SPRING 2010

QMI® NEWSLETTER

SUCCESSFUL FIELD TRIAL OF THE QMI® DIRECT LOAD SAMPLING SYSTEM WITH A PERISTALTIC PUMP

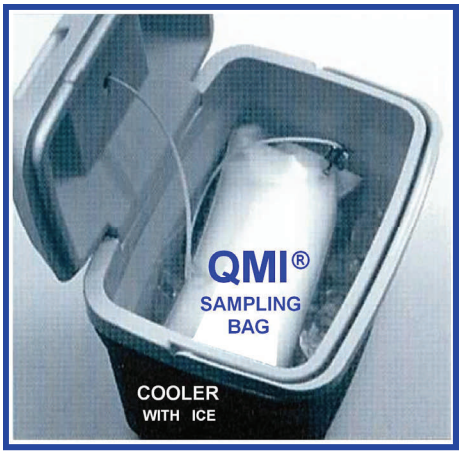
Farm Direct Load Method of raw milk handling is the preferred method for many dairy farmers. Traditional methods for direct load sampling are not aseptic, are inaccurate and are difficult to conduct. The Pasteurized Milk Ordinance (PMO) requires a representative sample. The newly introduced QMI® Composite Bag and Peristaltic Pump System is an accurate, safe and user-friendly method of sampling. For example, at Marks Farm, Lowville, NY, the QMI® System has operated successfully whereas other sampling systems have failed.

Comments from David Peck, owner of Marks Farm:
"QMI® inline sampling system has been operating here for approximately 4 months. We direct load 300,000 pounds of milk daily and have not had failures of the QMI® equipment. The results of the testing have been extremely accurate and dependable. An extremely simple, dependable, and accurate system."

Comments from Tom Angstadt, Director of Technical and Laboratory Services, Dairylea Cooperative, Inc.:
"An unrepresentative sample will lead to invalid results every time. Using the QMI® Aseptic Sampling System will help avoid these issues and yield a representative sample that can be tested to fairly evaluate the milk on the tanker, thus being a win/win for all parties involved."

The QMI® Aseptic Sampling System is FDA and NCIMS approved for direct load sampling by FDA Memo M-I-06-6.

QMI® Composite Bag and Peristaltic Pump System used at Marks Farm



The QMI® Sampling Bag should be placed in a refrigerator or in a cooler with ice

RESEARCH WAS CONDUCTED TO DETERMINE IF THE QMI® HEAT-RESISTANT PSYCHROTROPH TEST (HRPT) TIME COULD BE SHORTENED

The dairy industry has become very effective in controlling post-pasteurization contamination of fluid milk products. As a result, the microbiological quality of raw milk again is becoming the primary factor affecting shelf life. Previous newsletters have pointed out that pasteurized milk with a shelf life of 18 days or longer has a limited shelf life because of the growth of heat-resistant psychrotrophic bacteria.

The QMI® HRPT is used to identify sources of these bacteria. The test involves aseptically obtaining a raw milk sample using the QMI® Aseptic Sampler and the QMI® Composite Bag. Samples normally are taken from the farm bulk tank, over-the-road tanker trucks and raw silos at the dairy processing plant.

The raw milk sample is then lab pasteurized in the QMI® sampling bag and held at 45ºF for 18-21 days (end of code) and then a Standard Plate Count is conducted.

Previous research conducted by QMI® shows all three of these locations can be a source of heat-resistant psychrotrophs.

Under the direction of Dr. Mansel Griffiths at the University of Guelph, research was conducted:

- To determine the time/temperature combination for the most effective lab pasteurization for the QMI® HRPT,
- To determine if the test could be shortened by using a different combination of sample incubation temp/time,
- To evaluate whether a 250ml sample has an advantage over smaller samples, and
- To determine whether the oxygen permeability of the QMI® bag has an advantage for germination and outgrowth of psychrotrophic spore-forming bacteria.

Results from the research provided the following conclusions:

1. A heat treatment at 75ºC for 20 minutes is most suitable for lab pasteurizing raw milk for the QMI® test,
2. A sample incubation time of 7-10 days at 11ºC can be utilized to obtain results in half the time,
3. Sample size of at least 250ml is more effective than smaller sample sizes, and
4. The oxygen permeability of the QMI® bag enhances recovery and growth of spore-forming bacteria.

QMI® and the dairy industry are grateful to Dr. Griffiths and his co-workers for providing this valuable research. Any efforts that help control heat-resistant psychrotrophs will improve fluid milk quality.

QMI® HEAT-RESISTANT PSYCHROTROPHIC TEST (HRPT) RESULTS

A significant source of heat-resistant psychrotrophs is ineffectively cleaned and sanitized raw milk handling equipment. A study conducted by QMI® showed that samples from farm bulk tanks have a lower instance of heat-resistant psychrotrophic bacteria than plant raw silo samples (Table 1).

TABLE 1:

QMI® Heat Resistant Psychrotrophic Test Results

		Sample A	Sample B
Plant Raw 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	$< 10^4$	$< 10^4$

Lab pasteurized samples stored at 45°F for 18 days. Amounts per ml.

QMI® recommends that similar studies be done in dairy operations to emphasize the importance of effective cleaning and sanitizing of raw milk handling equipment. Many dairy plants may not be equipped with incubators and water baths to conduct the QMI® HRPT or the Modified QMI® HRPT (incubation of samples for 7-10 days at 11ºC). However, inexpensive equipment is available.

Below are suggestions for a water bath model and incubator model used to conduct the QMI® HRPT and the Modified QMI® HRPT. These are available from Nelson-Jameson, Inc. (www.nelsonjameson.com) and Weber Scientific (www.weberscientific.com), among other suppliers.

Speed Pro Bath Model RS-SP-100

Incufridge Model RS-IF-203

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QMI® TANKER TRUCK FITTING

As more and more trucks are being fitted with the QMI Sampler, requests from our customers indicated a need for a larger diameter tank fitting. Previously the tank fitting was only available in a 4" diameter. The QMI Insulated Tank Fitting (part number 2236) now also is available in a larger 5 1/2" diameter thus making it easier to install the QMI Aseptic Sampler, tighten the nut and take samples on tanker trucks.

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