



# JOHNE'S DISEASE – DAIRY

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## New Online, User-Friendly Risk Assessment Tool = Time Well Spent

Dairy producers, veterinarians, dairy science and veterinary students and others interested in the control and management of Johne's disease now have an easy-to-access, easy-to-use free online tool that introduces them to a risk-assessment-based approach to manage Johne's disease. The tool: JD-RAP (which stands for "Johne's Disease-Risk Assessment Practicum"). Funding for the program was provided by the USDA/National Institute for Food and Agriculture with financial assistance from the National Milk Producers Federation and the Johne's Disease Integrated Program.

Dr. Jeannette McDonald, DVM, PhD, with the University of Wisconsin hosts the online tool. McDonald partnered with Ernest Hovingh, dairy extension veterinarian with Pennsylvania State University, to develop the content and structure of the website, with input from a panel of Johne's disease experts.



Dr. Jeannette McDonald,  
DVM, PhD,  
University of Wisconsin

The introductory page of the online tool clearly states that the purpose of this online application: "to help you evaluate your farm for management practices that may be increasing the risk of introducing Johne's disease into your herd and/or spreading this bacte-

rial infection to uninfected animals."

"The program asks the user for herd and management information about different areas on the user's farm which, then, allows the program to assess the level of Johne's disease risk in a producer's herd," McDonald states. "Information is confidential to the user.

"After the assessment is complete, users are offered suggestions to reduce the risk of transmitting Johne's disease to uninfected animals. "

McDonald adds that not all questions and situations need to be addressed in one sitting.

"When a user signs in, we ask for his/her email address," she explains. "The person's email address helps keep track of data so you can check progress during the program and/or return and start where you left off. One advantage of the tool is that you can try out different scenarios to see how management changes can affect your risk levels.

"I repeat that all stored information remains confidential. When designing the program, we knew that confidentiality was an extremely high priority, and we kept focused on that."

Within a few minutes of being on the website, you realize how user-friendly it is and the questions posed quickly show you how tailored the tool is for your dairy.

The first page poses demographic questions. For example, Page 1 questions include:

- Which do you use for housing the majority of your mature cows: freestall or tiestall?
- How many mature dairy cows (>24 months of age) do you currently have?
- Besides milk & meat sales, what are your herd goals & priorities: current, future, never? Choices include "selling breeding stock," "export cattle," "become a Johne's free herd" and "raw milk/cheese sales".
- Do you plan to expand your herd size within the next 5-10 years? Choices: Definitely, No, Not Sure
- If you plan to expand, where will you obtain the additional animals? Choices: Buy, Internal, Not Sure

The "Purchases/Acquisitions" page has you list the number of animals purchased from three sources: 1) herds or sources of unknown status, 2) status level 1 herds or herds with documented low prevalence of Johne's disease and 3) status level 2, 3 or 4 herds.

"We really have you take an in-depth look at your herd," McDonald adds. "And we attempt to find out how much you know about Johne's disease."

You're not into the online tool long before you're given photos of four animals and asked which of these animals have Johne's disease:





*Do these animals have Johne's disease? Yes? No? Maybe? Probably? The online tool even provides a video of animals with Johne's disease.*

You aren't left wondering which animals might have Johne's disease. The very next page shows the animals again and gives the answers, along with explanations.

As your progress through the application, you address questions related to estimated prevalence of Johne's disease on your dairy and testing. Then you delve into five areas of your operation: maternity/calving area, pre-weaned heifers, post-weaned heifers, bred heifers and mature cows/bulls.

You can also hear and/or read tips and pointers related to these five

areas that can help you obtain the "best results" from the answers you provide. For example, Dr. Frank Garry, Colorado State University, addresses "Should I consider the best-case scenario (eg. The cleanest the calving pen ever is) or the worst-case (eg the filthiest conditions that ever occurs on my farm) when I answer the questions?" and two other important questions. Dr. Ernest Hovingh, Penn State, gives insight into the question "Should I consider the way things are NOW (eg we just started pasteurizing the waste milk fed to heifer calves) or the way thing WERE in the past (eg we

fed calves unpasteurized milk from the fresh and hospital pen)?"

**Here's a look at areas where the tool will assign your dairy a score:**

### **Maternity area**

- Multiple animals in area
- Manure buildup on pens/cows
- Calving location of Johne's suspects/sick cows
- Cow hygiene
- Calves born in non-maternity area
- Calves born in maternity area
- Length of time in calving pen

### **Pre-weaned heifer area**

- Colostrum management/feeding
- Unpasteurized "waste milk" fed
- Contamination of colostrum/milk/ milk replacer
- Contamination of starter feed and/ or water
- Contamination of pen and environment

### **Post-weaned heifer area**

- Heifer contact with cows/manure
- Manure contact with heifer feed
- Manure contact with heifer water
- Pasture shared with mature cows
- Manure spread on forage

### **Bred heifer area**

- Heifer contact with cows/manure
- Manure contact with heifer feed
- Manure contact with heifer water
- Pasture shared with mature cows



To complete the risk assessment, you'll provide information about five areas of your operation. Each area can be visited independently, in any order. After completing the forms for all five areas, clicking on the Risk Assessment Summary button will give you targeted feedback.

Manure spread on forage

## **Mature cow/bull area**

Manure contact with heifer feed

Manure contact with heifer water

Access to accumulated/stored manure

Manure spread on forage

"We use the risk assessment to teach producers about different risky behaviors and practices and the management changes that can help to lower the risk. The assessment process also helps producers prioritize risk factors, identifying the most valuable to address in a herd," McDonald states. "We want producers to think about their Johne's disease management practices and provide them with ideas regarding how to decrease the

number of infected animals in their herds over time.

"There is evidence that, by implementing strategic management practices—such as those discussed in this online application—and using targeted testing, a very low level of infection can be achieved in Johne's disease positive herds. Of course, as the entry page into the online tool states, we strongly encourage you to work with your herd veterinarian and other advisors to help you evaluate and assess your specific situation. There is no substitute for a hands-on walk through of your operation, and a face-to-face discussion of the best ways for you to minimize the risk of introducing and transmitting Johne's Disease in your herd. Optimal management and control of this

disease is definitely not a 'one-size-fits-all' solution!"

Why not take the time, go online and try out—or at least take a look-see—at this new Johne's disease tool. The website address is [www.jdrap.org](http://www.jdrap.org).

**For information about  
Johne's disease,  
contact your Designated  
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Ph (701) 328-2655  
or visit  
[www.johnesdisease.org](http://www.johnesdisease.org)**

## **Did You Know That. . .**

*. . . While Johne's disease is almost always introduced into a herd by the purchase of an infected animal, MAP can also be introduced through non-animal sources. These sources include vehicles, shared equipment, obtaining feed with potential manure contamination and cattle coming in contact with surface water that runs through adjacent farms.*

*. . . A calf can suck on or lick a manure-contaminated gate or fence or equipment such as a bucket and ingest enough MAP to infect it if the item has been contaminated with MAP-infected manure. Just a little bit of MAP-infected manure ingested can lead to Johne's Disease.*

*. . . There is no such thing as a "Johne's Disease Certified Free" herd. The statement within an advertisement that a herd is "Johne's Disease Certified Free" is not an official designation. No herd can guarantee it is Johne's disease free. A herd that has undergone rigorous testing can state that it is a low-risk Johne's disease herd for a test-negative herd—and that's as good as it gets.*

*. . . You should suspect Johne's disease when a cow or bull has a healthy appetite but doesn't gain or maintain weight and has diarrhea sporadically, then all the time and doesn't respond to treatment. Have your veterinarian have a look at the animal and run tests. If the animal tests positive for Johne's disease, there's a strong chance that other animals in the herd are also infected with MAP.*

*. . . Anyone selling replacement females, bred females or bulls—whether purebred producer or commercial producer—should be concerned about Johne's disease. Protect your reputation and help prevent the spread of Johne's disease by knowing your herd's Johne's disease status.*

## Johne's Disease - Going, Going, Gone??

Federal funding has disappeared, but Johne's disease has not gone away. This money-robbing disease is present in a significant number of dairy herds. A recent publication estimates that between 82 percent and 99 percent of all dairy farms in the United States with 30 or more cows are infected with the bacteria that causes Johne's disease—*Mycobacterium avium* ssp. *Paratuberculosis*, commonly referred to as *MAP*.

Dr. Ernest Hovingh, extension veterinarian, Pennsylvania State



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University, says the news about vaccines to help control JD is not "overly promising" at this time. He adds that, although efforts are being made to develop better and more effective vaccines, the availability of

any such vaccine is most likely several years away.

But does this mean that we should give up on Johne's disease?

"Not at all," Hovingh states. "The goal for most infected herds should be to eliminate virtually all clinical Johne's disease animals and achieve and/or maintain only a very low level of infection. The good news is that it appears that this is quite doable."

A number of recent studies have examined the efficacy of various management practices at reducing the transmission of Johne's disease within a dairy herd.

"Studies from Minnesota, Wisconsin and Canada suggest that implementing management factors to reduce calf hood exposure to the *MAP* bacteria is crucial to reducing Johne's disease," Hovingh states. "Our experience working with a number of infected herds over multiple years here

in Pennsylvania is consistent with these studies."

Hovingh and Dave Wolfgang, senior research associate, Pennsylvania State University, offer several relatively easy and inexpensive management practices that you can use to minimize the level of infection and the impact of this disease in your herd.

### Critical management practices

One highly important management practice is to reduce the exposure of calves to manure in the calving area by ensuring that the pen is kept extremely clean at all times. Ideally, you should have only one cow in a maternity pen at a time.

Another practice is to remove the newborn calf from the maternity area immediately to avoid contact with adult cows or their manure. Although this can usually happen more quickly (< 30 minutes) in large herds with round-the-clock maternity area personnel, Hovingh and Wolfgang emphasize that—if they want to reduce a newborn's potential exposure to *MAP*—this practice should also be standard in small- and medium-sized herds. The goal should be to remove a newborn calf within one to two hours of birth.

They add that, if *MAP* testing is routinely carried out such as via milk ELISA testing, calving pens can also be designated for test-positive and test-negative animals.

"What the calves are fed is also very important," Hovingh notes.

"Colostrum should be fed from cows that have at least one negative *MAP* test, and/or the colostrum should be properly heat-treated prior to feeding. Excess colostrum from test-negative animals can be frozen for later feeding to calves born to test-positive dams."

Johne's disease experts discourage the pooling of fresh or frozen colostrum from multiple cows.

"In extreme situations feeding of

colostrum replacers might be justified," Hovingh elaborates. "Similarly, if milk replacer is not being fed after colostrum, pasteurized whole milk should be offered. Manure contamination of colostrum or milk should be carefully avoided."

Hovingh and Wolfgang point out that testing of cows using milk, blood or manure *MAP* tests can be a useful addition to a herd management program. They add, however, that such tests should not be considered as the first, or only, practice to be implemented.

"Simply removing test-positive animals without implementing other management practices is a very, very slow—and usually ineffective—way to make progress at controlling Johne's disease in a herd!," Hovingh stresses.

Hovingh and Wolfgang say, in general, animals that have a "high-positive" test result are much more likely to develop clinical disease than low-positive or negative animals, and are much more likely to have their offspring test positive later in life. Their advice is that these animals should be sold for slaughter rather than be allowed to calve again on the farm.

"Although it is probably most economical not to cull cows just because they are 'low' or 'moderate' positives, these animals need to be handled as 'more infectious' than their test-negative herdmates," Hovingh tells. "And remember, some infected, *MAP*-shedding cows will test negative, so don't let your guard down with test-negative animals!"

To learn more about Johne's disease, Hovingh suggests visiting [www.jdrap.org](http://www.jdrap.org) to try out an online, interactive Johne's risk assessment tool.

"You should also discuss your Johne's program with a knowledgeable veterinarian who knows your farm and management practices and can offer some tailored, professional advice and suggestions," he summarizes.