

THE DAIRY GOAT DIGEST

*Dairy Food Safety Program, Food Inspection Branch
Food Safety and Environment Division*

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CHANGE IN FREEZING POINT
TESTING
PAGE 1

CONTAGIOUS ECTHYMA - ORF
PAGE 2.

EQUIPMENT MAINTENANCE
PAGE 3.

COMMON INSPECTION
CONCERNS
PAGE 4.

SCHMALLENBURG VIRUS
PAGE 5.

BACTOSCAN
PAGE 6.

MILK STOPPAGE
PAGE 6.

SOMATIC CELL COUNTING
PAGE 7&8.

AGPAL
PAGE 8.

MILK QUALITY COURSES
PAGE 9.

SUMMARY OF RAW GOAT
MILK QUALITY
PAGE 10.

CHANGE IN FREEZING POINT TESTING

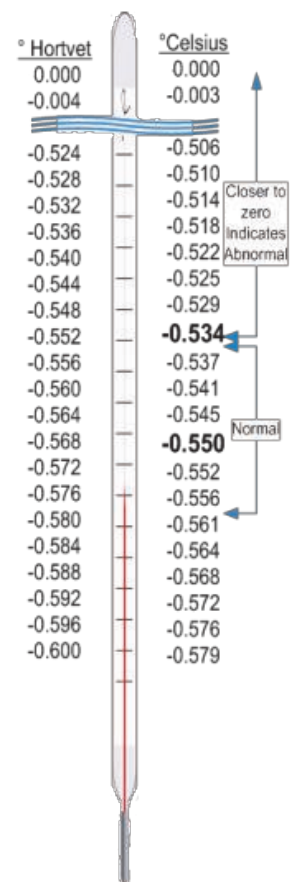
CHARLES FULTON, RAW MILK QUALITY PROGRAM COORDINATOR, DAIRY FOOD
SAFETY PROGRAM

In 2010 the instruments used to estimate the freezing point of milk were replaced with newer equipment by the University of Guelph's Agriculture and Food Laboratory. A decision was also made to change the units the results are reported in from °Hortvet (°H) to the more familiar Celsius (°C) scale. A new normal freezing point for goat milk was established at -0.550 °C following extensive comparison of the two scales by OMAFRA and the lab using goat milk samples. Due to some normal variation in day-to-day milkings, freezing point test results will fall within a range that is considered normal.

Abnormal freezing point test results occur if water has been added to the milk, if milk is frozen in the bulk tank, if the milk has not been mixed properly before sampling, or if milk is abnormal in composition for any other reason. Changes in the concentration of solids will cause milk to freeze at different temperatures. Dilution of milk with water progressively gives a freezing point closer to that of water.

The new abnormal level in goat's milk is any freezing point equal to or greater than -0.534 °C.

Note that in the event your bulk tank sample of milk is tested and found to have an abnormal freezing point, it will be brought to your attention by a warning notice on the monthly test results report. For further technical information please contact Charles Fulton at (519) 826-5996 or Charlie.Fulton@ontario.ca



CONTAGIOUS ECTHYMA – COMMONLY KNOWN AS “ORF”

DR. JOCELYN JANSEN, SMALL RUMINANT VETERINARIAN, OMAFRA;
KRISTIN FERGUSON, OMAFRA SUMMER STUDENT

What is Contagious Ecthyma?

Contagious Ecthyma is a highly contagious skin disease commonly seen in goats and sheep. The disease is found worldwide and is caused by a parapoxvirus. The disease is often more severe in goats than in sheep, and kids and lambs are more susceptible to the disease than adults. Contagious Ecthyma is known by several other names including orf, scabby mouth and sore mouth.

What are the symptoms in goats?

Blister-like lesions typically develop on the mouth and muzzle approximately 4-8 days after the animal is exposed to the virus. These blisters then become crusty scabs. Lesions can also be seen on other parts of the body including face, ears, teats, feet (coronary band), vulva and scrotum. Severe, painful lesions in and around the mouth of kids may prevent them from nursing or eating. Does with sores on their teats (particularly teat ends) may refuse to let their kid(s) nurse. This may lead to kid starvation. Most adult goats with lesions around the mouth will continue to eat and milk well. However, secondary bacterial infections may invade teat lesions resulting in mastitis in the doe. Lesions on the feet may cause lameness. Uncomplicated lesions typically heal within one month. Animals with weakened immune systems may show more severe signs of disease. It is common to see 100 percent of kids in a herd infected; however deaths from this disease are rare.

How does it spread?

The disease is spread via direct contact with an infected animal or indirectly from a contaminated environment (equipment, feed troughs, bedding). The virus enters the body through broken or damaged skin (e.g. coarse feeds that cause abrasions to the inside of the mouth). Nursing kids may spread the infection to the udders of susceptible does. The virus remains viable on the skin for approximately one month after the lesions have healed. Not only are scabs that fall to the ground a source of infection, but carrier animals, those that appear healthy but shed the virus, can also spread the disease (particularly during times of stress). The virus is very hardy, which makes it difficult to control. It can survive for months to years in cool, dry environments; but is destroyed by high and very low temperatures.

Do animals develop immunity?

Once infected, immunity to the disease is not life-long. Immunity is reported to last approximately 2-3 years. Reinfection after this time is possible, although the disease is less severe.

How is it treated?

Treatment of individually infected animals is not necessary unless lesions are severe. Severely affected kids will require good nursing care to ensure that they are eating and drinking. Does and ewes may require antibiotic treatment if they develop mastitis. Udder salves may be used to soften scabs on teats.



Photo: J. Jansen, OMAFRA



Figures 1 and 2. Shows the effect of orf on both a goat and human.

It is important to keep affected areas clean and dry to prevent secondary bacterial infections and maggot infestation. Do not pick off scabs. There are a number of products that have been reported to speed healing. However, most have not changed the course of healing compared to no treatment, nor do they consider milk and meat withdrawal times. Consult your veterinarian for more information on this disease or to discuss treatment options.

How is it prevented?

New animals entering the herd should be quarantined (3-4 weeks) before mixing with other animals on the farm. Remember, “Buyer Beware” if you are considering purchasing animals. Isolating infected animals may help to prevent the spread of the disease. Cleaning and disinfecting pens may also help reduce the contamination in the environment. Unfortunately, once the virus has entered a herd, it is difficult to eradicate. There are no commercial vaccines available in Canada. The Contagious Ecthyma vaccine available in the USA is a live vaccine and is only used in chronically infected herds. Use of the live vaccine in disease-free herds is not recommended since it will bring the virus into those herds.

Can it be spread to humans?

Yes, goats and sheep can spread the disease to humans — Contagious Ecthyma is a zoonotic disease. If exposed, humans can develop the lesion(s) in 3-7 days. A single, red sore is typically seen on a finger, hand or other exposed part of the body. The lesion may be painful but it tends to heal spontaneously without scarring, in 3-6 weeks. People do not infect other people. If you experience more severe pain, fever, or notice that the sore is becoming infected, getting larger or spreading, you should see your doctor. Any person handling an affected animal should wear gloves. Hands should be washed with soap and water frequently.

EQUIPMENT MAINTENANCE

MIKE FORAN AND PHILLIP WILMAN, RAW MILK SPECIALISTS, DAIRY FOOD SAFETY PROGRAM

Equipment	Common Issues	Potential Impact on Milk Quality	Solution
Pulsator	Dust and debris build-up	Improper pulsation can lead to poor milker performance, liner slippage and incomplete milk out. These issues can lead to increased risk of mastitis. Poor pulsation can also lead to improper cleaning of the milking unit and hose attached to it.	Clean and service pulsators at least once a year. Proper maintenance depends on the style and brand of pulsator. Consult your dealer for proper cleaning and maintenance.
Vacuum Regulators	Dust and debris build-up	Inability of regulator to function properly may result in increased vacuum levels. Vacuum levels which are too high can lead to teat end damage, increasing the risk of mastitis.	Check and clean regulator screen and filter monthly, and more often if in an extremely dusty area. Consult dealer for any specific requirements for your regulator.
Bulk Tank Outlet Valves	Milk residue	Improper cleaning of outlet valves has been implicated in many cases of elevated bacteria counts. Outlet valves should not be placed in a wash dish and left to be flushed with wash solution as it drains from the bulk tank. This method does not provide enough scrubbing action to properly clean milk contact surfaces.	Manually clean outlet valves after each milk pick up, and disassemble if practical. Sanitize before using again. Carefully check all gaskets, butterfly valves, etc, to ensure no residue remains.
Rubberware (liners, gaskets, hoses)	Inking, flaking and wear	All rubber, silicone and plastic components of the milking system have a defined lifespan. Cleaning chemicals, hot water and everyday use all wear on these components. As the component ages and wears, its ability to be thoroughly cleaned and sanitized diminishes. The component may also begin to flake or "ink", causing residues of these components to find their way into the milk. Also, the increased roughness of the interior surfaces can lead to greater harbourage by bacteria, leading to higher bacteria levels in the milk.	Replace worn components. Consult your dealer on the lifespan of your specific component. The following list is a general guideline for replacing common milking system components: • Plastic milk hose: 12 months • Silicone milk hose: 24 Months • Rubber pipeline gaskets: 12 months • Silicone gaskets: 24 months • Rubber inflations/liners: 1500 milkings • Silicone inflations: 6500 milkings
Compressor Radiators	Dust, webs, oil, etc.	Insufficient airflow through the radiator can lead to slow cooling and/or compressor failure. Failing to cool milk quickly can lead to elevated bacteria counts.	Cleaning of radiators should be discussed with your dealer. The fins on the radiator are often very soft materials, and damage to the fins can lead to similar problems as being plugged with dust, causing slow cooling. Note that compressors and fans can start without notice, and are electrical devices, so care must be taken to avoid contact with these components.
Air Injector	Settings and filters	The importance of the scrubbing action of a good long slug of cleaning solution through the pipeline should not be overlooked. Dusty filters on air injectors can cause poor performance. Improper open/closed times can cause cleaning issues. For example long open (air draw) time can cool hot wash temperatures and allow soil to redeposit.	Clean air injector filters regularly. Optimum air injector settings require an experienced technician. It is a skill and an art to achieve the best flow dynamics. Ideally the dealer completes a slug analysis. Evaluating the air injector setting should be part of yearly maintenance.
Bucket Milker System Vacuum Line and Hoses	Unclean vacuum line	Bucket milking vacuum systems can be a source of contamination and cause high bacteria counts. Condensation, milk droplets, and airborne contaminants are frequently drawn into the vacuum line and can eventually accumulate into sludge.	The interior of bucket milker vacuum lines and hoses need to be examined and cleaned at a minimum of every 6 months, more often in the summer months and with increasing number of buckets. Vacuum lines need to be sloped to an auto drain. The stall cocks need to be on the upper portion of the line (a 10 o'clock position). Pulsator check valves prevent moisture or any contaminating substance from the vacuum system from contacting the milk. These valves need to be in good repair and seated properly to be effective.

COMMON CONCERNS NOTED DURING FARM INSPECTIONS

ARNOLD BRITAIN, MIKE FORAN AND PHIL WILMAN, RAW MILK SPECIALISTS, DAIRY FOOD SAFETY PROGRAM

Concerns	Reasons for Concerns and How to Solve
Exterior of milking equipment and bulk tanks are dirty	Accumulations of dirt increase the chance of contaminating milk. Keep all exterior surfaces of milk handling and storage equipment clean to reduce the chance of transferring contamination to milk.
Bulk tank outlet valve not clean	Unclean equipment contaminates milk. Valves should be disassembled and hand cleaned after each tank is emptied.
Hose port in need of repair	Sharp edges should be repaired immediately to prevent damage to milk truck hoses.
Milk house floor not clean	Milk house floors should be kept clean on a daily basis to reduce the spread of contamination.
Ineffective fly and rodent control	Flies and rodents can transmit disease and potentially affect milk quality. Keep environment clean and dry, screen all milk house windows, and use appropriate pesticides when necessary.
Livestock medicines not stored in a closed cupboard or fridge	Always store medicines according to package instructions since improper storage may reduce effectiveness. Store livestock medicines securely in a closed cupboard or fridge to prevent adulteration of milk, meat or feed. This includes preventing access by animals that could lead to accidental ingestion or absorption of medicines.
Inadequate temperature at end of hot wash	Solution temperature should be minimum 120° F (49°C) at end of hot wash otherwise soils may redeposit on equipment.
Milk hoses and gaskets are worn or inking	Deteriorating hoses and gaskets may harbour bacteria. Replace according to manufacturer recommendations.
Milk house doors not properly closed	Ensure all milk house doors are tight-fitting, self-closing and kept closed to prevent unwanted entry of pets, flies and animals.
Absence of test results for potable water	Milk house water quality can affect milk quality. Water supply should be tested once a year for coliforms and E. coli. Results should be kept on file and available for review by inspectors.
Deadstock not properly disposed	Deadstock may transmit disease and attract pests and scavengers. Proper disposal methods include: 1) removal by a qualified deadstock removal agency, 2) burial under at least 60 cm of earth, and 3) composting under a minimum of 60 cm of compost. For complete information on regulatory requirements for proper disposal options visit the OMAFRA website at: www.ontario.ca/omafra
Insufficient bedding for goats	Sufficient bedding keeps animals cleaner and more productive as well as reducing flies and odours.
Excess accumulations of manure	Excess accumulations of manure and runoff attract flies, cause odour problems, and affect animal cleanliness. Remove excess manure from animal housing areas. If using a bedded pack, ensure it is properly maintained to prevent runoff.
Goat hooves are too long	Long hooves decrease production and prevent goats from moving around comfortably to access feed, water and milking area. Trim hooves to minimize lameness and maximize productivity.

SCHMALLENBURG VIRUS: PRECAUTIONS ARE IN ORDER WITH NEW DISEASE

BRUCE KEOWN, DAIRY FOOD SCIENTIST, FOOD SAFETY SCIENCE UNIT

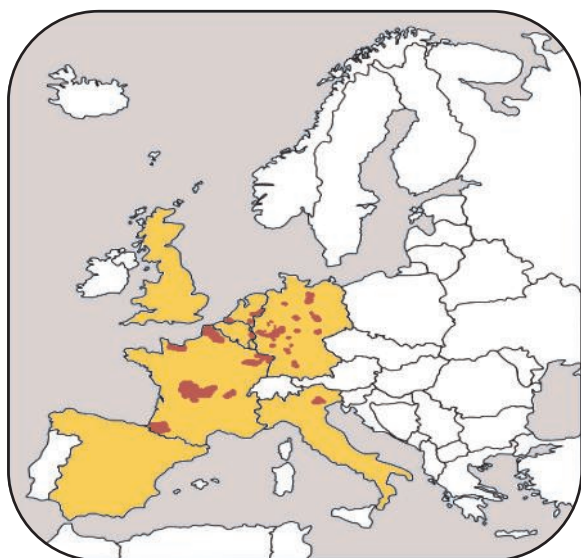


Figure 1. Map of Europe indicating countries with confirmed Schmallenberg virus cases (cattle/goat/sheep/bison) (■) and areas with at least one confirmed goat case (■) as of April 2012. (Data compiled from European Food Safety Authority)

During the summer and fall of 2011, widespread outbreaks of disease in cattle herds characterized by fever, severe diarrhoea, loss of appetite and body condition and reduced milk yield were reported in western parts of Germany, throughout the Netherlands, parts of Belgium and northern France. After a few days, the symptoms disappeared and the animals seemed to recover without any lasting ill affects. However, later that fall, large numbers of stillbirths and birth defects were being reported in goats and sheep in the same countries.

During the investigation into these outbreaks, European animal health experts identified a new virus called the “Schmallenberg virus” after the German town where the outbreaks were first reported. The Schmallenberg virus belongs to a group of viruses that are spread primarily by biting and blood sucking insects such as midges and mosquitoes. Significant spread is believed unlikely during the winter period when biting insects are usually inactive. However, the potential for it to spread from one animal to another is not known.

In the small ruminants, infected does and ewes do not

show any symptoms of the virus until they give birth. Very high rates of abortions and serious deformities in lambs and kids have been reported. Deformities characteristic of the disease include twisted necks, bent limbs, fixed joints, brain and spine defects. Some newborn animals appear normal but are blind, wobbly, cannot suck and may suffer from seizures. The foetal deformities vary depending on when the infection occurred during pregnancy.

There is no treatment or vaccine currently available for this disease.

So far only ruminants (cattle, goats and sheep) seem to be affected. There is no evidence to date that the Schmallenberg virus is associated with any human illness.

In January 2012, the disease spread to parts of the United Kingdom. Latest reports indicate that the disease continues to spread. In July 2012, two cases of Schmallenberg Virus were confirmed in cattle on two farms in Switzerland.

While no cases of the Schmallenberg virus have been reported in North America, the Canadian Food Inspection Agency has implemented new import measures to help protect Canadian livestock. All animals must test negative for the Schmallenberg virus before their semen or embryos can enter Canada from countries in the European Union (EU). This measure applies to bovine, bison, water buffalo, sheep and goat semen, as well as to bovine and bison embryos. Canada currently prohibits the import of live bovine, sheep and goats from the affected countries.

Producers should always be vigilant and follow good animal husbandry and biosecurity practices to minimize any possible risks to your farm and livestock.

REPLACEMENT OF STANDARD PLATE COUNT WITH THE BACTOSCAN FOR GOAT MILK TESTING

CHARLES FULTON, RAW MILK QUALITY PROGRAM COORDINATOR AND BRENDA NORRIS, DAIRY REGULATORY ANALYST, DAIRY FOOD SAFETY PROGRAM

Over the last few years OMAFRA has undertaken a project to thoroughly investigate an alternate method of determining bacteria counts in raw goat milk. The Ministry worked with the goat industry and the University of Guelph to complete a one year study that indicated the Bactoscan testing method is an effective and less costly method for testing for bacteria in raw goat milk. This new technology is also more efficient, with quicker turnaround times for results.

The Bactoscan test, which has been used for more than ten years in Ontario for cow milk, is now used in five other provinces. The quicker turnaround times for lab results compared to the standard plate count (SPC) allows producers to respond two days earlier to raw milk quality issues. This method is also a more accurate test of actual bacterial numbers in milk because bacterial clusters are separated into individual bacteria before counting.

Although both the Bactoscan and SPC tests are good measures of milk quality, they report quite different values for the same milk sample. That's why it was important to determine and validate the Bactoscan value for goat milk that is equivalent to the SPC regulatory limit of 50,000 colony forming units per milliliter (cfu/ml). A producer's goat milk that tests 50,000 cfu/ml or greater is deemed to be of unacceptable quality and as such may have penalty consequences.

As a result of the study, the Bactoscan value equivalent to the 50,000 cfu/ml SPC value was established at 321,000

individual bacteria count per millilitre (ibc/ml). Therefore goat milk sample test results in the penalty range are those greater than 320,000 ibc/ml using the Bactoscan.

OMAFRA communicated the results of the study to industry stakeholders, and its intention to use the Bactoscan test as a replacement of the SPC test for determining goat milk quality. The ministry started using the Bactoscan method as a replacement for the SPC method to determine bacteria counts on March 6, 2012.

A review of Bactoscan test results from March until the end of June 2012 revealed that the percentage of producer sample test results above the regulatory limit using the Bactoscan has not changed significantly in comparison to results in previous years when using the SPC method.

The Bactoscan value equivalent to the 50,000 cfu/mL SPC value was established at 321,000 individual bacteria count per millilitre (ibc/mL) for goat milk.

A copy of the abstract from the research paper published in the July 2011 edition of the *Journal of Dairy Science* can be viewed at the following link: <http://www.ncbi.nlm.nih.gov/pubmed/21700012>

REMINDER TO PRODUCERS FOR MILK STOPPAGE

ARMAGHAN DAYYANI, PROGRAM COORDINATOR, DAIRY FOOD SAFETY PROGRAM



In the event that you cease to produce and ship goat milk, even temporarily, please notify your Raw Milk Specialist: Mike Foran at (519) 826-4061 or Phillip Wilman at (519) 826-3746.

If you have ceased production and decide to produce and market goat milk in the future, you are required to contact a Raw Milk Specialist to arrange for an inspection of your production premises. You will be required to meet all Grade A requirements as listed in the Milk Act and its associated regulations prior to receiving Grade A status. After this, your producer number will be reactivated and your milk transporter notified that milk shipments may once more resume.

SOMATIC CELL COUNTING IN GOAT MILK

BRUCE KEOWN, DAIRY FOOD SCIENTIST, FOOD SAFETY SCIENCE UNIT AND BRENDA NORRIS, DAIRY REGULATORY ANALYST, DAIRY FOOD SAFETY PROGRAM

Somatic cells are primarily white blood cells. They are the first defence against bacteria that enter the teat canal. High somatic cell counts (SCCs) may indicate infection in the udder which affects milk production as well as the quality and quantity of dairy products into which milk is made (i.e. cheese). To fully understand the significance of somatic cell counts in goat milk, a quick review of some facts may be helpful.

Comparing Cow and Goat Milk SCCs

Goats produce milk differently than cows. The way milk is produced in the healthy udder of the goat naturally results in a greater number of skin cells and cell fragments containing DNA being present in the milk as compared to milk from healthy cows. These skin cells and cell fragments are counted as somatic cells when samples are tested using automated counting methods such as those used at the University of Guelph, Agriculture and Food Laboratory (AFL) and milk testing labs worldwide. As a result, goat milk SCCs are higher than those found in cow milk. Goat milk SCC levels also tend to be elevated towards the end of lactation, in does with a higher number of lactations, and in herds with caprine arthritis encephalitis (CAE). All of these factors contribute to a higher 'normal' SCC level in goat milk than in cow milk. Nevertheless, routine bulk tank SCC test results should be monitored from month to month to be aware of any upward trends which can indicate udder infection.

In Ontario the regulatory standard for SCCs in cow milk is less than 500,000 cells/mL and will be amended to 400,000 cells/mL as of August 1st, 2012, similar to several other provinces (British Columbia, Alberta, New Brunswick). A bulk tank somatic cell count of 1 million per millilitre in cow milk would indicate that the herd is suffering from major udder health issues. However the same result in a sample of goat milk would not raise concerns. In fact a SCC level as high as 1.5 million cells per millilitre would meet the United States' regulatory standard for goat milk and therefore be acceptable. Ontario does not have a regulatory SCC standard developed specifically for goat milk however many Ontario producers are able to maintain SCCs in the range of 600,000 - 800,000 cells per millilitre.

Counting Methods

Currently there are two methods commonly used for counting somatic cells in goat milk.

1) *Direct Microscopic Somatic Cell Count (DMSCC) using pyronin y-methyl green dye (PYMG) or 'Manual method'*

In the United States, the DMSCC PYMG method is the approved method for counting somatic cells. A sample of goat milk is manually placed on a microscopic slide and then treated with a special dye (PYMG) that only stains the DNA in the various cells contained in the goat milk. This method requires highly qualified technicians who are trained to distinguish somatic cells from other cells and cell fragments by size, shape and colour. One significant problem with this manual test is that the level of training and experience of the technician directly influences the final count. For this reason, the somatic cell count on the same sample can vary significantly from one technician to another. As well, this method can suffer from poor accuracy and precision due to the variable thickness of the milk layer on the slide and poor distribution of the cells in that milk layer. The test procedure is also time consuming and therefore expensive to perform.

2) *Fossomatic*

In Europe, Quebec and Ontario a rapid and more automated method is used to count somatic cells in goat milk. The Fossomatic™ FC used at AFL counts somatic cells in a milk sample by using a process called flow cytometry. In this process, a mixture of milk and staining solution is passed through a flow cell in which the stained cells containing DNA are exposed to light of a specific wavelength. When exposed to this light, the stained cells then emit fluorescent light pulses which are counted and recorded. The Fossomatic provides greater precision, faster turnarounds and reduced costs when compared to the manual method.

Comparison of Methods

Each method has its advantages and disadvantages yet both provide reliable estimates of somatic cell counts in goat milk.

Researchers in the United States compared the somatic cell counts in goat milk from different stages of lactation using the DMSCC PYMG (manual method) and Fossomatics calibrated with either goat or cow milk standards.

Both methods gave comparable SCC results when calibrated with goat milk standards. Fossomatics calibrated with cow milk standards tended to give results about 25% higher than a Fossomatic calibrated with goat milk standards.

SOMATIC CELL COUNTING CONT'D

This then explains why the somatic cell count from AFL's Fossomatic is slightly higher than that reported by US regulatory agencies using the manual method. Nonetheless the Fossomatic still provides a cost effective farm management tool for the goat milk producer by indicating upward trends in SCCs which may point to mastitis.

Since the bulk of the testing performed on the Fossomatics operating at AFL is performed on cow milk, the instruments have traditionally been calibrated using cow milk standards. Commercially prepared and quality controlled goat milk standards are currently not available in Canada although could be produced if sufficient demand were to exist. Several companies in the United States have recently made goat milk standards available to the dairy industry. However the relatively small number of laboratories testing goat milk limits these providers in the amount of quality assurance they can conduct through exercises such as round robin trials and inter-laboratory comparisons. So although goat milk calibration standards are commercially available their reliability in terms of accuracy and repeatability of results cannot be validated.

Tips on Avoiding High SCCs

The following key farm management practices will help producers avoid high bulk tank SCCs and the spread of mastitis in the herd.

1. Proper milking procedures including:
 - a) appropriate udder preparation (the goal is to milk clean, dry, sanitized teats),
 - b) pre-stripping foremilk and
 - c) post-milking teat dipping.
2. Adequate feed and housing. Clean, dry, well nourished, comfortable dairy animals are less likely to develop problems from mastitis and many other diseases.
3. Properly operating and maintained milking system. The system needs to provide stable vacuum, adequate pulsation, and a gentle milking action.
4. Effective treatment protocols for mastitis. Work with your veterinarian.
5. Identify mastitic animals by frequently screening the herd with the California Mastitis Test. Cull any chronically mastitic does.
6. Maintain records of animal health and history of treatments.

A good source of information on the management of SCCs and mastitis in goat herds has been issued by the Vermont Agency of Agriculture, Food and Markets and can be found at: <http://www.uvm.edu/newfarmer/production/livestock/SCCgoats2010.pdf>

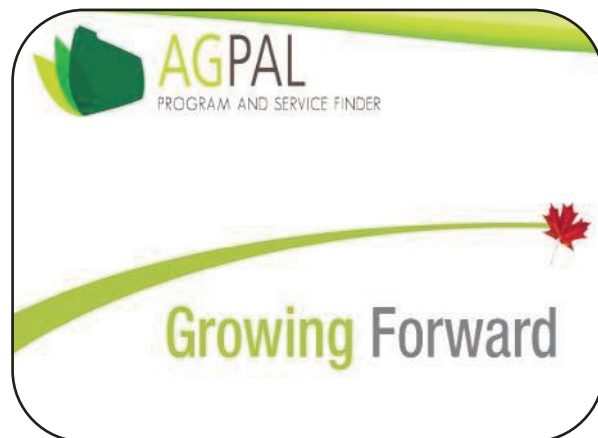
AGPAL

AGRICULTURE AND AGRIFOOD CANADA

Agriculture and Agri-Food Canada (AAFC) recently launched AgPal, a web-based tool to help producers and others in the agriculture and agri-business sector find the federal, provincial and territorial programs and services that specifically apply to them. Currently, the site has information on 169 different programs including AAFC programs, Farm Credit Canada programs, programs from Nova Scotia, and Ontario's Growing Forward programs. It is expected that additional information will be added to the site over the coming months.

AgPal can be accessed through the ministry's Growing Forward web page <http://www.omafra.gov.on.ca/english/about/growingforward/2011-index.htm> or directly at <http://www.agpal.ca>.

AgPal is part of Growing Forward, a federal-provincial-territorial initiative.



MILK QUALITY COURSES UNDER DEVELOPMENT FOR GOAT MILK PRODUCERS

DR. PAULA MENZIES, ONTARIO VETERINARY COLLEGE, UNIVERSITY OF GUELPH

Milking goats is what dairy goat producers do day in and day out, and making sure that the milk produced is safe and of high quality is one of the most important aspects.

Producing safe quality milk means it has low bacterial counts, is free of inhibitors and tastes and smells delicious. To produce quality milk, the goats must be healthy and free of mastitis. Proper milking technique not only prevents mastitis but also keeps the milk clean once it is out of the udder. Regulatory agencies can help pinpoint problems when things go wrong, but there is a need to help producers do well from the start, and that means proper education.

How does one learn to produce quality milk? There are a few sources from which a producer can draw information, including the extensive literature written for the production of bovine milk. However, goats are not little cows, and guidelines should be modified to suit the special needs of goats and goat milk producers.



OMAFRA has produced some materials available on the web, and producers can also learn from industry experts. However, it's also important for producers to have access to new information.

Therefore a joint project of OMAFRA and the University of Guelph was funded through the OMAFRA Knowledge Translation and Transfer program, with additional funding from Hewitt's Dairy and Ontario Goat, to develop an instructional handbook (or course) for producers, veterinarians and extension personnel on how to produce quality goat milk. Similar material is also being developed for dairy sheep.

The course will be available both as a written handbook and as a DVD to be viewed on the home computer. It will provide information on the following topics:

- ✦ what mastitis is, what causes it, how do we detect it and what are the risk factors for goats with mastitis
- ✦ basic health management of the dairy goat including vaccination programs and important disease control
- ✦ milking management of the dairy goat including preparing for milking, proper management of the milking equipment, milk-out, hand-milking and post-milking management; proper maintenance and use of milking equipment
- ✦ measuring and maintaining milk quality including risks from raw milk
- ✦ treatment and control of mastitis including avoiding drug residues in the milk and dry treatment monitoring udder health and setting goals.

Each section will be accompanied by diagrams, photos and — for the DVD version — video clips to illustrate important points. Definitions of terms and references and additional reading will be provided for the enthusiastic learner. There will be self-assessment quizzes to help emphasize important points to be learned.

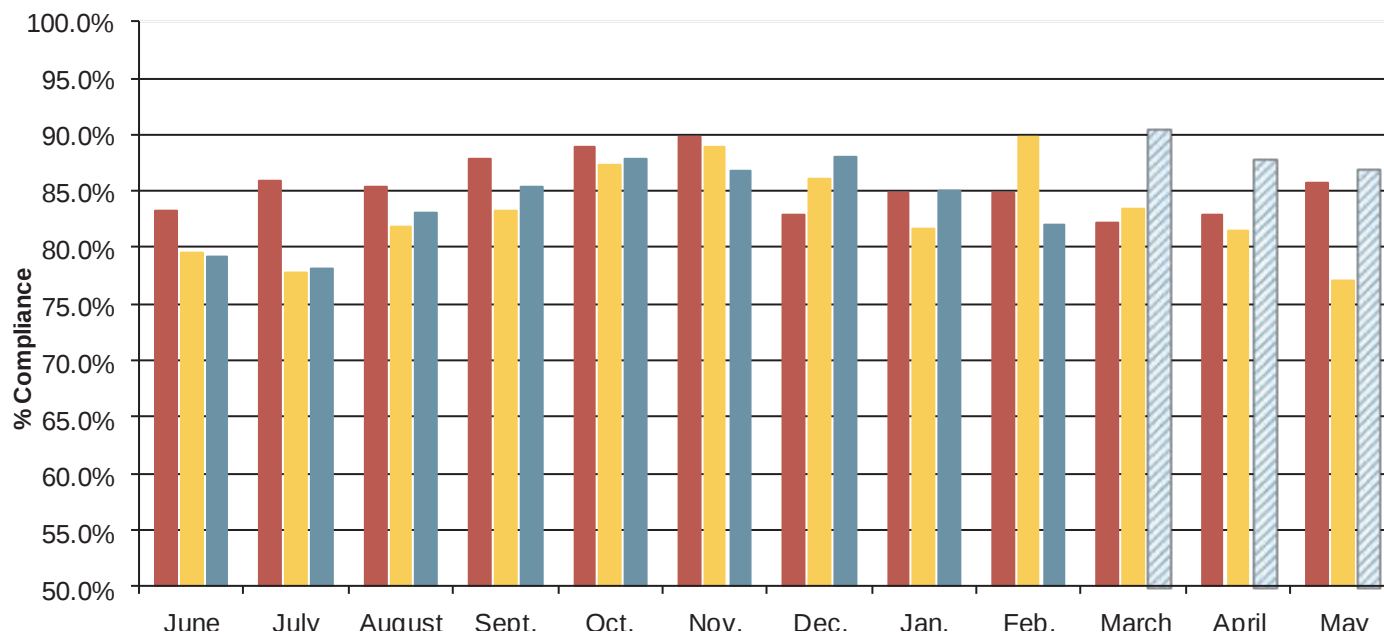
The authors are reviewing the scientific literature from around the world and consulting international sources on dairy goat udder health. The course is currently being written and once completed, will be tested by producers, veterinarians and those who work with the dairy goat industry. Once complete, its usefulness will be tested with dairy producers to see if it will assist producers in producing quality milk.

If you have questions, please contact Paula Menzies at (519) 824-4120, ext.54043 at the Ontario Veterinary College, University of Guelph or Jocelyn Jansen, Veterinarian for Disease Prevention in Small Ruminants and Cattle at (519) 846-3414 at OMAFRA.

SUMMARY OF RAW GOAT MILK QUALITY

JEFF PERKINS, SCIENTIFIC SUPPORT ANALYST, FOOD SAFETY INFORMATION MANAGEMENT UNIT

Goat Milk Producer Compliance June 2009 to May 2012 - Standard Plate Count and Bactoscan*



Legend

2009-2010 - SPC (less than or equal to 50 000/cfu/mL)
2010-2011 - SPC (less than or equal to 50 000 cfu/mL)
2011-2012 - SPC (less than or equal to 50 000 cfu/mL)
 - Bactoscan* (less than or equal to 320 000 ibc/mL)

* See page six for an overview of the replacement of standard plate count with the Bactoscan for bacterial testing.

Goat Milk—All Test Result Averages

Year	Month	Bactoscan (median) (ibc/mL)	SPC Count (median) (cfu/mL)	Fat Content (%)	Freezing Point (°C)	Protein Content (%)	Somatic Count (cells/mL)
2011	Jun-11		12550	3.501	-0.550	3.236	1,087,837
	Jul-11		13675	3.328	-0.548	3.148	1,016,475
	Aug-11		11150	3.371	-0.549	3.178	1,106,685
	Sep-11		9725	3.573	-0.552	3.291	1,214,117
	Oct-11		9350	3.838	-0.553	3.496	1,380,641
	Nov-11		10025	4.014	-0.553	3.648	1,465,272
	Dec-11		10300	4.070	-0.553	3.681	1,530,546
2012	Jan-12		11125	4.038	-0.552	3.656	1,514,799
	Feb-12		12900	4.062	-0.552	3.631	1,437,660
	Mar-12	94000		3.971	-0.551	3.530	1,301,170
	Apr-12	76000		3.852	-0.549	3.408	1,147,913
	May-12	81000		3.633	-0.547	3.296	1,088,137
Medians		81000 ibc/mL	11125 cfu/mL	3.845%	-0.552°C	3.452%	1,257,644 cells/mL

BROUGHT TO YOU BY THE FOLLOWING OMAFRA STAFF:

Dairy Food Safety Program

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- Mike Foran, Raw Milk Specialist
(519) 826-4061
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- Armaghan Dayyani, Program Coordinator
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- Brenda Norris, Dairy Technical Regulatory Analyst
(519) 826-4684
- Monica Plona, Summer Experience Student
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- Bruce Keown, Dairy Food Scientist
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Toll Free: 1-888-466-2372

Got Questions? Need Answers?

The Agricultural Information Contact Centre (AICC) is a user-friendly means to make OMAFRA's information accessible to agri-business, rural business and producers in Ontario. Clients can contact AICC to receive targeted and relevant information and resources on starting a dairy goat operation in Ontario, industry statistics, government programs and services, and provincial acts and regulations that enable decisions leading to an innovative and competitive agricultural sector. AICC's staff will refer a client to the Ministry's staff who is specialized on specific subjects about dairy goat production.

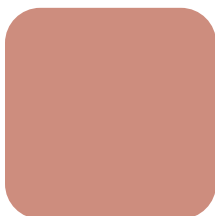
The AICC's knowledgeable and dedicated staff are available to answer your questions weekdays between 8: a.m. and 5 p.m. Call toll free at 1-877-424-1300 or email to ag.info.omafra@ontario.ca.

Outside of normal office hours, information on programs and services is available on the website, 24 hours a day, seven days a week at www.ontario.ca/OMAFRA.

You can also visit <http://www.omafra.gov.on.ca/english/livestock/index.html#goats>.

LEARN MORE!

Check out past issues of the Dairy Goat Digest at http://www.omafra.gov.on.ca/english/livestock/goat/news_dairygoat.html.



For more information :
Telephone : 1-877-424-1300

www.ontario.ca/omafra