: Beef Cow/Calf (www.fiveminutevet.com/ruminant)
- Biosecurity: Cervidae (www.fiveminutevet.com/ruminant)
- Biosecurity: Goats (www.fiveminutevet.com/ruminant)
- Biosecurity: Research Herds (www.fiveminutevet.com/ruminant)
- Biosecurity: Sheep (www.fiveminutevet.com/ruminant)

SUGGESTED READING

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