

Mycoplasma Mastitis: Learn Before You Get Burned

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Mycoplasma mastitis is one of the latest negative consequences of the recent trend of dairy herd expansion in Colorado. In the absence of proper biosecurity protocols, many mycoplasma epidemics coincide with or closely follow the purchase of herd replacements. The purchase of cattle that carry mycoplasma is probably the most significant mode of introducing this organism to a previously uninfected herd.

Mycoplasma mastitis is unresponsive to treatment and has the potential to cause severe losses in milk production. Because infected cows are highly contagious, early identification of infected cows is preferred. For herds that do not have a problem with mastitis-causing mycoplasma species, monthly bulk tank milk cultures are recommended. However, herds with a history of mycoplasma mastitis should be monitored more closely by culturing milk samples from the bulk tank, hospital pen, and fresh cow pen once a month. In both types of herds, every cow entering the lactating herd should be cultured to screen for mycoplasma organisms.

The Organism

Antibiotic treatment does not effectively eliminate the organism from an infected cow. Mycoplasma attaches itself to cells within the udder, leading to chronic infections with intermittent shedding that persist for the life of the cow. There are many species of mycoplasma but the one most commonly isolated from the udders of dairy cows is *Mycoplasma bovis* (*M. bovis*). *M. californicum* and *M. bovigenitalium* are two other common causes. It is extremely important to learn the type of mycoplasma isolated from cows on your dairy before initiating extensive culturing protocols. One single positive bulk tank is not definitive evidence of cows with mycoplasma mastitis, since there are many types of mycoplasma that can be found on dairies that do not routinely infect udders.

Clinical signs

Cows typically do not show systemic signs of disease such as fever or loss of appetite, even though milk production may be severely affected. Milk is usually brown to tan with a flaky or “sandy” sediment that settles out in a watery fluid. However, milk appearance will vary between cows and through the course of the infection. The signs of the active infection may last days or weeks. Cows may even be released from the hospital only to return within 24-48 hours. Often multiple quarters are affected, with different quarters exhibiting milk of varying consistency. Some cows will develop fibrosis within the affected quarter(s) while the udders of other cows are edematous and firm. Somatic cell count (SCC) is elevated in individual mycoplasma cows, and may lead to elevation of bulk tank SCC if enough subclinical cows are being milked in lactating strings. The percentage of cows that recover from the clinical signs of mycoplasma mastitis and return to normal production will vary from herd to herd, but permanent damage to the mammary tissue is unusual.

Mycoplasma mastitis should be suspected when cows are not responding to therapy or where multiple quarters are involved.

Sources of Infection

The most common source of mastitis-causing mycoplasma is the udder of infected cows. Infected cows intermittently shed the organism throughout the current and subsequent lactations. Clinical mastitis cows

shed billions of mycoplasma organisms in just a few squirts of milk, and pose an enormous threat to healthy cows in the herd. Cows in which the milk returns to normal following mycoplasma mastitis typically shed fewer organisms, and at varying intervals. These recovered cows are known as subclinical shedders. In addition, some cows can become infected with mycoplasma, shed organisms, but never show clinical signs of mastitis.

There are other less common sources of infection. A mycoplasma mastitis outbreak may be started when a mastitis-causing mycoplasma species infecting the respiratory tract, reproductive tract, or arthritic joints of a cow spreads to the mammary gland through the blood. Feeding mycoplasma mastitis milk to calves has been linked to outbreaks of pneumonia, ear infections, eye disease, and arthritis in these animals. Heifer calves may also act as a reservoir of mycoplasma on dairies, maintaining the infection until they enter the lactating herd and infect other cows. Because mycoplasma can survive in the environment for long periods, recycling water to flush alleys in freestalls could serve as a potential source of new infections.

Transmission

New infections that occur in milking strings are a result of poor milking technique. Mycoplasma is extremely contagious and can be carried between cows on milkers' hands, aprons and sleeves, or on equipment and towels. Proper milking technique and teat coverage with a high quality, 1.0% iodine post milking teat dip will help prevent new infections if subclinical mycoplasma cows exist within a herd.

Epidemics in the hospital string can occur when one recently infected mycoplasma cow joins the string and proper precautions are not taken: Milkers that strip out mycoplasma cows will contaminate the surrounding area, including their clothing and any nearby equipment or cows in reach of splashing milk droplets. A few squirts of mycoplasma milk are enough to carry the infection to every cow in the hospital if milkers are not trained in proper milking technique, or are not using a high quality iodine post milking teat dip. Improper infusion technique and use of contaminated equipment (especially milking machines and mastitis tubes) in the hospital may also allow a mycoplasma epidemic.

Less commonly, Mycoplasma may spread when infectious respiratory secretions or uterine discharges contact udders or calves are fed mycoplasma-containing hospital milk.

See insert for more information on monitoring and preventing mycoplasma mastitis