



*The WeCAHN small ruminants network met May 23rd 2024 with veterinary practitioners, producers, provincial veterinarians, diagnosticians, and researchers in attendance, discussing the small ruminant health events of Q1 (January—March) 2024.*

## Case report: Neonatal goats with neurological signs in Minnesota

The goats on a backyard premises shared the same pasture and sole water source with infected ducks and chickens. The goats began to kid only days after the birds were depopulated. Of 10 goat kids that have died, ranging from 5 days to 9 days of age, five goat kids between 7 and 9 days of age have tested positive on brain and other tissues for H5N1 clade 2.3.4.4b virus. Sequencing showed that isolates from the first goat and infected poultry were highly related.

Influenza researchers stress that influenza viruses frequently are found across multiple species, so the recent detection of H5N1 in goats is noteworthy but especially surprising.

### Relevant observations from H5N1 outbreak in US dairy cattle:

The current understanding is that the virus circulating in U.S. dairy cows reflects one spillover event followed by transmission within and between herds which is largely iatrogenic, i.e. transmission within herds based on activities such as milking, and between herds due to transport of infected animals.

Current understanding based on sequencing data and phylogenetic analysis is that although clinical cases in TX dairy herds began to be discussed among veterinarians in mid-late February, initially as “mystery agalactia” prior to H5N1 detection in clinical cases, the virus was likely circulating for months prior, based on the level of genetic diversity across isolates.



This further suggests questions regarding what if any clinical signs were present in these early cases of bovine infection, and how many months’ worth of sampling are missing from the current library of isolates.

Likely the main takeaway from the dairy outbreak isolates’ sequencing data is that the strains circulating in U.S. cows and one goat flock identified to date are significantly different genetically, suggesting no meaningful link between the two species’ outbreaks.

In Canada the occurrence of H5N1 in ANY species is federally reportable disease, so should a western veterinary practitioner encountered a suspect H5N1 case in goats, they are expected to contact their district CFIA office, who will discuss whether/how to proceed with testing. Index of suspicion would be increased by the presence of unexplained deaths/ neurological signs in neonatal goats in the context of dead poultry/wild birds infected with H5N1, on-farm.

Veterinarians and producers considering testing are reminded that CFIA response action may vary with host species.

## Digestive system

### Case report: Stomach infection in 30 day old ewe lamb

#### Post-mortem

- Overall pale carcass suggests anemia (low blood count) and the dark contents within the intestinal tract suggest the animal was bleeding into the gut.
- Clear fluid in the lungs. No gross evidence of parasitism (e.g. *Haemonchus* or “barber pole worm”, which can cause bleeding).
- Samples of gastrointestinal tract tested for Clostridial.
- The most significant finding in this lamb was the mild inflammation of the abomasum (fourth stomach) with gas in the stomach wall and the presence of *Sarcina* spp. bacteria within the stomach.

This bacterium has been associated with bloat and ulceration in both calves and lambs. The bacteria don't tend to invade the stomach wall but rather sit on the inner surface.

#### QUESTION: HOW OFTEN DO YOU SEE STOMACH INFECTIONS?

- In our lab, we have seen previous outbreaks of bloat, colic and twisted intestines in lambs around this age in the spring that we believe are associated with this bacteria.
- Our practice sees *E. coli*-associated stomach infections in pasture-age lambs, associated with clostridial infection, i.e. *Clostridia perfringens* type A. These flocks respond well to clostridial booster (*C. perfringens* type A). It is a multifactorial disease, and may involve feeding problems in confined flocks. Indoor-raised lambs may be exposed to poor feeding regimes and/or wet litter. Now in the absence of availability of *C. perfringens* A vaccine our clients see more of these problems.

### Case report: Neospora abortion

**Submitted to lab:** Placenta, one section yellow and opaque containing 6 cm long mummified foetus.

- Rest of placenta, contained body of a 23-week gestation ewe lamb fetus.
- Severe hydrocephalus (fluid on the brain).
- Hemorrhages in muscle and subcutaneous tissue.
- PCR test on brain was positive for *Neospora*.

#### Neospora abortion notes:

- Dogs are the definitive host for this protozoan (single celled) parasite and they shed *Neospora* oocysts (eggs) in their feces after eating infected animals.
- Sheep, goats and cattle then eat the eggs and become infected.
- **It's important to restrict dog access to livestock feed and also to dead animals.**
- There is no antimicrobial or drug treatment for *Neospora*, and no vaccine is available.

### Case report: *E. coli* abortion

- Four aborted near term lambs were reported from UCVN for which the only potential pathogen identified was *E. coli*.
- Special microscopic stain revealed bacteria associated with the microscopic signs of disease identified in the lungs and placenta which further supports the causative agent to be *E. coli*.

#### Meeting Takeaways

- Producers encountering potential suspect cases of Avian influenza H5N1 in goats (unexplained deaths/neurological signs in neonatal goats, with accompanying potential contact with dead birds, especially H5N1 positive, are reminded that they should contact their veterinarian. Additionally the response plan from CFIA could vary across host species.
- The different causes of abortion reported (*E. coli*, *Neospora*) have different risk factors and require different control measures, underlining the value of abortion diagnostics.