



New technology tackles old problem

New DHI mastitis test offers opportunity for improved udder health, milk quality and profitability.

As all dairy producers know, mastitis is an age-old problem and even today it continues to be the most significant disease of dairy cattle, costing the Canadian dairy industry millions of dollars annually. So it is no wonder that a new mastitis test being offered by CanWest DHI is generating a lot of interest. The new Staph ID test, which identifies the presence of the *Staphylococcus aureus* (Staph aureus) mastitis pathogen can be done using the same milk sample currently collected by DHI.



The new test, based on PCR-DNA technology, offers many advantages. Namely convenience, rapid turn around of results, improved accuracy and enhanced results reporting, including already captured DHI cow information (SCC history, milk production level, etc). Dr. David Kelton, professor at the Ontario Veterinary College and mastitis expert agrees. "One of the core strengths of DHI service is the routine aspect of sample and information collection and the resulting comprehensive database of cow and SCC information. Adding a convenient, reliable test for Staph au-

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reus, takes it a step further. This will be a good tool for producers and veterinarians."

According to Richard Cantin, Director of Customer Service for DHI, convenience will be the key selling point of this new service. "Sample collection for mastitis testing has always been time consuming and inconvenient which means it often didn't get done. The fact that the DHI sample can now be used makes it incredibly convenient"

Producers will have the ability to test the entire herd, selected cows, (such as newly purchased cows or cows displaying clinical signs of mastitis), or test cows that exceed a certain producer selected SCC level, where those samples will be redirected from the SCC analyzer to the Staph ID testing area. Early infection detection, even before clinical signs are present is extremely valuable. "The testing choices will be very flexible and it will be up to each producer and

their veterinarian to decide which testing options will be best for their farm" said Cantin.

Initially, the testing will focus on the identification of Staph aureus pathogen only, but the technology allows for the testing of all mastitis pathogens. "We're starting with Staph aureus since this type of infection is often associated with elevated SCC levels and probably has the greatest value for our customers, but we definitely intend on

exploring the possibility to offer a test for all pathogens" adds Cantin.

Dr. Kelton concludes, "At the end of the day, mastitis management has to occur at the farm and having good information for decision making is critical. This new test, in addition to other important farm and cow specific information will enhance the ability of producers and veterinarians to make better decisions, and that's a great step forward in mastitis management."

Producers should work closely with their veterinarian to implement mastitis best management practices, determine a testing plan for their herd and implement an action plan for test positive cows.

Due to initial lab capacity limitations, the new Staph ID test will be made available gradually by regions and to all CanWest customers as soon as possible. For more information on the new Staph ID test or to find out when it will be available in your region, ask your DHI field staff or call us at 1-800-549-4373.

A PRACTICAL LOOK AT CONTAGIOUS MASTITIS

Excerpt from National Mastitis Council (NMC) Factsheet. For more information visit NMC at www.nmconline.org or the Canadian Bovine Mastitis Research Network at www.mastitisnetwork.org.

Introduction

Pathogenic microorganisms that most frequently cause mastitis can be divided into two groups based on their source: environmental pathogens and contagious pathogens. The major contagious pathogens are *Streptococcus agalactiae*, *Staphylococcus aureus*, and *Mycoplasma spp.* With the exception of some mycoplasmal infections that may originate in other body sites and spread systemically, these three organisms gain entrance into the mammary gland through the teat canal. Contagious organisms are well adapted to survival and growth in the mammary gland and frequently cause infections lasting weeks, months or years. The infected gland is the main source of these organisms in a dairy herd and transmission of contagious pathogens to uninfected quarters and cows occurs mainly during milking time.

Organisms - *Staphylococcus aureus*

Staphylococcus aureus can be difficult to eradicate, but is definitely controllable. Infected udders are the most important source of infection. The organism readily colonizes teat skin lesions and the teat canal, and eventually passes into the mammary gland. The organism may also survive at other sites on the cow. Mastitis caused by *Staph. aureus* produces significant damage to

milk-producing tissues, and decreases milk production with reported losses of 45% per quarter and 15% per infected cow. Recurring signs of mild clinical mastitis often causes additional losses. High bacteria counts in bulk milk are generally not seen with *Staph. aureus* mastitis. However, as the number of infected cows increases, the bulk milk SCC increases, resulting in decreased milk quality. Herds with bulk tank milk SCC greater than 300,000 to 500,000 cells/ml often have a high prevalence of *Staph. aureus* infected quarters.

Control Procedures - *Staphylococcus aureus*

Staphylococcus aureus commonly produces long-lasting infections that can persist through the lactation and into subsequent lactations. To prevent *Staph. aureus* intramammary infections, it is necessary to limit the spread of this organism from cow to cow and to reduce to a minimum the number of infected cows in a herd. To attain these objectives, milk from infected cows should never come in contact with uninfected cows. *Staphylococcus aureus* infected cows should be identified and milked last, or milked with a separate unit from those used on uninfected cows. Clinical mastitis sometimes occurs following prolonged subclinical infections. An-

tibiotic therapy during lactation may improve the clinical condition but usually does not eliminate infection. Dry cow therapy may give better results than treatment during lactation, but even then, chronic infections can persist into subsequent lactations. *Staphylococcus aureus* infection status of cows should be one of the considerations when culling decisions are made.

To achieve a "Staph. aureus-free" status, every infected cow must be identified and handled as described in the preceding paragraph. The "uninfected" herd should be closely monitored by individual SCC and testing.

Summary - Controlling Contagious Mastitis

1. Prepare teats properly prior to milking.

Udders should be dry, and teats should be cleaned and dried prior to machine attachment using single-service paper towels or individual cloth towels which have been laundered and dried after each milking.

2. Use adequately sized, properly functioning milking equipment.

Use milking machines in a proper manner on properly prepared cows. Avoid unnecessary air admission into the teat cups during unit attachment, machine stripping and unit take-off that can cause irregular vacuum fluctuations.

3. Disinfect teats. Use an effective product after every milking. Postmilking teat disinfection is the single most effective practice to reduce the rate of new intramammary infection by contagious pathogens.

4. Assess clinical cases for treatment decisions. Most cases of clinical mastitis other than those caused by *Strep. agalactiae*, are only minimally affected by antibiotic therapy during lactation. Work together with the herd veterinarian to design a management protocol for mild, moderate, and severe cases of clinical mastitis.

5. Use dry cow therapy. Treat each quarter of every cow at drying off with a single dose of a commercially formulated, approved dry cow treatment product.

6. Consider culling chronically infected cows. Cows which are infected with *Strep. agalactiae*, *Staph. aureus*, or *Mycoplasma spp.* present a risk to noninfected cows in the herd.

7. Maintain a closed herd. If new animals are purchased, test them before adding them to the herd.

8. Establish an active milk quality program with the herd veterinarian.