



Guarding Against the 'Trojan Horse': Practical Biosecurity Measures for Dairy Farms

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Part of Good Management Practices for Biosecurity on cattle operations includes management to prevent the entry of diseases onto the farm as well as the prevention of disease transmission within the farm. Some of the areas a producer needs to address include:

- √ Know the health history of the herds from which cattle are purchased.
- √ Know the health status of animals brought into the operation.
- √ Herd veterinarian talks to the seller's veterinarian prior to buying animals.
- √ Never bring in animals without knowing their vaccination history.
- √ Never buy animals from a herd that has mixed origin cattle.
- √ Transport animals in clean vehicles.
- √ Have a control program for outside animals which could spread disease (rodents, etc.).
- √ Loading area is located at the perimeter of the operation.
- √ Dead animal pickup area located so rendering trucks do not contaminate the operation.
- √ Limit people's access to the cattle pens, feed mixing and storage area, and treatment area.
- √ Keep a record of visitors to the operation.

(Adapted from: *Biosecurity Basics for Cattle Operations and Good Management Practices (GMP) for Controlling Infectious Diseases*, Nebraska Cooperative Extension G00-1411-A, 2000)

What is missing from this list, though, is the question on pre-purchase testing and examination. Annually, approximately 120,000 to 130,000 head per year are imported into California alone (in 2004, approximately 120,000 came into the state), at a rate of about 8,000 to 10,000 per month. These numbers include primarily Holstein and Jersey heifers but also some cows and bulls. Heifers are imported from 35 different states per year from as far away as New Hampshire, and in any one month, 20 to 25 different states ship heifers to California. Prior to the closure of the Canadian border to cattle movement, 300 to 500 Canadian heifers came into California per month. (*Personal communication: Mark Ashcroft, California Department of Food and Agriculture, Animal Health Branch, Section Leader, Interstate Livestock Movement.*)

Several recent reports from other important dairy states demonstrate the vulnerability of dairy farms with regards to purchased cattle. In Wisconsin, less than 50% of producers who had recently purchased cattle asked about the herd of origin with regards to disease status, and less than 20% did any testing of the animals they purchased.¹ In Idaho, 80% of herds undergoing expansion did not require health testing except for mastitis.² Only about 40% of producers purchasing bulls quarantined them on arrival and only about 25% required a breeding soundness examination.³

Nearly 60% of herds undergoing expansion in the upper Midwest obtained their cattle with little health histories, and less than half required any health testing.⁴ Despite high rates of vaccination of these herds, all owners and managers indicated that biosecurity was compromised as a result of expansion. Canadian farms that purchased their replacement animals were associated with higher seroprevalence for Johnes' disease in another study.⁵

Why not just isolate the cattle when they come onto the farm? This is a sound idea, but as was the case in the Idaho study, it is not often done. Few farms have allocated space to isolate animals for the recommended three weeks before herd entry. Also, producers may not be able to detect disease carrier animals if they do not become ill or show any clinical signs while in isolation. For example, Bovine Viral Diarrhea (BVD) Virus has the ability to induce a persistently infected carrier state and the carrier is able to shed millions of viral particles.⁶

Why not just vaccinate? Some of the important agents of disease (such as *Salmonella* and *Mycoplasma* spp.) may not be vaccinated for effectively and some animals can slip through the vaccination process for some of the other diseases. Severe outbreaks of diseases like BVD have occurred because of differences in viruses with little vaccination cross-protection.⁷

What remains to prevent disease from entering the herd is to identify infected animals through examination and testing. Some producers may not wish to test incoming animals because of the perceived costs. In one study using BVD as an example, modeling whole farm management and the costs of disease indicated that maintaining a herd free of BVD contributed to farm income and that the least cost disease control program was not always the preferred solution to optimize farm income.⁸ "When a farm is at risk for more diseases, biosecurity measures will become more beneficial."⁹

Disease agents associated with outbreaks of clinical disease in dairy cattle that can be relatively easily detected include: BVD, *Salmonella*, *Mycoplasma bovis* (mastitis), *Staphylococcus aureus* (mastitis), *Streptococcus agalactia* (mastitis), and footwarts. Other, insidious diseases, such as Bovine Leukosis Virus (BLV) and Johnes' Disease, do not cause disease in outbreak form but can cause clinical disease, eventually, and may have effects on marketability of animals later on. Examining cattle upon arrival to the farm for diseases that are endemic in the state can not only aid in the control of ever-present disease threats, but can also serve as a measure of biosecurity for foreign animal diseases, which could devastate the state's economy because of stop movement orders for cattle and milk, and trade barriers.

What you should have your veterinarian look and test for depends on what types of animals you are purchasing and how much risk you are willing to take with your herd.

- Bulls
 - Examination for footwarts
 - Palpation of scrotal contents and seminal vesicles, Tritrichomonas testing and semen testing, if necessary
 - Ear notch / blood for BVD PI testing
 - Fecal sample for *Salmonella* culture
 - Blood sample for Bovine Leukosis Virus
 - Blood sample for Johnes' ELISA (if over 2 years of age).
- Adult cows
 - Examination for footwarts
 - Ear notch / blood for BVD PI testing
 - Fecal sample for *Salmonella* culture
 - Blood sample for Bovine Leukosis Virus
 - Blood sample for Johnes' ELISA (if over 2 years of age)
 - Milk sample for mastitis-pathogen culture (Blood agar and *Mycoplasma* plates)
 - Pregnancy status.
- Heifers
 - Examination for footwarts
 - Ear notch / blood for BVD PI testing
 - Fecal sample for *Salmonella* culture
 - Blood sample for Bovine Leukosis Virus
 - Blood sample for Johnes' ELISA (if over 2 years of age).

Just the act of looking at cattle more closely before purchasing could identify important diseases that could cause animal losses and economic damage to the farm. Pre-purchase testing can identify readily transmissible diseases in carrier animals. Improving the overall biosecurity on dairy farms could not only help prevent transmission of endemic diseases of economic importance, but also foreign animal diseases, such as Food and Mouth Disease, should it enter the state.

References

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