

Biosecurity : Infectious Disease Management

Biosecurity is the most powerful means available to minimize the spread and the impact of many infectious diseases.

To many involved in the cattle industries biosecurity concepts remain somewhat vague and appear impractical. Some specialists will distinguish between management practices as biosecurity versus biocontainment. Here we use the term biosecurity to refer to management and hygiene practices that reduce the risk of introducing or spreading infectious disease agents.

Infectious diseases can be characterized by the nature of the infectious agent and how it interacts with its hosts and environment. On this basis the risk factors for introduction and spread of the disease can be identified, and management can be modified to minimize or reduce these risks. Since multiple disease agents share common means of transmission, management changes that help reduce spread of one disease are also effective against other disease problems. For example, management that limits manure contamination will effectively decrease transmission of all problems that spread by the fecal-oral route. On the other hand, no single management practice will minimize all disease threats. Therefore, the challenge we face in improving our safeguards against disease is to carefully think through the many management features of a dairy and consider what changes will be practical and useful.

For example, quarantine can help to limit the introduction of infectious agents that induce acute disease, but quarantine alone is an insufficient measure for preventing entry of many important infectious diseases. Quarantine will not work to prevent the introduction of diseases with chronic asymptomatic carrier states such as Johne's disease, BVD, IBR, salmonellosis, BLV and contagious mastitis. For some diseases, the best method of protection is testing prior to purchase. Screening tests can be very useful for avoiding brucellosis, tuberculosis, contagious mastitis, BVD and BLV. For Johne's disease, screening tests alone are inadequate and knowledge of the Johne's disease status of the herd of origin is probably more important. Appropriate biosecurity measures vary with the mode of disease transmission, the duration of infectious agent shedding, the presence of asymptomatic carriers, and the reliability of screening tests for the disease. Other means for preventing spread of infectious diseases include: prepurchase vaccination and testing or screening for disease, knowledge of the herd of origin for new purchases, minimization of feed and environmental contamination, disinfection of instruments, minimized contact between sick and healthy cattle or dams and calves, minimized contact with infected body fluids (blood, nasal, salivary and uterine fluids), minimized fecal contamination, fly and other insect control programs, and minimized contact with other species.

This list of considerations may seem daunting. Our goal is to provide you with ideas for Standard Operating Procedures that you can employ to help limit infectious disease introduction or spread. We will distinguish between "Importation Biosecurity Measures" that limit introduction of problems onto the operation, and "Internal Biosecurity Measures" that help to limit spread of disease between resident animals. This issue will begin with some of the risks associated with incoming traffic to the dairy.

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Importation Biosecurity: Standard Operating Procedures

Importation biosecurity includes measures to prevent introduction of infectious agents from sources that originate off your operation. Traffic onto a dairy includes off-farm vehicles and people that either deliver or pick up materials, supplies, milk, feed, dead animals, etc. It is unrealistic to consider eliminating all on-farm traffic, so producers need to implement procedures to minimize the risks from this traffic. Purchased animals and feeds represent a special threat, because they not only arrive at the dairy, but are integrated into its operation. Biosecurity measures for these purchases will be covered separately.

CONTROL ACCESS TO YOUR DAIRY

1. Think through all the various visits and visitors to your dairy. Make a list.
2. Prioritize visits based on which ones are absolutely necessary, versus important and desirable, versus unnecessary.
3. Consider portals of entry to the dairy. To control access there should be clear indication of a single appropriate entry point for visitors of all types. This can be accomplished with signs or entry gates.
4. Control all visits by defining and enforcing traffic rules. Visitors represent different levels of risk depending on where they come from, what they can potentially introduce to the dairy, and where they are allowed access.
5. Require all visitors to check in at the office. Consider:
 - a. Is the office located and identified appropriately?
 - b. Is there someone at the office, or a means for visitors to contact you without wandering around?

MANAGE PERSONNEL AND MATERIALS BROUGHT TO THE DAIRY

1. Some visits are mandatory (veterinarians, consultants, delivery, milk pick-up, etc.). Meet with these people to discuss and agree upon an appropriate procedure for each.
2. Determine which visitors have access to feed and animal areas. Enforce rules to restrict access for all others. Limit traffic and assure cleanliness of feed storage and feeding/watering areas.
3. Consultants, veterinarians, buyers, who will directly access and contact animals and feed should wash and disinfect footwear before entering, plus maintain clean clothing and personal hygiene. Rubber boots that are easily cleaned should be worn by all such visitors.
4. Provide disposable boots to other occasional visitors.

CONTROL TRAFFIC OF ANIMAL MATERIALS

1. Store feed so that it will not contact drainage from traffic, animal areas, manure. Control/prevent access to feed by wildlife and other animals. For example, dogs are the definitive host for *Neospora*, that causes abortion, and can infect cattle via their feces.
2. Livestock delivery vehicles should be clean and should load or unload so that contamination from other operations is minimized/eliminated.
3. Dead animals should be transported to a distant site for pick-up. Vehicles for picking up dead animals should be routed to avoid animal and feed areas.