

The Dairy Goat Digest

Issue #3

December 2003

The Dairy Food Safety Unit at OMAF wants to keep you better informed of changes and updates to the Raw Goat Milk Quality Program and ongoing quality issues. This newsletter will hopefully provide you with the information you need.

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The staff of the Dairy Food Safety Program would like to wish you and your families a safe and happy holiday season!!!!!!

Presentation Meeting on Goat Milk Sampling Survey

The results of the June 2003 Goat Milk Sampling Survey were summarized and presented at a meeting in Guelph on September 25th, 2003 attended by approximately 40 people including producers, processors and representatives of the Laboratory Services Division, University of Guelph, industry, and government. A summary of the survey results and observations are contained in this newsletter. As well, a copy of the presentation used to explain the scientific data is included in the mailing.

If you have questions or require further information please contact Brenda Norris at 1-888-466-2372, Ext. 64684.

Summary of June 2003 Goat Milk Sampling Survey

Brenda Norris, Dairy Food Safety Program Coordinator

In June 2003, the Dairy Food Safety Program of the Ontario Ministry of Agriculture and Food conducted a microbiological and compositional survey of raw goat milk being received by Ontario goat milk processors. This was the second part of a survey conducted in September 2002, in response to the industry's concerns for raw goat milk quality.

The samples collected in June included a greater number of producers, thus providing a more representative picture of the raw goat milk quality across Ontario. This short term study is a snapshot of the industry at the time. The primary focus of the June goat milk sampling survey was to identify producers exceeding 50,000 cfu/ml Standard Plate count (SPC) and then conduct on-farm inspections to investigate and resolve the cause of the high bacteria counts wherever possible.

Microbiological medians and distribution graphs have been used to illustrate how overall goat milk quality has shifted from Sept'02 to June'03. Medians are the "middle of the road" results. In other words, half of the results are less than the median, and half of the results are greater. Averages are not being used to compare the results of the surveys since averages can be distorted by a few samples with very high counts therefore giving an inaccurate picture of the overall milk quality.

Observations

Standard Plate Count (SPC) – measurement of raw milk quality

- 72% of the producer samples tested in June met the regulatory standard of less than 50,000 SPC (see "SPC Distribution" on page 11 of attached presentation). In fact the majority of these samples (63%) had counts of less than or equal to 25,000 SPC. Of concern however is the significant portion of samples with very high SPC results of greater than 100,000 (20%).
- On page 12 of the presentation is a comparison graph of SPC results from both the September and June sample surveys. The most notable differences are the decreased percentage of results in the less than and equal to 25,000 SPC range when compared to September. The percentage of samples with acceptable SPCs decreased from 78% in September to 72% in June. There was also a significant increase in the percentage of samples that had counts greater than 100,000. These results indicate that the overall milk quality in June had slipped.
- Subsequent inspection findings have revealed that the majority of high SPC problems were due to malfunctioning milking system wash cycles, poor equipment cleaning practices, and worn rubber parts.

Coliform – environmental contamination

- 84% of samples met the processor's requirement of less than 50 coliform/mL. ("Coliform Distribution", pg.12 of presentation). This is a significant improvement over the September results which showed 77% of samples met the standard. These results indicate less contamination of the milk from environmental sources such as unclean udders, unsanitary milking practices, or milk residues left in equipment.

E.coli – fecal contamination

- June survey results reveal that 95% of producer samples met the current processor's standard of less than 5 E.coli ("E.coli Distribution" – pg. 13 of presentation). This percentage of acceptable samples is up from 89% in the September study ("E.coli Distribution", pg.14 of presentation).
- Lower E.coli results indicate that greater attention to hygienic practices is being used to prevent fecal contamination of the milk supply.

Milk Collection Frequency

- When the June goat milk survey was conducted, the majority of goat milk was being collected once a week at the farm. Some routes, however, were being collected twice a week. The quality data was segregated into two groups; once a week collection versus twice a week collection. Preliminary findings on the limited data available did not reveal any significant differences in quality between the two groups.

Composition Results

- Load composition results listed on page 7 of the presentation follow a similar trend to individual producer sample averages found on page 9. As well, very minimal differences were observed in composition results between September and June. Protein content appears to be slightly down from September, while fat, lactose and LOS (lactose and other solids) were slightly up.

Conclusions

The current regulatory limit of 50,000 SPC appeared to be somewhat more difficult to achieve in June than in the previous study conducted in September. The results of the June study provided additional quality information during a period of peak production and historical milk quality problems. This information assisted with early detection and resolution of quality problems during a critical time for producers and processors. Ongoing testing will allow us to differentiate between the affects of seasonal differences and production practices on goat milk quality.

The Importance of Water Quality to Your Bottom Line

Vanessa Taylor, Milk Quality Assurance Program Lead, OMAF Fergus

Everyone knows the importance of having clean, potable water. The water used to supply your milkhous, to clean your equipment, and to feed your animals, which in most cases is the same water that supplies the farmhouse, must meet the same standards as drinking water. Regulation 761 of the *Milk Act* requires that all milk

houses have a supply of potable water. Ontario Drinking Water Standards describe potable water as having zero *E.coli* and zero coliform per 100 ml.

Water contaminated with certain bacteria can cause serious animal health issues that directly affect milk quality. Coliforms, such as *E. coli*, are an indication of fecal contamination of the water supply, and can increase the risk of mastitis developing in the herd. *Pseudomonas* bacteria are very common in water sources and, in high numbers, can also cause mastitis. *Pseudomonas* bacteria can also readily create stubborn biofilms which adhere themselves to equipment surfaces, and intermittently shed high levels of bacteria into the milk supply.

Problems that arise from poor water quality are not limited to bacteriological quality. Hard water, buffers, and sediment can reduce the effectiveness of chlorinated alkali cleaners, acids and sanitizers in your milking line. Muddy or cloudy water can indicate that there is sediment, or high levels of floating soil particles, in your water supply. In the presence of alkaline cleaners, these particles can settle out of the water and deposit back on to the milking line. This creates an opportunity for a biofilm to form and negatively affect your milk quality.

Hard water can cause serious problems that will be expensive in the long run. High calcium or mineral salt levels in your water source reduces the effectiveness of your cleaners. Scale can also build up in the milking lines, causing milkstone to deposit in the milking line more easily, which will eventually lead to a biofilm problem. If your water is too hard (more than 30 grains per gallon), you should consider installing a water softener. Softer water will clean your milking lines more efficiently by reducing the amount of detergent needed, saving you money while improving your milk quality. Hard water can also shorten the life of your water heater. When build up from hard water occurs on the elements in a hot water heater, the water may not be heating up as quickly or to the proper temperature (at least 76 degrees Celsius). This can allow certain bacteria to flourish and compromise the quality of your milk. An important first step to setting up and evaluating a milking equipment wash system includes an analysis of water hardness properties. Consult your equipment dealer who is trained to conduct these tests.

Water sample bottles for bacteria testing are available at your county health unit. Consult with your county health unit for proper sampling technique. Since water quality can fluctuate throughout the year, it is important to test at a time when the risk of contamination to wells is higher such as during spring run-off, after a heavy rainfall, or if you notice any changes in the water colour, odour or smell. Also be aware that changes in land use next to wells, and well repairs may also impact water quality and are therefore good times to test. Everyone should be aware of and test their own well water out of concern for their own health, the health of their animals, and the impact it may have on their milk quality.

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