

# The Cattle Industry's Next Big Test

Some cattlemen concerned about the spread of Johne's disease are joining structured testing and certification programs, often gaining a marketing tool in the process.

Story & photos by **Brad Parker**

**T**hey still aren't sure what caused it. When Don Bush and his family relocated their BUB Ranch Beef Alliance from Michigan to Koshkonong, Mo., in the early 1990s, their cattle had a hard time adjusting. Three cows in particular developed severe diarrhea.

Their veterinarian suspected Johne's disease, a highly contagious bacterial infection that causes gradual thickening of the intestinal wall, thereby preventing nutrient absorption. Infected animals waste away regardless of how much they eat.

"When we dug into Johne's and learned what it could do, we didn't only check those cows, we checked the whole herd," Bush says. "And the cows we thought had it happened to be negative. It wasn't a Johne's problem. We have never had a Johne's problem."

All the same, they've never stopped testing for it.

Each year, the crew at BUB Ranch draws blood from every animal 2 years old or older among their 150 registered Angus females, 60-70 registered Angus bulls and 100 commercial cows. The samples are checked for signs of Johne's disease, bovine leukosis virus (BLV) and brucellosis (Bang's disease). Bush figures the testing costs them about \$50/head/year, although the laboratory fees run only \$8-\$10/head.

"The real cost is the labor of it," Bush says, admitting the trip through the chute also adds to the cattle's stress levels. "But I think the benefits outweigh the costs."

Bill Rotenberger, former North Dakota state veterinarian and past chairman of the U.S. Animal Health Association (USAHA)

Johne's disease committee, agrees. "I don't think the cost is as critical to a producer as it is to be sure that they do in fact have Johne's in the herd," he says. "Cost isn't important as long as you are sure that you have the disease — that's the critical point."

## Proceed with caution

Because the blood test used to detect antibodies to *Mycobacterium paratuberculosis* — the organism that causes Johne's disease — is known for producing false positives, any animal that appears to have a blood titer to the bacteria is isolated immediately, and the veterinarian is called back to collect a fecal sample, considered the definitive test.

The sample is sent to a laboratory that attempts to culture *M. paratuberculosis* from it to confirm the diagnosis. So far, BUB Ranch has had four false positives on the blood test, all cleared of suspicion when the fecal cultures came up clean.

Prospective new members of the herd and potential recipient cows for their embryo transfer (ET) program face a similar scrutiny. Bush quarantines any

► Don Bush of the BUB Ranch Beef Alliance, Koshkonong, Mo., has been testing for Johne's disease for seven years and believes it's a form of industry leadership. "The more people who test, the safer the livestock industry will become," he says.

outside animals and draws blood on their first and 30th days at the ranch. They remain in quarantine until all the test results are received, which can be 60 days altogether.

"I make sure I get two negatives," he says. "After all the work that we've gone through and all the money that we've spent and continue to spend, it would be kind of reckless and just poor management to even take a chance of bringing that on the farm."

"If we were to get a positive Johne's cow, she would be gone. Because it's so highly contagious, we would not even put her in a separate pasture," Bush explains. "I don't care what cow we have or what bull we have, if it comes back positive and is confirmed positive for Johne's, we'd just harvest it."

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Fifty miles up the road near Mountain View, Mo., Smith Flooring Co. takes a similar approach. After discovering they bought an infected animal three years ago, they also test all animals 2 years or older on an annual basis and quarantine new animals until they're given a clean bill of health.

"We knew nothing about John's, but with help from the veterinarian and some research, we knew that this was a disease we did not want in our herd," Kent Smith says. "If the animal is found positive, it is disposed of immediately — no exceptions. All cattle in the pen with the positive animal are quarantined until their statuses can be determined."

### Keep the vigil

So why retest every year?

It's thought that most cattle become infected with John's disease before they're 6 months old and their immune systems are sufficiently developed. Yet, the animal may not exhibit the clinical signs for up to 10

years. And it may begin shedding the bacteria months or years before that, providing a source of infection for other animals in the herd.

Combine the long incubation period and complicated diagnostics, and it becomes necessary to keep testing.

That's why state certification programs often include several levels based upon successive years of negative tests. In Missouri, for example, once every animal 2 years old or older in a herd tests negative for John's disease, the herd is granted Level 1 certification. The next year, provided all the tests are negative again, it gets Level 2, and so on until Level 5.

Once a herd reaches that milestone, it's almost 99% certain that it doesn't harbor the infection, says Bretaigne Jones, staff veterinarian for the Division of Animal Health within the Missouri Department of Agriculture. Level 5 certificates list how many years a herd has held that distinction.

But if one case of John's disease is confirmed, all bets are off. A producer must take corrective actions and test the whole herd again to recertify at Level 1.

### Share the knowledge

Smith hopes to educate other producers by marketing their Level 2 certification. "I would hope that producers will be curious as to the nature of the disease and how to rid their herd of it," he says, adding that he already has fielded some calls for help in establishing testing programs.

After testing for seven years, BUB Ranch just enrolled in Missouri's certification program. Their new certificate is an important part of the decor. "We have it framed, hanging out on the office wall, so when everybody comes in, they can see it," Bush says. The ranch also touts its test-negative status in its advertising and brochures.

While the promotion has gained them some new customers, it more often solicits questions from curious cattlemen. "A lot of people say, 'What is this?'" Bush relates. "It's

amazing how many people really don't know what it is."

In cooperation with Irsik & Doll, the Kansas feedyard to which they provide more than 4,000 stocker calves each year, BUB Ranch also hosts "town hall meetings" for area cattlemen where Bush includes John's disease and BLV in his talks. "We explain the problems if you have it and the benefits of not having it," he says.

He tries to field questions without getting preachy. "It's not up to me to tell them their business," Bush says. "If they ask me, I tell them." The lesson generally addresses the severity of the problem and its effects on herd performance.

It's a leadership role, he believes. And it's one he shares with few others. Missouri's certification program, launched in 1995, currently recognizes only 11 test-negative herds: four at Level 1, two at Level 2, one at Level 3, two at Level 4, one at Level 5 and one that's been at Level 5 for two years.

### Wearing blinders?

Rotenberger, whose family manages Spruce Hill Angus Ranch near Ludlow, S.D., doesn't think seedstock producers worry much about disease control. "We don't spend a lot of time thinking about red nose or BVD (bovine viral diarrhea) or a lot of those viral diseases when we go to buy animals," he says. "We don't normally ask somebody if they've ever had John's disease in their herd or if they've tested their herd for John's disease."

"It is an educational thing, and it's going to take time," he adds.

Bush says people don't want to talk about it. "If we don't talk about it, we don't know about it. . . . If you don't know about it, then you don't have it."

Many cattlemen would agree that ignorance is bliss. Why test for a disease that isn't affecting your herd's performance when a positive result could spell financial hardship?

"In a way, I think we are sweeping it under the rug until we reach some level of incentive to encourage us all to test our herds," Rotenberger says. "If you advertise that you're a test-negative herd, 'Why did you test in the first place?' is about one of the first questions asked."

But Smith hasn't experienced such suspicion. "It's not any different than getting certified brucellosis-free," he believes. "This is just an extension of that."

Like brucellosis, John's disease is reportable in many states. In other words, if



►The BUB Ranch Beef Alliance's five Missouri cooperater herds must have negative tests for John's disease, leukosis and brucellosis if they want to bring their weanlings back for development and the BUB Ranch annual production sale.

a laboratory finds evidence of it in a sample, that herd's state animal health official must be notified. So, thanks to the sunshine laws in many states, it only takes a call to the state animal health office to request the information that could confirm or deny suspicions, although the fees associated with obtaining those records vary among states.

Unlike brucellosis, however, the state will not quarantine producers' herds because of positive Johne's disease tests. "We will help educate them about the disease and suggest management practices that can help them eliminate the disease from their herds," Jones says.

### Incentive to test

Bush maintains that disease status soon will be among the numerous bits of information needed to conduct business in the cattle industry. BUB Ranch's five Missouri cooperator herds — C/S Angus, Hickory Hill Angus, Schafer Angus, Checkerhill Farm and 3M Angus — already must have negative tests for Johne's disease, BLV and brucellosis if they want to bring their weanlings back for development and the BUB Ranch annual production sale.

That's the kind of incentive for which Rotenberger is calling. He even suggests adding red nose, both types of BVD and tuberculosis to the list.

"If you throw Johne's disease in with other diseases that you're free of, then people will probably look at it as a positive thing that the seedstock producer is doing," he says, likening the concept to the certified preconditioning programs already in place for feeder calves. "But if you just put it out

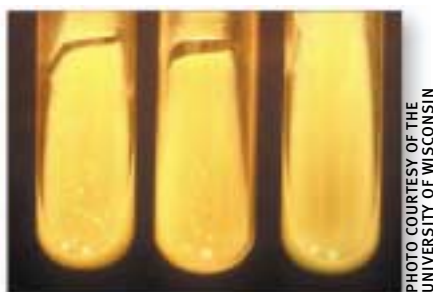


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► Fecal culture often is used to confirm positive blood-test results for Johne's disease. Growth of bacterial colonies on egg yolk agar, which contains mycobactin, but not on medium without mycobactin (right) is indicative of *M. paratuberculosis*.

there by itself, then it kind of leaves the negative connotation because they'll assume you've had it and gotten rid of it, which leaves room for doubt."

Until a positive light is shed on testing, Spruce Hill won't be joining the ranks of screened herds unless the clinical signs of Johne's disease become apparent.

"If seedstock producers have a good working relationship with their local veterinarian, you'll pick up those signs and symptoms in a herd before it's necessary for you to test the whole herd," Rotenberger explains. "Doing that on my own and advertising it wouldn't be economically feasible for me."

But if seedstock producers suspect Johne's disease may be present in their herds, Rotenberger emphasizes that they have a "significant responsibility to test."

"From a health standpoint, we really have the responsibility to get it out of our herds," he says, noting that seedstock pose a greater

threat because they stay in production longer and tend to move from herd to herd.

### Assurances

Rotenberger has some advice for those seeking "insurance" against Johne's disease. "If I was really nervous about it and wanted to find a herd that I could technically think of as a 'low-risk' herd, I would ask someone to test his entire herd ... just once," he offers, "then I would consider that a low-risk herd."

Bush estimates 99% of the bulls BUB Ranch sells probably go into environments contaminated with Johne's disease. "At least [our customers] know they're not going to spread anything from our herd," he asserts.

Smith agrees that being tested free of Johne's disease is a reassurance. "It means that I can add your cattle to my herd immediately, freeing up quarantine-pen space and saving testing fees," he says, speaking from the customer's perspective. "This is more than a great marketing tool."

Bush adds that it's important for the industry to take action before a mandatory program becomes necessary. "It's a matter of self-preservation that we test," he says. "The more people who test, the safer the livestock industry will become."



**Editor's note:** We'll explore the technicalities of diagnosing, preventing and controlling Johne's disease in upcoming articles. But if you can't wait, see "Johne's Disease: What Is It?" in our May 1998 issue and "Testing for Johne's" in September 1998. (They're available under "Back Issues" at [www.angusjournal.com](http://www.angusjournal.com).) Another resource is the University of Wisconsin Johne's Information Center at [www.johnes.org](http://www.johnes.org).

## Johne's researchers explore zoonotic concerns

A controversial question faces biologists and cattlemen: Can *Mycobacterium paratuberculosis* — the organism that causes Johne's disease in cattle — cause disease in humans?

The similarities between Johne's disease and Crohn's disease, an inflammatory bowel disorder in humans, were recognized in 1913. As more-sophisticated diagnostic tools have been developed, the question of whether *M. paratuberculosis* may be involved in Crohn's disease has been re-examined. It's been estimated that 25%-75% of Crohn's disease patients were infected with the organism.

Mike Collins, a professor of microbiology at the University of Wisconsin School of Veterinary Medicine, says that, if a link is established, the way veterinarians manage *M. paratuberculosis* infections will change significantly.

It probably will change cattlemen's attitudes toward Johne's disease, too.

Virtually all known mycobacterial pathogens are transmissible to humans and have the capacity to cause disease. That is, they are zoonotic. It is conceivable that *M. paratuberculosis* also is a human pathogen.

If, when or how the organism has the opportunity to infect humans remains a topic of study. Given the expanding population of *M. paratuberculosis* in multiple animal species, Collins says, it is likely that exposure is increasing.

It's important to note that pasteurization and proper cooking methods kill the organism, so there's little risk to beef consumers. Those who work near the live animals shedding the bacteria face the greater risk.

"Clearly, more research is needed before solid scientific conclusions can be made," Collins says. "If it is zoonotic, it could be an emerging disease problem that must be urgently addressed."