

Fact sheet: Bulk Tank Milk screening

Why does the *Mycoplasma bovis* Programme do Bulk Tank Milk (BTM) screening?

The routine screening of bulk tank milk samples for indications of *Mycoplasma bovis* infection has contributed significantly to the progress made towards eradicating *M. bovis* from New Zealand.

Bulk tank milk screening has been conducted monthly from July 2019. It provides an opportunity for the Programme to identify infected dairies outside the traced network of infected farms.

After the last infected farm has been found, the bulk tank milk screening programme will be a key component in providing confidence that New Zealand is free from *M. bovis*. This 'proving absence' phase will run for a number of years to provide a high level of confidence New Zealand is free from the disease.

Does industry support BTM screening?

Our Programme partners (DairyNZ and Beef + Lamb New Zealand) and the Dairy Companies Association of New Zealand (DCANZ) support the ongoing screening of bulk tank milk samples.

How is MPI able to test bulk tank milk samples?

MPI has provided a legal direction under the Animal Products Act 1999, which requires each dairy processor to provide bulk tank milk samples for *M. bovis* testing.

Why is screening being done year-round?

Many factors influence our ability to detect antibodies produced by infected cows. Factors include the number of infected cows contributing to the milk supply, the stage of infection, average milk production per cow and vat volume.

For this reason, it is important that dairies are screened at different stages of the lactation cycle to give us the best chance of detecting infected dairies.

How does BTM screening work?

The initial screening test used is an ELISA (enzyme-linked immunosorbent assay). The ELISA looks for antibodies that the cow has made to fight off *M. bovis*. Antibodies produced by the cow will end up in milk. The ELISA test has been designed to be highly targeted to detect *M. bovis* antibodies.

If a bulk tank milk sample is reported with a 'detect' result, this means that there is an indication that antibodies are present. This is not a confirmation of infection. A detect result indicates that further on-farm investigation by the Programme is required to determine the true infection status of the milking herd.

The PCR test may also be used on samples with suspicious ELISA results to look for further evidence of infection.



Biosecurity New Zealand

Ministry for Primary Industries

Manatū Ahu Matua

September 2020

How reliable is the test?

Over 99.7% of all dairies screened with the ELISA have non-detect results. This is due to a low number of infected dairies throughout the country and the high specificity of the test.

Less than 0.3% of all dairies screened give a detect result.

A highly specific test gives an extremely low rate of false-positive test results. There is no evidence that antibodies to other bacteria found in NZ cause detect results on the ELISA test. Antibodies to other pathogens such as those that cause leptospirosis and tuberculosis are also unlikely to result in a false positive ELISA test result.

We don't know exactly what causes false-positive results on the bulk tank milk screen. However, we do know that farms with a detect result are at a higher risk of being truly infected, than farms with a non-detect result. This is why we need to investigate all detect results. It is essential that bulk tank milk screening continues to help find the few remaining infected farms.

Do I need to do anything for the bulk tank milk surveillance e.g. take samples?

No, the screening is performed on samples routinely collected for composition and component testing. The *M. bovis* testing does not interfere with the testing needed for your milk payments.

What determines a detect result?

A herd is considered to have an ELISA 'detect' result if a single sample has an ELISA sample-to-positive (S/P) ratio of 30% or more, or two consecutive samples with an S/P ratio of 20% or more.

When are farmers notified of a detect result?

Farmers are notified of a 'detect' result within two to three weeks of the sample being taken.

We are working on an automated solution for reporting bulk tank milk non-detect results. Until then farms will only be notified of detect results.

What happens if my farm has a detect result?

Farms with a detect result will be placed under a Notice of Direction (NOD), restricting cattle movements while on-farm blood sampling of the herd is done to determine if the herd is infected.

The movement restrictions are necessary because they stop the movement of animals which might be infected, before they can spread infection to other farms.

We appreciate how disruptive this can be to farming operations, especially during busy periods like calving. We assign a designated case manager, who will be the primary point of contact. Our Farmer support advisers, DairyNZ and the local Rural Support Trust are also on hand to offer support and advice.

We work with farmers to get the sampling done as quickly as possible, and at a time that works alongside routine operations. Most farms only require one round of testing to determine that they are not infected. A small number of farms will require two or more rounds.

It takes two positive rounds of on-farm sampling for a herd to be diagnosed as infected.

A census of all cattle on your property will need to be conducted. A census gives the Programme an opportunity to identify cattle that may have moved off infected properties but not recorded in NAIT. The census can be completed after the NOD is revoked (if not already completed).



Biosecurity New Zealand

Ministry for Primary Industries

Manatū Ahu Matua

On average, how long does it take to get through the NOD and testing process?

In 2020, on average it has taken around 20 days to complete testing and lift the movement restrictions. In extraordinary situations, we can complete the process faster (if the herd tests negative).

Which cows are you going to sample?

The sampling criteria is specific to each farm and is determined by the makeup of the different animal management groups on the farm, and which animals were supplying into the bulk tank when the sample was taken.

Because each farm's sampling is specific, the Surveillance team that takes the samples and your case manager will talk to you about which animals are required to provide samples.

The sampling is designed to determine if the management group is infected, not individual animals, which is why all animals may not need to be tested. All cattle in the sick mob will be tested.

Can a farm have multiple detect results?

The risk of *Mycoplasma bovis* introduction onto a farm can change over time as new cattle are introduced. This is why the BTM screening occurs throughout the season - to continuously monitor for new incursions into milking herds. A re-detect may signal a true positive result depending on trading networks. All detect results need to be considered, even if the farm has previously tested as negative.

Bulk tank milk ELISA screening has been operating since 2018. As dairies are repeatedly screened, there is a small chance that a farm may have more than one detect result across time. The number of detect results reported are extremely low and the number of dairies with more than one detect result even smaller.

If a dairy is determined not to be infected after on farm investigation of a BTM detect result, the Programme may still need to come back to conduct another on-farm investigation if they receive another detect result or they are found to have been exposed to *M. bovis* at a later date.

The decision to come back on farm is not made lightly. A number of factors are assessed in the decision-making, including the time elapsed since the last investigation and any associations the farm has had with an infected farm.

For farms with re-detect results, the investigation will be prioritized so that samples are collected, tested and reported as a matter of urgency.

What if sick cows aren't providing milk into the bulk milk sample?

Sick, lame or antibiotic-treated cows that aren't supplying for pick up will not contribute to the sample. In an infected herd, there will be a mixture of sick and non-sick cows. There will still be cows contributing antibodies to the sample so this should not impact on the test's ability to identify the infection within a herd. As screening is ongoing, recovered cows put back into the milking herd will be included in the next round of testing.

What happens to calves on farms under a Notice of Direction?

Under a Notice of Direction calves cannot leave the farm, except to be bobbied (a permit is required to do this, which you can request through your case manager).

What about animals that have recently left a farm determined to be infected?

If we determine that your herd is infected, then we will trace the cattle movements that have occurred off your farm during the time that we believe it was infected. Those trace cattle will be culled (as they were part of an infected herd), and the cattle they've come in contact with, will be tested.



Biosecurity New Zealand

Ministry for Primary Industries

Manatū Ahu Matua

September 2020

Is there compensation for losses?

Farmers are eligible for compensation for certain losses incurred while under a legal notice such as a NOD, and affected farmers are encouraged to talk to [DBCAT](#) (DairyNZ and Beef + Lamb New Zealand Compensation Assistance Team) early in the process.

DBCAT provides free assistance preparing compensation claims and valuable advice about the compensation process.

For more information on the ***M. bovis*** Eradication Programme visit: mbovis.govt.nz



Biosecurity New Zealand

Ministry for Primary Industries

Manatū Ahu Matua