

Troubleshooting High Somatic Cell Cows

By Gary Trimmer
Director, Member Services / Quality Control



Finding the source of high bacteria counts on dairy farms can sometimes be difficult. Most of the time high raw bacteria and pre-incubated bacteria counts are traced to unclean pipelines, milkers or bulk tanks. Other sources of elevated bacteria counts are improper udder prep or slow cooling.

Infected cows can be another source of high bacteria counts. When cows become infected in the teats and udders, they not only get mastitis and shed high numbers of somatic cells but also can shed extremely high numbers of the bacteria causing the infection. One cow can shed enough bacteria to cause an entire load of milk to be rejected at the processing plant.

We recently had this situation occur where the likely cause of the rejected load was infected cows. The producer identified as causing the rejected load sampled several cows and submitted the samples to the Michigan State University-Diagnostic Center for Population and Animal Health (previously Animal Health Diagnostic Laboratory) for testing.

Test results identified Prototheca as a source of elevated counts. Prototheca is a colorless algae that can and does infect the udder of the dairy cows and is often shed through milk in very high numbers. Although Prototheca is not a bacterium, it looks like one under the microscope and grows like bacteria on

cultures. Prototheca has been found on dairy farms in just about every imaginable damp area such as pastures, freestall bedding, seepage from silage pits, water troughs, milking parlor wash water, etc.

The producer involved was sporadically experiencing elevated raw and PI bacteria counts for a couple of weeks prior to the rejected load. The MMPA Member Representative reviewed the farm's milking and cooling equipment as well as the milking procedures, finding all to be acceptable. Individual cows were then suspected to be the source of the problem. The producer removed five cows from the milking string, causing all counts to drop and remain at premium levels.

MMPA Member Testing Fees

Scheduled Herd Tests: \$1 per sample

- Includes three herd tests within 12 months
- The samples can be tested for any of the following: Culture for Streptococcus agalactiae, Strep non ag, Staphylococcus aureus, coagulase negative staph, total coliform, E-Coli. In addition, samples can be tested for somatic cell count, raw bacteria count, and components.
- All herd tests with more than 10 samples must schedule with the laboratory through your MMPA Member Representative. *Ten or more unscheduled cow samples will be charged at \$2 per sample.*

Mycoplasma Cultures: \$8 per sample

- Bacteriology Cultures: \$10 per sample**
- Includes identification of bacteria and drug susceptibility.

Johne's Milk Test: \$6 per sample

Payment for testing will be made through an automatic milk check deduction.

All tests must be scheduled through your MMPA Member Representative or the laboratory.

Quality Watch

In this situation, we could not visually identify the source of high bacteria and used a series of tests conducted on the bulk tank to help identify the source. The tests included raw bacteria, pre-incubated bacteria, pasteurized count and total coliform on the same tank every pickup. By evaluating the relationship between the various counts, the MMPA Member Representatives can identify sources of elevated counts.

Cows can be infected by several organisms that cause high bacteria counts, not just *Prototheca*. *Streptococcus agalactiae*, *Streptococcus uberis*, *Escherichia coli*, *Klebsiella* and others can, and do, cause high bulk tank bacteria counts. If cows are the source of elevated high counts, counts will generally

occur sporadically unless several cows are infected and shed at different intervals. It is important to understand that a cow can shed an extremely high number of bacteria one day, and by the next day not shed bacteria at all.

A cow's somatic cell count can also go from 400,000 one day to 5,000,000 in three days. When bacteria are present in the cow's udder, she produces somatic cells to respond to the infection, killing the bacteria. As the number of somatic cells increase, the number of bacteria decrease.

The growth cycles of bacteria in the udders are much like radio waves, having alternating peaks and valleys. These peaks and valleys occur at different frequencies depending upon the level of udder infection and stress level of the cow. The SCC follows the

same pattern as the bacteria but with a delayed response.

As a result, it is not always easy to identify the cows that cause the elevated bacteria counts. She may be high today and normal in two to three days. This sporadic shedding in both bacteria and SCC is why one day a sample culture can show positive for *Staphylococcus aureus* or non-agalactiae streptococci and a culture taken from the same cow the next day is negative for the same organisms.

To help control bacteria counts in cows, culture all of your clinical mastitis cows to identify the potential organisms. It is also very useful to culture sub-clinical, high SCC (high CMT) cows.

Continued on page 25

MMPA Quality Premium Program

Somatic Cell Count premiums and deductions (in addition to Federal Order SCC Adjustments computed in the producer pay price) will be paid at the following levels:

• 50,000 or below	+45¢ / cwt.
• 51,000 - 75,000	+40¢ / cwt.
• 76,000 - 100,000	+35¢ / cwt.
• 101,000 -125,000	+30¢ / cwt.
• 126,000 -150,000	+25¢ / cwt.
• 151,000 - 175,000	+20¢ / cwt.
• 176,000- 200,000	+15¢ / cwt.
• 201,000 -225,000	+10¢ / cwt.
• 226,000- 275,000	+05¢ / cwt.
• Over 750,000	-25¢ / cwt.

A payment of 5¢ / cwt. will be added for each of the following, if the count is equal to or below:

- 10,000 Raw Bacteria Count
- 20,000 Pre-Incubated (PI) Count

There will be a deduction of 10¢ / cwt. for the following criteria:

- Greater than 100,000 Raw Bacteria Count

A high raw count deduction will be waived if the producer has received the quality premium the previous three months for raw bacteria count.

To qualify for Raw, PI and Somatic Cell Count premiums there must **not** be any of the following during the month:

- Positive drug residue
- Abnormal freeze points
- High load count shipment or rejected load shipment
- #3 or #4 sediment *
- Raw Bacteria count over 100,000 *

The count levels for raw and PI will be determined on one test run per month.

** Note: These do not affect the somatic cell count premium.*

To qualify for MMPA volume premiums there must be:

- No high load count shipment or rejected load shipment during the month
- No positive drug residue shipments during the month
- No abnormal freeze points during the month
- An average somatic cell count of 750,000 or less.

Surge in MPC and Casein Shows Need For Tariff Bills

Imports of Milk Protein Concentrate (MPC) have grown rapidly in 2003, and are approaching levels not seen since 2000, according to the latest issue of ImportWatch, an economic analysis published quarterly by the National Milk Producers Federation.

The second quarter NMPF ImportWatch contains data for the first half of 2003 covering a variety of dairy products and ingredients brought into the United States. Of particular concern are those that have the potential to cause significant economic disruption to the domestic dairy market, such as MPC and cheese.

In the case of MPC, imports this year are up 39 percent from year-earlier levels, totaling 26,270 metric tons for all types of concentrated milk proteins labeled as "MPC." That compares to an import volume of less than 20,000 metric tons for the same time period in 2001 and 2002. Casein imports have risen 17 percent in 2003 compared to 2002.

"The rapid growth in MPC imports this year demonstrates the vulnerability of the U.S. dairy marketplace to products that have benefited from international trade loopholes for almost a decade. The unfettered access of MPC and

casein to our market points out the need for both a drastic change in future World Trade Organization rules, and the need for the U.S. Congress to pass legislation that will address these products," said Jerry Kozak, President and CEO of NMPF. Kozak was part of a U.S. dairy delegation attending the most recent round of WTO negotiations in mid-September.

Kozak's mention of a legislative solution to growing dairy protein imports refers to legislation introduced in both the House and the Senate that would impose tariff rate quotas on imports of MPC and casein. The House bill, H.R. 1160, has 153 cosponsors, while the Senate version of the bill, S. 560, has 30. NMPF has been the leading advocate on Capitol Hill of the need to pass these bills, called the Milk Import Tariff Equity Act of 2003.

Kozak said that NMPF "will continue its efforts this fall to urge Congress to enact this legislation. The popularity of these bills means that the House and Senate cannot afford any longer to ignore the support that exists in both chambers for the MITEA bills."

ImportWatch is published quarterly by NMPF, and is available on NMPF's website at www.nmpf.org/files/2Q.pdf.

Udder Singe



DAIRYMEN:

Udder health is the key! Using the UDDER SINGE for low heat flaming is a quick and easy way to eliminate long udder hair. Keeps dirt and manure off udders and teat ends. Lower SCC & bacteria counts. Control mastitis. Milking employees and equipment stay cleaner. Udder prep is more effective, milking time shorter. Prevention is less costly than treatment!

HEALTHY COWS WITH CLEAN UDDERS PRODUCE PREMIUM-PAYING QUALITY MILK

"The original UDDER SINGE"
Special Order through MMPA St. Louis
toll free (877) 367-6455

Increase Your Milk Check Premiums!

Quality Watch

Continued from page 7

Culturing can be conducted at MMPA's Novi Laboratory or Michigan State University - Diagnostic Center for Population and Animal Health. Once the organism is identified, it is easier to determine the source of where and how cows become infected allowing you to set up a strategy to prevent new infections from occurring in the herd. Preventing cows from becoming infected is the only way you can prevent cows from causing high bulk tank bacteria counts.

For more information on Prototheca infections or the culturing programs, please contact your MMPA Member Representatives or MMPA's Novi office.

REGISTERED HOLSTEIN BULLS

OVER 100 SERVICE AGE BULLS FOR YOUR SELECTION! A SPECIAL HERD SIRE OR A TRUCK LOAD OF BREEDER BULLS. READY TO GO TO WORK ON YOUR FARM!

GREEN MEADOW FARMS

6400 HOLLISTER RD.
ELSIE, MI 48831
PH: 989-862-4291

- SIRED BY THE TOP SIRES FROM THE U.S. AND CANADA
- FROM OUR TOP PRODUCTION COWS.