

Monitoring Your Milk House Water Quality

Introduction

The Canadian Quality Milk (CQM) program requires all water that is used for milking equipment sanitation to meet potability standards for bacteria. Under the CQM program, water used for cleaning milk contact surfaces must be sampled at least once per year and tested for bacteria.

When to Collect a Water Sample

Depending on the water source, the amount of bacteria in the water supply can substantially change throughout the year. Collect a water sample when the water quality is expected to be the poorest. This is a true measure of the limitations of the water supply. Consider collecting a sample during a different season each year, to determine when the quality is the poorest.

Although not a requirement of the CQM program, additional samples should be collected for conditions that may contaminate the water supply. Such events include flooding, contaminant spills, water system renovations, and heavy rainfalls.

How to Collect a Water Sample

Choose a tap that is clean and free of contamination. Remove all devices from the tap such as hoses. Clean and disinfect the tap prior to collection. If a water treatment system is in use, the tap must be located after the treatment system.

Container

- Use a sterilized bottle to collect a water sample for bacteria. Bottles should be available from your local water quality laboratory or hospital.
- Keep the sample container clean and free from contamination before and after collecting the sample. Do not open the bottle prior to collecting the sample.
- Label the bottle with your name, address, sample collection location, date, and time.

Flush the system

- Allow the water to run for 3 to 5 minutes before collecting the sample. This will help remove stagnant water from the distribution system.

Collect the sample (Fig. 1)

- Do not rinse the bottle. The bottle contains a substance for neutralizing chlorine.
- Before sampling, reduce the tap flow rate enough to ensure that no splashing occurs as the container is filled. Water flow from the tap must be a steady stream. Collect the sample directly into the sterile bottle. Do not use a dipper or pail.
- Be careful not to touch the inside of the bottle or lip. Hold the cap in one hand with the inside facing down while the bottle is being filled. Do not touch the interior of the cap or lay it down. Take care not to touch the bottle to the tap during filling.
- Fill the bottle to the fill line or about $\frac{3}{4}$ full. Do not allow the bottle to overflow.



Figure 1. Proper procedure for collecting a water sample

Storage and transport

- Refrigerate the sample immediately or place in a cooler and store at 4° C.
- Transport the sample to the laboratory as soon as possible, definitely within 24 hours of collection. Check with the lab for deadlines for sample acceptance to ensure meeting the 24 hour criterion.

Where to Test the Water Sample

There are a number of qualified and accredited water testing labs throughout Nova Scotia that can test your milk house water for a fee. See your Canadian Quality Milk Reference Manual for a listing of labs in your area. Your local hospital may also provide water testing services.

What to Test the Sample For

The CQM program requires yearly milk house water testing for bacteria. The water sample must be tested for Total Coliform bacteria as well as *E. coli* bacteria (Figure 2).

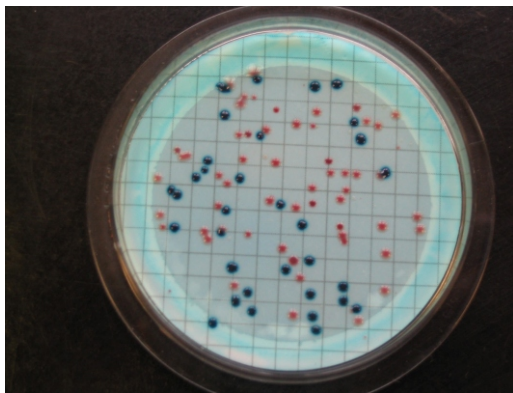


Figure 2. Petri dish containing bacteria from a water sample

Interpreting the Results

Total Coliforms

Total coliforms include pathogenic (disease causing) and non-pathogenic bacteria that are found naturally in soil and decaying organic matter. As such, the presence of total coliforms in a water sample may be an indication of the above matter entering the water supply.

E. coli

E. coli is a bacteria found in the intestines of warm blooded animals and in high numbers in fecal matter. Most *E. coli* found in feces are harmless, but some strains of *E. coli* are pathogenic and potentially fatal to humans. As such, the presence of *E. coli* in a water sample may be an indication of fecal matter, such as manure, entering the water supply.

Units

Both total coliforms and *E. Coli* results are expressed as Coliform Forming Units per 100 milliliters of water, or CFU/100 mL. Some labs express bacteria results as less than or greater than a certain number. For example, less than one (<1) indicates the absence of bacteria in the water sample while greater than one (>1) indicates the presence of bacteria.

Other labs express bacteria results simply as present or absent, rather than providing a numeric value. If in doubt, check with the lab for clarification on interpreting the water sample test results.

Retesting

When a water sample tests positive for bacteria, retesting is recommended to rule out the possibility of a sampling error. Before sampling, remove all devices from the tap and disinfect the tap from which the sample is collected.

If the second sample tests positive for bacteria, steps should be taken to determine the source of the bacteria and rectify the problem. In some cases, water treatment is required to ensure bacteria free milk house water.

For more information, contact:

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printed spring 2006



**Nova Scotia
Agricultural
College**



Funding for this project was provided by the Canada-Nova Scotia Water Supply Expansion Program, an initiative under the Federal-Provincial-Territorial Agricultural Policy Framework