



## June 2016: Troubleshooting high bacteria counts - What to do and why it's important



In Ontario, one of the ways milk quality is assessed is by measuring the number of bacteria in a bulk tank sample taken by your bulk tank milk grader. Your milk truck driver has to go through a training course to help them ensure that only quality raw milk leaves the farm. They grade the bulk tank milk by sight and smell, measure the milk temperature and collect a representative sample from the bulk tank. The milk samples are held in an insert filled with ice and water. Sample temperature is monitored via a Time Temperature Recorder (TTR) while in transit to the lab.

Poor quality milk, such as that with high bacterial counts, can spoil quickly and may have poor manufacturing properties. Cheese made from milk with high bacteria counts may have poor texture and taste bitter or rancid.

A Bactoscan is used to measure the number of the bacteria present in a milk sample. The test is performed twice per month and more often if a farm is experiencing high bacteria levels. Any results over 321,000 individual bacteria cells (IBC) per milliliter are considered high. Producers should strive for Bactoscan levels less than 90,000 IBC. You should start looking for the source of a problem if your Bactoscan is elevated to and consistently in the 150,000 IBC range or higher.

Troubleshooting a high Bactoscan result can be very challenging. Finding the root cause of the elevated count can be difficult. A step by step approach is needed and keeping a record of changes made is often useful.

For difficult troubleshoots a team approach is helpful. Your equipment dealer, herd veterinarian, milk broker, Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) Raw Milk Specialists and fellow producers are all people that may assist.

Dairy goat farming is always busy but work loads spike when a large group of goats freshen in a short time. "At these times of year something could get missed," says Mike Foran, Raw Milk Specialist at OMAFRA. "It could be anything from bedding, milking routine, new relief milkers or more first-time doelings kicking off units, to a fresh doe with an udder health issue."

Producers who are struggling with out of season breeding may encounter issues that lead to elevated Bactoscan tests. Low milk volume in the bulk tank might not cool quickly due to poor agitation. In an effort to keep litres in the tank and meet minimum pick up volumes, producers may be milking does that should be dried off. Does have higher somatic cell counts (SCC) later in lactation and are more prone to udder health issues at that stage. One dairy goat with an udder health issue can shed enough bacteria to spike an entire bulk tank. Tools that may be useful in identifying problem goats are a strip cup, a California Mastitis Test (CMT) and a conductivity meter. Group sampling may be useful in drilling down and identifying the problem goat(s).

**When trouble-shooting high bacteria counts, start by asking yourself a few questions:**



What is the milk temperature? Within two hours of milking of the first milking, milk should be cooled to between 1 to 4°C (34 or 40°F). When milk is below 4°C the bacteria that affect milk quality are still alive, but reproduce very slowly. Once temperatures rise they start multiplying again, since milk provides all the nutrients for bacterial growth. During subsequent milkings, the blend temperature should never be higher than 10°C (50°F), returning to 1 to 4°C (34 or 40°F) within one hour of milking. Bulk tank temperature should

never rise above 1 to 4°C (34 or 40°F). Since milk is stored on farm for three or four days, a storage temperature of 2°C (35°F) is preferred.

It's important to monitor the temperature of the milk daily. You can either use a thermometer or a time-temperature recorder to monitor the temperature. Many new dairy goat facilities are investing in TTRs. Milk temperature and wash cycle temperatures are critical control points. A TTR will monitor both. A TTR may prevent a rejected bulk tank or milk quality penalties. You should also make it a habit to double-check that the tank is on when you leave the barn after every milking.

Is the wash water hot enough and is your water heater working properly? Do you have enough hot water to run the tank wash if your milk is picked up shortly after milking time? Sometimes the hot water can be exhausted when you run a tank wash immediately after a pipeline wash. Cleaning chemical solutions need specific temperatures to be effective. As part of routine food safety monitoring, consider checking the hot wash - chlorinated alkali wash cycle (temperature at the start (74°C (165°F) or higher) and end (49°C (120°F) or higher) of the once per month.



Time of year can also impact your ability to keep the water hot enough for the wash. "You would think winter would be easier to maintain low bacteria levels," says Foran, "But sometimes it might be harder to achieve hot wash temperatures as a cold pipeline will cool wash water as it flows through the cold pipes in the parlour and milkhouse."

Is your equipment in good repair? A preventative maintenance program is money well spent. It is important to inspect your equipment, including the pipeline, receiver jars, hoses, claws, buckets and any other milk contact surfaces weekly, at minimum, for any cracks, leaks, biofilms and build-up. It's best to do this when they're dry. Sometimes something like a barely visible crack on a claw will allow milk residue to build-up and bacteria to grow. Tank cleaning failures can occur. Assess the cleanliness of the bulk tank after every pickup. Consult your equipment dealer and get to the root cause of the cleaning failure.

When was the last time you changed inflations? A lot of times inflations that have exceeded their life expectancy can be come cracked and loose (we are all familiar with the squawking sound and difficulty keeping the units from slipping that comes with this territory). Cracked inflations can also allow milk to build up in your vacuum lines.

If you're still struggling with high bacteria levels, contact your equipment dealer to perform a wash analysis (which you should do yearly anyway), or observe a complete wash cycle of the milking and cooling equipment yourself, making sure that the correct amount of chemical is being dispensed for the appropriate length of time at the right temperature. "Equipment can and will fail," says Foran. Be sure to check everything – hot water elements, chemical dispensers, the cooling unit, tank washers, and a host of other things."

At any given time of year, between six and 10 per cent of the samples tested are greater than 321,000 IBC. This article focused on milking equipment, and its role in milk quality. However, if you are experiencing milk quality issues on-farm it is important to also evaluate your milking routine, and the goats and their environment, at the same time to determine where your issue lies. There are many resources available to you improve milk quality. For more information consult with a Raw Milk Specialist at OMAFRA, your equipment dealer or Ontario Goat.

[www.ontariogoat.ca](http://www.ontariogoat.ca)

[www.omafra.gov.on.ca](http://www.omafra.gov.on.ca)

Resources available through Ontario Goat:

- *"Best Management Practices for Commercial Goat Production"*
- *"Guide to Udder Health for Dairy Goats"*
- *"National Farm-Level Biosecurity Standard for the Goat Industry"*
- *"Canadian Goat On-Farm Food Safety Program"*

\*photos provided by OMAFRA

