BRITISH COLUMBIA | Ministry of Agriculture and Food

Johne's Disease

Alternate Names: Paratuberculosis, MAP.

Species Affected: Ruminants – cattle, sheep, and goats primarily, but also observed in wild ruminants, pigs, rabbits, and carnivores (such as dogs and foxes).

What causes Johne's Disease? *Mycobacterium avium paratuberculosis* (MAP), a type of bacterium that causes intestinal inflammation and impairs nutrient absorption. MAP are resistant bacteria and survive for >1 year in manure-contaminated environments.

How is Johne's Disease transmitted? MAP is present in manure from infected animals. Calves, lambs and kids under 1 year of age are prone to infection with MAP by eating or licking manure-contaminated colostrum, milk, bottle nipples, footwear, equipment, tools, or the environment.

What are the clinical signs of Johne's Disease? Even though animals usually get infected with MAP soon after birth, clinical signs of Johne's Disease show between 2 and 6 years of age (i.e. Johne's Disease has a long incubation period). They include decreased milk production, periodic or persistent diarrhea (common in cattle, less common in sheep and goats) and progressive weight loss. Animals eventually become very thin and weak. If not culled, symptomatic animals will become too weak to stand and remain downers (i.e. unable to stand up) until they die.

What are the consequences of Johne's Disease? MAP-infected animals are a constant source of contamination for the herd leading to production losses due to decreased milk yield, poor weight gain, and death.

How is Johne's Disease detected? Because of its long incubation period, relying on clinical signs to detect Johne's Disease allows for silent spread of MAP in the herd. Because MAP is shed in manure on an intermittent basis ("on and off"), a combination of laboratory tests is necessary for timely detection of Johne's

disease. Testing is aimed at detecting MAP in the herd rather than individual animals and include serology (study of blood samples to detect an immune response -antibodies- against MAP), PCR on pooled manure samples (Polymerase Chain Reaction, a molecular test to detect MAP genetic material), observation of intestinal damage on dead animals, and histopathology (observation of tissues under a microscope).

How is Johne's Disease prevented? Prevention is key to limiting the spread of Johne's Disease between herds. Necessary actions to prevent contamination include:

- Maintain a closed herd or if necessary, purchase replacement animals only from test negative herds.
- Avoid exposing calves, kids, lambs, etc. to potentially infected manure. Only use maternity pens for birthing, keep pens clean and provide deep, clean bedding.
- Use pasteurized colostrum or only purchase commercial colostrum supplements or colostrum from a Johne's negative herd.
- Regularly clean all tools and equipment used to feed newborn animals.
- Keep separate tools to move feed and manure.
- Practice good livestock, feed, water, pasture, manure, and runoff management.
- Remove and test animals showing signs of Johne's from the breeding herd.
- Annual herd testing is recommended.

Managing a Johne's positive herd to limit the economic and animal health impacts or attempting to eradicate Johne's Disease from a herd is complex and should be done in consultation with a veterinarian familiar with the farm. There is no available vaccine against Johne's Disease in Canada.

How can Johne's Disease be treated? There is no effective treatment. Available antibiotics don't kill MAP. The antibiotic monensin (Kexxtone®), labelled for use in dairy cattle, reduces MAP shedding in adult cows as part of a Johne's Disease control plan.

Is Johne's a Reportable disease?

Because of its severity and consequences Johne's Disease is a Notifiable disease and all suspect and confirmed cases in British Columbia must be notified within 24 hours to the Office of the Chief Veterinarian.

Is Johne's Disease zoonotic (transmitted from animals to humans)?

The association between Johne's Disease and Crohn disease, which causes chronic intestinal inflammation in humans, has not been proven or denied so MAP is potentially zoonotic.

References:

- Collins, M. T. (2021, November 15). *Paratuberculosis in ruminants - digestive system*. Merck Veterinary Manual. Retrieved December 10, 2021, from https://www.merckvetmanual.com/digestive-system/intestinal-diseases-in-ruminants/paratuberculosis-in-ruminants .
- *Johne's disease*. Johne's Disease - Beef Cattle Research Council. (n.d.). Retrieved December 10, 2021, from https://www.beefresearch.ca/research-topic.cfm/johnes-disease-51 .