



Information for Ontario's Dairy Goat Industry provided by the
Ontario Ministry of Agriculture, Food and Rural Affairs

Fall 2020

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Message from the Inspection Programs Manager: Working Together to Reduce the Risks of COVID-19

Since March, the dairy industry and OMAFRA dairy inspection staff have been working together to mitigate and manage the impacts of COVID-19. I want to take this opportunity to thank dairy producers, plant operators, plant staff and inspection staff for all your efforts and vigilance during this difficult time. By working together, we have continued to protect food safety and ensure an uninterrupted supply of milk and dairy products.

As always, the health and safety of Ontarians and our staff is our top priority. That is why the OMAFRA Inspection Programs Unit has made changes not only to protect our staff, but to also help protect the safety of dairy producers and processors. New measures include providing additional personal protective equipment (PPE), updating our PPE policies and providing additional staff training.

We have also implemented the use of masks by all field staff when physical distancing cannot be achieved and have supplied staff with additional hand and surface sanitizer. Bio-security protection measures continue to be an important practice. This includes washing boots with disinfectant prior to entering and upon leaving the premises, wearing clean coveralls for each farm, using disposable gloves when handling equipment and frequent

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hand washing/sanitizer use. The Inspection Programs Unit continues to monitor the local COVID-19 situation and will update and adapt our policies as necessary.

I want to thank and commend producers and processors for all of the efforts you've made to stop the spread of COVID-19. By implementing a prevention plan and a COVID-19 positive response protocol that outlines the steps to take in the event someone working in your operation tests positive for COVID-19, you have greatly enhanced your ability to respond to the situation promptly and minimize business interruptions.

The industry has continued to adjust quickly to fight this virus and maintain the food supply chain. I thank you for your ongoing resilience during these unprecedented times. Please continue to follow the advice of public health authorities and Ontario's Chief Medical Officer of Health. The Ministry of Health's COVID-19 Guidance for Food Premises offers a summary of best practices to protect yourself and others, please see

http://www.health.gov.on.ca/en/pro/programs/publichealth/coronavirus/docs/2019_food_pre_mise_guidance.pdf.

For sector-specific guidelines and posters to help protect your workers and service providers please see <https://www.ontario.ca/page/resources-prevent-covid-19-workplace>.

Thank you for your continued cooperation. By working together, we can ensure the goals of healthy Ontarians, food safety and animal welfare are achieved.

Sincerely,



Robert Blenkinsop
Manager, Inspection Programs
Food Safety Inspection Delivery Branch
Ontario Ministry of Agriculture, Food and Rural Affairs

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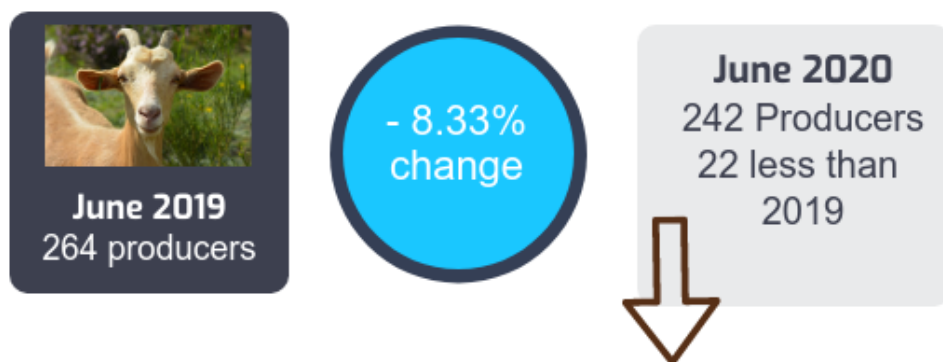


INDUSTRY SNAPSHOT:

Key statistics for Ontario's Dairy Goat Industry

Goat Milk Producers in Ontario

Comparing June 2019 to June 2020



Recent Averages for Milk Quality Measures –
compared to the same period last year

Measures	Regulatory Standards	2020 Apr-June average	2019 Apr-June average	Difference	% Difference
Bactoscan: ibc/mL	≤ 321,000	91,000	97,000	-6,000	-6.2%
Somatic Cell Counts (SCC): SCC/mL	≤ 1,500,000	1,148,000	1,179,000	-31,000	-2.6%
Freezing Point: °Celsius*	>-0.534	-0.546	-0.547	0.001	0.2%
% Fat	-	3.77	3.79	-0.02	-0.53%
% Protein	-	3.37	3.38	-0.01	-0.30%

*Changes in the concentration of solids and salts will cause milk to freeze at different temperatures. Dilution of milk with water progressively gives a freezing point closer to that of water. Results equal to or greater than -0.534° Celsius (i.e., closer to zero) are considered abnormal for goat milk.



Percentage of Producers in Bactoscan Range – compared to the same period last year

Bactoscan: ibc/mL	2020 June	2019 June	Difference	Comment
<35,000	11.3%	11.5%	-0.2%	Excellent milk quality ¹ .
35,000-100,000	48.3%	45.9%	2.4%	Good milk quality
101,000-321,000 ² .	26.9%	31.7%	-4.8%	Acceptable milk quality, however check milking equipment and procedures ²
>321,000	13.4% ³ .	10.8%	2.6%	Poor milk quality. Seek advice ³
Totals	100.0	100.0	-	

¹ The combined percentage of producers marketing either good or excellent quality milk is up by 2.2% when compared to the same period last year.

² This illustrates the proportion of goat milk producers who are shipping milk with bacterial levels approaching the regulatory limit. Producers that consistently fall in this category should consider examining their milking process and equipment for potential issues.

³ 13.4% of producers were shipping milk above the regulatory standard of 321,000 ibc/mL in June 2020. Producers falling into this category are notified and are required to take corrective actions in relation to equipment cleanliness, udder health, etcetera.

The Dairy Goat Digest is Going Digital

The Inspection Programs Unit is excited to now deliver program communications to you digitally! Products such as the Dairy Goat Digest Newsletter, information on funding opportunities, program updates, changes to regulatory requirements and much more will now be sent to you electronically, in a convenient and accessible format.

Our program is committed to providing timely information. Expanding the use of digital delivery will allow the program to share information with clients in a timely, efficient and reliable manner, while reducing printing and mailing costs. Minimizing large mailouts will also have a positive environmental impact and allows staff to dedicate more time to support clients.

Effective immediately, the Dairy Goat Digest Newsletter will be delivered to you electronically. Clients that do not have digital capacity may continue to receive the Dairy Goat Digest by mail if requested.

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In July and August 2020 program staff conducted an outreach campaign to ensure we have current digital (email address) contact information for all Goat Milk Producers. If you did not speak with OMAFRA staff regarding your ability to receive communications electronically, please contact the Inspection Programs Unit at dairyfoodsafety@ontario.ca or by phone at 519-400-5485 to provide your digital contact information and to confirm your interest in continuing to receive the Dairy Goat Digest Newsletter. Your contact information will be securely stored, and we will not share your information with external parties.

We are also working on making relevant articles available for your convenience on the Ontario [Sheep and Goat Blog](http://quartet.aps.uoguelph.ca/SheepGoatProduction/). The Sheep and Goat Blog is the place to find updates, information and resources related to sheep and goat production in Ontario. You can subscribe to the blog to receive notifications when new content is published, or you can follow the blog on Twitter @GProdn. Visit the blog today at <http://quartet.aps.uoguelph.ca/SheepGoatProduction/>

Iodine Levels in Goat Milk

Phillip Wilman, Raw Milk Quality Program Coordinator, OMAFRA

In recent weeks OMAFRA staff have been contacted by goat milk producers and brokers regarding the levels of iodine in goat milk. Their questions were around what “normal” levels are, what is a safe level and what can be done if levels are elevated.

There has been little research done on iodine levels in goat milk in Ontario. A small study of approximately 900 samples of goat milk was conducted by OMAFRA in 2013-2014, which showed levels as low as 31, and up to a high of 6250 micrograms per litre (ug/L) in bulk tank milk samples. Health Canada advises that milk iodine levels in the 350-500 ug/L range are elevated, and levels over 500 ug/L are high. Research in the cow milk industry in 2010-2013 showed certain areas of the province have higher iodine levels in their groundwater, farms with elevated iodine in their water samples also showed elevated iodine levels in the milk. Elevated dietary iodine, iodine in the feedstuffs fed to the cows, had the largest impact on the overall iodine level in milk.

Another significant contributor to the iodine level in the milk was the spray application of iodine-based teat dips. The application of iodine-based teat dips by dip cup did not show any significant impact on the iodine level in the milk. It was only when iodine-based teat dips were sprayed onto the teats, resulting in teat dip contacting the skin of the udder, were iodine levels noted to be significantly increased.

While the research was conducted on dairy cow farms, consultations with scientists and veterinarians at OMAFRA and the University of Guelph, as well as feed industry

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professionals, indicate that iodine levels in goat milk are very likely to be influenced by the same factors.

If your broker is advising that the processor/end user of your milk is warning that iodine levels are elevated, you can take a few steps to help to lower the concentration:

1. Speak to your feed representative and discuss the level of iodine in the ration being fed to your goats. Remember to include any extra supplements you may be adding, such as kelp meal. Kelp meal is very high in iodine. Ensure your ration is balanced to the recommended levels for the age of your animals, and for the stage of lactation.
2. Ensure iodine based teat dips, both pre and post dips, are being applied by dip cup and not being sprayed on.
3. Test your water for iodine. Ensure your feed representative is aware of the iodine level in your water, so it can be taken into consideration when calculating the overall iodine level in the diet of the animals.

If you have further questions around iodine in your milk, please contact Phillip at 519-766-6909 or phillip.wilman@ontario.ca.

OMAFRA Study of Flunixin in Ontario Goat Milk

Melissa Haveroen, Food Scientist, OMAFRA

What is the Prevalence of Flunixin in Ontario Goat Milk?

Flunixin is a non-steroidal anti-inflammatory drug (NSAID) used for pain management in animals. Long-term exposure of humans to NSAIDs through routes like animal foods is a concern, as NSAIDs have been linked to renal (kidney) issues, gastrointestinal complications, and cardiovascular events.

Is flunixin permitted for use in Ontario?

Flunixin is not marketed for use in goats. However, a veterinarian may prescribe it for extra-label use for pain management. There is currently no Maximum Residue Limit (MRL) established for any NSAID in goat milk, though for cow milk, the MRL is 6 parts per billion (ppb). As there is no MRL, no detectable residues of flunixin are permitted in goat milk in Canada.

What did we do?

In this study, 1027 goat milk samples were taken from the bulk tanks of goat milk producers. The samples were analyzed at the Agriculture and Food Laboratory (AFL) using the

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CHARM ROSA flunixin test, which has a detection limit of 2 ppb and which has been verified for use in goat milk by AFL. The study aimed to sample each producer once quarterly, with most samples taken in June, September, December of 2019, and March 2020. This study was the first known to examine flunixin residues in goat milk in Ontario.

What did we find?

Of the 1027 bulk tank samples tested, 19 (1.85%) tested positive for the presence of flunixin. There were differences among quarters, with rates of 1.9%, 4.5%, 0%, and 0.8% in June, September, December and March, respectively. Three producers had two positive samples over the course of the study. Producers with positive samples were notified, and educational materials were provided to help them control flunixin residues in their milk. To help assess the overall risk to the milk supply, load samples for each individual sample that tested positive were also tested; no load samples tested positive.

Conclusion and Next Steps

This indicates that the level of flunixin likely to be encountered by consumers in finished products is within acceptable limits.

This study serves as an initial assessment of the prevalence of flunixin in Ontario goat milk and will inform future monitoring programs.

Reminder of medications that cannot be used in the feed for lactating dairy goats

Jocelyn Jansen, Lead Veterinarian, OMAFRA

MGA (melengestrol acetate) can be prescribed by veterinarians as a feed additive for the aid in synchronization or induction of estrus in goats. However, it cannot be used in lactating dairy goats as MGA is excreted in the milk of animals for at least 48 hours (or longer) after withdrawal. The MGA residues present in the milk may cause harm to people who ingest the contaminated milk.

Monensin (Rumensin®, Coban Premix) is licensed for use in the control of coccidiosis in goats. Coccidiosis is a disease of goat kids. No studies have determined the level of monensin excreted into the milk of goats while being fed monensin, and so no safe use can be established for the use of monensin in lactating dairy goats. The label for use on monensin in goats included the warning "**Do not use in lactating dairy goats producing milk for food.**" More information is available at <https://www.inspection.gc.ca/animal-health/livestock-feeds/medicating-ingredients/mib/monensin-mos-eng/1331053867503/1331053926592#a9>



Livestock Barn Ventilation Best Practices

Marlene Paibomesai, Dairy Specialist, OMAFRA

Natalia Savor, Undergraduate Student Experiential Learning (Summer Student) OMAFRA

Livestock health and productivity are affected by air quality; maintaining optimal air quality is the goal of any barn ventilation system. Ontario's varying seasons gives producers a good reason to implement air quality management practices that are effective in both summer and winter months. This article will cover the basics of summer and winter ventilation and provide explanation on some commonly used winter ventilation systems.

During summer months, high temperature and humidity levels negatively affect air quality and raise the risk of heat stress amongst livestock. Many barns will combine natural and mechanical ventilation strategies to move maximal air and improve animal comfort. Natural cooling relies on barn side wall curtains to allow breezes through the barn. Additionally, temperature and air quality can be improved if air heated by livestock is able to escape from ceiling vents. This is possible because of a process called thermal buoyancy, which explains why hot air rises. Thermal buoyancy is not always an effective means of cooling barns in summer, as the difference between barn and outside air temperature is often minimal. Instead, mechanical ventilation systems become the predominant form of cooling. Fans increase the speed of air that is passing over livestock, providing a cooling effect. Circulation fans, like High Volume Low Speed (HVLS) large diameter fans, can improve barn temperature, but must be chosen based on individual barn design to maximize efficiency. It is important to remember that while fans provide cooling, they do not improve air quality unless they introduce outdoor air into the barn. Air turnover rates of 40-60 times per hour are recommended during hot weather for cooling purposes, as well as maintaining optimal air quality.

During winter, some producers will try to prevent cold stress within their herd by closing up their barns and trapping heat. This will have serious consequences on overall air quality. Dust and barn gases, like carbon dioxide and ammonia, are given an opportunity to build up when little to no ventilation is occurring. Increased moisture also poses concerns for more rapid bacterial growth. One study done on a calf barn with nearly 0 air changes per hour in the winter measured excessive levels of bacteria growing inside¹. Therefore, it is recommended that barns complete a minimum of 4 air changes per hour during winter months to improve air quality. For goats, the number of air changes might need to be increased because they breathe in air that is closer to the ground and often of a worse quality in comparison to cattle.

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Winter Ventilation Strategies

Natural Ventilation

Natural ventilation is one option for maintaining barn airflow during winter months. Ceiling vents allow air heated by livestock to escape from the barn through thermal buoyancy. As air flows out of the barn, it creates a negative pressure in the room. This results in outdoor air continuously being drawn inside, thereby supplying livestock with fresh air. This system improves air quality by removing air heated by livestock, which often contains high levels of moisture and barn gases. However, this system is somewhat inefficient as a primary ventilation system, as it may require more open windows to complete the required air changes, resulting in frigid indoor temperatures.

Fans

Fans can be used for air turnover purposes all-year round, however airflow requirements will differ based on season. If large summer fans are being used during winter months, they should never be positioned directly on livestock because they can cause drafts. Drafts are defined as airspeeds that exceed 0.5m/s and have been known to cause cold stress or respiratory issues in livestock². The risks are elevated in smaller species or youngstock. Instead, producers can direct summer fans at walls during the winter so that the air can bounce off and slow down before reaching livestock.

Producers could also use small fans during the winter with minimal airflow to complete the correct number of air changes. The calculation below is an easy way to figure out the cubic feet per minute (CFM) requirements for determining what fan would work best. The exchange rate for a typical winter ventilation system is 15 minutes (4 changes per hour).

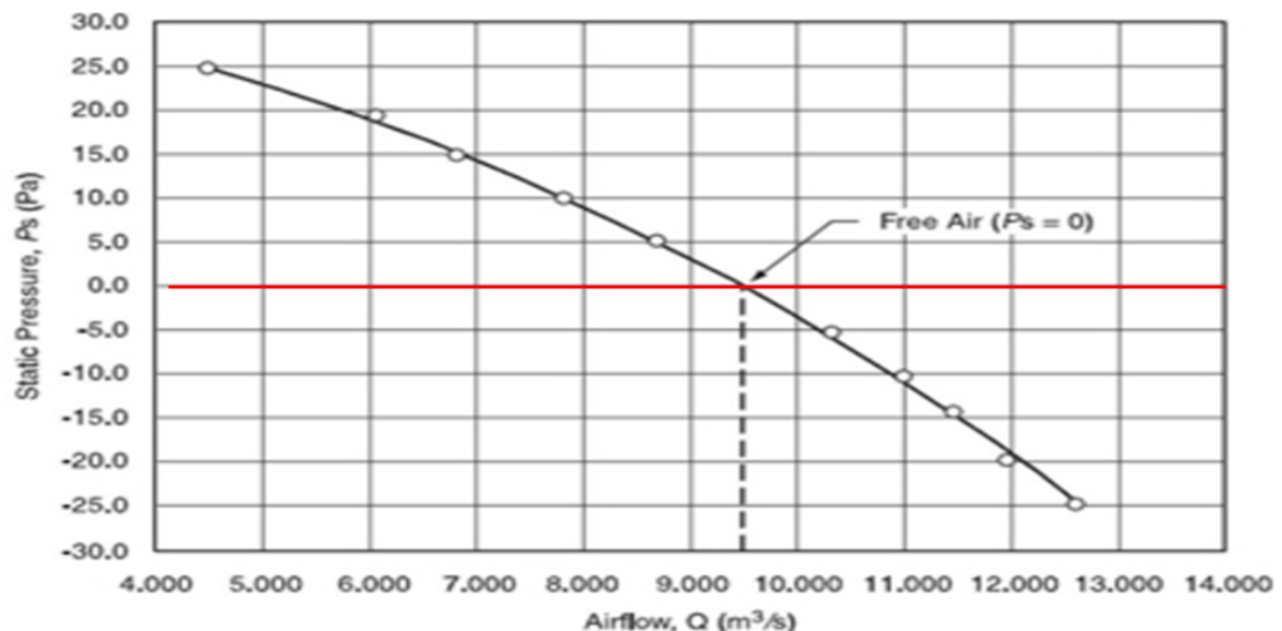
$$CFM = \frac{\text{Volume of the Room (length x width x height)}}{\text{Exchange Rate (minutes)}}$$

When utilizing fans in the winter, it is important to consider the resistance to airflow in a room, termed static pressure (SP). Fans that push outdoor air inside create a 'positive pressure' environment, and SP in a room will be increased if stale air is not pushed out. Installing vents or slits where stale air can escape can minimize this. Fan airflow will decrease with increased SP, meaning that fans will continue to move at full speed and use the same amount of electricity, but will not be effective at bringing in fresh air. Producers are encouraged to consider looking at a fans' performance curve (see Figure 1) to see how airflow will be affected by SP. Additionally, producers can measure SP using a digital manometer, which works by comparing barn conditions to the outdoor environment.

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Figure 1. A standard fan performance curve, showing how static pressure affects the airflow. When static pressure decreases, airflow increases. In this graph, airflow is expressed as cubic metre per second, but this concept also applies to airflow measured in cubic feet per minute. This graph outlines a trend; each fan has a unique performance curve that should be consulted for optimal use.



Positive Pressure Tubes

Positive pressure tubes (PPT) are becoming more commonly used for winter ventilation. A fan at one end uniformly pushes fresh air through small holes that run the length of the tube, thereby creating a 'positive pressure' environment. PPTs can complete the required air changes per hour in an efficient way, therefore keeping the barn environment warmer than a naturally ventilated system would. The ability of the PPT to distribute the fresh air over an area, thereby reducing drafts, is another benefit.

Air quality is a year-round concern for livestock, which means barn ventilation systems should be working constantly. Ventilation systems should be modified based on season in order to provide optimal air quality in livestock housing throughout the year.

References:

1. Lago, A., McGuirk, S.M., Bennett, T.B., Cook, N.B. and Nordlund, K.V. 2006. Calf respiratory disease and pen microenvironments in naturally ventilated calf barns. *J. Dairy Sci.* 89:4014-4025.



2. van Leenen, K., Jouret, J., Demeyer, P., Van Driessche, L., De Cremer, L., Masmeijer, C., Boyen, F., Deprez, P. and Pardon, B. 2020. Associations of barn air quality parameters with ultrasonographic lung lesions, airway inflammation and infection in group-housed calves. *Prev. Vet. Med.* 181:105056.

Managing Goats for Extended Lactation – Practices in New Zealand

Dr. Gosia Zobel & Dr. Regan Murney, AgResearch Ltd, New Zealand

In New Zealand dairy goat lactations are typically managed in the same way dairy cows are managed - annually. Goats are mated in the autumn, dried off in the winter, and then enter a new lactation after kidding. However, a goat's lactation is innately more persistent than that of a cow. Many goats lend themselves well to being milked beyond the standard 305-day lactation. During farm visits around the world (especially in Europe), it is common for farmers to share that they have goats milking for 500, 900 or, in some extreme cases, 2000 days! While not all goats will be suitable for extended lactation, those that have persistent lactations may not require a dry period, and can benefit from skipping this stressful transition period.

Benefits and drawbacks

Besides having the opportunity to supply milk off season, extending lactation length has some significant animal health and labour impacts. Goats that might be at risk for pregnancy toxemia (e.g., older does) or does that could benefit from further growth (e.g., high producing yearlings) benefit from skipping kidding, and the whole transition period in general. Continued milking means feeding regimes can be kept steady, simplifying nutritional formulation. While some farmers find they appreciate having an off season where they do not have to milk, many have commented that they already have the staff, so continued milking provides better job security. Fewer does kidding can also reduce the massive labour requirement involved in kid care and management. Of course, fewer does kidding can be a drawback since there will be less kids available as replacements and for sale.

Which goats are best?

The goats that perform best under extended lactation management are typically steady, high producers even late in lactation. These goats can then be maintained on a high quality diet to promote continued milk production. Goats with low somatic cell count (SCC) should be prioritized. As lactation length increases, SCC will rise, therefore it is prudent to select

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healthy goats that are free of chronic conditions that can increase SCC, such as Caprine arthritis encephalitis (CAE).

Some farmers also select goats that have failed to get into kid; this permits them to hold onto otherwise good goats that would either be mated late and out of sync with the rest of the herd, or would be culled. Of course, in this case, selection of goats should still be restricted to does that are high producing and otherwise healthy.

Management considerations

Herds should be split into standard and extended lactation groups, with different feeding and management regimes implemented for each group. Interestingly, having the standard group kid near the extended lactation group may stimulate the latter group to increase milk production when kidding occurs. Another consideration is daylength. Milk production is regulated by the number of day light hours, so as these decrease during the winter months, so will milk production. While increasing the light long term can bring problems as well (e.g., pseudo-pregnancy in goats that have not been mated in a long time), adjusting lighting with timers to increase the daylength during the winter can certainly help. Monitoring animal behaviour during extended lactation management is important, as some farmers have reported teat biting; however, ensuring goats are not overstocked will help prevent this issue.

There can be significant benefits to working with animals' natural tendencies; since some goats in our herds are naturally persistent milkers, they present an opportunity for farmers to explore alternative management options that best suit their systems.

Bio

Dr. Gosia Zobel is based in the Animal Welfare Team at AgResearch Ltd. in New Zealand. Her research focuses on providing the best possible welfare standards on farms. Of particular interest is addressing dairy goat welfare concerns through management and housing improvements. Much of her work is funded by NZ's Ministry of Business Innovation and Employment Strategic Science Investment Fund.

Dr. Regan Murney is in the Farms System Team at AgResearch Ltd. in New Zealand. His research interests include investigating the effects of farm management practises and the use of alternative forages for production efficiency of goats under New Zealand management conditions, but he also has a background in mammary gland physiology. His research is funded by New Zealand's Ministry of Business Innovation and Employment in conjunction with the Dairy Goat Cooperative NZ.

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Dairy Goat Food Safety Team:

- Arnold Brittain, Dairy Plant Specialist
(613) 330-1083, arnold.brittain@ontario.ca
- Genna Wright, Raw Milk Specialist
(519) 766-3280, genna.wright@ontario.ca
- Peter Maw, Raw Milk Specialist
(519) 546-6291, peter.maw@ontario.ca
- Phillip Wilman, Raw Milk Quality Program Coordinator
(519) 766-6909, phillip.wilman@ontario.ca

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1-877-424-1300 or ag.info.omafra@ontario.ca

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For more information on Goat Milk Quality and Procedures, visit the OMAFRA website at: www.ontario.ca/bw9x