



Ontario Animal Health Network (OAHN)
Small Ruminant Expert Network
Quarterly Producer Report – April to June 2017

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Q2 Surveillance Summary

Clinical Impressions Survey

Practitioners surveyed indicated that the top clinical issues in young stock were **coccidiosis, pneumonia, orf, neonatal diarrhea, and goiters.**

The main clinical findings for adult sheep and goats were **mastitis, caseous lymphadenitis, caprine arthritis encephalitis/maedi visna, enterotoxemia, and hemonchosis.**

Maximizing Disease Investigations

Laboratory testing and postmortem examinations yield results and are helpful in solving on-farm problems. How can producers get the most out of a veterinary visit and lab testing?

✓ **Call your vet early.** For many diseases, good training and protocol development between veterinarians and producers means that you may not tell your veterinarian when you treat individual sick animals. However, it is important that you inform your veterinarian when any individual disease occurs at a greater frequency than what you consider “normal” for your flock or herd. Deciding when you have “too many” sick animals can be a challenge. For most diseases, **defining an “Alarm Level”** with your vet is a good idea. For diseases that we don’t expect in high numbers, this is likely anything higher than the “normal” level for your farm. For some diseases, the speed at which new cases are occurring might also be important.

✓ **Have a complete history ready** for your vet including any changes in feed or management, treatments, etc. Set aside feed samples and **consider taking photos** of the affected animals.

✓ **There is value in knowing why an animal died.** Further losses can be avoided when the producer and veterinarian know what the cause of the problem is. If an animal dies, make sure you call your vet right away and keep the animal in a cool/shaded area. The more time that passes, the less likely a cause can be determined.

✓ **Be prepared to euthanize a sick animal** that is unlikely to recover and have your vet take samples for testing and/or perform a postmortem, as this often yields the best results.

✓ **Ask your vet about the OAHN Small Ruminant Adult Mortality Project**, which provides free postmortems for adult sheep and goats.



Is Copper Toxicosis Still a Problem in Sheep Flocks?

Unfortunately the answer is yes. In some ways the risks are greater now than in the past. Copper toxicosis will present in a flock as a combination of unexpected or sudden death of either lambs or adults. Animals may be ill for several days before dying as well. Deaths and illness may be clustered in time or occur sporadically over months or even years. Diagnosis is usually done at postmortem, so having your vet evaluate animals that have died is very important. To confirm copper toxicosis – your vet will take kidney and liver samples and submit to the laboratory. Blood is not a reliable measure of copper toxicity risk in healthy appearing animals. Animals can look totally normal but be in immediate danger.

CLINICAL SIGNS: The signs are vague: down, depressed, thirsty, teeth grinding (likely due to liver pain), constipated, dark rusty-coloured urine and yellow mucous membranes – most noticeable on the lower eye mucous membrane.



Photo above: Jaundiced sheep– notice the yellow color of the soft tissue of the eye. The tube shows the colour of urine.

Photo credit: Dr. Paula Menzies

RISK FACTORS FOR COPPER TOXICITY:

- Feeding feeds (including mineral) formulated for other ruminants. Protein supplement feeds containing soymeal can be particularly high in copper.
- Commercial or custom feeds manufactured at feed mills could be at risk of contamination with other copper-containing feeds. Feed mills try to mitigate this risk by sequencing feeds so that high-copper feeds are not mixed before a sheep feed. Risky feeds include any feed manufactured for cattle, swine and poultry.
- Water, if copper fittings are used in plumbing.
- Forage, if poultry or pig manure is spread onto hay or pasture fields. Copper can be taken up in the plants for years after spreading.
- Copper sulfate use. Copper sulfate should never be used around sheep for foot-bathing to control footrot, or in the control of gastrointestinal parasites.
- Cattle footbaths containing copper sulfate can also contaminate the ground or surface water when dumped and cleaned. Copper oxide particles are sometimes used to help control *Haemonchus* parasites; copper toxicity has been associated with their use in sheep.
- Low Molybdenum (Mo) levels. If you fail to find the excessive source of copper in a feed source, also request Mo analysis of the feed to determine if the ratio of copper to molybdenum is too wide.
- The breed of sheep influences the risk of copper toxicosis. Texel and Charollais breeds are extremely susceptible; Rideau, Suffolk and Dorset breeds are intermediate susceptible; Finns have lower susceptibility.

KEYS TO ON-FARM PREVENTION: Copper toxicity is very difficult to treat but easier to prevent! Make sure you always use feeds intended for sheep and purchase commercial feeds from a reputable source. Mineral should always have “no added copper” (not the same as “no copper”) on the label. Do not have pig or poultry manure spread onto pastures or hayfields to be used by sheep. If forage is purchased, have copper levels tested – always! Do not purchase that hay if levels exceed 10 ppm. Our goal is to keep the total copper in the diet at < 15 ppm DW and for some susceptible breeds at < 10 ppm DW.

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Preparing for Feeding Late-Cut Forage

With rainy weather persisting through much of Ontario this summer, making hay has been difficult, with the first cutting of hay even extending into August. Forage analysis of each field of hay is advised to understand the feed quality before beginning to feed it to sheep or goats.

In many cases, protein is the first indicator of feed quality that we evaluate. Low protein forages can be supplemented with protein-rich feeds such as dried distillers grains with solubles, soybean meal and protein supplement pellets formulated by a feed dealer.

Energy is reported as TDN, Net Energy and incorporated in Relative Feed Value. Many feed analysis reports also include estimations of fibre digestion. Low energy forages can be supplemented with corn silage and extra grain. Care must be taken to ensure that acidosis is prevented by ensuring slow feed transitions, equal access to grain at feeding time, and adequate forage consumption. Goats are especially susceptible to clostridial disease (enterotoxemia) when acidosis occurs.

In late-cut forages, high Neutral Detergent Fibre (NDF) is likely. NDF contributes to the length of time forage remains in the rumen – with high NDF forages increasing the length of time in the rumen and decreasing forage intake. Processing high NDF forages (through a bale chopper or TMR mixer) may increase intakes slightly, but won't speed digestion rapidly.



Dry matter intakes may drop if the feed has a high moisture content. This is particularly true when that feed is also high in NDF. This will affect how the formulated ration is actually consumed by the animals. Care should be taken to measure or estimate feed intakes of all sub-optimal forages and communicate with the nutritionist if they are considerably higher or lower than the assumptions made when formulating the ration. Sheep and goats are particularly good feed sorters, so it is also important to ensure that estimations of sorted/wasted feed is calculated and that the less aggressive animals in a group aren't left with only the poorest quality feed.



IMPORTANT: Pregnancy toxemia risk is very high when poor quality forage is fed in late pregnancy. The combination of higher nutritional needs with decreased rumen space (due to growing fetuses), means that feed intakes drop in all animals as they approach parturition. Producers should use their very best forage in late gestation animals, and consider purchasing better quality forages for these groups if enough hasn't been made on farm. Inadequate protein in late gestation can lead to poor milk production, poor colostrum quality and lambs/kids with poor vigour. In highly prolific animals, it is important to maintain adequate nutrition throughout pregnancy so placental development occurs normally and fetal size variability is minimized.

ACTION: Body condition scoring through gestation should be performed to monitor all pregnant ewes/does with special attention to young and old animals. Fat animals that don't receive adequate nutrition in late gestation are more prone to pregnancy toxemia and respond poorly to treatment. Blood tests for BHBA and albumin in late gestation can help monitor nutritional status.

ACTION: Forage analysis, monitoring feed intakes, body condition scores and adjusting rations as necessary can allow lower quality forages to be fed. In some cases, replacing some or all of the poor forage with purchased feeds of higher quality may be the best plan.



Antimicrobial Use and Resistance — Change is Coming

Pending Federal Changes to Address Antimicrobial Resistance

Jennifer Van Gerwen, Animal Health Coordinator, OMAFRA

Increasing antimicrobial resistance is a global concern and its effects on human and animal health have been raised by experts at local, national and international levels.

The Government of Canada is working to help control antimicrobial resistance and promote improved antimicrobial stewardship in both humans and animals. Health Canada has announced how it is taking action to help reduce the use of antimicrobials in animals and enhance veterinary oversight:



By December 2018, **growth promotion claims** will no longer be allowed on the labels of veterinary products containing antimicrobials that are important to human medicine.

By December 2018, a **veterinary prescription** will be required for the purchase of antimicrobials that are important to human medicine. This means that Ontario producers will no longer be able to purchase such products at Livestock Medicines Outlets. Producers will need a veterinary prescription to purchase these products through a veterinarian or pharmacist which means they will need to have a valid veterinarian-client-patient relationship.

Antimicrobials in mixed feed will still be available at feed mills and will also require a prescription. Producers should discuss delivery options with their veterinarian if there are concerns about geographical distance to a veterinary office or obtaining products for timely treatment.

Products containing the following active ingredients will require a prescription (subject to change):

Apramycin	Streptomycin/Dihydrostreptomycin
Bacitracin	Sulfonamides
Erythromycin	Tetracycline/Chlortetracycline/Oxytetracycline
Lincomycin	Tilmicosin
Neomycin	Tiamulin
Penicillin G	Tylosin/Tylvalosin
Spectinomycin	Virginiamycin

Or their salts or derivatives

Ionophore products and coccidiostats will NOT be affected by this change.

By November 2017, **approvals and access to low-risk veterinary health products** such as “nutraceuticals” will be improved to give producers greater access to a broader range of products for animal health.

Starting in November 2017, **importation** of antimicrobials that are important to human medicine **for producers’ own use** will no longer be permitted. National producer organizations will be consulted on products that will be exempted, but no products that are medically important to humans or prescription drugs will be eligible for exemption.

By May 2018, only those with a Canadian Food Inspection Agency Drug Establishment License (DEL) will be able to import **active pharmaceutical ingredients**. Producers will otherwise no longer be able to import these ingredients to mix on farm.

Beginning with the 2018 sales year, **reporting of veterinary antimicrobial sales** will be mandatory for manufacturers, importers and compounders of veterinary antimicrobials.

For more information about changes to federal policy and the regulations related to antimicrobial use and resistance, please visit the Government of Canada's response to antimicrobial resistance

<https://www.canada.ca/en/public-health/services/antibiotic-antimicrobial-resistance/government-canada-response-antimicrobial-resistance.html>

To review OMAFRA's approach to complement federal changes to address antimicrobial resistance, please visit Antimicrobial Resistance in Agriculture:

<http://www.omafra.gov.on.ca/english/livestock/animalcare/amr/>

Hemonchus Season is Here!

This summer's wet and warm weather has led to favourable conditions for *Haemonchus contortus* ("barber pole worm") development. Here are some points to aid in the management of *Haemonchus* infections and ways to prevent the development of anthelmintic resistance on your farm.

- *Haemonchus* thrives in hot, humid weather (25°C to 37°C) and female worms can produce several thousand eggs every day. Under ideal conditions, *Hemonchus* can develop from egg to infective third stage larvae (L3) in as little as 3-4 days. L3 larvae can remain viable on pasture for weeks to months. This can result in a rapid build-up of infective larvae on pasture.
- Cases of hemonchosis in small ruminants typically occur during the second and third quarters of the year. Clinical cases may be detected into November.
- In Ontario, *Haemonchus* does not overwinter on pasture unlike other gastrointestinal parasites such as *Trichostrongylus* and *Teladorsagia*. It survives overwinter in its dormant form in ewes. In spring, development resumes and pasture contamination occurs when ewes are turned outside.
- There is animal-to-animal variation in egg output, with 30% of animals responsible for ~70% of the egg output.
- Fecal monitoring is extremely important to determine if your parasite control program is working. The best time to monitor lambs is at the end of June/early July. Monitor at least 10 representative animals and send fecal samples to a diagnostic laboratory. Ask the lab to pool the samples and have fecal egg counts performed (do not pool prior to shipping samples). Monitor frequently throughout the summer/fall.
- Treatment thresholds for fecal egg counts are as follows:
 - < 500 eggs per gram (epg)
 - ≥ 500 epg—this level justifies deworming, especially if > 1000 epg
- Resistance by *Haemonchus* is widespread in Ontario, particularly to ivermectin and fenbendazole drugs. Almost all the resistance is by *Haemonchus* and not the other gastrointestinal parasites.
- Resistance in Ontario is associated with producers treating ALL ewes prior to lambing in the spring. If ewes are treated in the spring and turned out to pasture, only those parasites that have survived treatment (drug resistant) will contaminate the pasture. Anthelmintic resistance will quickly develop.
- Veterinarians and producers can determine if a farm has resistance by conducting a Drench Check test. This is a cost effective method where fecal samples are collected from at least 10 animals 10-14 days after treatment. If the dewormer is effective, fecal egg counts should essentially be zero. If eggs are present, have your veterinarian perform a Fecal Egg Count Reduction Test (FECRT). If fecal egg counts are not reduced by at least 95%, resistance is present.



Haemonchus in the abomasum of a sheep.
Photo credit: Merck Manual

- There are a number of things that a producer can do to slow or prevent the development of resistance on-farm:

- Do not deworm all animals. Leave at least 20-30% untreated.
- Use the FAMACHA scoring system during the summer to assess an animal's need for deworming. Only treat if animals score 3, 4 or 5.
- Do not deworm all ewes prior to lambing. Treat ewes with a body condition score of ≤ 2 , a FAMACHA score of 4 or 5, and/or has 3 or more fetuses detected on ultrasound.
- All deworming should be performed with a labelled oral product (oral drenches are preferred to injectable products). Never use cattle pour-on products in small ruminants as they strongly select for resistance.
- Dose to individual body weights or the highest weight in the group. Do not dose according to the average weight of the group.
- Make sure to calibrate your drench gun regularly to ensure that the proper dose is given.



- If your veterinarian has diagnosed anthelmintic resistance on your farm, discuss what other treatment options are available. New drugs have become available, but they must be used with caution. Use of any dewormers will eventually cause resistance, so be careful! You can slow the process by implementing management changes.

Producers may also want to review information on gastrointestinal parasites in the *Handbook for the Control of Internal Parasites of Sheep & Goats*

http://www.uoguelph.ca/~pmenzies/Handbook_Home.html

