



INTRODUCTION:

Participants attending the meeting:

The videoconference meeting of the WeCAHN small ruminant network was held May 26th, 2022. Participants attending the meeting: veterinary practitioners, laboratory diagnosticians, veterinary college faculty, and industry representatives.

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1. Dataset Overview:

- i. Practitioners' Clinical Impressions Survey
- ii. Laboratory data: Manitoba Veterinary Diagnostic Services Laboratory, Prairie Diagnostic Services (PDS), University of Calgary Diagnostic Services Unit (UCVM DSU).
- iii. Scan: Cache Valley Virus in Ontario

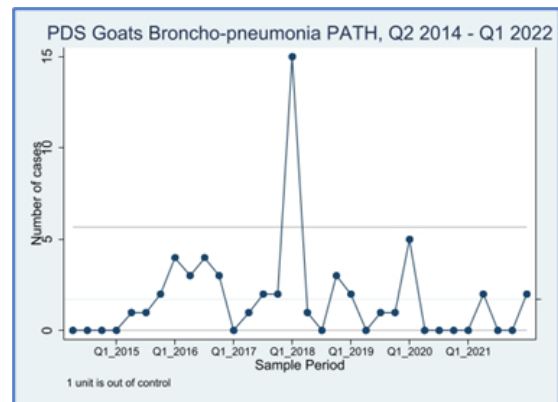
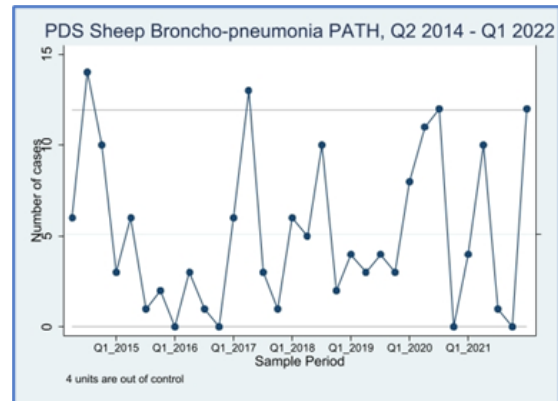
The clinical impressions survey is to be a simple, quick overview of diagnoses by practitioners, which does not require practitioners to extract data from their information management systems to complete. Practitioners report, for a list of selected pathogens/ syndromes how frequently they have diagnosed these pathogens over the time period in question. Additionally, they are asked whether, compared to the previous time period, their diagnosis of these pathogens is increasing/decreasing/ or stable.

2. Respiratory Disease

- Respiratory Disease was reported rarely by 3 practitioners and very frequently by 1, who reported un-differentiated pneumonia (without supporting lab work) and broncho-pneumonia

Very frequently.

- Lab diagnoses of small ruminant pneumonias at Prairie Diagnostic Services (PDS) and Manitoba Veterinary Diagnostic Laboratory appeared stable.



Recap on control charts: each dot represents the number of cases of a specific agent or disease syndrome, diagnosed by a specific laboratory, over a 3 month interval. The parallel horizontal lines are similar to 95% confidence intervals, and so dots falling outside the lines represent findings which could be further investigated.



3. Digestive Disease

Digestive disease was reported diagnosed Never to Rarely to Very frequently.

- Diarrhea associated with *E. coli* was reported Very frequently by one practitioner, occurring in pre-weaning lambs.

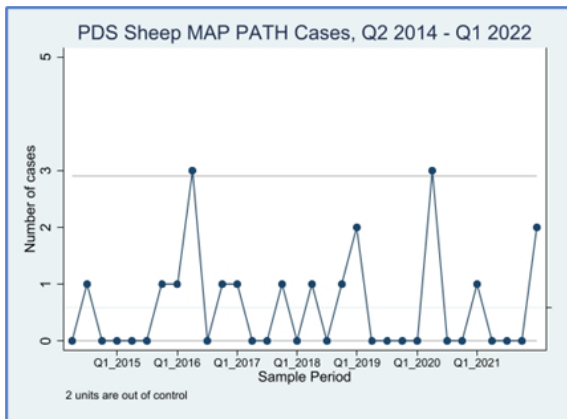
Q: Do you see *E. coli* diarrhea in lambs, and if so - what does it look like, and how old are they?

A1: *E. coli* in older pre-weaning lambs and have used autogenous (custom-made for the flock) vaccine successfully in these flocks.

- A2:** see "watery mouth" in neonatal lambs. These
- present with drooling, diarrhea, and dehydration.
 - may treat with oral antimicrobials; success depends on finding these lambs and treating them early in the course of infection, since we don't typically rehydrate with IV fluids as we do in calves.

Comment: hygiene and colostrum management are usually major factors in problem flock.

Johne's disease (MAP): Information using various metrics (pathologic diagnoses, PCR detections, serology) in sheep and goats was stable across PDS and Manitoba data, dating from 2014 and 2016, respectively.



Other digestive diseases:

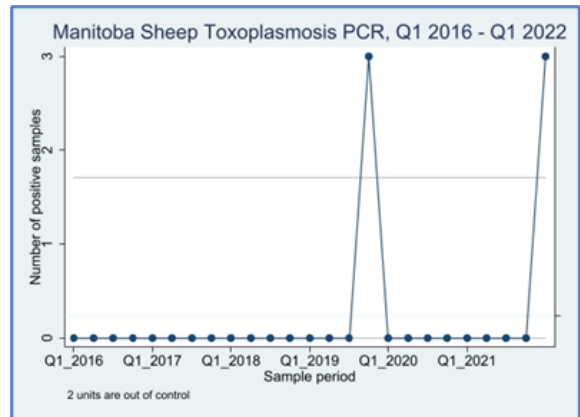
- University of Calgary Veterinary Medicine (UCVM) Diagnostic Services Unit (DSU): reported a case of coccidiosis with suspected *Clostridium perfringens* in a 55 day-old Suffolk ewe lamb.



4. Reproductive Disease

Abortions:

- The network practitioners reported seeing abortions rarely to very frequently in Q1 2022.



- Most infectious causes of abortion (*Chlamydophila abortus*, *Campylobacter foetus*, *Coxiella burnetii*, diagnosed by PCR, appeared stable at both PDS and Manitoba, for sheep and goats.
- One exception was Toxoplasmosis, not previously reported in Manitoba since 2019, which was detected from three separate sheep samples in Manitoba in Q1 2020, although thresholds were relatively high (Ct > 30) for two of these.
- Sheep and goat abortions submissions for which no cause was determined, were stable relative to the previous five years, at PDS (data not shown).
- *Salmonella* abortions: twin aborted fetuses, estimated roughly one month short of term, were presented to Manitoba VSDL. *Salmonella* spp. was isolated from multiple organs.

Mastitis:

- Range of experience: acute and chronic mastitis were both reported from 'never' to 'very frequently' by different practitioners.

5. Congenital Disease

- One practitioner reported diagnosing skeletal deformities commonly during Q1 2022.

Cache Valley virus:

Recent detections:

- One network practitioner described seeing arthrogryposis commonly.
- Ontario described an uptick in cases earlier this spring, and specifically described outbreaks in two dairy goat flocks.
- RAIZO also describes a trend towards increasing CVV cases.

QUESTIONS: Are you hearing about/seeing congenital anomalies this year?

A: Yes. One producer group has had discussions with producers and veterinarians regarding CVV, and seen pictures of suspect cases.

COMMENT: CVV is a challenge for laboratories to diagnose as a cause of congenital defects. Usually by the time the lambs are aborted, the virus itself is gone. A specialized test to detect antibodies in fetal fluids can be performed by a veterinary lab in Texas.

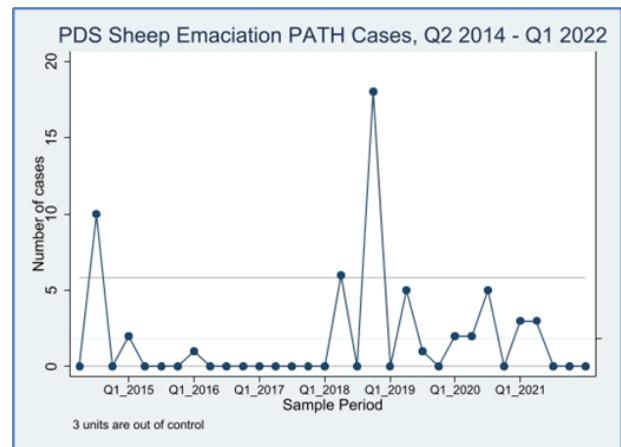
Q: Does freezing reduce the sensitivity of this test?

A: Not if it is only done once. Therefore it's good to freeze abortions and submit for lab analysis when you have a sufficient number (established by discussion with your veterinarian).



6. Multi-systemic Disease

- **Nutritional disease**, as with **septicemia** (blood poisoning), was reported rarely to commonly by the network practitioners.
- **Energy and protein deficiencies were reported very frequently**, and copper and Vitamin E deficiencies commonly, by one practitioner.
- In contrast with the bovine findings for Q1 from PDS, in which there was some uptick in several nutritionally-related diagnoses (e.g. calorie deficiency), similar diagnoses were stable for sheep and goat submissions.



- *Clostridia spp.*, *E. coli*, *Listeria monocytogenes*, *Mannheimia haemolytica*, and *Pasteurella multocida*, were all reported common causes of small ruminant blood poisoning by one practitioner.
- An outbreak of caseous lymphadenitis was reported by UCVN in a group of 75 Targhee ewes introduced to an existing flock of 250. Six of the 75 ewes introduced, died, with post-mortem findings including Caseous lymphadenitis, bronchopneumonia, aspiration pneumonia, and endometritis. *Corynebacterium pseudotuberculosis* (the bacterial species causing caseous) was cultured from these animals.



7. Musculoskeletal Disease

Summary of recent Footrot surveys from Dr. Joyce van Donkersgoed:

A: Survey of Veterinarians surveys regarding footrot in sheep and goats:

- Veterinarians responding: 12 small ruminant veterinarians responded, majority from Ontario
- Frequency of footrot outbreaks in clients' flocks: half said occasional(i.e. 1-2 per year). Two of 12 did not know.
- Age of affected animals: half of respondents did not know.
- Class of sheep i.e. dairy vs meat- most did not know.
- When in the feeding period is it seen in feeder lambs: two thirds did not know.
- Most important risk factors: weather conditions, followed by housing.
- Most important costs associated with footrot: Performance losses, followed by culling losses.
- Vaccine experience:
 - 10 of 12 had never used an autogenous vaccine
 - 2 of 12 HAVE used a bovine vaccine
- Preferred vaccine attributes: Efficacious, followed by safe.
- Preferred price: one respondent preferred < 1 \$; others roughly evenly split: 1-2\$/2-3\$/would depend on efficacy, but would need to be at break-even cost.
- Top factor potentially limiting producer uptake: vaccine price > believe own flock risk is low > labour involved ~ frequency of revaccinating is too often.

B: Survey of Producers regarding footrot in sheep and goats:

- 63 producers, , from BC> AB>SK>ON>MB
- Top diseases of concern: repro > parasites > pneumonia > lameness > diarrhea > neuro > other
- Top diseases where antimicrobial used: parasites > lameness > pneumonia > diarrhea ~ reproductive
- Top causes of lameness diagnosed by producers: injury > footrot > founder > arthritis
- Most important risk factors for footrot: Weather > purchase of outside stock
- Description of cases:
- Season: most frequently seen in spring
- Age/class – half of respondents not sure
- Of producers experiencing footrot in their flocks, most frequently seen pattern: occasional outbreaks (1 -2 times per year).
- Average incidence (maximum incidence)
 - Breeding ewes 7% (90%)
 - Breeding rams 7% (90%)
 - Pre-weaned lambs 1% (15%)
 - Post-weaned lambs 5% (100%)
- 6% of producers did not know what this was in their flock.
- Average culling rate = 1%; 14% of producers did not know
- Most important losses: growth/performance > drugs> labour ~ culling
- Use of autogenous ("custom"-made) vaccine: > 90% had not
- Preferred price: half said it would depend
- Main current barriers to use: do not have problem : vaccine price
- Producers willing to use a Canadian footrot vaccine: 45% yes
- If no or not sure: don't have an issue with footrot; would use if they did; would depend on cost, would depend on effectiveness, cull hard so have good feet, only have a few cases.



8. Scan

Ontario Animal Health Laboratory:

Cache Valley virus

(retrieved from <https://www.uoguelph.ca/ahl/cache-valley-virus-abortions-goat-kids>)

- In early December 2021, two separate and distinct dairy goat herds (one in Eastern Ontario and one in Southwestern Ontario) were entering their kidding season when they suddenly started to experience significant reproductive losses. In both cases, aborted fetuses exhibited various combinations of fetal malformations.
- The first herd (n = 25 with 7 pregnant does) consisted of 2nd and 3rd lactation does with approximately half of the animals kidding affected fetuses. The second herd (n = 225 with 85 pregnant does) contained does of various lactation stages with 16/120 kids (13%) being affected, and four does lost as a result of associated birthing complications. The first herd had no previously reported reproductive losses, while the second herd had reported similar fetal malformations 5 years previously.
- Following postmortem and microscopic evaluation, samples of placenta, fetal tissues and fetal thoracic fluid from both cases were independently sent to Texas Veterinary Medical Diagnostic Laboratory (TVMDL) for detection of Cache Valley virus (CVV).
- PCR testing for CVV on placental and/or fetal tissues was negative, while the virus neutralization (VN) assay on fetal thoracic cavity fluid was positive in both cases. Tissues from both cases also tested negative for both *Coxiella burnetii* and *Chlamydia abortus* by PCR testing. *Toxoplasma gondii* PCR on samples from the first herd was also negative, and no bacterial pathogens were isolated in that case.



9. Meeting Take-aways

- **Lamb diarrhea:** In neonatal lambs, may see 'watery mouth' presenting as drooling, dehydration and possibly diarrhea, reflecting presence of endotoxin often associated with *E. coli* infection. Treatment with oral antimicrobials may be useful if initiated early on in course of disease. Older lambs may more exhibit enteropathogenic *E. coli* strains; important to associate pathology/isolation of *E. coli*/detection of virotype in making this diagnosis.
- **Cache Valley virus:** network members have heard of potential cases (and also seen pictures of some of these), from producers and veterinarians. It is a diagnostic challenge since by the time affected foetus is aborted, the virus may be gone. However, producers should be encouraged to freeze abortions/ congenitally deformed lambs, and submit to the laboratory when prevalence reaches a cutpoint defined by their veterinarian.
- **Footrot survey findings from western veterinarians and producers:** the most frequently reported pattern was occasional outbreaks. Many veterinarians had limited understanding of the disease impact in their clients' flocks. Vaccine effectiveness was rated the most important determinant in deciding whether to use a Canadian footrot vaccine, should one become available.