



The WeCAHN Small Ruminants Network held a quarterly videoconference meeting 7th September 2023 to discuss the animal health events occurring April to June 2023, with veterinary practitioners, diagnosticians, veterinary college faculty, researchers, and industry representatives in attendance.

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1. Overview

- i. Interesting cases.
- ii. Syndromic surveillance
 - Clinical impressions survey
 - Laboratory data: Prairie Diagnostic Services (PDS), Manitoba Veterinary Diagnostic Services Laboratory (VDSL), University of Calgary Diagnostic Services Unit (DSU).
- iii. Scan: small ruminant surveillance from beyond western Canada.

2. Interesting Cases

- i. **Diffuse hair loss in adults**
 - **Presented** with Nigerian X doe 4-6 years old, and 2 kids close to weaning.
 - **Clinical signs:** complete hair loss over neck back; legs OK. No itching. No history of high fever. These were the only animals in the group affected.
 - **Treated:** ivermectin and Boss™, repeated

- after 2 weeks. At that point, no hair re-growth.
- Seen ~ 4 months later, hair had re-grown.

COMMENT 1: our practice ~ 120 km away has seen very similar case. 3 does with no sickness; skin appeared ok. This flock had good parasite control. We submitted blood to lab for trace mineral status, No Abnormal Findings.

COMMENT 2: our practice ~2000 km away has seen very similar case. Workup included serum cortisol which was very elevated. We identified an energy deficiency in the herd, and addressing this resolved the problem.

COMMENT 3: we see this in lambs in the feedlot associated with stressors such as nutritional deficiencies in energy or fibre.

ii. Flock with recent mortalities

- **History:** Flock of ~ 300 ewes with multiple mortalities recently. Owner attributed to ruminal acidosis (grain overload) due to feeding issues but post-mortem's have suggested respiratory pathology.
- **Post-mortem** of 4 deaths:
 - i. Tentative diagnosis Johne's.
 - ii. No obvious abnormalities.
 - iii. Lungs with pneumonia.
 - iv. Ditto.



Interesting Cases (continued)

QUESTION: Seems like this problem could've been tackled sooner to guide the owner in understanding the deaths. Do you vets use telemedicine with your small ruminant clients? If so, pros and cons?

ANSWER 1: I used it routinely with certain clients: they would take pictures of cases and load to Google drive. Requires a pre-existing Vet-Client-Patient-Relationship. Challenge is for veterinarian in record-keeping since this telemedicine often happens while vet is in truck.

ANSWER 2: I use it with small ruminant clients a lot but usually for individual as opposed to herd cases, where economics don't support a farm visit (or trip to town) for 1 sick animal.

ANSWER 3: I use it as part of the process of communicating with the client. They will share pictures of cases; I will include these in reports describing those health problems.

ANSWER 4 : use it a little with specific clients; most of our clients are geographically fairly close.

iii. Hyperplastic goiter.

- **History:** 3 does and one ewe have had premature births; most survived. Does on hay, get 8-way and ivermectin 1.5 months prior to kidding. Kids get supplemental selenium.
- The frozen 2.98 kg body of a three-week-old, white and brown, intact male goat kid is received on May 3, 2023.
- **Postmortem examination** is performed on May 4, 2023. External examination of the submitted goat kid reveals marked swelling of the neck region with firm palpable nodules present within the sub-Q region.

The body is in good nutritional condition
Marked and diffuse enlargement of the thyroid glands (consistent with goiter).

QUESTION: how often do you see this associated with feedstuffs which cause goiter (e.g. turnips, cabbage, kale, cauliflower)? Could this be a potential flock problem with producers feeding vegetable products?

ANSWER: once saw in a flock feeding close to 100% kale. More often we see it associated with mineral supplementation problems (i.e. not feeding iodized salt).

iv. Narasin (chicken coccidiostat) in feed.

- **History:** replacement ewe lambs started dying April 30 (1-4 per day). Post-mortem of 2 ewe lambs 1 May. Diagnosis: atypical interstitial pneumonia (AIP, a non-infectious pneumonia) caused by abrupt change in concentrate fed, and animals died with fluid/froth in airways. Also possible acute *Mannheimia* (bacterial infection involved in pneumonia). 2 whole ewes submitted to lab.
- **Post-mortem:** extensive muscle damage.
- **Toxicology:** Frozen mineral-grain and silage tested at AHL Guelph for feed additive and mycotoxin screen.
 - Monensin No Abnormal Finding..
 - Narasin detected— The antimicrobial is not labeled for use in this species and may suggest a mixing error possibly resulting in heart damage in this case.

QUESTION: how often do you see mixing errors originating at the feedmill?

ANSWER 1: Over 20 years, I have seen about 3 mill-level mixing errors. They all involved ~ a magnitude 10 times of error though.

ANSWER 2: Saw a flock case of copper toxicity which was feedmill error exacerbated by adding trace mineralized salt to a Total Mixed Ration (which doesn't require additional salt).

Interesting Cases (continued)

QUESTION: How often do you see mixing errors occurring on-farm?

ANSWER 1: lots of farm mills may use coffee cans for measurement. So that leads to lots of errors.

Generally smaller farms have very limited capacity for accurately weighing and measuring.

In Alberta this toxicity is provincially reportable.

v. Potential monensin toxicity:

sudden deaths in feeder lambs:

- **History:** bought 110 lambs from local farm over weekend; 28 died Saturday-Sunday. Exam of 2 live lambs: down, depressed, slow heart rate.
- **Post-mortem:** extensive muscle damage.
- **Toxicology:** Feed and kidney submitted to AHL Guelph for feed additive analysis. All samples had no detectable feed additives.
- Based on the clinical presentation, number of animals affected and post-mortem findings, an acute toxicity is still considered a potential in these lambs. Other toxins, such as toxic plants, seem less likely, but are possible. In such cases, the problem is often and underlying mixing error in the feed that causes hot spots of ionophores making quantification and proving toxicity difficult. This is why some animals in a herd will be affected and others will not.

QUESTION: could mixing errors/inadequate mixing on-farm result in this degree of problem (mortalities due to monensin toxicity)?

ANSWER: definitely.

vi. Plant toxicity:

- **History:** adult sheep on pasture (proso millet and kochia) developed swelling around eyes, skin irritation, and eventually deaths.
- **Post-mortem:** pattern of black livers and skin irritation suggesting toxins which are activated by sunlight (photosensitization).

- **Treatment:** brought sheep indoors. Deaths stopped but some animals lost ears and lips.

COMMENT: Livestock specialist: The kochia contains oxalate as well as high levels of sulphur, and has been implicated in photosensitization and liver damage due to the presence of hepatotoxic alkaloids. The oxalates have been implicated in kidney damage and affect calcium absorption. The sulphur tends to lead to PEM and the other usual symptoms and maladies associated with sulphur toxicity. And it's also great at accumulating nitrate. It doesn't take much kochia to cause a whole slew of problems.

We had a number of inquiries/issues in 2021 – there was lots of kochia, it loves a drought; livestock were being turned out to graze drought stricken crops, or it was being baled up and used in rations and not without problems. Typically it will have to be limited to less than 30% of the ration. There was one case in particular that sticks out in my mind where a rancher had moved cattle onto a wrote off lentil field that had kochia in it, lost a number of cattle in a short amount of time.



3. Syndromic Surveillance

a) Respiratory Disease

There was an uptick in sheep broncho-pneumonia diagnoses at PDS over the first two quarters of 2023 which is not seen in the Manitoba VDSL data.

COMMENT: Think we are seeing an increase in accelerated lambing, which could contribute to uptick in pneumonia as downstream consequence. Often ventilation of these facilities is not good [predisposing to pneumonia].

b) Digestive Disease

Diarrhea was reported Rarely to Very frequently and associated with *E. coli*, Rotavirus, or cryptosporidia Commonly by one practitioner. These agents were rated Stable to Decreasing relative to the same time period last year.

E. coli Diarrhea in Day Old Lamb

- **History:** Day old lamb developed scours and died. Disease progresses rapidly once signs develop. About 10% of the lambs in this group have been affected out of 80 ewes that have lambed so far.
- **FINDINGS: Whole lamb submitted.**
 - Undifferentiated neonatal diarrhea.
 - Dehydration, severe.
 - Poor body condition.

COMMENT 1: this is major cause of mortalities in intensive operations. When we see a problem tend to see:

- Failure of passive transfer
- Prolific ewes
- Low birth weight
- Dirty environment

COMMENT 2: Recently, we look much harder at water quality in these cases including:

- Cleaning and disinfection of water jugs.
- Ditto lines.
- Tend to start at the water source e.g. cistern.

Learning a lot from our work with a water quality consultant. When we improve water quality we decrease lamb diarrhea and see other improvements e.g. reproductive rates.

Malignant Catarrhal Fever

- Was detected in one submission at PDS.
- Sheep going to be pastured adjacent to bison. Plasma submitted for MCF PCR.
- Of 5 submitted, 4 positive and one suspect were detected for MCF.

QUESTION : how often do you do this [test new introductions for MCF] in your practice?

ANSWER 1: have not done it, but worried e.g. where lamb feedlots close to cattle.

ANSWER 2: our petting zoos and zoos themselves do.

Saskatchewan Sheep Development Board has an information document outlining how to manage MCF available at :

<https://sksheep.com/services/fact-sheets-information/>

Bloody diarrhea was reported clinically Never to Commonly by network practitioners, and associated with *E. coli*, coccidia, and *Clostridia* Very frequently by one. All were rated Stable to Decreasing. Four cases of clostridial enteritis in sheep reported by UCVM. One *Clostridium perfringens* isolate identified in Manitoba was forwarded to a private laboratory for autogenous vaccine production. Four cases of coccidiosis in sheep were reported by UCVM DSU, in one case associated with emaciation. Three cases of haemonchosis were reported in sheep at PDS.

Haemonchosis (barber pole worm): was there an increase in cases over the summer?

COMMENT 1: at our lab (SK) the pathologists have rounds twice a week. Over the summer noticed more conversations about Haemonchus. This is noteworthy since the last time we saw this kind of thing was 7-8 years ago, when we saw a spike of Haemonchus cases. At that time veterinarians seemed unaware of the parasite, but this changed over the course of the uptick, management practices seem to have improved, and since then we have heard very little about the parasite. The diagnosis is made on post-mortem examination of the stomach. It's rarely present in tissues submitted to the lab.

COMMENT 2: we see it commonly at our lab (BC) in sheep, goats and camelids (e.g. llamas). We saw some early this spring but cases decreased as our area got drier. It's an easy post-mortem diagnosis. And we also see it diagnosed in treated animals so we are seeing resistance too.

4. Scan

i. Bovine tuberculosis in Saskatchewan June 2023

On February 23, 2023, the United States Department of Agriculture (USDA) notified the CFIA that tissues collected at slaughter from a heifer originating from Canada had a positive polymerase chain reaction (PCR) test for bovine tuberculosis. The animal was exported from Saskatchewan in September 2022 and was in a US feedlot until its slaughter. In May 2023, all animals over six months of age in the herd of origin were tested for bovine TB and the reactor animals were removed for slaughter and post-mortem examination for signs of the disease. Tissues from the suspect animals were shipped to the CFIA's Ottawa Laboratory–Fallowfield where PCR testing confirmed 2 cases of bovine TB on June 19.

ii. July update

The index herd has been slaughtered and tested. A herd has been quarantined in MB due to fence-line contact during summer grazing over the last 5 years or so. Four animals from the index herd were found alive in a feedlot in AB. The pen has been quarantined and those 4 will be slaughtered and tested (if positive, rest of pen will be tested but as all are to slaughter there is no concern about additional herds or premises implicated because of these 4 animals)

For more information: <https://inspection.canada.ca/animal-health/terrestrial-animals/diseases/reportable/bovine-tuberculosis/saskatchewan-2023/eng/1687968532228/1687968532994>

[Even though it's called "bovine tuberculosis", small ruminants can also occasionally become infected].

5. Meeting Takeaways

- The devil is in the details: Mixing errors can and do happen. It's important for producers to understand the potential consequences of these and have SOPs in place for measuring and mixing rations to avoid them.
- Wet weather problem: Haemonchus (barber pole worm) has been reported by two western labs, and associated with wetter weather. This is a post-mortem diagnosis and if the veterinarian is doing the necropsy and submitting tissues, this diagnosis needs to be made by the practitioner.
- Dry weather problem: plant toxicities have been repeatedly associated with drought. Producers need to monitor pastures to know what species are present, and mindful of what might be on stubble used for grazing later in the summer and fall.