



The WeCAHN Dairy Network held a quarterly videoconference meeting 25th January 2024 to discuss the animal health events occurring October—December 2023, with veterinary practitioners, diagnosticians, veterinary college faculty, researchers, and industry representatives in attendance.

Report Contents:

1. Dataset Overview
2. Interesting Cases
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1. Dataset Overview

Data sources in this report include:

- i. Clinical Impressions Surveys completed by network practitioners.
- ii. Data shared by western veterinary diagnostic laboratories: Manitoba Veterinary Services Diagnostic Laboratory (VSDL), Prairie Diagnostic Services (PDS), and University of Calgary College of Veterinary Medicine Diagnostic Services Unit (UCVM DSU).

2. Interesting Cases

***Mannheimia*-associated pneumonia and septicemia in lactating dairy cows.**

Background: at a recent bovine practitioners' conference, several Alberta practices reported seeing pneumonia due to *Mannheimia haemolytica* bacteria in dairy cows. This has been reported before in the fall of 2021, in central-southern Alberta and

Saskatchewan, with some herds experiencing multiple heifer and cow deaths as well as illness/ decreased production.

History:

- One central Alberta practice has encountered *Mannheimia* pneumonia in a couple of well-managed herds. One herd had 12 dead cows with an additional 20 losing the balance of their lactations; so far only cows or replacement heifers reported affected.

Primarily the cows do NOT show respiratory problems, but cows are down and off-feed and in some cases just have sudden death.

- One BC practice has recently encountered pneumonia caused by *Mannheimia* bacteria in ~ 12 month old replacement heifers, kept in a barn in which they are kept from weaning till later in first pregnancy. Post-mortem's were done and samples submitted to the lab. In the interim another 3 heifers died. Similar to Alberta report, these heifers did not display respiratory signs but were less active or down, then died.

Treatment: intra-nasal vaccine for all females pre-breeding, and injectable antibiotic for animals clinically ill.

QUESTION: what is the vaccination status of affected herds?

- Alberta: Generally these cattle have had respiratory vaccinations as calves but not boosted as cows.
- In the recent BC herd, clinical disease occurred only in replacement heifers and all were un-vaccinated.

Interesting Cases (continued)

- In Manitoba, when investigating *Mannheimia* pneumonia in cows, we have always identified an underlying viral component (BRSV/BVD).

QUESTION: what proportion of western Canadian dairy herds would be vaccinating their cattle for respiratory pathogens?

ANSWER: veterinary consensus: majority (60-70% was one estimate) of herds would vaccinate



calves; vaccination of cows is much less common.

OTHER FACTORS:

WEATHER: changes in weather including major swings in temperature happened around the time these outbreaks started. These can cause a variety of challenges including reduced ventilation during extreme cold, and indigestion/ rumen acidosis resulting from swings in feed consumption. Both of these factors may contribute to health problems such as pneumonia, and may be difficult to avoid, so vaccination becomes important to minimize health impacts.

COMMENT: depending on climate, it's good for producers to be mindful of stress of moving replacement heifers from outside into barn. In some areas owners will routinely clip them if this is happening in the winter when they've acquired a long hair coat, and if they happen to forget,

heifers will be puffing but just physically overheated.

Bovine coronavirus-associated pneumonia in lactating cows

Background: An Alberta practice previously described pneumonia outbreaks last fall in 3 dairy herds in which the only pathogen detected was bovine coronavirus. These were challenging to treat, since viral infections can't be helped with antibiotics, and at the time bovine coronavirus vaccine was unavailable. Another dairy herd was identified recently, this time with pneumonia in cows, and again, bovine coronavirus was the only pathogen identified. About 30/150 cows were affected over a 2 week period, with no deaths.

COMMENT: a Manitoba practice described also seeing bovine coronavirus-associated pneumonia in dairy calves. These did not involve any deaths and were not difficult to manage. They also saw 2 pneumonia cases involving coronavirus in lactating cows. In one, the bacterium *Mannheimia haemolytica* was isolated from samples at post-mortem, but coronavirus was identified from nasal swabs of herd mates.

Bovine Respiratory Syncytial Virus-associated outbreak

History: A dairy herd observed an outbreak of interstitial pneumonia in replacement heifers which were already covered by MLV vaccine and a booster.

Mortality was 3/80 heifers.

Control: Cattle were boosted with intranasal vaccine.

Research update

Projects at Prairie Diagnostic Services are sequencing western Canadian BRSV and bovine coronavirus isolates to study how the genome of disease-causing viral strains vary across cases, and assess similarity to vaccine strains.

Leptospirosis in dairy herd

History: 500 cow dairy herd in November of 2020. At first ~ 30 cows were identified with mastitis.

Diagnostics: Vet practice was called and blood and milk samples were collected and submitted to lab, but no abnormal findings. A couple of cows died with no real warning signs. Post-mortems were done but no significant findings were noted. The number of mastitis cases rapidly rose to 50 and another cow died. Post-mortem on the third one showed inflamed kidneys.

During the same period about half a dozen heifers had aborted and these were also submitted to a lab with nothing significant found.

Based on the third post-mortem findings and some reading, milk and blood were submitted to lab in Guelph for workup as possible leptospirosis case, and these were positive for *Leptospira pomona*.

By the time of diagnosis, ~ 100 cows had mastitis.

Source of infection? The vet practice heard about another dairy herd experiencing similar problems. Both this herd and the first herd they treated had sent excess heifers to a third farm on which there was lots of animal movements and introductions.

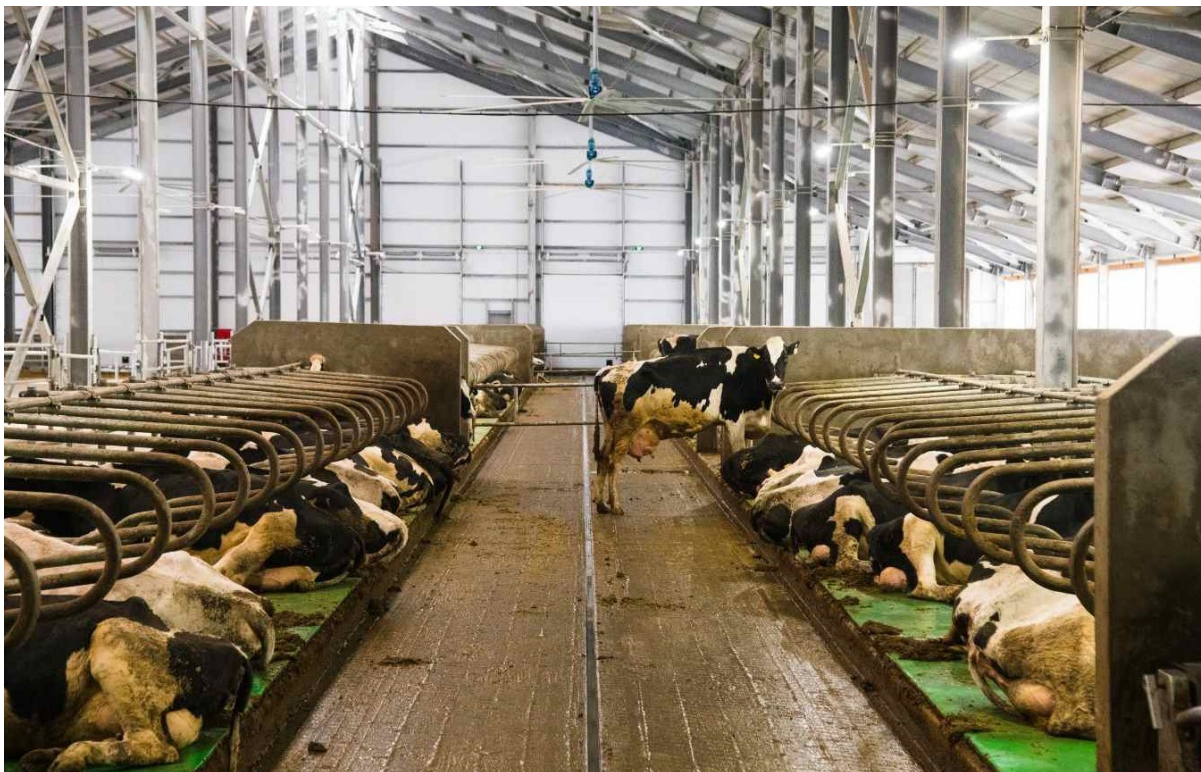
QUESTION: were there any dogs on-farm (which can also get leptospirosis), and if so were they investigated?

ANSWER: there were in fact dogs on farm, and while they did not show any clinical signs, they were vaccinated for leptospirosis.

SUMMARY:

It's important to remember that leptospirosis is a potential zoonosis (disease can spread to people), and veterinary staff attending potential leptospirosis cases need to take appropriate precautions and wear PPE to prevent infection.

In fact, the producer in this case herd also became ill and was also eventually identified as a leptospirosis case and treated as such.



Salmonella Morbificans case

History: a group of Holstein calves aged from 6-24 days presented with anorexia, mild fever, and diarrhea. These animals are held in a barn containing calves and bred heifers so wide range of ages potentially with nose-to-nose contact.

Diagnosis: No other pathogens isolated aside from *S. Morbificans*.

Treatment: supportive fluids, trimethoprim-sulfa. Calves took about a month to fully recover, but no mortalities.

Background *S. Bovismorbificans*:

- First seen at the Animal Health Centre (AHC) in B.C. in 2023.
- Diagnosed in Alberta in early 2000s in sheep, causing abortions and deaths.
- Reported in sheep in Australia.
- Also reported in humans associated with foodborne illness linked to hummus and pork sausage.

Currently: 5 cases reported over past year at AHC: 4 scours, 1 septicemia

The recent cases were sequenced by the Public Health Agency of Canada, and all clustered together closely phylogenetically.

Summary: Although clinical signs in recently infected calves were not severe, this serovar of *Salmonella* is potentially zoonotic. This case also shows the importance of using adequate PPE in handling sick animals or collecting diagnostic samples.

Meeting takeaways:

- i. Pneumonia cases may have both bacteria and viruses, or just bacteria, or just viruses, or occasionally other causes such as diet changes. Treatments will vary depending on the cause, and viruses don't respond to antibiotics. Your veterinarian will design a treatment and control plan for your herd's specific problems.
- ii. Some causes of diarrhea, mastitis, and abortion are potentially zoonotic, and PPE need to be worn especially when handling aborted materials. A WeCAHN podcast on zoonotic diseases in cattle by Dr. Sylvia Checkley at UCVM, describing these diseases and their diagnostics, can be heard here: <https://wecahn.podbean.com/e/zoonotic-diseases-of-cattle/>

