



Is she a Johne's Disease super-shedder? If so, she needs to get off the farm.

JOHNE'S DISEASE STILL A CONCERN

NAHMS Dairy 2007 indicates awareness high, but national epidemic continues.

By Jim Carlton

Despite increased awareness of Johne's Disease (JD) among producers, the JD epidemic continues in the United States dairy industry.

A significant finding of the USDA National Animal Health Monitoring System (NAHMS) Dairy 2007 Survey was that more than 94% of producers were either fairly knowledgeable or knew some basics about JD, according to Jason Lombard, DVM, MS, NAHMS dairy specialist/veterinary epidemiologist, Fort Collins, Colo. "The educational campaign for Johne's disease appears to be working pretty well," Lombard says. "Johne's Disease was the one that producers knew the most about of all the diseases that we asked about in the 2007 study."

Increased awareness of JD, however, has not necessarily translated into adequate control nationally, says Mike Collins, DVM, PhD, University of Wisconsin School of Veterinary Medicine. Collins, an internationally recognized JD expert, believes that even though control programs have proven to work well on an individual herd basis, "control on a national basis is failing, in spite of expenditures of more than \$100 million over the past six years based on recent USDA surveys."

The NAHMS Dairy 2007 Survey bears this out, according to Lombard. "Based on the results of our prevalence data, we know that more than two-thirds of dairy operations are infected."

Not enough herds are participating in serious

JD control programs and almost no herds are using proper biosecurity measures to avoid buying *M. paratuberculosis*-infected cattle, according to Collins.

Johne's Disease expert Frank Garry, DVM, MS, Colorado State University, says there is enough evidence to show "that when producers focus on the disease and use the types of management strategies that have been recommended, they decrease the prevalence of Johne's in the herd. I do believe that we've done a good job in herds where producers have taken it seriously, thought through the problem, developed a strategy and good management program. Unfortunately, our progress in getting all producers to follow this has not been very substantial and that has been a real liability."

Garry believes the main reason for this is that JD control is not high on producers' priority lists. "There are other bigger economic drains, such as mastitis and lameness, so they might disregard it because it's not perceived as costing them a lot of money," he says.

"Producers with herds heavily infected with Johne's disease see more control costs than those with lesser infected herds," Garry explains. "Those with lesser-infected herds might feel okay about leaving it alone because they are not losing that

much money. That's a really bad approach because over time the infection will continue to spread through the herd. Then it will cost them money."

Garry encourages veterinarians to emphasize to clients that if they don't have Johne's, they should make a high-priority effort to prevent it and keep it out. "If they do have it, they need to keep it from spreading and if they've got a lot of it, they need to try and reduce it."

JD COSTS

The impact of JD on milk production is seen only in the last lactation before the cow becomes ELISA-positive or shows clinical signs, according to Collins. "If JD is controlled, meaning within herd prevalence is less than 5%, the disease is not costly." On the other hand, it can put a dairy out of business if left uncontrolled resulting in high herd infection rates, he emphasizes.

Collins explains most new JD infections happen before weaning, so calving and pre-weaning calf hygiene continue to be important aspects of prevention and control. "It is now known that that post-weaned calves can shed *M. paratuberculosis* (MAP) in their feces and the significance of this regarding calf-to-calf infection spread depends on the level of hygiene in their pens," according to Collins.



GINY WHIN

Frank Garry, DVM, MS, says veterinarians should make it a priority to keep Johne's out of clients' herds.



JASON LOMBARD, DVM, MS

Jason Lombard, DVM, MS, says producer awareness of Johne's is growing.

A cow clinically infected with Johne's Disease.



MIKE COLLINS, DVM, PhD

MORE JOHNE'S INFORMATION

For more information on Johne's disease, visit these websites:

■ <http://johnes.org/>

University of Wisconsin Johne's Information Center

■ <http://vetmedce.vetmed.wisc.edu/JDVCP>

A variety of online educational opportunities for both producers and practitioners, including the certificate program for veterinarians.

■ http://www.aphis.usda.gov/animal_health/animal_diseases/johnes/
USDA-APHIS webpage on JD with links to the list of approved testing labs.

■ http://www.aphis.usda.gov/vs/ceah/ncahs/nahms/dairy/dairy07/Dairy2007_Johnes.pdf

More information on the NAHMS Dairy 2007 survey.

JOHNE'S IMPORTANT IN BEEF, TOO

The perception is that Johne's Disease (JD) is a problem for dairy animals, not beef animals, but it should not be overlooked in the beef industry. "The problem can be a little gnarlier in the beef industry because of the fact that it is at a lower prevalence — a lower percentage of infected herds — and this allows people to be more lackadaisical," says Frank Garry, DVM, MS. Garry acknowledges that the economic impact of Johne's on beef cattle is "much harder to establish."

Beef producers are also less aware of the disease, so veterinarians may need to be more proactive and spend more time educating them about it, says Allen Roussel, DVM, MS, Dipl. ACVIM, Texas A&M University. "When you begin to talk about this disease, your clients may not know what you're talking about," says Roussel, who has researched Johne's in beef cattle. "Since most beef herds are uninfected, as opposed to dairy herds where most are infected at some level, the most important thing for most beef producers is not to get it."



ALLEN ROUSSEL, DVM, MS

Allen Roussel, DVM, MS, Dipl. ACVIM, says beef producers should buy cattle from low-risk sources to prevent Johne's Disease introduction.

Roussel says research has shown that registered purebred cattle have a higher prevalence of Johne's. "That means people who are in the seed stock business need to especially try to control it."

As with dairy cattle, preventing calves from consuming fecal material is a vital aspect of preventing and controlling Johne's disease. Roussel says that management strategies for accomplishing this include:

- Increase the size of the calving area.
- Increase the size of the nursing area.
- Don't feed or water all of your cattle in one place all the time.
- To prevent fecal contamination of hay fed on the ground, put out only what the cattle will eat in one day.

The main role for veterinarians is to help beef producers who have Johne's-infected cattle come up with control programs, says Roussel. "For those who have herds that don't have Johne's disease, veterinarians need to concentrate on helping them keep their herds free from the disease."

Although it is possible that transmission occurs from calf-to-calf, it probably happens far less frequently than cow-to-calf transmission by the fecal-oral route before weaning, Collins says. "Likewise, *in utero* transmission contributes to the spread of JD but it is less important than fecal-oral transmission before weaning."

CONTROL BASICS

That's why, Collins says, experts continue to stress the basics for JD control. These include:

- Keep clinical cases and JD test-positive cows out of the maternity pen.
- Clean the maternity pen often.
- Get the calf out of the maternity pen in less than an hour after birth.
- Feed each calf 4 quarts (3 for Jerseys) of clean colostrum before the calf is 6 hours old.
- Teats should be prepped before colostrum collection to limit manure contamination.
- Colostrum should be fed from one test-negative cow to one calf. Which cow donated the colostrum to the calf should be recorded in the calf's record.
- After colostrum, feed only pasteurized milk.
- Milk replacer or on-farm pasteurized milk is acceptable, if the on-farm pasteurizer is regularly maintained.
- On-farm pasteurizers should be checked monthly for significant decrease in milk total bacterial counts between pre- and post-pasteurization.
- Rear calves well away from adult cattle insuring no contact with manure or contamination of water or feed with manure.

Collins says that some cows become "super shedders." These excrete many more *M. paratuberculosis* bacteria than other cows and can have a major effect on spread of JD in a herd, he says. "The good news is that they are readily detected by either PCR or culture of manure samples or ELISA."

Some unconfirmed recent information points to the possibility that one super-shedder cow can excrete in her manure the number of *M. paratuberculosis* bacteria equivalent to 100 other normal shedder cows, according to Collins. "That's why identifying those cows and getting them off the farm is crucial."

What makes a super-shedder cow? Nobody knows for sure yet. "It could be the dose, the bacteria that the animal got when it was young or it could be the animal's unique genetic susceptibility to infection," Collins says.



Not enough herds are participating in serious JD control programs, says Mike Collins, DVM, PhD.

DIAGNOSING JD

Over the last decade, multiple accurate and cost-effective tests have been developed and become commercially available for diagnosing JD. "With the sizeable infusion of money from Congress to the USDA, we now have a strong lab infrastructure to provide testing services in virtually every state," Collins says.

"There also is now a national JD test lab certi-


fication system that verifies which labs can run which JD tests accurately. Further, there is a national veterinary certification program assuring that veterinarians can perform herd risk assessments and offer accurate information and JD management programs."

Collins says a new bulk tank antibody ELISA may be on the horizon that will provide a simple and quick gauge of the probability that a herd is infected or infected at a reasonably high rate. "It's not going to be very sensitive, but if a herd does kick a positive test on the bulk milk tank, then it's a herd that needs some follow up investigation to see how big the Johne's problem really is."

Collins recommends these actions by bovine veterinarians to further efforts in controlling JD in dairy herds:

- Become a Johne's certified veterinarian by online training.
- Determine if each of the herds in your practice is infected or not. Environmental fecal culture is the test of choice.
- If the herd is not found to be infected, discuss with your clients the merits of joining the national herd test-negative program.
- Emphasize the importance of biosecurity measures to help avoid becoming infected though purchase of cattle.
- If the herd is infected, estimate the within-herd prevalence by testing cattle randomly or by target testing of culls. If the within-herd prevalence is more than 5 % by ELISA or more than 10 % by culture or PCR do a herd risk assessment and initiate a control program.

Bovine veterinarians should take the lead in helping their clients rethink their focuses regarding Johne's disease, believes Colorado State University's Garry.

"I think the veterinarian is in a very good position on a periodic basis to say, 'Okay, now let's look at where we are with herd health. Let's think about what our objectives are. Let's set a strategy for how we're going to deal with them.'" He concludes that while Johne's may not be broadly construed as an urgent problem, "it's critical for veterinarians to continue to look at how important it is in the grand scheme of a producer's particular operation." 

See "Johne's Disease and Crohn's Disease" case study on page 31 of this issue.