

# Score One for the Team

Results from National Johne's Working Group studies show, conclusively, best management practices can cut the infection rate in test-positive herds and reduce the likelihood of introducing the disease into noninfected ones.

by Ed Haag

A longtime point of contention is no longer disputable. Best management practices (BMPs) associated with controlling Johne's disease do work. Members of the National Johne's Working Group have determined that these practices play more than one role in today's effort to reduce and eventually eliminate Johne's. They include helping stop the spread of the disease in infected herds and acting as a line of defense

against its introduction into noninfected herds.

"There are now biosecurity practices that will minimize the risk of getting the disease," says Ken Olson, coordinator for the National Johne's Education Initiative.

These practices have been identified and confirmed as effective — in both reducing the spread of the disease within a herd and

cutting the risk of introducing it into a herd — by bovine animal health specialists engaged in herd test projects across the country.

"Our goals in the Johne's program are to minimize the risk of contracting the disease in herds that aren't infected and to minimize the impact and work toward eliminating it in herds that are infected," Olson says.

Boyd Parr, the state of South Carolina's director of Animal Health Programs and designated Johne's coordinator, agrees. "The Johne's demonstration projects are giving clear indications that management practices will reduce intra-herd rates as well as offering some preventative benefits," he says.

"That is now a given."

He notes that while dairy herds are much more

likely to be exposed to and affected by Johne's, it is estimated by the National Animal Health Monitoring System (NAHMS) that 7.9% of U.S. beef herds are infected with

the disease. NAHMS tested 10,372 cows in 380 herds from 21 states to establish its prevalence estimate.

Most Johne's transmissions are between infected adult cattle and calves and occur when the younger animal consumes contaminated manure or milk/colostrum. Calves are most susceptible to Johne's infection during the first few weeks of life.

In the infection process, the Johne's bacterium — *Mycobacterium paratuberculosis* — enters and slowly spreads in the small intestine, leading to a thickening in its wall, which, in turn, reduces the intestine's ability to digest nutrients. After a prolonged subclinical period — two to five years — it manifests itself clinically in chronic diarrhea, weight loss, infertility and eventually death.

According to a bulletin issued by California Cooperative Extension, beef operations are particularly vulnerable to Johne's transmission through infected bulls. The *M. paratuberculosis* organism has been detected in fresh semen and in accessory sex organs of infected bulls, and researchers have determined that a cow can be infected through a natural-service mating.

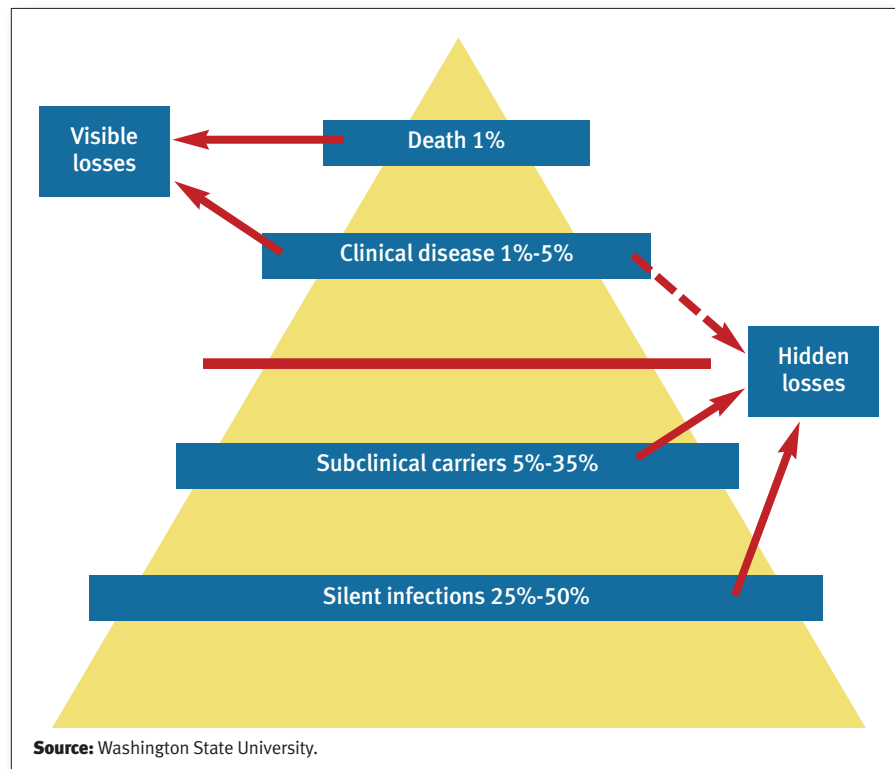
Also, while in the pasture for breeding, infected bulls will shed the organism in their feces, inadvertently exposing calves to Johne's at a point in time when they are most vulnerable.

Because commercial calf producers rely heavily on reproductive longevity of their cows to recover their rearing costs and turn a

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Fig. 1: Losses due to paratuberculosis



► Johne's losses in commercial beef herds are not always evident, but they can have a substantial effect on the bottom line.

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profit, the loss of seven to nine years of calf production in one or more cows can have a serious effect on their bottom line.

**BMPs that work**

For beef producers who are interested in taking a proactive stance on Johne's prevention, but are not inclined to enter a testing program, knowing that there are practices that will limit the effects of and exposure to Johne's is good news, Parr says. "The beauty of these best management practices is that they work for Johne's but are not specific to Johne's," he says. "They are best management practices that are going to work for a lot of diseases."

A bulletin issued by the Colorado Voluntary Bovine Johne's Disease Control Program points out that salmonellosis, colibacillosis, coccidiosis, cryptosporidiosis, intestinal nematodes, and rota- and

coronavirus infections are just some of the more common diseases transmitted through fecal-oral pathways that these same best management practices will help control.

**1. Close your herd to higher-risk animals**

Parr notes that one of the most common ways Johne's enters an uninfected beef herd is through the introduction of an animal that is infected. Because of this, he and his colleagues in South Carolina have focused on educating commercial calf producers on the importance of purchasing bulls and replacement heifers from operations known to use Johne's best management practices and, when possible, from Johne's program herds that test negative for the disease.

"With this new awareness, these calf producers started asking, when they went to buy a bull or replacement heifer, if their

seedstock producer was on the Johne's program," Parr says.

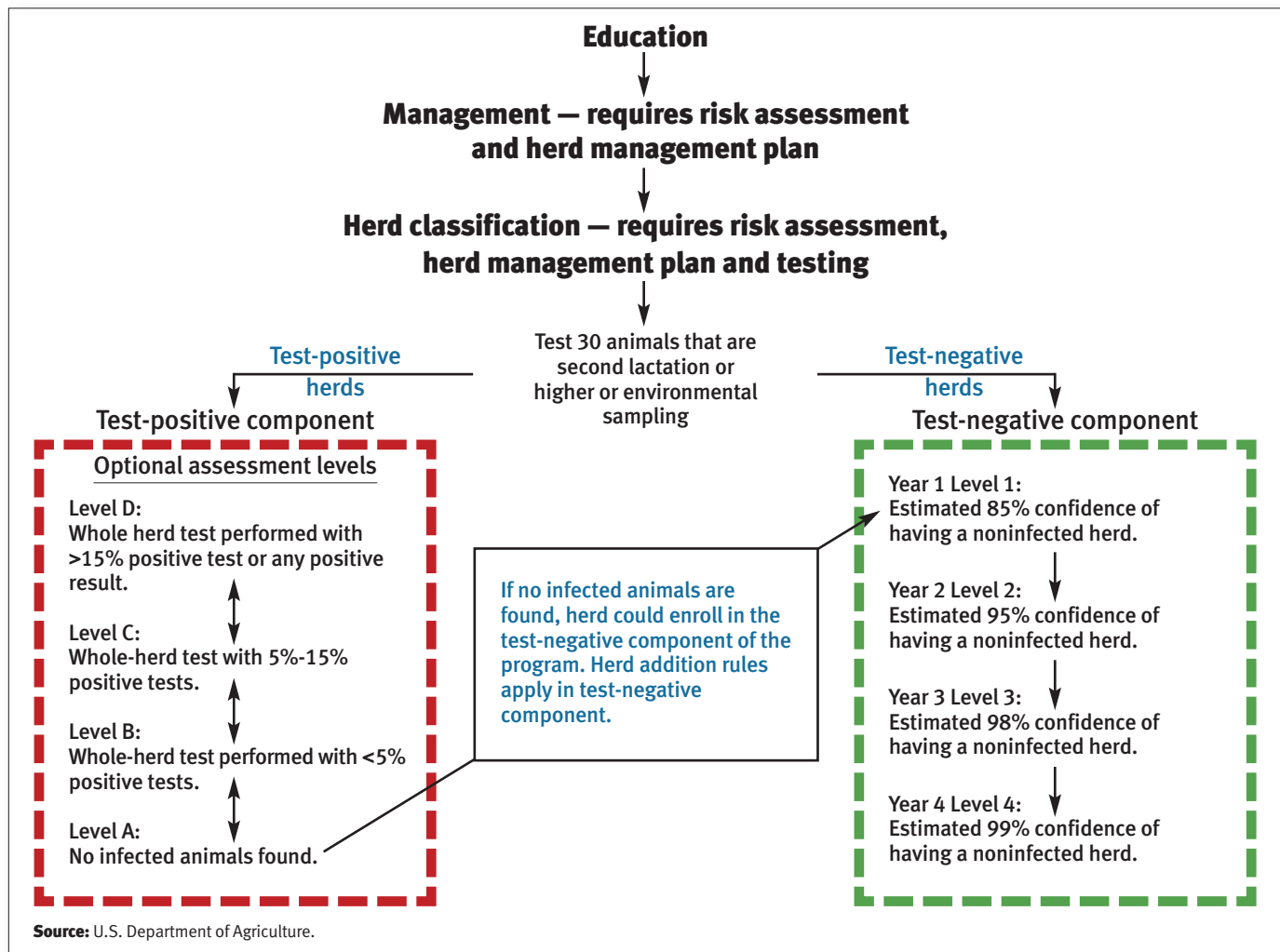
The result has been the evolution of a statewide list of test-negative seedstock producers. "Once their customers started asking about Johne's, more seedstock people started participating in the program," he says, adding that other states are now in the process of developing similar lists.

Parr admits that one limiting factor to the universal acceptance of the program and its criteria is that current testing procedures are complex and, at times, imprecise.

"Because of the limitations of the tests and how long it takes for the disease to show up, even with Level 4 herds (the highest rating for test-negative herds), we can only say we are 99% sure that they are Johne's-free," he says. "We don't have the surety that we have in brucellosis-free herds."

Angus producer Kevin Yon of Yon Family

**Fig. 2: Voluntary Bovine Johne's Disease Control Program**



► Evidence shows the comprehensive national Voluntary Bovine Johne's Disease Control Program produces positive results for beef producers.

## **After a prolonged subclinical period — two to five years — Johne's disease manifests itself clinically in chronic diarrhea, weight loss, infertility and eventually death.**

Farms has been testing his animals for Johne's for seven years and was one of the first seedstock producers in South Carolina to do so. His herd has tested negative from the onset, and it retains a Level 4 program rating. In spite of the limitations of the test when he started checking for Johne's, he was convinced it was necessary to offer his client base the highest level of assurance available that his animals did not have Johne's.

"When we first tested, we understood that there was a possibility that some of our animals would test positive," Yon says. "But being seedstock producers, we felt obligated to do everything in our power to make sure we weren't spreading a disease to our customers."

### **2. Eliminate other sources of transmission**

Besides purchasing at-risk bulls and replacement heifers, Parr warns that there are other ways of introducing Johne's into a herd. He notes that one of the most frequently overlooked vectors for Johne's is dairy colostrum.

"For example, a rancher loses a cow and he gets colostrum for his calf from a dairy," Parr says. "Does he ask about the Johne's status of the dairy when he is just concerned about keeping the animal alive?"

Ken Olson recommends using a colostrum substitute or purchasing colostrum only from dairy herds that are known to have tested negative for Johne's.

He adds that another way to introduce the Johne's bacteria into a herd is allowing calves and other susceptible animals to drink out of a water supply that has the potential of being contaminated by infected shedders. Rivers and streams that have already been accessed by cattle from other operations should be suspect and avoided.

This also applies to borrowing or renting equipment that could inadvertently bring Johne's-contaminated feces onto your site and in contact with your herd. Equipment used to spread or haul manure falls into this category.

### **3. Separate younger from older animals**

Olson points out that because young animals, in particular ones up to 2 years of age, are susceptible to Johne's infection and older adults are the most likely to be infectious shedders, postweaning calves, bred heifers and young bulls should be separated

from the main herd. No commingling should be allowed, and the young animal should not be placed in any facilities or pastures used by older adults. This also applies to water and feed sources.

### **4. Protect your calves**

As previously noted, young calves represent the sector of the herd most vulnerable to Johne's infection. Because of this, every effort should be made to prevent calves from being exposed to the manure of potentially infectious adults.

Prior to calving, udders and teats should be clipped and cleaned. If calving is to take place under confinement, a designated calving-only area should be established with separate individual calving pens. Don't move cows into these pens until they are about to calve.

Relocate the cow and the newly born calf to a clean pasture as soon as the calf has nursed and can walk. Remove manure and soiled bedding after each use, and always replace it with a dry and clean supply. Never use pens and working facilities for sick cattle.

For calving in pastures, use sites that are as large as possible to keep the cow density as low as possible. Clip udders before calving. All supplemental feed should be in bunks that are off the ground and less likely to be contaminated with feces. Move feeding sites

frequently to avoid concentrations of manure. Similar measures should be taken with sources of drinking water. Only use fresh, potable water in stock tanks that are fenced or designed to prevent cows from defecating in them.

### **5. Guard against on-site cross-contamination**

Olson notes that because the connection between adult Johne's shedders and susceptible young animals is so well-established, he believes that particular attention should be taken in regard to avoiding cross-contamination between the two groups of animals.

In addition to not allowing any contact between the two sets of animals, particular attention should be paid to making sure that younger animals avoid contact with the potentially infected feces of the older group. This requires that younger animals not use common feedbunks and stock tanks with adult cows and bulls.

Runoff and drainage from adult cattle areas into young stock areas should be prevented, and heifers and young bulls should not have access to pastures that have been used by adult animals. Finally, avoid applying manure on pastures to be grazed by or harvested and fed to young stock.

