

Mycoplasma bovis mastitis (*M. bovis*)

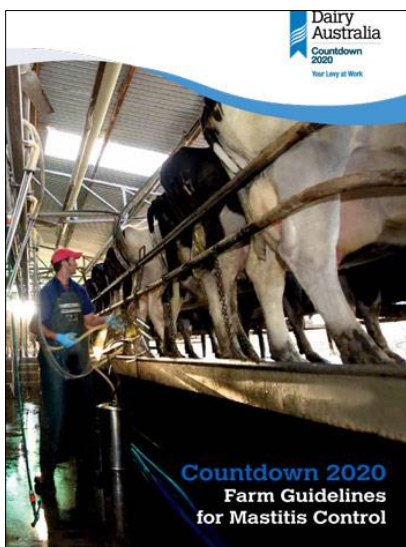
Biosecurity Fact Sheet

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Myc-001

Mycoplasmal (*M. bovis*) mastitis is highly contagious and results in a severe milk production drop in an affected cow. It has been rare in Tasmania but is becoming more common. It is a significant and costly disease of cattle.

Mastitis caused by *M. bovis* does not respond well to treatment while other forms of mastitis can – which is why it is important to know whether the early signs of mastitis are caused by *M. bovis* or by one of the other more treatable forms of mastitis.

[Countdown 2020](#) is the website for the national mastitis and cell count control program. It provides comprehensive and useful information for dairy farmers on mastitis control (including *M. bovis*).



Clinical signs

Mycoplasma causes both sub-clinical and clinical forms of mastitis. The classical signs of mastitis due to mycoplasma in a herd are:

- Increased incidence of mastitis cases that are resistant to therapy.
- Clinical cases that involve all four quarters/multiple quarters at the same time.
- Often the mastitis is non-painful.
- Cows with fever and off feed.
- Rapid decline in milk production.
- In some instances, the mycoplasma outbreak may occur at the same time as abortion, arthritis or pneumonia.
- Abnormal milk that is often brown to tan with flaky sediment in watery or serous fluid. Some milk samples when allowed to settle may appear to have a sandy, granular appearance.
- Sub-clinical mastitis cases are characterized by very high cell counts with normal appearing milk.

In either of the last two signs above, these observations are not unique to mycoplasma.

In addition to *M. bovis*, mycoplasma bacteria species are also capable of causing arthritis, reproductive disease (abortions), ear infections and respiratory disease in dairy cattle.

Diagnosis

Until recently, mycoplasma culture was the only reliable method used to diagnose *M. bovis*. It has been reported that normal mycoplasma culture methods can detect a single infected cow in a bulk milk tank sample from a herd of several hundred milking cows. Once infected cows are culled from the herd, subsequent cultures often result in no further mycoplasma isolations.

It is important to note that carriers shed mycoplasma intermittently and can sometimes be missed on a milk culture. Therefore, infected animals may not be identified and may not be ultimately culled from the herd. While the carrier cow intermittently sheds, there is a risk other cows can become infected.

Mycoplasma grows very slowly, so the culture can take up to 14 days to grow. That means the testing process is slow. Also, the culture test may not be reliable if the sample is contaminated by antibiotics, other infections or necrotic lesions.

A Polymerase Chain Reaction (PCR) test is now available for milk samples. The evidence so far is that this PCR test is as reliable as the culture test. The PCR tests for the presence of DNA consistent with *M. bovis* but does not demonstrate the presence of live *M. bovis* in the milk. Importantly, the PCR test is still reliable even if the sample contains antibiotics or other infections.



Milk sample affected by *mycoplasma mastitis*

Transmission

Cows that are chronically infected (also known as carriers) with *M. bovis* are the most likely way that *M. bovis* can be introduced into the herd.

It can be difficult to identify carrier animals as they intermittently shed mycoplasma and a single milk sample culture test may not always give a positive result, so repeat testing is a good policy.

Once *M. bovis* is in the milking herd, the highly contagious mycoplasma readily transfer from infected cows to non-infected cows during the milking process on the milking equipment, or on common towels used for washing or drying udders and milkers' hands.

M. bovis is very contagious and readily spreads from one quarter to another quarter in the same cow or to other cows during the milking process. In affected animals, *M. bovis* can be found in milk, joint fluids, reproductive tract discharges, and swabs from ears and the respiratory tract. *M. bovis* can also be found in the environment where it has been contaminated by affected animals.

Cows in any stage of lactation – dry or milking – can become infected. Dry cows can become infected during the process of administering dry cow intramammary preparations when there is inadequate hygiene, allowing the infection to pass from cow to cow on hands or instruments administering dry cow therapy.

Transfer is also thought to occur in cows with metritis due to uterine discharges transferring to the udder and teats. Some outbreaks of mastitis are associated with respiratory disease or arthritis in calves or cows.

In many cases of *M. bovis*, the precise source and mode of transfer cannot be determined.

Treatment

If your cattle are showing the early signs of mastitis, you should contact your veterinarian to test whether it is *M. bovis* or another form of mastitis (which may be treatable). You should call your vet before treating the cow with antibiotics, because antibiotic in the milk sample is likely to make one of the testing options (mycoplasma culture) ineffective.

There are no known effective treatments for *M. bovis*. A therapeutic vaccine (i.e. one that cures) has not yet been developed and the response to antibiotics is often poor, especially if there is already damage to the udder.

Until an effective treatment becomes available, cattle with *M. bovis* should be regarded as infected for life. With treatment not an option, the aim should be eradication – and that means testing and culling. Other forms of mastitis can usually be treated.

That is why it is so important to involve your vet and determine whether the problem is M. bovis or another form of mastitis.

What are some of the indications that mycoplasma is in your dairy herd?

- An increase in clinical cases of mastitis that are resistant to usual treatment practices, including dry cow therapy.
- Presence of mycoplasma in the bulk tank milk. This often occurs prior to any significant rise in the bulk tank somatic cell counts (SCCs).
- Increased bulk tank SCCs similar to other major mastitis pathogens. However, in large herds many cows may become infected with *M. bovis* before it is noted in the herd SCC.
- Isolation of mycoplasma in milk from cows with clinical mastitis cases.

Prevention

- If your herd is free of *M. bovis*, you can help keep it that way by quarantining and testing any introduced cattle before mixing them with your herd.
- There are no prophylactic (i.e. preventative) vaccines currently available for *M. bovis*, so early identification and culling of infected animals is the most important step in preventing infection

of other cattle. Herd test regularly so that you discover subclinical cases of mastitis – that is, at the early stages of the disease, before the animal starts showing the clinical signs (see above).

A PCR test on milk can identify whether an infected cow has mastitis due to *M. bovis*, and bacterial culture of milk can be used to investigate for other bacteria that cause mastitis.

- Review milking and mastitis control practice.
- Use careful hygiene when administering intramammary preparations.

Note that teat dipping and dry cow therapy will have no effect on the incidence of mycoplasma. However, both practices should be continued to prevent and control other more common contagious mastitis pathogens.

You should also ensure that your management of calves includes the biosecurity practices that will help minimize the risk of *M. bovis*:

- Handling the youngest calves first.
- Separate any sick calves from the healthy ones and wear gloves when handling or feeding them and remove those gloves before handling or feeding healthy calves.
- Sanitise calf pens between uses.
- If you have or have recently had *M. bovis* in your adult herd, pasteurize the milk fed to your calves or use milk replacers and test all replacement heifers before introducing them to the main herd.

Further information

Dr. Debbie Grull
Biosecurity Tasmania (Devonport)
☎ 03 6478 4121
✉ Debra.Grull@dpipwe.tas.gov.au

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