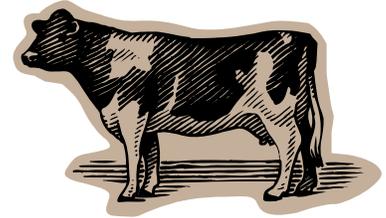


Johne's Disease in Dairy Cattle



Johne's Disease, caused by *Mycobacterium avium var paratuberculosis* (MAP), is a slowly-progressing but ultimately fatal disease of all cloven-hoofed animals. The bacteria are ingested early in life, absorbed through the ileum, and are phagocytized by macrophages. Here they can thrive and multiply without being exposed to antibodies, then spread to other cells, and cause chronic inflammation. This inflammation produces the intestinal thickening that leads to weight loss, severe diarrhea, and eventually death.

Facts about MAP/Johne's Infection

- Ingestion of MAP shed in feces is the most common route of infection; also ingested via milk
- A MAP-infected cow with **no symptoms** can shed 200 million bacteria per day in feces
- Milking cows also shed millions of bacteria in colostrum and milk
- A **one-time dose of one million bacteria** is considered enough to infect a calf
- Most animals that become infected will do so by 6 months of age

Economic Realities

In a 1000-cow dairy with 10% prevalence, costs can be as high as \$243,000/year!

- A MAP-infected cow can spread bacteria anywhere her manure goes: alley ways, run-off water, calf hutches and heifer pens
- A calf that ingests MAP will absorb some into the intestinal lining and shed the rest in it's feces ("pass-through"); the calf can be dispersing MAP even before becoming infected
- MAP-infected cows have lower feed efficiency, lower milk production, higher risks for other diseases, are less likely to breed back, and bring a lower slaughter value (which decreases cash flow)
- Clinical cows may get "tanked" at slaughter and owner will pay for disposal
- MAP can survive for long periods in the environment:
18 months in water troughs; 1-5 years on permanent pasture; 9 months in freezing temperatures; 9-12 months in lagoons and manure pits
- The estimated prevalence of MAP infection in dairy cows is 10-18% and 21% of herds have at least one Johne's-positive animal
- Just because a herd has good genetics and a good reputation does not mean they don't have MAP!
- Targeted surveillance is the best way to monitor MAP in a herd—perform fecal cultures on cows > 2 years of age as they freshen; most likely to find infected cows if they are there
- **Fecal culture has the highest sensitivity** (60% compared to 32-40% for other blood, milk, and direct fecal testing) **and is our best test at finding MAP-NEGATIVE animals**
- All available tests have good specificity (>95%), so **A POSITIVE IS REALLY A POSITIVE**

The connection between Johne's Disease in animals and Crohn's disease in people has not been established; however, MAP can be cultured from people with Crohn's, so a connection is still possible. Animal rights and anti-livestock groups use this potential to their advantage, and consumers **must** be able to feel that their food is safe. Control measures implemented now will go a long way toward reassuring the public that the Beef Industry is addressing this disease.

Ignoring the problem can have devastating consequences!

WHAT CAN YOU DO TO PROTECT YOUR CLIENT'S HERD?

Measures that decrease risks for Johne's will decrease risks for other diarrhea diseases (E. coli, Salmonella, Rota, Corona, Coccidia)

- 1. CREATE AND FOLLOW A GOOD VACCINE & DEWORMING PROGRAM THAT WORKS FOR YOUR CLIENT'S HERD**—healthy cows are more likely to calve easily and produce quality milk; sick cows are easier to identify; must fit with clients existing management plan to be implemented
- 2. PRACTICE AND BELIEVE IN BIOSECURITY—Don't be the source of infection**
 - Clean and disinfect boots, change coveralls/clothes before handling young stock
 - Soap and water (or hand cleaning gel) are your friends—hand washing goes a long way to decreasing disease spread
 - Clients are more likely to follow biosecurity procedures if they see the veterinarian doing so
- 3. HELP CLIENTS KEEP GOOD RECORDS—if a cow is diagnosed with Johne's, cull her calves from the herd; this isn't possible if her offspring can't be identified**
- 4. MAKE FEASIBLE MANAGEMENT CHANGES—assess the risks to each herd and decide what changes will and won't work for individual producers**
 - Contact Dr. Randy Wheeler, IDALS Voluntary Johne's Control Program 515-281-0866
 - The program provides a one-on-one consultation with the Iowa District Veterinarian to identify risks in a herd at no charge to the client—practitioner is welcome to contribute
 - Client may elect to participate in diagnostic testing to establish if MAP is in the herd and look for possible shedding animals
- 5. WATCH COWS AND BULLS FOR CLINICAL DISEASE. Cows are most likely to shed MAP when their immune system is stressed; this occurs during late pregnancy and just after freshening; include clean-up bulls in all herd health programs**
 - Look for cows that are in poor condition around calving, especially if they stand out from other herdmates—if every animal is on the same vaccine, deworming, and nutrition program, that cow has no good reason to be thin
 - Cows are most likely to shed around freshening so **this is the BEST TIME TO TEST**
 - Clean the maternity pen OFTEN to minimize contaminated bedding and manure build-up
 - Don't pool colostrum (especially if cows are un-tested); consider colostrum pasteurization
 - Do not keep sick cows in the maternity pen or around young stock
 - Keep calf hutches and pens away from potential contamination by cow manure and run-off
 - Clean water troughs to minimize manure contamination
 - If manure is spread on pasture, consider waiting to graze until following season
- 6. DON'T BUY THE PROBLEM—Ask for Johne's Herd Status and Test Results**
 - **Veterinarians can be a great resource for recommending low-risk herds;** you can advise which herds are doing a **good** job with herd health programs and disease testing without revealing anything about herds that are not
 - Purchase clean-up bulls and replacement heifers from known-status herds, ask for test results on the bull's dam or adult cows from the herd
 - Asking herd health questions of sellers doesn't make you mistrusting, **IT MAKES YOU A SMART BUYER**
- 7. Use the most appropriate and accurate testing for the type of herd being tested**—commercial and seed stock herds will have different priorities and various levels of acceptable risk
 - Blood and milk ELISA testing can be used for screening but has low sensitivity
 - Fecal culture tests can detect infective animals shedding MAP—best available test
 - Can use environmental testing to determine if MAP is present on farm at minimal cost