Report #17
Summer
2018

Ontario Animal Health Network (OAHN)
Small Ruminant Expert Network
Quarterly Producer Report

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Q2 Surveillance Summary

Animal Health Laboratory Data
The following data highlights information from submissions to the provincial veterinary laboratory.

Sheep Cases: 43 full body postmortems and an additional 67 cases involving tissue samples.

RESPIRATORY ISSUES	REPRODUCTIVE ISSUES	PARASITES
▪pneumonia cases slightly decreased this quarter with *Mannheimia haemolytica*, *Bibersteinia trehalosi* and *Pasteurella multocida* being most frequently isolated ▪1 case of lung abscessation due to *Corynebacterium pseudotuberculosis* (CLA) ▪1 case of pneumonia caused by lungworms	▪abortion submissions were similar to Q2 testing in previous years ▪1 case *Coxiella burnetii* (Q fever) ▪1 case of Cache Valley virus ▪1 case *Campylobacter jejuni* ▪2 cases *Campylobacter fetus* subspecies *fetus*	▪parasite testing increased significantly this quarter (2-4 times greater than previous years) ▪coccidia and gastrointestinal nematodes (GINs) were most frequently identified ▪5 cases of hemonchosis were diagnosed on postmortem examination
OTHER		
▪3 cases of copper toxicity ▪3 cases of listeriosis and 1 case of polioencephalomalacia ▪maedi visna testing was markedly decreased this quarter (50% reduction) ▪relatively high number of Salmonella isolates (10 positive out of 36 samples tested)		

Goat Cases: 41 full body postmortems (record high) and an additional 59 cases involving tissue samples.

RESPIRATORY ISSUES	REPRODUCTIVE ISSUES	PARASITES
▪15 cases of pneumonia diagnosed ▪majority of cases were due to bacterial infections caused by *Mannheimia haemolytica, Mycoplasma ovipneumoniae*, *Bibersteinia trehalosi, Pasteurella multocida* and *Streptococcus gallolyticus*	▪16 abortion cases were submitted with 13 having an infectious cause ▪7 cases *Coxiella burnetii* (Q fever) ▪6 cases *Chlamydia abortus* ▪1 case *Toxoplasma gondii* (dual infection with *Chlamydia abortus*)	▪parasite testing was significantly increased over last quarter ▪coccida identified in 22 of 27 cases ▪GIN identified in 15 cases
OTHER		
▪10% of 2,396 blood samples tested positive for CAE – a significant increase compared to recent quarters ▪4 positive Johne's test results ▪1 case of copper toxicity in a 2 month old kid ▪4 cases of enterotoxemia (*Clostridial perfringens* type D) were diagnosed by postmortem ▪8 cases of enteritis in kids (inflammation of the intestines often with diarrhea) – 3 cases VTEC/EPEC, 2 cases rotavirus, 3 cases unknown cause		

REMINDERS

1. 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. Call your veterinarian so that any testing can be as accurate as possible. The longer a carcass sits before being submitted, the lower the chance of a diagnosis.
2. It is important to keep placenta for veterinary review/sampling in any abortion case. Make sure the placenta is as clean as possible and keep somewhere cool and protected until your veterinarian arrives.

Parasite Management Plans

As part of the Fecal Egg Count (FEC) Training Courses offered by Ontario Sheep Farmers this summer, there were many questions related to managing parasites. This article will attempt to answer some of those questions.

Q. My FECs indicate I need to treat some of my sheep. How do I decide who to treat?

A. Without individual FECs, other steps need to be taken to decide who to treat. A combination of FAMACHA (mucous membrane colour), fecal staining, body condition score, and age.

Q. Can't I just treat the whole group?

A. Refugia (source of susceptible parasites on pastures) is a very important part of managing parasite resistance. Leaving 20% of a group untreated will allow untreated parasite eggs to be deposited on pasture to reduce the genetic selection for resistant parasites.

Q. How do I know which drug to use?

A. FECs do not distinguish between kinds of gastrointestinal nematode (GIN) eggs, or indicate which drugs the parasites are resistant to. Performing Fecal Egg Count Reduction Tests 14 days after treatment on individual high shedders is the only reliable way to evaluate resistance. What didn't work last year is unlikely to work again. Animals dying within a few days of treatment doesn't prove that the treatment wasn't effective – treatment may have been too late.

Q. Should I treat all sheep when they are housed for the winter, at lambing or before they go to pasture?

A. None of these times is appropriate to deworm everyone. Maintaining overwintering refugia inside sheep is very important as essentially no *Haemonchus* eggs or larvae survive the winter on pasture, meaning the only parasites found on pasture in the spring are carried out by the sheep. It is important to monitor sheep for re-emergence of hybobiotic *Haemonchus* at lambing, and especially for late winter and spring lambing.

Q. When is it safe to re-graze heavily infected pasture?

A. In a perfect world, a pasture would only be grazed by sheep once each growing season. Infective larvae are at their peak at 2-6 weeks after eggs are laid on pasture – coinciding with optimal pasture growth for re-grazing. Larvae development and die-off are both variable and vary dependent on weather conditions – heat, humidity, and moisture. Larvae can develop very quickly after a period of drought ends with a rainfall. Breaking up grazing by cutting for hay or grazing another species decreases pasture contamination better than delaying re-grazing longer than 4-6 weeks.

A Producer Perspective: The Importance of Fecal Sample Testing as Part of a Parasite Management Program

Tell us about your operation

My name is Bill McCutcheon, and I am a sheep producer in Lennox and Addington County. I run a flock of 200 ewes on a pasture based system. I lamb on pasture as long as the grass season has started, using pasture rotation during the spring, summer and fall months. Lambs are weaned in August and brought into a feedlot. I have had sheep for most of my life and have not had many parasite problems until the summer of 2017. Looking back, the problem likely started in the summer of 2016 when I purchased a group of ewe-lambs that carried resistant parasites.

The problem

In early summer of 2017, I started seeing lambs with signs of parasitism. I consulted a veterinarian and we decided to treat the flock with a dewormer but no fecal samples were collected. Lambs continued to do poorly and there were some deaths so a different dewormer was used to treat the flock. The problem continued and pasture rotation did not help. In mid-July, the lambs were weaned early, brought into the feedlot and treated again. Mortalities stopped but the lambs looked poor, did not reach their normal heavy weight, and were all eventually sold. I was very frustrated with the situation.

OAHN Projects Funded

The OAHN Small Ruminant Network has received funding for 2 new projects.

Development & validation of diagnostic tests:

1. *Toxoplasma gondii* PCR
2. CAEV and MVV PCR

I decided I needed to do something different and spoke with other producers to see what they were doing. I contacted a different veterinarian and thought this vet would just tell me what I needed to do over the phone. However, the vet insisted on a farm visit. In late fall of 2017, the veterinarian and I sat down for 2 hours to discuss my flock's past health and how the farm was operated. The vet immediately recommended collecting fecal samples as he said we needed to know what we were dealing with. Group fecal samples were collected and analyzed and results from the ewes showed a heavy load of gastrointestinal nematodes (GINs). It was determined that anthelmintic resistance was the likely problem. A different class of anthelmintic (not previously used in the flock) was used to treat animals. Two weeks later, fecal samples were again collected and sent to my vet for analysis. This time GIN levels were very low. Two weeks later, fecal samples were again collected and GIN levels had not increased. I am so grateful that my vet initiated the farm visit and thoroughly investigated the problem.

Developing a parasite management plan

Over the winter my vet and I developed a parasite management plan of when fecal samples would be collected once animals went to pasture. I collected fecal samples regularly, once per month or occasionally twice per month depending on the weather. Samples were sent to my vet for analysis. In addition, ewes and their lambs were turned out to a fresh pasture (previous hay field) that had not been grazed before. We also treated lambs at 3 weeks of age with Baycox®, as lambs had evidence of coccidiosis. As of the end of September, I have not had any losses due to parasites, my lambs have done extremely well on pasture and I have not needed to deworm anyone in the flock.

Recommendations to other producers

1. Get in touch and work with a veterinarian who understands sheep and understands parasites.
2. Check fecal samples regularly and develop a flock-specific parasite management plan and review it yearly.
3. Ensure your plan is working. After you use a dewormer, it's important to see if it worked.
4. Have people you can talk to (peer support) – a group of progressive, knowledgeable producers to discuss issues you are experiencing on-farm.

Things I've learned over the past year

I learned that pasture rotation wasn't enough to stop my parasite build-up on pasture. In the past I also had beef cattle that I rotated with the sheep on pasture and I'm sure that helped control things. When I now purchase lambs/rams they are quarantined for 2 to 3 weeks and dewormed. I have a fecal sample analyzed and if clean, they can go in with the rest of the flock. Overall, I feel that I'm more actively involved in managing my sheep flock – this has made me a better producer, I watch my sheep more carefully, I'm more aware.

For 2019

This past summer I participated in the Parasite Workshop on how to do fecal testing, offered through Ontario Sheep Farmers. I now have all my equipment and materials and my intention for 2019 is to perform fecal testing on my flock every 2 weeks. Every 4 to 6 weeks I will also send samples to my flock veterinarian for quality assurance to ensure my results are accurate.

Adult Mortality Project

DON'T KNOW WHY YOUR ANIMAL DIED?
WE WANT TO HELP!
Only 2 months remaining in the SRAM project - deadline for case submission is November 30th. We still have funding for 30-40 more cases. Contact your veterinarian for more information.

Benchmarking Kid Mortality on Ontario Dairy Goat Farms

Cathy Bauman, Julia Kim, Jeff Wichtel, Paula Menzies, Robert Foster, Emily Ratsep, Ontario Veterinary College, and Jocelyn Jansen, Animal Health and Welfare Branch

Profitability of dairy goat operations is heavily influenced by kid survival. Kid mortality has been identified by the Ontario goat industry and the Small Ruminant Ontario Animal Health Network as a significant issue and barrier to industry growth. However, there is a lack of available data on the actual level of mortality in dairy goat kids and little evidence as to the most important causes.

The project, "Investigating Kid Mortality in Ontario Dairy Goat Farms", began in the fall of 2017. Phase I of the project involves a questionnaire and farm visit and the goal is to visit 75 herds. To date, 90 producers responded to a request to participate in Phase I. Of those, 60 producers so far have fully agreed to participate. Fifty completed questionnaires have been received and 40 farm visits have been completed.

Thirty producers from Phase I have now been randomly selected to participate in Phase II. Phase II of the project is a 12-month commitment which involves weighing and tagging all kids at birth and collecting and freezing kids that die between birth and 4 months of age so that postmortems can be performed. All 30 have now been enrolled and are tracking births and collecting and storing all carcasses. Carcasses will be submitted to the University of Guelph's Animal Health Laboratory. At the end of the 12-month period, a protocol specific to each farm will be developed to assist in reducing illness and mortality due to the identified causes of death. As this study is not designed to address acute disease outbreaks, it is strongly recommended that if a farm is experiencing an acute outbreak of mortality that carcasses be submitted to their regular herd veterinarian for postmortem analysis to address the issue in a timely manner.

In addition, samples of colostrum and/or colostrum replacement products are being collected to provide a farm-level estimate of colostrum quality. Serum samples are also being taken in goat kids aged 24 hrs - 7 days of age to assess the prevalence of failure of passive transfer. Serum samples and colostrum have been collected from 5-10 animals per farm on 15 farms to date. In addition, all 30 farms have temperature and humidity monitors collecting data in the environment where kid-rearing is occurring. For those producers with electricity, ammonia monitors have also been installed.

Preliminary results from ~350 kid postmortems are as follows:

a. Age at with deaths are occurring
- ✓ 8% of kids died between birth and 48 hours of age
- ✓ 80% of kids died between 48 hours and 40 days of age
- ✓ 12% of kids died over 40 days of age

b. Gross causes of death*
- ✓ 40% pneumonia
- ✓ 20% septicemia
- ✓ 12% starvation
- ✓ 12% enteritis

* Many animals had more than one illness concurrently, but these represent the primary cause of death

Preliminary risk factor analysis is currently underway to identify farm-level management practices that predispose to high proportions of mortality, pneumonia and septicemia.

The Longhorned Tick

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A new tick species, *Haemaphysalis longicornis*, was recently found in North America; it may have originated from eastern Asia, Japan, New Zealand, or Australia, and appears to have become established recently in the United States, primarily in the Mid-Atlantic region. This tick was detected in high numbers on sheep and their owner in New Jersey, in November, 2017. In 2018, several ticks were reported from counties located in Maryland, Virginia, West Virginia, Arkansas, North Carolina, Pennsylvania, and New York. *Haemaphysalis longicornis* has been given several common names, including the cattle tick, the scrub tick, the bush tick, and, most recently, the **longhorned tick**; it earned that common name from the extensions on each side of its mouthparts, like the horns on longhorned cattle. It is an unusual tick in that it can reach high numbers quickly because the females do not have to mate to produce offspring. Each engorged female is capable of producing thousands of eggs. As a result, an entire population of ticks may emerge as the result of a single undetected (and very fortunate) larval tick.

The longhorned tick represents a double threat to livestock and wildlife: 1) it can infest animals in such high numbers as to weaken them due to blood loss, causing death; 2) it is also a known or suspected vector of multiple species of bacteria, viruses and protozoa. All active life stages of the longhorned tick feed upon medium and large-sized mammals; larvae and nymphs also infest a variety of ground-dwelling birds. In temperate regions, this species may be active in some form from late winter through spring, summer and fall.

This tick species is established in temperate regions of the United States. Parts of eastern Canada are temperate and are along major flyways for migratory birds from the Mid-Atlantic states; thus, there is potential for incursion of this species and possible establishment. This tick species is also difficult to eradicate once established, so we must be vigilant and watch for it.

Unfed (i.e., flat) adult female longhorned ticks are completely medium (caramel-coloured) brown in colour, unlike the larger American dog tick and Rocky Mountain wood tick, which are a darker (chocolate-coloured) brown with white or ivory-coloured ornamentation on their backs. **If you suspect any ticks of being *Haemaphysalis*, please contact one of the authors listed above, who can help coordinate their prompt identification**. Ticks may be submitted in 70% ethanol or isopropanol (rubbing alcohol) – see the information at the link below.

An engorged (left) and partially engorged (middle) adult females and an engorged larva (right) of the longhorned tick. (Photo: James L. Occi, Rutgers University)

https://www.canada.ca/en/public-health/services/diseases/lyme-disease/removing-submitting-ticks-testing.html#a4