

## **Johne's Disease Information for the Cattle Client, Article No. Three**

---

*This is the third article in a series presenting the most current information and methods about Johne's disease in cattle. The clients' series is directed toward veterinary clients who want information about prevention or control this disease. Each article has been three-hole punched for your convenience. They can be collected and saved in any three-ring binder notebook for future reference. This series is being presented by the AABP Food Safety Committee. Information was edited and reviewed by the National Johne's Working Group, and endorsed for distribution by the USAHA.*

---

### **Critical Management Points for Prevention and Control of Johne's Disease in Beef Cattle Clients**

Prepared and edited by Don Hansen and Christine Rossiter  
of the AABP Food Safety Committee and the National Johne's Working Group

#### **Basis for critical management points**

1. Management points directed at prevention or control of Johne's disease will also reduce the risk for other important cattle pathogens such as rota and corona viruses, *E. coli*, *Salmonella sp.*, coccidia and *Cryptosporidia*. They will also help to improve animal performance.

2. Johne's disease is caused by the bacteria, *Mycobacterium avium subspecies paratuberculosis*, which infects the intestinal track. The infection causes diarrhea, poor performance, weight loss (despite good appetite) and death. Signs of the disease occur more commonly during the end stages of the infection, commonly at three to six years of age.

3. Not all cows advance to clinical disease. What proportion and why is unknown.

4. The infection is long lasting and mostly hidden or subclinical in nature. Only 1% to 5% of infected cows in the herd will show clinical signs at one time while the rest appear healthy. Thus, Johne's should be regarded as a herd-wide problem, not just a matter for individual cows that exhibit signs of disease.

5. Infected cows may shed the pathogen in their manure for months to years before they develop clinical signs. Such cows may

shed  $10^6$  to  $10^8$  mycobacteria/gram of their manure, thus severely contaminating their immediate environment. Two thimbles full of manure from such a cow may be enough to infect a calf. There may be 30 to 30,000 mycobacteria per ounce in her colostrum and milk. There also may be enough microbes circulating in her system to infect her unborn fetus still in the womb.

6. Johne's disease can be prevented, controlled and even eliminated from infected herds, by carrying out the critical management points. These points are based on understanding how the disease progresses within an animal, the ways in which the infection may be transmitted from animal to animal and that calves are the most susceptible to infection.

7. Prevention or control of Johne's takes commitment and time. Half-hearted attempts to prevent or control the disease will generally fail. Prevention is in all ways, cheaper than control. After the infection enters a herd it may be years before clinical signs are noticed and is likely to take five or more years to control. A shorter period for control is possible, but may be more expensive.

## Prevention

The NAHMS Beef '97 survey showed that 80% to 90% of U.S. beef herds were at low risk or may not have Johne's disease.

Therefore, prevention should be the goal of every beef cattle operator. There is a need for low-risk and infection-free replacement animals. Cow/calf producers should find out the infection status of their herd. If it is Johne's-free, producers should make plans to keep it that way.

The basics of preventing the introduction of Johne's disease are straight forward. Prevent introduction of the microbe by closing the herd to infected replacement, recipients, bulls or herd additions. Guard against entry of manure contaminated equipment, feed, water, colostrum and milk from other herds.

The current diagnostic tests for Johne's are adequate tools for use in disease prevention at the farm or ranch level to determine the infection status of the whole herd, or the status of potential replacement animals from tested herds. However, they have low accuracy in detecting the early stages of infection, even in mature animals. Negative test results from immature animals (<24 months of age) for Johne's generally have limited value.

The Johne's disease status of a source-herd provides critical information for estimating the infection status of an individual. Confidence that an animal, or herd, is not infected requires repeated tests with negative results, taken over time.

For interested parties, national, USAHA approved, guidelines exist to establish a low risk herd status using cost effective testing. Ask your state veterinarian for details.

## I. Critical Management Points for Prevention of Johne's Disease

### A. Prevent infections by closing the herd to animals with an unknown Johne's infection status.

1. *Purchase from a test-negative herd.*
  - The owner has individual cow/calf records.
  - The owner uses the critical management points against Johne's disease.
2. *Pretest mature cow and bull additions.*
  - Recommended only when animals are acquired from an outside source of unknown infection status.
  - Test them two or three times at six to twelve month intervals.

### B. Buy replacements and additions from herds that are at low risk for Johne's disease

1. *Obtain from a herd with negative Johne's history.*
  - The owner and veterinarian can document Johne's disease monitoring and the herd has had no Johne's cases for past five years.
2. *Acquire from a herd with low percentage of Johne's infected animals.*
  - Individual animals have tested positive for Johne's disease but herd history and test results indicate low prevalence or small percentage of infected animals.
3. *Purchase from a herd that tested negative on a sub-sample of the herd.*
  - Confidence in the actual Johne's disease prevalence will depend on sub-sample size. Ask your veterinarian for details.
4. *Pre- and post-test adult animal additions.*
  - Keep them isolated until cleared by tests.
  - Test them two to three times at six to twelve month intervals.

## Control

Additional steps are required for control of infection. The critical management points are aimed at protecting young stock from infection and reducing the number of mycobacteria in the environment to decrease risk for transmission to young cattle.

Capitalize on the decision to manage against Johne's disease by including other health and performance issues that involve the same management areas and can be targeted as additional goals. Examples include reducing risk for other pathogens, improved calving management, improved heifer development, reducing feed waste, improving pastures, etc.

## II. Critical Management Points for Control of Johne's Disease

### A. Reduce infections by manure management (all manure is suspect)

1. *Reduce exposure to M. paratuberculosis for newborns.*
  - Avoid a manure buildup in pastures and corrals where late pregnancy cows are kept.
  - Clean calving area, keep cow density low, avoid overcrowding.
  - Move new cow/calf pairs to clean pasture as soon as bonding occurs.
  - Avoid keeping high risk cows in common calving area.
2. *Provide clean feed for young stock and mature animals.*
  - Avoid manure contamination of feed by using feed bunks and/or hay racks.
  - Use separate equipment to handle manure and feed.
  - Do not allow young stock and infected adults to use the same feed, pasture, or water sources.
  - Consider forage crops that had fresh manure applied during the same growing season as a risk to young stock.

3. *Provide clean water for young stock and mature animals.*

- Supply clean water, not contaminated by potentially infected animals.
- Use troughs or panels to restrict access to streams and ponds.
- Divert manure runoff from water sources.

2. *Keep manure from mature animals separate from young stock.*

- Raise weaned young stock in separate facilities.
- Prevent transporting bacteria to young stock by people, runoff and equipment.

### B. Reduce infections by colostrum management.

1. *Feed "low risk" colostrum.*

- When certain calves need a colostrum supplement, collect it from healthy cows, negative on recent tests.
- Thoroughly clean the udder and teats before collection to avoid fecal contamination.
- Consider using quality commercial colostrum supplement products.

### C. Reduce infections by management of infected animals.

1. *Identify and remove clinical and late-stage animals as soon as possible.*
  - Watch for and confirm diagnosis of Johne's-suspect animals early.
  - Cull test-positives immediately, or segregate them from calving area and young stock.
  - Consider culling or segregating all offspring of these infected dams.
2. *Test to manage subclinical animals and define herd status.*
  - Develop and carry out an appropriate test strategy to identify subclinically infected animals.
  - Cull, segregate, or manage them to prevent transmission of infection to others.
  - Have a plan for high and low risk animals, based on test results, that enhances control efforts.
  - Schedule herd-testing to provide optimal information for herd

management, e.g., testing at herd pregnancy examination or herd vaccination time.

3. *Be aware of disease risks when adding animals to the herd.*

- Know the risk in the source-herd for infections one may bring in, i.e., Johne's, Salmonella, BVD or Cryptosporidia.
- Consider pretesting, including the source herd, where appropriate.
- Isolate, observe and test new arrivals before adding to herd, then integrate into the routine test program

**D. Work with your veterinarian, family members and key employees to develop a plan**

- Ask your veterinarian to assist in developing a prevention or control plan.
- Ask your veterinarian to help assess herd history and estimate the level and potential impact of Johne's disease.
- Ask your veterinarian to help do a risk assessment of areas where infection can spread on the farm or ranch.
- Define specific control measures to meet your objectives and situation.
- Involve family members and/or employees and other advisors, as a team responsible for carrying out the plan over the long term.