

# How Does Johne's Disease Spread?

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While MAP (*Mycobacterium avium* subspecies *paratuberculosis*) can infect cattle of all ages, calves are considered most susceptible to infection. Environments in direct contact with adult cows are more likely to be contaminated, especially if any of those cows have high-positive test results.

The ingestion of MAP-laden manure via contaminated feed, milk, or water is the primary means of transmission. Teats of non-infected cows can carry infective MAP bacteria from the environment. Ingestion of MAP can occur when a calf suckles, via pooled colostrum from infected cows, when equipment is used to handle both manure and feed, or when manure contaminates a water source. Also, animals that come into contact with manure of other animals, for example at shows or fairs, could be at risk.<sup>2</sup>

## Milk and Colostrum



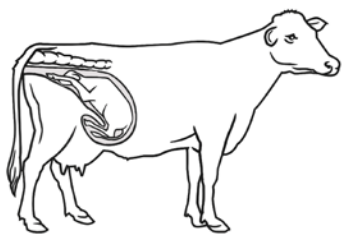
Animals in the later stages of infection can shed MAP in their milk and colostrum.

## Feed and Water



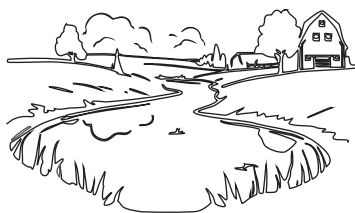
Contamination of feed and water is difficult to avoid with an infected herd.

## Placental Transport



Fetal infection is more likely with dams in later stages of the disease.<sup>20</sup>

## Contamination



Contaminated ponds & pastures are other transmission routes.<sup>2</sup> MAP can also survive ensiling.<sup>5</sup>

## Other Routes



Semen from infected bulls could transmit infection to a herd.

## MAP Incubation Period: Months to Years

Infected cattle begin shedding MAP after an incubation period that can last years. Animals infected with MAP before or immediately after birth may not show clinical signs for two to 10 years! Furthermore, animals often begin shedding the organism into the environment one to 2.5 years before exhibiting clinical signs. This means by the time an animal is diagnosed with Johne's disease, it may have transmitted the disease to other animals.

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## Johne's Disease Facts

Johne's disease is usually "purchased." Even a closed herd of many years can harbor MAP.

Fecal-oral transmission is the primary route of MAP spread.

An amount as small as a thimbleful of manure can infect a calf.

Infected animals usually begin shedding MAP into the environment over a year before showing clinical signs.

Johne's disease is subclinical during its long incubation period. It is present but does not create noticeable signs.

Not all transmission routes can be controlled. Fetal infection is beyond a farmer's control. Focus on what can be controlled.



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