New technology tackles age-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 fact that the DHI sample can now be used, makes it incredibly convenient.”

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 aureus, 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

Continued...
New Technology (Continued)

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.

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.

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.

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 cause 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. The bacteria damage the duct system and establish deep-seated pockets of infection in the milk secreting tissues followed by abscess formation and walling-off of bacteria by scar tissue. This walling-off phenomenon is partially responsible for poor cure rates of Staph. aureus infections by antibiotic therapy. During the early stages of infection, damage is minimal and reversible. However, abscesses may release staphylococci to start the infection process in other areas of the gland with further abscess formation and irreversible tissue damage.

Management Programs
Transmission of pathogens that cause contagious mastitis from infected cows to uninfected herdmates most generally occurs at milking time. Management factors important in transmitting contagious pathogens include the milking machine, milkers’ hands, teat washing materials and treatment procedures. Spread of contagious pathogens can be greatly reduced by good udder hygiene and postmilking teat dipping.

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. Antibiotic therapy during lactation may improve the clinical condition but usually does not eliminate infection. Infected quarters which do not respond to a single regimen of therapy are generally unresponsive to additional lactation treatment, regardless of culture and antimicrobial sensitivity tests. 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.
CHAIRMAN’S COMMENTS

ANOTHER PROFITABILITY TOOL

Every year the CanWest DHI Board devotes time to planning and, together with staff, set short and long term goals for the current year and subsequent years. Time is also spent during the two-day planning session to ensure that DHI remains relevant to modern and progressive dairy farmers.

To this end, our goal of introducing diagnostic testing using the test day milk sample is front and centre. Two successes towards this goal have been the introduction of Johne’s and Leukosis testing in January 2005 and April 2007 respectively.

Starting in March, we are introducing the Staph ID Mastitis Test. Using your test-day DHI milk samples, we will be able to identify the presence and quantity of Staph aureus in the cow’s sample by testing for the presence of the bacteria’s DNA. This test will enable all of us to reliably identify, isolate and manage cows harbouring this organism. The service will be made available on a rolling basis across the CanWest DHI service area.

Talk to your Field Staff for more information about this new tool to improve your profitability.

As we warm up the tractor to clear snow, once again remember that spring is not too far away. Enjoy the rest of winter and have a safe and successful spring!

John Bongers
Chairman, CanWest DHI

Maintaining a Staph. aureus-free herd is possible but may be challenging as Staph. aureus may reappear even in a closed herd. 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. Teat injuries and chapped teat skin during cold weather should be minimized because they predispose cows to Staph. aureus intramammary infections.

*Staphylococcus aureus* has also been implicated in intramammary infections in calves, breeding age heifers, and heifers at calving. The source of the Staph. aureus to infect these young animals is not known but may be contaminated bedding, feeding milk from Staph. aureus infected cows, cross suckling, or exposure to high fly populations. Pregnant heifers should not be housed together with dry cows, when a significant number of cows in the herd are known to be infected with Staph. aureus.

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.

When you’re busy, let us do the work!

Let DHI staff electronically register your animals! If you already provide your breeding information to your DHI staff, all that is needed to complete a registration application is calf name, and NLID and management numbers. Talk to your Field Staff next test-day about the benefits of electronic registration.
CANWEST DHI ELECTS BOARD CHAIR AND VICE-CHAIR

John Bongers was re-elected Chairman of the Board of Directors and Gordon Ell was re-elected Vice-Chairman at a regularly scheduled Board Meeting of CanWest DHI held January 13, 2009 in Toronto, following the 28th Annual Meeting.

John Bongers was re-elected by acclamation as Ontario Director, Zone 4, which encompasses Victoria, Peterborough, Hastings, Northumberland, Prince Edward, Lennox and Addington, Frontenac, Renfrew, Lanark and Leeds Counties.

Gordon Ell, a milk producer from Kronau, Saskatchewan begins his fifth year with the CanWest DHI Board and has served previously on the Holstein Canada Board.

Joining John Bongers and Gordon Ell on the CanWest Executive Committee are Directors Michael Hall of Mountain, Ontario, and Ed Friesen of Kleefeld, Manitoba.

Lyle Martin was re-elected by acclamation as Ontario Director, Zone 1, which encompasses the counties of Lambton, Middlesex, Elgin, Huron, Perth, Kent and Essex Counties.

Ken Schwaerzle was re-elected by acclamation as Director for a three-year term for British Columbia.

2008 REPORTS

Ontario producers should expect to see the 2008 Progress Report delivered to their farm by their milk transporter by late April.

Western producers should receive the 2008 Herd Improvement Report by mail in early May.

HERD HEALTH

To maintain a healthy herd and protect your future, milk test for Johne’s, Leukosis, and Mastitis.

Reliable Convenient Cost Effective

How does your dairy business compare with other progressive herds?

Find out with Profit Profiler.

For more information on Profit Profiler, please visit www.canwestdhi.com/profiler.htm or contact Bill Grexton at 1-800-549-4373 ext 254.
No matter what you are doing, there is this question: how well am I doing? Dairy farming is that way too. People compare BCA’s and milk production numbers all the time. However, a lot of the time, all they have to compare is an average or another dairyman’s numbers.

Here are two different thoughts to consider: Average is not a good benchmark for comparison; Knowing how many are ahead of you is more important than how far you are from the average.

Consider first the example that shows that “averages” can be misleading is days to 1st service. The average in the CanWest region is 90 days (which seems good as that would result in 12-13 month calving interval). However, the average of all herds to get semen into the first cow is 49 days and into the last cow is 190 days. If we just assume these numbers to be from a single herd, we are starting to breed cows at 50 DIM, but some cows are missed for 140 days (7 cycles).

Profits are lost because cows don’t see semen for months. Some reasons may be legitimate, but it still costs money. A recent paper from the University of Florida says that cost for every day open past the voluntary wait period is between $3.19 and $5.41. Let’s see now… 140 days x $4.00 = $560.00.

I realize that many of these cows are the exception but how many do you have that have been missed? Is it 10%, 25%, 50%?

A good way to see is to have the Dairy Comp report run GRAPH BRED1 by DIM LCTGP (see below), which will show the DIM when each cow was bred for the first time against where they are now in lactation.

In this example there is almost a 60 day range to first breeding. How is your herd? Are you doing a better job now than six months ago?

The second consideration is the number that are ahead of you. That is a tougher one to determine but there are two places where you can find where you stand in certain categories. The table on the back of the Herd Monitor and the Management Centers you receive with your Annual Summaries show you the percentiles for a number of measures. Where do you stand in comparison? Are 75% of the dairymen doing better than you in that measure? Are 50% doing better?

The Profit Profiler program addresses this issue a bit differently in that everyone has some strengths as well as some weaknesses. A person needs to be congratulated for a job well done, but also needs to look at the places where they are behind everyone else as an opportunity to improve profitability.

The graph shown below allows a person to see his strengths as well as opportunities. If a measure is in the shaded area (below the 25th PCTL line), more than 75% of dairymen in the comparison are doing better than him. If the bar is above the 75 PCTL line, he is doing a better job than 75% of the peer group.

In this example, production benchmarks are shown separately from cost of production benchmarks. This sample herd is doing a good job in most of the cost benchmarks but is struggling to make the 25 PCTL mark in many of the production benchmarks. The focus to improve profit is to focus on the production benchmarks where most of the dairymen are doing a better job.

So how do you measure yourself? By how far you are from average or by finding the animals or benchmarks that need improvement, and then planning to make an improvement there.

Profit Profiler is a service provided by CanWest DHI that is available to all dairymen. At the time of this printing, of the 40 herds involved in the pilot project in 2008, more than 1/3 have re-signed to do it again this year along with an additional 25 dairymen. Expectations are that 125 dairymen per year will use this service. More details about the program can be obtained by visiting www.canwestdhi.com/profiler.htm
Everyone knows that test day can be different from your regular milking routine and this may be stressful to some producers. However, one of the great conveniences of test day is the chance to get your pedigree registrations caught up to date. Each one of our field staff has the ability to electronically file your calf applications to the breed association on test day.

If you supply the breeding dates and pregnancy confirmations each test day, the registrations are usually completed in a few clicks and ready to go in minutes. Even if you don’t regularly supply all the dates on test day we can still enter them manually and it only takes a few minutes longer.

Holstein breeders, if desired, can also have the traditional photo or sketch attached to the file so that the registration paper has both visual and tag identification.

At the Customer Service Desk, we have noticed that the images can cause some problems for the staff person if they are not in the proper format as set down by Holstein Canada. Holstein Canada cannot accept the size of images that the new digital cameras are able to produce and the images have to be able to fit the space available on the certificate of registry. That means that the picture file cannot be larger than 200 x 200 pixels or 2 x 2 inches (5 x 5 cm), or 200 Kb. In addition to these constraints, the naming of the file is important for the filing program to attach it to the correct animal. When giving the file to your Field Staff, please name each picture as the animal’s registration number.jpg (ie. 7858461.jpg). Don’t include any extra information such as calf numbers (management numbers) or stable names. The last requirement is that the files cannot be enclosed in a folder – they must be stand alone files on the memory device you hand to Field Staff.

If your camera is set to take larger pictures, have someone help you with resizing if you are not familiar with this process.

With these few rules covered, the process of registering animals is efficient and therefore cost effective and frees you up from another one of those time consuming paper jobs.

Next test-day, ask your Field Staff about registering your animals so you can get caught up or to do them regularly and not get behind and avoid paying those late fees.