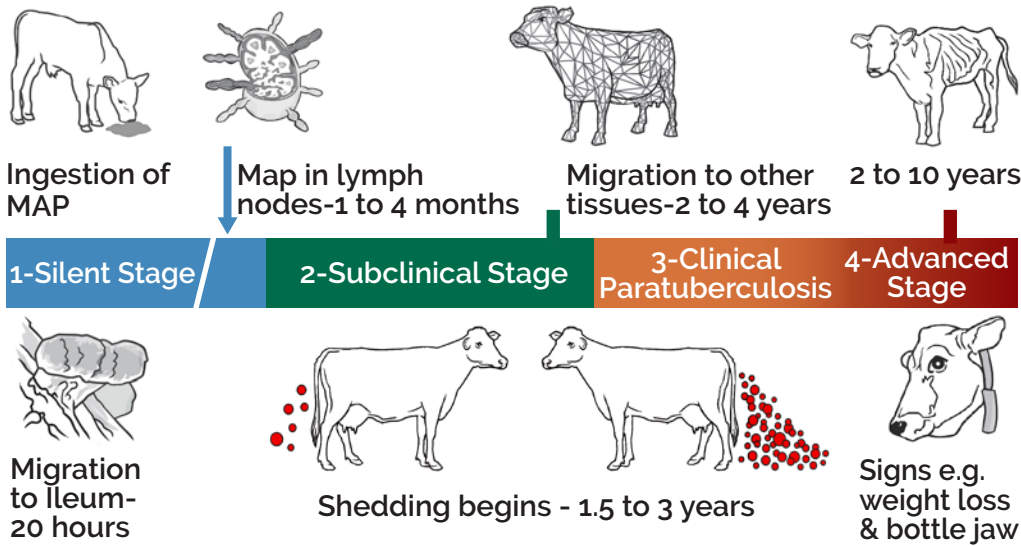




How Does the Infection Progress?

by Whitney Hull and Julie Smith, DVM, PhD

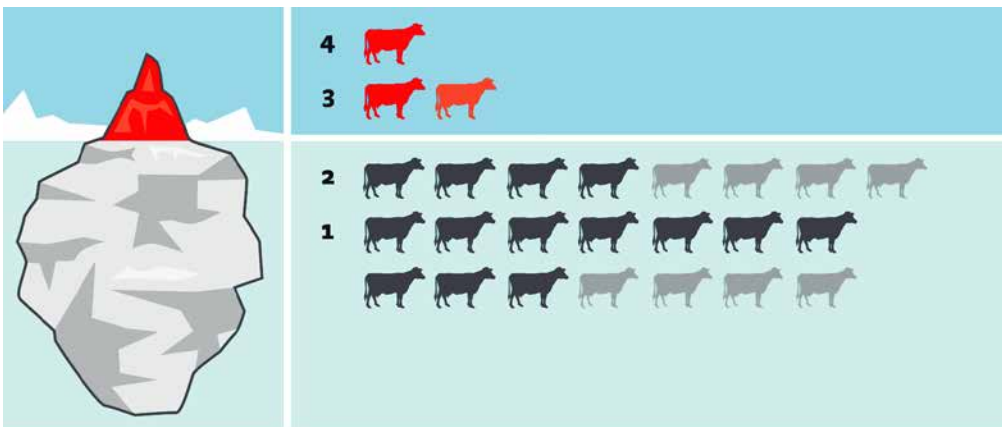
The Timeline of Johne's Disease Events



Signs of Johne's Disease: The Tip of the Iceberg

The distribution of MAP (*Mycobacterium avium* subspecies *paratuberculosis*) infected cattle among the four stages of the disease resembles an iceberg.

For every animal in stage 4, the advanced stage, there are approximately 1 to 2 in the clinical stage, 4 to 8 in the subclinical stage, and 10 to 14 with silent infections. Only 30 percent of these infections would be detectable by tests. That is why a clinical cow is just the tip of the iceberg as many other cows may be unknowingly infected.¹⁹



This figure represents the approximate number of cattle infected in a herd where one cow is identified in the advanced stage of Johne's disease.

Stages of MAP Infection

1. The first stage of infection is "silent" and undetectable by tests, yet MAP is invading immune tissues. Animals in this stage are not shedding organisms.
2. Subclinical adults begin shedding small amounts of MAP. The infection begins to migrate to other tissues. Some cases may be detected by fecal culture. This stage can last many years.
3. Clinical cows shed large amounts of MAP and may show symptoms such as intermittent diarrhea and gradual weight loss, caused by reduced nutrient absorption. Fecal and serological tests can detect clinical animals.
4. Cows with advanced disease exhibit lethargy, emaciation, and persistent diarrhea. Bottle jaw, or edema under the jaw, can also be present.



This material is based upon work supported by the National Institute of Food and Agriculture, U.S. Department of Agriculture, through the Northeast Sustainable Agriculture Research and Education program under subaward number ONE22-416-AWD00000495. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the view of the U.S. Dept. of Agriculture.

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