



Overview for beef producers who sell breeding stock

Imagine that your best cow, the female that made you proud in the show ring and in the field, is pregnant with her third calf. She never gained right after her last calf. You figured she just wasn't getting enough feed, so you gave her extra. She had a little diarrhea, on and off, but you figured it was from the protein supplement. Now, she has diarrhea all the time, and despite a real healthy appetite you can't put any weight on her. Your vet came out to have a look, ran some tests, and now is back to talk to you. She says your cow has Johne's disease (pronounced "yo-knees", not "johns" or "joanies"). What do you need to know about Johne's disease to make rational decisions about the cow, the calf, and your herd?

What is Johne's disease?

Johne's disease is a chronic, incurable infectious disease of cattle caused by the bacteria *Mycobacterium avium* subspecies *paratuberculosis*, sometimes abbreviated MAP. Johne's disease is difficult to detect and easily spread. There is no approved treatment, no cure, and infected animals will eventually die from this disease.

How do cattle become infected with Johne's disease?

Generally, calves are infected when they are less than six months old, often before 30 days old. There are three major ways they can become infected: (1) calves can be born with the infection (in utero infection from infected cow); (2) they can ingest the bacteria in colostrum and/or milk from an infected dam; or (3) they can ingest the bacteria from manure coated udders, by licking or sucking on manure contaminated gates or other equipment, or from contaminated feed or water. Ingestion of infected manure is the major way beef calves become infected.

Who is most susceptible to Johne's disease?

Calves are very susceptible to Johne's disease. Young stock can become infected after ingestion of a small number of bacteria. As cattle age they become less susceptible to the bacteria.

How does feed or water become contaminated?

Feed and water become contaminated through manure from infected cattle. Johne's disease starts out in the small intestine (ileum). The bacteria grow and thrive; some move from the intestines to other parts of the body and some are excreted in the manure. The bacteria ends up in water sources and fields, and can end up in the feed.

Why is Johne's disease so difficult to manage?

There are three major reasons why Johne's disease is so difficult to manage: (1) Cattle are infected at a very young age, but it is years later, sometimes as many as 10 years later, before the infected animal shows signs of disease. (2) The bacteria that causes Johne's disease is very hearty and can survive in the environment for up to one year. (3) There are no perfect tests for detecting infected animals and interpreting tests results is not straightforward.

What does a cow with Johne's disease look like?

Many animals with Johne's disease look and act perfectly normal with no evidence of disease. These animals with subclinical infection may be shedding organisms in their manure. As the disease progresses, there are recognizable outward clinical signs, including severe watery diarrhea and weight loss. The diarrhea does not respond to usual treatments and the weight loss occurs despite normal or increased appetite. Basically, the intestine is so damaged by the disease that it cannot do its job – so nutrients and water are lost in the manure. Along with nutrients and water, the *Mycobacterium paratuberculosis* are found in the manure.

How does Johne's disease enter a farm?

Although Johne's disease is almost always introduced into herds by the purchase of an infected animal, common sense biosecurity practices can help reduce the chance of the disease being introduced through non-animal sources. These include vehicles, shared equipment, obtaining feed with potential manure contamination, and preventing cattle from coming in contact with surface water that runs through adjacent farms.

How do calves get Johne's disease?

- In utero, from infected dam
- Colostrum & milk, from infected dam
- Colostrum & milk, contaminated with bacteria from manure
- Manure-contaminated water (tanks, ponds, wetlands)
- Manure-contaminated feed
- Manure-contaminated gates, etc., that calves love to suck on

Anyone selling replacement females, bred females, or bulls, whether commercial or purebred, should be concerned about Johne's disease. Why should beef producers care about Johne's Disease?

- Loss of valuable genetics
- Loss of markets
- Protect image
- Prevent spread
- Economic losses (decreased weight & fertility)
- Potential human health implications

How can producers keep Johne's disease off their farm?

Since Johne's disease is almost always introduced into herds by the purchase of an already infected animal, it makes sense not to buy animals with Johne's disease. But this is where it gets really complicated and difficult for producers and veterinarians. The nature of the disease (early infection with late onset of clinical disease; intermittent shedding of bacteria in manure) and the lack of a test that can reliably identify carrier animals early, make it difficult to detect Johne's disease especially in young stock.

The best way to keep Johne's disease off your farm is to close the herd. If you must buy, know your sources. Buy your cattle from producers who test for Johne's, participate in the USDA-Michigan Voluntary Johne's disease Program, and have achieved a "status level" through testing.

Some producers advertise a cow or a herd that is "Johne's Disease Certified Free", what does this mean?

The statement "Johne's Disease Certified Free" is not an official designation. Ask to see Johne's test charts. Repeated testing for Johne's disease decreases the risk that animals in that herd have Johne's disease, but it does not guarantee them "Johne's disease-free".

Why is it necessary to cull a test-positive cow with diarrhea and weight loss?

This cow is infected and shedding bacteria, in huge numbers, throughout your farm, which is a great risk to your other calves. Because of the nature of the disease, Johne's often follows family lines. The recommendations to beef producers who have Johne's and are serious about getting rid of it are to cull cows that test positive and to cull the natural offspring of these cows. The offspring are at greatest risk for having subclinical infection.

Can I still show this cow?

Cows with clinical Johne's disease or fecal positive cows should be culled. It is illegal to transport Johne's disease-positive cattle across state lines except to slaughter. In many states, Johne's disease is a reportable disease, and veterinarians are required to report finding it to the state veterinarian. Show rules generally state that animals with infectious disease are not to be shown, and of course it would be against state and federal regulations to take an animal with an infectious disease across state lines.

So now what?

One Johne's disease test-positive cow on the farm usually is the tip of the iceberg. You need to decide, based on your market, your genetics, and your finances how aggressively you want to pursue the problem. Work closely with your veterinarian to plan and implement a long-term strategy for your operation.



How to control Johne's disease on your farm

- No quick fix! PREVENTION PAYS!

If your farm is free of Johne's disease, keep it free of Johne's disease!

- Prevent introduction of the disease
 - Purchase only from Status Level Herds
 - Pre purchase exam/tests
 - Closed herd
 - Isolate/retest additions

If you have Johne's disease

- Management is the key - Your control program must be tailor-made for your farm
- Get your veterinarian involved
- Test and cull
- Cull offspring of test-positive cows
- Hand rear calves
- Fence off contaminated water supplies
- Avoid overcrowding/muddy conditions, especially at calving