

**K**nowledge is power, especially as it applies to protecting your herd from communicable diseases.

“One of the main purposes of a biosecurity program is to prevent disease from entering your herd and, if it is already in your herd, preventing it from spreading,” says veterinarian Boyd Parr, director of animal health programs for the state of South Carolina. “We have best management practices that, when implemented, do just that.”

He notes that these can range from purchasing only certified disease-free replacements to isolating, testing and, when necessary, culling infected animals. “If any disease does get in your herd, you will detect it soon and be able to deal with it,” Parr says. “That is what a good biosecurity plan does.”

While the objectives of a herd biosecurity program might seem simple and straightforward, Parr points out that the process involved in successfully implementing such a program might require some fundamental changes in how business is conducted.

He cites as an example how commercial beef producers who have adopted biosecurity protocols in his state are influencing how seedstock producers view John’s control programs. As South Carolina’s designated John’s coordinator, Parr has seen a marked increase in the

participation level of seedstock producers since he and his colleagues introduced a biosecurity education program targeting the owners of commercial cow-calf operations.

“Now, when these calf producers go buy a bull, they ask the seedstock guy if he is on our John’s program and if he is using best management practices,” Parr says, noting that once bull customers started asking about John’s, their suppliers started participating in the program.

#### Know your herd

For veterinarian Patrick Webb, who has been educating livestock producers on biosecurity matters since 2001, the adage ‘what you don’t know won’t hurt you’ couldn’t be more wrong as it applies to undetected diseases in a seemingly healthy herd.

He says anyone who is serious about initiating herd biosecurity measures should begin by consulting his or her veterinarian. “No one knows your animals better than your herd veterinarian,” he says. “It is good to know what you have and get a profile on your herd as far as what diseases you have had on your farm in the past.”

Webb adds that from that point the producer and veterinarian can begin to develop a comprehensive health program tailored to the needs of that particular operation. This might include parasite control, vaccination and, in some cases,

testing for the diseases that might be present but not evident in the herd.

One recent innovation that has dramatically reduced the complexity and cost of the initial herd screening for the presence of diseases like bovine viral diarrhea (BVD) and John’s is batch testing. In the case of BVD this means cutting a small ear notch — the size of a pie-shaped piece taken from a dime — from

each animal being tested. The notches are then placed in individual tubes, labeled and submitted. Results are e-mailed to the participant the next business day after receipt of the samples.

Ear notches can be frozen for up to 30 days, facilitating sampling over an extended period of time. This is particularly useful for operations that, logistically, cannot collect all their samples at once. To reduce the overall cost of the initial testing, contributed tissue samples are pooled (usually 28 or fewer tissue samples per pool). If the test is positive, all animals in that pool are tested individually to determine the exact source of the infection.

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— Patrick Webb

*Safeguarding*

**Animal Health**





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A similar pooling protocol is used for the initial screening for John's.

**Screen all new animals**

Webb notes that one of the first considerations when implementing a biosecurity plan is to establish a protocol for introducing outside animals into a herd.

"If you are bringing new stock into your herd, it is a very good idea to know something about their history," he says, recalling that in the past, as a large animal veterinarian in private practice, his more savvy clients would request he make a call to the operations that were supplying them with their new cattle. "That way I could get an idea of what the animals were vaccinated for and whether or not there were any disease events on the farm that I should know about."

Webb adds those purchasing feeder calves for backgrounding or finishing should look to state-sanctioned calf preconditioning programs that confirm that specific vaccination protocols have been followed. "With programs like Iowa's Green Tag program you get some verification that something was done to these animals that meets a set of standards," he says.

The Iowa Green Tag feeder cattle program, initiated in the 1960s and administered through veterinarians, certifies that the cattle have received a specified vaccination program, which includes at least one vaccination for the major infectious diseases [infectious bovine rhinotracheitis (IBR), parainfluenza-3 virus (PI<sub>3</sub>), BVD, bovine respiratory syncytial virus (BRSV), a seven-way clostridial and *Haemophilus somnus*] and a treatment for external parasites.

Iowa and other states have since developed similar programs for breeding stock and replacement heifers.

**Isolation: a powerful tool**

Webb points out that even with a comprehensive history on new livestock, there are still unknowns.

"Livestock acclimate to a certain disease profile on a particular farm, and any time you vary that profile by introducing animals that were raised in a different disease profile there is risk," Webb says, noting that this is one of many reasons why biosecurity protocols don't end with the purchase of an animal.

Once animals have been purchased, they should be separated from the seller's herd and not commingled with other animals. Transport vehicles should be appropriately sanitized, and sharing of trailers with other farms or purchasers should be avoided.

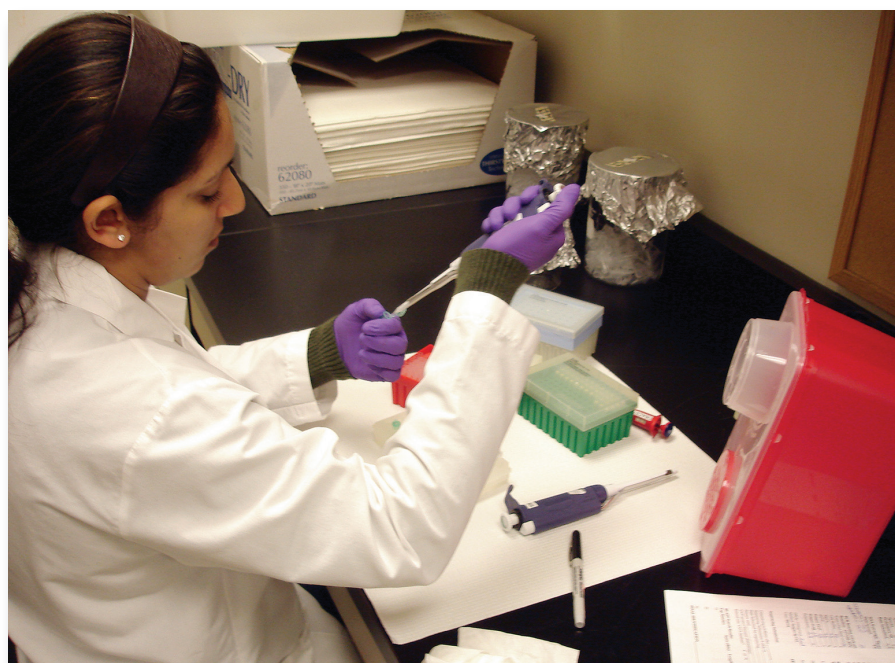
Isolating incoming cattle is effective for preventing diseases with short incubation periods. Generally, a quarantine period of three weeks to a month will allow most short-incubation diseases to be expressed before the new animals are introduced into the established herd. Two examples of such diseases are BVD in its nonpersistently infected form and BRSV.

Isolation is considerably less effective in identifying animals with livestock diseases that do not immediately manifest themselves with obvious symptoms. John's disease (*Mycobacterium paratuberculosis*) and bovine leukosis virus (BLV) are two common cattle diseases that are known for the extended period in which infected and shedding animals exhibit no outward symptoms.

Unless tested specifically for these diseases, there is little likelihood that isolation alone will help identify infected animals.

Webb points out that while testing of newly purchased cattle for these types of diseases can be a useful tool to decrease the risk of introducing infected cattle into a herd, it should be understood that these tests possess varying degrees of sensitivity and seeking a professional opinion makes a lot of sense.

"A good first step is to work with your herd veterinarian to develop a new animal



► **Above:** Screening for in-herd diseases can be an important part of biosecurity.



► **Right:** Isolation pens should never be situated above or upstream from the main livestock enclosures.

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introduction plan,” Webb says, adding that a veterinarian will also be able to help coordinate testing and waiting periods and will know the appropriate length of time animals need to remain in isolation.

An alternative to individual testing of newly acquired cattle is to test the source herd prior to purchase or require that the animals be from certified test-negative herds. Certification programs for livestock diseases such as Johne’s and brucellosis (Bang’s disease) are now in place in a number of cattle-producing states.

### **Isolation means isolation**

Webb notes there are some important

factors to consider when creating an isolation site. “Ideally, it should be on another site as far away from the main herd as possible,” he says. “If that isn’t possible, make sure that there are no direct or indirect contacts between the new animals and the herd.”

At the very least, an isolation area should be designed so that new arrivals will not share the same air space, food or water with the established herd, he says. One major consideration when deciding where to locate isolation pens is not to build them upstream or above the main livestock area. This should eliminate any potential for runoff and drainage from the isolation areas into the main livestock areas.

Because feces plays such an important part in spreading livestock diseases, particular attention should be paid to make sure feces from the isolated animals is not inadvertently transmitted into the main herd.

“This means making sure that separate pairs of boots and coveralls are used for the new animals and that there is a definite cleanup procedure in place between tending the new and the old animals,” Webb says.

The same procedures apply to all feeding and manure removal equipment, and the main herd should not have access to pastures that have been used by the new animals.

Webb observes that while newly acquired animals are obvious candidates for isolation,

beef producers who are serious about biosecurity should, at the very least, consider the risks associated with removing from and then reintroducing an animal back into a herd. He cites, as an example, animals that are taken to fairs and exhibitions where other animals are present.

Similarly, a beef producer who is concerned about biosecurity should consider the risks involved in renting bulls, boarding cattle or leasing pasture recently used by livestock of an unknown origin.

### **Beware of uninvited guests**

For some beef and seedstock producers, wildlife can pose a serious biosecurity risk. In

Michigan, the spread of bovine tuberculosis to cattle has been linked to hay contaminated by infectious white-tailed deer. Similarly, cattle in several states have contracted salmonella from grain and other feeds contaminated by starling, house sparrow and pigeon feces.

While it is next to impossible to completely prevent the possible contact of wildlife with livestock, some measures can be taken to reduce the likelihood of contamination. These would involve limiting access of deer into areas where cattle are being fed. Research conducted by the National Wildlife Research Center shows that specific types of fencing and guard dogs can be effective in deterring white-tailed deer.

To control starlings, house sparrows and pigeons Animal and Plant Health Inspection Service (APHIS) researchers recommend depriving them of a feed source, enclosure and habitat modification. This usually means cleaning up feed spills immediately after they occur, modifying or eliminating roosting and nesting sites, and periodically locating and destroying eggs and nests.

Before embarking on an eradication program, proper identification of all bird species present is important because many birds are protected by federal laws. These laws do not apply to pigeons, starlings and house sparrows.

