

Mastitis 3 is now Mastitis 4

The Mastitis test from CanWest DHI now provides information about Prototheca mastitis in addition to testing for *Staphylococcus aureus*, *Streptococcus agalactia* and *Mycoplasma bovis*. This enhancement is provided for the same price.

What is Prototheca mastitis?

Prototheca mastitis is an udder infection caused by a type of algae. This pathogen is considered both Contagious and Environmental and is found in many places in the cow's environment (cow manure, dirt, bedding, feed, yards, barns, etc). Cows infected with Prototheca also become a reservoir of the organism and, via leaked milk, a source of infection for other cows.

Prototheca mastitis can spread directly cow to cow at milking time or indirectly by contamination of the environment with milk or manure containing Prototheca.

Although the incidence is quite low in Canada, an increasing number of cows and herds have experienced Prototheca mastitis in the last few years.

Once a herd receives a diagnosis of Prototheca, cows in the herd are at an increased risk for having future cases. Screening cows on a routine basis is therefore frequently recommended to prevent further spread of Prototheca.

Prototheca mastitis does not respond to antibiotic treatment, therefore early diagnosis is important.

What are the signs of Prototheca mastitis in the cow?

Prototheca mastitis cannot be distinguished from other kinds of mastitis visually. Clinical signs are usually very mild (occasional flakes) or absent (only high somatic cell counts) in cases that later turn out to be Prototheca mastitis. A characteristic feature of Prototheca mastitis is that infected quarters slacken and dry off over weeks or months. Additionally, with time, cows with Prototheca mastitis can develop infection in additional quarters.

What should I do if any of my cows test positive for Prototheca on the Mastitis 4 PCR test?

Organisms can enter a DHI milk sample from within the teat (mastitis) or if present in the environment, can "contaminate" a milk sample from the teat skin surfaces at the time of milking. Therefore it is important that any PCR mastitis diagnosis be consistent with the signs seen in the cow, and be verified as "mastitis" and not coming from the environment (ie. contamination).

When the PCR test is positive a producer should check to see:

Is the cow's SCC elevated? (ie over 75K for first lactation, or over 150 K for multiparous cows). If yes, then it is likely she has mastitis and highly likely that the positive test identifies the cause of the infection.

Is the cow CMT (California Mastitis Test or "Paddle" test) positive on one or more quarters? Even if SCC is low, if one or more quarters have a positive CMT reaction, it is likely the cow has mastitis and highly likely that the positive test identifies the cause of the infection.

What if this is the first time my herd has had a positive test for Prototheca?

As Prototheca can also be present in the environment of the cows and therefore potentially be on the teat skin surface, it is important that first cases be confirmed by culture of an aseptically collected quarter or composite sample at an Animal Health Laboratory. Once a case is confirmed in the herd it is likely that future Mastitis 4 PCR positive tests consistent with cow signs (high SCC, positive CMT's) indicate mastitis and not teat skin contamination. Your vet can teach you how to take proper milk samples for culture. Culture cannot be performed on preserved or metered milk samples.

Validation of the Mastitis 4 test has confirmed that milk samples with a strong PCR result (2+, 3+) will very likely be positive on culture. Milk samples with a weaker result (1+) should be interpreted cautiously. This may be because a low amount of DNA is detected by the PCR test in the early stages of an infection or DNA may be coming from the environment (ie. milk sample contamination).

If PCR or culture results don't match the signs in the cow (ie the cow has a low SCC, or is CMT negative) then the test should be repeated at the next DHI test.

What should I do with confirmed Prototheca mastitis cows?

- Mark infected cows with a leg band so everyone on the farm can easily identify the infected cow
- Milk Prototheca infected cows last:
 - In tie stall barns, infected cows should have their own stalls and stay in them.
 - In parlours, infected cows should be milked last or with a "mastitis unit" as they come through the parlour.
 - In free stall barns Prototheca cows should be in a mastitis group and not housed with first lactation, fresh cow groups, or in the calving pen.
- Do not attempt treatment of Prototheca infected quarters. Treating or "killing" a quarter can make Prototheca mastitis worse. Antibiotics do not work on algal infections.
- Stop treatment of quarters known to be infected with Prototheca.
- Cull Prototheca infected cows as soon as it is reasonable to remove them.

It is strongly recommended that positive Prototheca results be discussed with your herd veterinarian before taking any action.