QUALITY MANAGEMENT, INC.

May 2006

QMI Newsletter

QMI Promotes Syringe Sampling of Tanker Trucks to Improve Sample Accuracy and Sampling Safety

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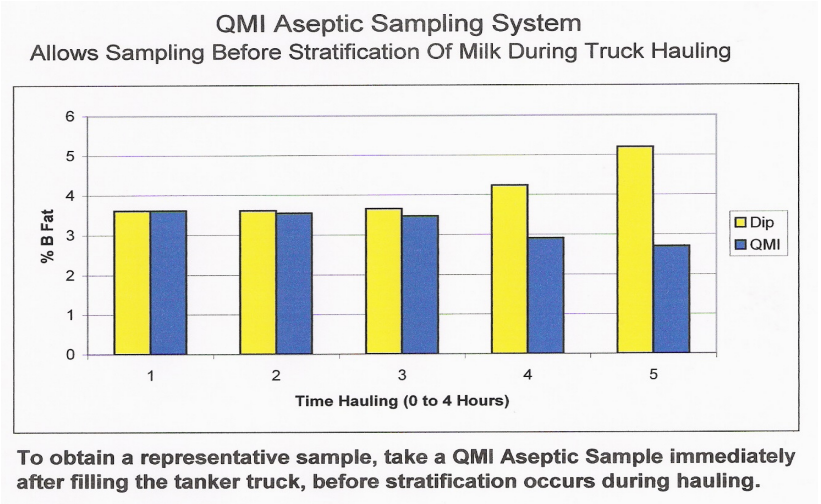
Presently approved sampling methods for tanker trucks require a dip sample be taken from the top hatch of the tanker truck. However, many people in the industry believe that a syringe sample taken from the side or the rear of the truck would be a preferred method of sampling because it would:

- Allow for a more representative and aseptically obtained sample
- Help with plant operation efficiency by taking samples at the plant before the truck enters the receiving bay
- Help the dairy industry comply with the Bioterrorism Preparedness and Response Act, and
- Improve sampling safety by allowing personnel to obtain a sample while standing on the ground.

Bob Gilchrist of AgriMark, Inc. has been a champion for this improved sampling method. Bob has fitted some AgriMark trucks with the QMI Sampler. He has also pointed out that the QMI Sampler can reduce the waiting time of the tanker truck at the plant by 20 minutes. This would dramatically improve plant operation efficiencies.

In addition, Chris Thompson at the University of Kentucky is presently managing research to determine the effect of stratification on sample accuracy. Table 1 below shows the effect of stratification over time on sample accuracy. The zero hour samples were taken at the farm of the last pick-up and then samples were taken at the plant.

QMI Tamper Evident Device (TED) Now Available from QMI. Visit Our Website For More Information



To obtain a representative sample, take a QMI Aseptic Sample immediately after filling the tanker truck, before stratification occurs during hauling.

As Chris points out, the most effective time to take an accurate sample is right after the truck has been filled.

Presently, QMI is conducting further research to collect data that will be submitted to the FDA for approval for use of the QMI Sampling System for obtaining a universal sample. At present, the FDA does allow syringe sampling for component analysis.

When the research is complete, we hope that the QMI System will be approved for obtaining antibiotic, SPC, and somatic cell data. We will keep you informed on our progress toward this goal.

QMI is Committed to Providing the Highest Quality Sampling Products Available on the Market Today !

QMI Proposes Test Procedures for Identifying Sources of Heat Resistant Psychrotrophic Bacteria

In previous Newsletters, QMI pointed out that the next challenge for the dairy processing industry is to monitor and control heat resistant psychrotrophic bacteria. These bacteria are significant for the fluid milk industry because they survive pasteurization and grow at refrigeration temperatures, causing product defects.

Heat resistant psychrotrophic bacteria in milk were first recognized by Mikolajcik in the 1970's. He and his fellow researchers pointed out that these bacteria are capable of causing product defects in fluid milk products.

Recent changes in the dairy industry have created situations favorable for the growth of heat resistant psychrotrophs. The dairy industry has Improved plant sanitation procedures, improved equipment and continued regulatory involvement and effective quality control and quality assurance programs. These have drastically reduced post-pasteurization contamination in fluid milk processing plants. This has enabled the dairy industry to increase shelf life (code). With the extended codes and control of post-pasteurization contamination, heat resistant psychrotrophs are able to grow resulting in product defects. The growth of heat resistant psychrotrophs results in product defects in 18-21 days.

To further improve dairy product quality, fluid milk processors need to determine what effect heat resistant psychrotrophs have on their products and to identify sources of these bacteria.

To determine the presence and effect these bacteria would have on dairy product quality, QMI suggests the following procedures:

1. Using the QMI 2 Liter Composite Bag and Aseptic Sampler, aseptically obtain a 2L sample of product at the High Temperature Short Time (pasteurizer),
2. Incubate the bag for 18-24 days (2 days beyond code) at 45°F,
3. Conduct a Standard Plate Count, and
4. Identify the bacteria using gram-staining procedures for any counts greater than 1,000,000/ml (gram positive bacteria will indicate heat resistant psychrotrophs).

To determine the source of heat resistant psychrotrophs, QMI suggests the QMI Heat Resistant Psychrotroph Test. This test involves:

1. Aseptically collecting a sample of raw milk using the 250ml QMI Bag and the QMI Aseptic Sampler,
2. Lab Pasteurize the sample in the bag at 75°C for 20 minutes,
3. Place in a 45°F incubator, and
4. Determine Standard Plate Counts at the end of code. Identify bacteria using gram-staining procedures.

Heat resistant psychrotrophic bacteria are significant to the fluid milk industry because they will survive pasteurization and grow at refrigeration temperatures, causing product defects.

QMI Composite 250ml Bag (Lab Pasteurization)

QMI speculates that the primary source of heat resistant psychrotrophic bacteria is from raw milk handling equipment. Several factors lead us to believe that:

1. *Bacillus* bacteria, the primary organism involved, tend to form biofilms,
2. The cold environment of the raw milk handling equipment favors psychrotrophic bacteria,
3. Stress, such as the removal or reduction of nutrients and water can cause the bacteria to sporulate,
4. Effective sanitation of raw milk handling equipment is often neglected,
5. The high humidity conditions favor sporulation, and
6. Contamination rates as low as 1 bacteria per liter could result in quality defects in pasteurized milk.

Table 2 below shows data collected by DQCI using the QMI Heat Resistant Psychrotroph test.

QMI® Heat Resistant Psychrotrophic Test Results

		Sample A	Sample B
Plant Silos	1/23/2006	9.0×10^6	1.0×10^7
	1/29/2006	2.0×10^5	2.0×10^6
	2/02/2006	6.7×10^7	1.0×10^6
	2/03/2006	2.0×10^5	$< 10^4$
	2/08/2006	3.5×10^7	3.5×10^7
Farm Bulk Tanks	2/24/2006	$< 10^4$	$< 10^4$
	2/26/2006	3.0×10^5	$< 10^4$
	4/12/2006	2.7×10^6	5.0×10^5
	4/12/2006	$< 10^4$	$< 10^4$
LP samples stored at 45° F for 18 days			

While this is not a complete study, it does indicate heat resistant psychrotrophic bacteria can be found in milk samples taken from farm bulk tanks and plant raw milk silos.

The University of Cornell is currently involved in an intense study to identify sources of heat resistant psychrotrophic bacteria in raw milk. When more information is available, we will let our customers know.

To learn more about monitoring and controlling heat resistant psychrotrophic bacteria call, e-mail or visit our website at www.qmisystems.com.

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Check out our new Website !

www.qmisystems.com

QMI will be exhibiting at the following events in 2006:

American Dairy Science Association (ADSA) and American Society of Animal Science (ASAS) - July 9—13, 2006

Minneapolis, MN

American Association of Bovine Practitioners - 39th Annual Conference - Sept. 21 - 23, 2006

St. Paul River Center - St. Paul, MN

QMI Presentations Given:

Upper Midwest Dairy Industry Association

"Effects of Heat Resistant Psychrotrophic Bacteria on Market Milk Quality"

Albert Lea, MN - April 5, 2006

Alexandria, MN - April 6, 2006

International Milk Haulers Association Convention

"Raw Milk Sampling Update"

Branson, MO - April 24, 2006

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