



# JOHNE'S DISEASE – DAIRY

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A cooperative effort of the National Institute for Animal Agriculture, USDA, APHIS, Veterinary Services, in association with the National Johne's Working Group & United States Animal Health Association

## 2<sup>nd</sup> New Horizons Johne's Disease Control Workshop Aug. 10

Exploring ways to most effectively address Johne's disease at the farm level is the focus of the 2<sup>nd</sup> New Horizons in Johne's Disease Control workshop planned for Monday, Aug. 10, at Willey Hall, University of Minnesota, Minneapolis, Minn. Registration starts at 8:00 a.m., with opening remarks at 8:45 a.m. and sessions wrap-up at 5:00 p.m.

Conducted in conjunction with the 10<sup>th</sup> International Colloquium for Paratuberculosis (ICP), the 2<sup>nd</sup> New Horizons in Johne's Disease Control workshop is geared for producers and veterinarians and will look at the importance of Johne's disease to the producer, management strategies for young stock and mature animals and tools to help reduce shedding in infected animals. The end of the day

will be devoted to case studies and a question-and-answer session.

Registration for the one-day workshop is \$85/person and includes Monday's sessions, lunch and handouts as well as a Sunday, Aug. 9, discussion session about the role *M. avium paratuberculosis*, the bacterium that causes Johne's disease in livestock, may or may not have in Crohn's disease in humans.

Topics and speakers for the 2<sup>nd</sup> New Horizons in Johne's Disease Control workshop is provided below. Registration for the workshop is available online at <http://www.cvm.umn.edu/outreach/events/icp/icpreg/home.html>. Please note that individuals attending the 2<sup>nd</sup> New Horizons in Johne's Disease Control workshop qualify for a special

registration package for the remainder of the 10<sup>th</sup> International Colloquium for Paratuberculosis, Aug. 9-14.

The ICP and 2<sup>nd</sup> New Horizons in Johne's Disease Control workshop are sponsored by the Johne's Disease Integrated Program (JDIP), an international collaboration of 50 universities and government agencies with primary funding from the National Research Initiative. The mission of the Johne's Disease Integrated Program is to promote animal biosecurity through the development and support of projects designed to enhance knowledge, promote education, develop real-world solutions and mitigate losses associated with Johne's disease.

To learn more about Johne's disease, visit [www.johnesdisease.org](http://www.johnesdisease.org).

### 2<sup>nd</sup> New Horizons Workshop Agenda

#### Sunday, Aug. 9

6:00 p.m. Opening Session  
7:00 p.m. Reception

#### Monday, Aug. 10

8:00 a.m. Registration and Coffee  
8:45 a.m. Welcome  
9:00 a.m. Immediate Costs to Individual Herds –  
*Dr. Chuck Fossler*  
9:30 a.m. Human Health Concerns– *Dr. William Chamberlin*  
10:00 a.m. Proposed New Strategic Plan &  
Implementation Strategy – *Dr. Ken Olson*  
10:15 a.m. Discussion  
10:30 a.m. Break  
10:50 a.m. Primer on Johne's Management & Control  
– *Dr. Scott Wells*

11:10 a.m. Colostrum Feeding – *Dr. Sandra Godden*  
11:30 a.m. Milk Management – *Dr. Sandra Godden*  
11:50 a.m. Off-site vs. On-site Housing – *Dr. Ian Gardner*  
12:10 p.m. Discussion  
12:30 p.m. Lunch  
1:30 p.m. Use of Tests in Infected Herds – *Dr. Soren Nielsen*  
2:00 p.m. Environment of the Adult Cow – *Dr. Bob Whitlock*  
2:30 p.m. Discussion  
3:00 p.m. Break  
3:20 p.m. Update on Vaccination Research – *Dr. Elisabeth Patton*  
3:45 p.m. Monensin Sodium – *Dr. Steve Hendrick*  
4:10 p.m. Case Studies, Risk  
Assessment – *Dr. Mike Collins*  
5:00 p.m. Discussion



This e-newsletter is brought to you by the National Johne's Educational Initiative funded by USDA/APHIS/VS and managed by the National Institute for Animal Agriculture. Editor: Teres Lambert. To learn more about Johne's, visit [www.johnesdisease.org](http://www.johnesdisease.org).



## Steps to Help Prevent, Control Johne's Disease

A national study of U.S. dairies, Dairy NAHMS 2007, found that 68.1 percent of U.S. dairy operations are infected with *Mycobacterium avium paratuberculosis* (MAP), the organism known to cause Johne's disease, and that at least 25 percent of U.S. dairy operations may have a relatively high percentage of Johne's disease-infected cows in their herds. Estimated lost productivity due to Johne's disease in U.S. dairy herds: \$200 million to \$250 million annually.

Johne's disease is a slow, progressive, contagious, untreatable bacterial disease that ordinarily infects calves. The mysterious part of Johne's disease is that it tends not to show clinical signs until animals are three or more years of age. Clinical signs include unexplainable weight loss, diarrhea that does not respond to treatment and loss of milk production. In the later stages of the infection, animals can become weak.

### Transmission of Johne's Disease

The most common method of infection is the ingestion of MAP bacteria via manure-contaminated udders, milk, water or feed. Infected animals shed large numbers of bacteria in their feces, leading to contamination of feed and water sources. Infected animals can also shed the bacteria in their colostrum and milk, and infected dams can also pass the disease on to their offspring.

MAP is an extremely hardy bacterium. Research shows that, while the bacterium cannot multiply outside the animal in nature, it can survive in contaminated soil or water for more than a year because of its resistance to heat, cold and drying.

### Management Risk Assessment

Johne's disease should be managed as a herd problem and not treated as an individual cow disease.

A walk-through on your dairy can help you identify practices that are a risk for spreading Johne's disease as well as other fecal-oral and colostrum-milk transmitted pathogens.

### Maternity or Calving Area

Since calves are the most susceptible to infection, risk factors for the maternity or calving area should be assessed for the potential of a newborn to ingest manure or MAP from mature cattle. Considerations include ground and pen surfaces, contaminated udders and teats, suckling colostrum from an infected cow or manure contamination of a calf's body surfaces.

- | Yes                      | No                       | Risk Factor  |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Are multiple cows in the calving area at a time?   |
| <input type="checkbox"/> | <input type="checkbox"/> | Is any individual calving pen or area used for additional calvings without being cleaned out between calvings? |
| <input type="checkbox"/> | <input type="checkbox"/> | Is manure allowed to build up in the calving area and pose a risk for calf ingestion?                          |

- | Yes                      | No                       | Risk Factor  |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Are sick cows kept in the calving area?                              |
| <input type="checkbox"/> | <input type="checkbox"/> | Are high-risk Johne's disease cows and suspects in the calving area? |
| <input type="checkbox"/> | <input type="checkbox"/> | Are the udders of cows that are calving soiled with manure?          |
| <input type="checkbox"/> | <input type="checkbox"/> | Do newborn calves stay with their dams for more than 60 minutes?     |
| <input type="checkbox"/> | <input type="checkbox"/> | Are calves allowed to nurse their dams?                              |



### Young Calves

Calves are the most susceptible to infection. As such, risk factors for this group should be assessed for the potential of a calf to ingest manure or MAP from mature cattle. Considerations include ground and pen surfaces and potentially

contaminated colostrum, milk, water or feed. Consider all sources for potential manure contamination including colostrum or milk from infected cows, accidental contamination of any colostrum, milk, feed or pen surfaces from mature cattle, utensils, equipment, traffic splatter or people.

- | Yes                      | No                       | Risk Factor   |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | Is colostrum from individual cows with unknown Johne's disease status fed to calves?                |
| <input type="checkbox"/> | <input type="checkbox"/> | Is colostrum from unknown Johne's disease status cows pooled and fed to newborn calves?             |
| <input type="checkbox"/> | <input type="checkbox"/> | Is unpasteurized milk pooled and fed to calves?   |
| <input type="checkbox"/> | <input type="checkbox"/> | Do you feed calves raw waste milk rather than milk replacer?  |
| <input type="checkbox"/> | <input type="checkbox"/> | Are calves fed unpasteurized waste milk?  |
| <input type="checkbox"/> | <input type="checkbox"/> | Do you collect colostrum from cows to feed calves without first cleaning the cows' udder and teats? |
| <input type="checkbox"/> | <input type="checkbox"/> | Can a calf's colostrum and/or milk be contaminated with cow manure at any time?                     |
| <input type="checkbox"/> | <input type="checkbox"/> | Can a calf's feed or water be contaminated with manure at any time?                                 |
| <input type="checkbox"/> | <input type="checkbox"/> | Are calves able to come in contact with cows or cow manure in their housing?                        |

### Post-Weaned Heifer Group

Risk factors for this group, heifers up to 16 months of age, should be assessed for the potential of a calf to ingest manure or MAP from mature cattle. Considerations include ground and pen surfaces, water and/or feed.

**Yes No Risk Factor**

- Do heifers have contact with mature cows or their manure?
- Is it possible for manure from cows to contaminate the feed?
- Is it possible for manure from cows to contaminate heifer water sources?
- Do heifers share pastures with mature cattle?
- Is manure spread on pasture then used by or fed to heifers?

- Is manure contamination of the water possible?
- Do cows have access to accumulated or stored manure?
- Is manure spread on pasture and grazed or fed the same season?
- Are cows showing chronic diarrhea and weight loss left in the general population without being tested for Johne's disease?



**Bred Heifer Group**

Although this group of cattle is believed to be substantially less susceptible to Johne's disease than newborn calves, risk factors for this group deserve attention.

**Additions & Replacement Groups**

A key to Johne's disease prevention and control is to not introduce infected animals into the herd.

**Yes No Risk Factor**

- Do you purchase animals from herds of unknown Johne's disease and health status?
- Do you lease or borrow any stock, including bulls from multiple sources or herds of unknown Johne's disease and health status?

**Yes No Risk Factor**

- Do heifers have contact with cows or their manure?
- Is it possible for manure from cows to contaminate the feed?
- Is it possible for manure from cows to contaminate the water used by heifers?
- Do heifers share pasture with mature cattle?
- Is manure spread on pasture then used by or fed to heifers?

**General Management**

**Yes No Risk Factor**

- Do you use the same equipment to handle feed and manure?
- Do you prevent mature cow manure contamination of all feed and water, including standing run-off water?



**Cow Group**

Even though cattle more than 24 months of age are believed to be the least susceptible to Johne's disease, infected cattle may shed MAP and other pathogens in their feces and add significantly to the overall pathogen load in their environment. Ultimately, you should strive to reduce the pathogen load in the environment.

**Yes No Risk Factor**

- Is it possible for feed to be contaminated with manure?

**Helping Yourself**

Any area marked "yes" on your checklist deserves attention as these practices are a risk for spreading Johne's disease.

Good management and hygiene of maternity areas, calves and heifers and clean feed and water are basic for Johne's disease control plus help prevent spread of other bacteria, viruses and intestinal parasites spread by fecal shedding.

- Johne's disease prevention will help to minimize calf diseases caused by E. coli, Salmonella, BVD, Rota and Corona viruses.
- Cleaning and clean environments promote the health of periparturient cows.
- Attention to keeping feed, water and facilities clean for growing animals can improve growth and help control coccidian, cryptosporidia and nematodes.

An ounce of prevention is worth MORE than a pound of cure when it comes to Johne's disease. And prevention at home is your best protection.

Your veterinarian can help you develop a Johne's disease prevention and control plan and can implement testing strategies to identify the most infectious animals.

## Dairy Producers Share How Management Changes Lessened Incidence of Johne's Disease

A six-year demonstration herd project involving nine Wisconsin dairies shows dairy producers who change husbandry significantly—and do it well—can lower the rate of Johne's disease infection in their herd. At the conclusion of the trial, the rate of infection moved from a 9.8 percent average across the nine trial herds to just 3.2 percent.

The project focused primarily on two simple steps: hygiene and testing. The hygiene component included just four “to do” items: 1) prompt calf removal from the cow; 2) feed high-quality colostrums from a test-negative cow; 3) feed pasteurized milk until weaning; and 4) implement a hygienic rearing system that has feed and water free from manure contamination. The testing part of the project involved testing all cows once in each lactation, labeling ELISA-positive or “suspect” cows and using separate maternity pens for ELISA-negative cows.

Dairy producers Mark Breunig, A-OK Farms, Sheboygan Falls, Wis.; Chuck Ripp, Ripp's Dairy Valley LLC; Ken Verhasselt, Verhasselt Farms, Kaukauna, Wis.; and Harvey and Jackie Mess, Lawn View Farm, Norwalk, Wis., were among the nine Wisconsin herds involved in the field trial. All four agree that the management practices undertaken on their dairies proved to be wise investments of time, labor and dollars.

“Before the field trial, we thought we could visually see the cows that were infected with Johne's disease, but we learned that we couldn't,” Ken Verhasselt stated. “And, while it was hard to sell the strong-positive cows and a big challenge segregating our newborn calves, both of these changes in management proved to be smart moves.”

Chuck Ripp said, in addition to identifying and culling strong-positive cows, the “best” management move his dairy made during the field trial was switching to giving newborn calves colostrum from negative-test cows. He emphasized that it's the little things that can make the big difference in lessening Johne's disease in a herd.

Dairy producer Mark Bruening saw his within-herd incidence of Johne's disease move from 13 percent positive to less than 3 percent. This improvement, he said, traced to numerous management changes that also spread over to other areas of improved herd health. “And we learned that good animal husbandry practices make everything go easier,” Bruening summarized.

Lawn View Farm, owned by Harvey and Jackie Mess of Norwalk, Wis., called the learning about Johne's disease and implementing management changes a “life-saving program.” “Our milk check is bigger, our cows are healthier, and we're in this business for the long haul. Our goal now is to share our story and help other producers get serious about controlling Johne's disease. We're living proof that a control program is both possible. . .and affordable.”

To learn more about results of this demonstration herd project—and each participating herd owner's perspective on the project and Johne's disease control in general, please go online to [www.johnesdisease.org](http://www.johnesdisease.org) where the 29-page document “Healthy Cows-unabridged” is available. Simply click on the “Educational Material” tab at the top of the web page, followed by a click on “Healthy Cows unabridged.” The document is presented in printable pdf form and includes a

handy “Preventing Infectious Disease or Pathogens on Your Dairy Farm” sheet.

The “Educational Material” tab offers additional material such as “Raising Calves. . .The 5 C's of a Healthy Start,” a Johne's disease testing brochure, a Johne's disease prevention and control brochure for dairies and a Johne's disease prevention and control brochure for beef producers.

The six-year demonstration herd project was headed by Dr. Michael Collins of the University of Wisconsin School of Veterinary Medicine, with Dr. Vic Eggleston of the University of Wisconsin School of Veterinary Medicine as project manager.

Financial support for the field trial came from USDA-APHIS-Veterinary Services, the University of Wisconsin Industrial and Economic Development Research Fund, the Wisconsin Agriculture Experiment Station, the UW School of Veterinary Medicine, the Wisconsin Milk Marketing Board and the nine cooperating dairy producers who paid for the required management changes on their farms and the sample collection from all of their cows for the six years of the project.

**To learn more about  
Johne's disease  
prevention and control,  
please contact your state  
Designated Johne's  
Coordinator.  
A list of state DJCs  
is available online at  
[www.johnesdisease.org](http://www.johnesdisease.org).**