

M. bovis

PRECAUTIONS FOR CALF REARING

If you're buying or selling calves or milk, here are some simple steps you can take to reduce the risk of spreading *Mycoplasma bovis* (*M. bovis*) and other diseases.

M. bovis is a bacterial disease that can cause serious illness in calves and adult cattle. Calves can contract the disease through direct contact with infected cattle, or by consuming milk from infected cows. Eighty to ninety percent of infected cattle show no clinical signs, making it nearly impossible to detect a cow with *M. bovis* by looking at her.

Testing herds for *M. bovis* is complex, which means negative results are a good sign – but not definitive proof that a herd is completely free of the disease. Furthermore, *M. bovis* is shed intermittently by infected cattle. Shedding and clinical disease typically occur in times of stress, such as at calving. It is important that every precaution possible is taken to prevent *M. bovis* from spreading. This includes precautions when buying or selling calves or milk, when it's vital to take biosecurity practices and animal health history into account.

When buying calves

Stock movements are the highest risk for spreading *M. bovis*.

1. Purchase from as few sources as possible.
2. Deal directly with the source farm or via an agent.
 - a. Ask about any *M. bovis* test results available for the farm.
 - b. Ask if the farm has been subject to any *M. bovis* tracing by MPI.
 - c. Ask about the stock trading practices for the farm.
 - d. Ask if all stock movement records are up to date and recorded in NAIT.
 - e. Ask about cow and calf health on the farm for the past two seasons, and use the pre-purchase checklist available at dairynz.co.nz/mbovis.
3. Avoid buying from saleyards because of the cattle mixing that occurs there.
4. Purchase only calves with NAIT tags and promptly record all movements.
5. Ask your transporter to avoid mixing calves with other cattle in holding yards or on the truck.
6. Keep purchased calves isolated from your main group for seven days and monitor them for signs of disease.
7. Find a buyer now for your future weaned calves, if possible, and tell buyers about your efforts to reduce risk of *M. bovis* exposure.

When buying milk (or feeding calves on your dairy farm)

Feeding infected milk is the second highest risk of spreading *M. bovis*

1. Milk that has the lowest risk of containing *M. bovis* bacteria comes in these forms: calf milk replacer powder, acidified milk, or pasteurised milk.
2. If you're using milk replacer powder, order now to avoid problems with supply.
3. If you're feeding whole milk, consider the following:
 - a. Do not feed milk from cows under treatment for mastitis or other illnesses, this milk should be discarded. These cows are more likely to shed *M. bovis* into their milk than healthy cows.
 - b. Acidification with citric acid to a pH below 5 for at least 8 hours will kill *M. bovis* but below a pH of 4 the milk will be unpalatable and the calves will refuse to drink it. Our recommended target is 4.5.
 - c. Pasteurisation will kill *M. bovis* if the machine is working correctly and the proper procedures are followed. There is considerable financial outlay required for a pasteurisation machine.
 - d. Addition of yoghurt to milk is a less reliable way to reduce the pH, as this process takes more time and is temperature dependent to get the culture growing. If the pH doesn't drop below 5 for at least 8 hours, *M. bovis* will not be killed.
 - e. *M. bovis* is not killed by the addition of potassium sorbate preservative.

Advice for acidifying milk with Citric Acid

1. Use cool milk (10-24 degrees) or cold (<10 degrees) to minimise coagulation or clot formation.
2. Always add acid to milk, not milk to acid.
3. Acidification works best when citric acid is added to fresh milk.
4. When using citric acid, the rate is 5.5 grams citric acid per litre of whole milk, or 550 grams per 100 litres of whole milk, or 5.5kg per 1,000 litres of whole milk.
5. The acid needs to be sprinkled on top of the milk while it is being agitated.
6. Do not acidify below pH 4 as this will result in thickened milk and risks complete coagulation. In addition, calves will not drink milk with a pH of 4 or below.
7. Milk at pH 5 and below separates, but with gentle mixing goes back into a homogenous solution.
8. Gentle mixing of the milk twice a week is the recommended method. Continuous mixing causes coagulation, as does vigorous mixing.
9. Note for that systems that pipe milk, there may be coagulation in the pipes/tubes with blockage of lines and nipples. This may result in the feeding of "whey" to calves if casein coagulates.
10. The target pH is 4.5 for a minimum of eight hours. Using the method described here this should be achieved and the *M. bovis* bacteria will be killed.
11. Test the pH of milk half an hour after the addition of citric acid to the milk and again just prior to it being fed to calves. Use pH test strips which can be purchased online and are available in a number of other stores including at farm merchant stores. It can be difficult to keep electronic pH meters clean and calibrated when working with milk.
12. Citric Acid is available online and will be available at various other suppliers including at farm merchant stores this spring.