



The WeCAHN Beef Network held a quarterly videoconference meeting on December 6th, 2024, to discuss the animal health events occurring from July to September 2024, with veterinary practitioners, diagnosticians, veterinary college faculty, researchers, and industry representatives in attendance.

Overview

Data sources in this report include:

- Clinical Impressions Surveys completed by network practitioners.
- 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).
- Scan of surveillance reported by other networks or organizations.

Respiratory system



Case report: pneumonia in a 3-year-old breeding bull

Physical exam:

- Bull was lying on side and unable to rise.
- Heart rate was elevated.
- After discussion with the owner, the bull was euthanized.

Post-mortem:

- Skin over back was cracked and hardened in cobblestone pattern
- **Internal:** Kidneys were pale with numerous burst blood vessels.
- **Lungs:** areas of pus-filled abscesses.

Microscopic tissue exam:

1. Pneumonia with pus in airways and abscesses.
2. Moderate kidney damage.

Bacteriology:

- *Pasteurella multocida* and *Trueperella pyogenes* bacteria were cultured from lung

PCR: Negative for Leptospire bacteria (which may cause kidney damage).

This young bull's pneumonia was not recognized early and the treatment the owner used was not effective, resulting in an expensive loss. At a minimum, a discussion of treatment protocols with the herd veterinarian could improve the chances of a better outcome next time.

Network veterinarians rated pneumonia stable relative to the same time period last year, and similarly, they rated the occurrence of *Mannheimia haemolytica* and *Pasteurella multocida* bacteria, two common agents of BRD, stable as well. Similarly, lab trends in pneumonia cases and those two agents were also stable.

However, the trend for Bovine coronavirus PCR detections from respiratory disease is up over the last five years at one lab. A project is underway to study the genomic variation in circulating strains and compare the genome of circulating and vaccine strains.



Digestive system

Cryptosporidiosis was reported **Commonly** by 1 practitioner and rated **Increasing** relative to Q3 2023 by one network veterinarian.

Case report: *E. coli* septicemia (blood poisoning) in 6-week-old calf

History:

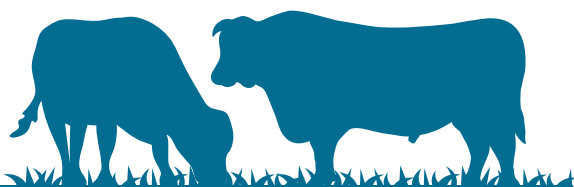
- Twin calf; other died. Owner treated with two antimicrobials unsuccessfully. Tubed with electrolytes.
- Slowly declined. Unable to regulate body temperature in clinic.
- Hooked up to IV, calf died in clinic.

Referring veterinarian thinks problem is primarily lung involvement.

Microscopic tissue exam: structural changes in tissues suggest blood poisoning. When liver tissue is available, the diagnostic lab suggests a vitamin and mineral panel of tests to assess liver levels in these cases to assess whether nutrition contributed to the bacterial infection.

Results: Vitamin A and E and Mineral Panel Levels

Outcome	Sample	Result	Interpretation
Vitamin A	Liver	12.1 ppm	Deficient
Vitamin E	Liver	7.2 ppm	High normal
Magnesium	Liver	198.2 ppm	
Manganese	Liver	1.04 ppm	Marginal
Iron	Liver	56.8 ppm	
Cobalt	Liver	22.9 ppb	
Copper	Liver	8.64 ppm	Deficient
Zinc	Liver	79.6 ppm	
Selenium	Liver	0.156 ppm	Marginal
Molybdenum	Liver	0.277 ppm	



Notes:

- **Vitamin A deficiency:** this is evidence of failure of passive transfer i.e. this calf didn't get sufficient colostrum.
- **Copper deficiency:** at this age he shouldn't be deficient. Calves accumulate copper at the expense of the dam. So a deficient calf suggests that the dam is deficient. Copper deficient calves are reported to be at increased risk of respiratory disease.

So in terms of disease risk this calf had a double whammy with vitamin A deficiency and copper deficiency.

QUESTION: Do we see nutritional deficiencies associated with the loss of reproductive momentum we've seen in some western cow herds over the past couple of years?

ANSWER: Usually the sequence of events is- problem is identified at pregnancy testing, when it's too late to do anything about. This year [at the lab] we are seeing copper and cobalt deficiencies. The impact of drought years would be especially on vitamins, due to the drought impact on forages. During a drought we could also see copper deficiency with high sulfate in the water, as dugouts are drawn down.



Discussion: Cobalt deficiency

COMMENT 1: usually reflects not offering salt.

COMMENT 2: it's possible that cows may not get adequate cobalt from free choice salt.

COMMENT 3: So many management/genetic components to this [problem of drought impacts on reproductive performance]. Blocks are a terrible way to provide mineral (some research shows it is nearly impossible to intake enough mineral in a block situation vs loose mineral), challenges with crop fertilization (we see it in feed tests on hay we buy), lack of feed testing and enhanced genetic performance of cattle (faster engines) likely means even our requirements used in ration formulations might be low.

Genetic trends (phenotype removed) for all major breeds for heifer pregnancy are actually downward, so the cow matching the environment is also an issue.

Comment on using Resflor for calves with *E. coli* blood poisoning:

“The minimum blood level values required for Resflor to kill bacteria like E. coli are MUCH higher than for the BRD pathogens like Mannheimia, and at normal dosages, these high blood values are never reached... . So with the products we have, florfenicol (ie Resflor/Nuflor) is never an appropriate choice for a [young] calf with septicemia/blood poisoning [since this could be caused by E. coli].”



Johne's disease

Johne's disease was reported **Rarely** by 2 practitioners and rated **Increasing** by one.

Laboratory data for Johne's disease at PDs and Manitoba VDS, including pathologic diagnosis, serology, and PCR detections were stable relative to the previous quarter, although the longer-term trend to increasing positives in PCR and serology (blood test) cases is still evident at PDS.

Johne's disease was reported in a 4-year-old Black Angus bull by the UCVM DSU.

History: developed very loose manure on pasture and was pulled and put on high roughage diet with no improvement.

Physical Exam:

- Temperature normal.
- Starting to lose body condition
- As owner was planning to cull one bull, suggested testing for Johne's.

Positive on ELISA (blood test) for Johne's disease.

DISCUSSION: Johne's disease:

1. Should we be including information on Johne's status in culling decisions?
2. What do we do with diagnosed positive animals once the decision is made to cull them?

ANSWER 1: Regarding use of Johne's status in culling decisions, Yes! People don't realize how pervasive and production-killing it is.

ANSWER 2: this needs some discussion with a professional group like the Western Canadian Association of Bovine Practitioners (WCABP) to draft guidelines using criteria like body condition score (BCS). Culls can be flagged for slaughter.

ANSWER 3: Johne's positivity is 1000% a culling criterion. And you can put on the manifest that she is a butcher cow, but can't stop her being used for breeding. Animal care guidelines for transport and shipping apply. Also we need to remember hundreds go through yards every week that we don't know about!

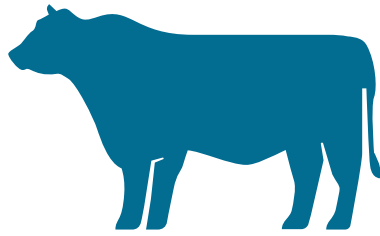
ANSWER 4: “In the UK there are several different testing programs.

We do a lot of blood testing testing (for herd screening/pre-purchase and clinical cases) there, but also use the PCR on faeces to detect the bacterial genome, and then occasionally still make the diagnosis on post-mortem-microscopic tissue exam. We have accreditation schemes so you can buy cattle from farms where you know the risk level. But we also have monitoring schemes where rules don't need to be followed so much, and these are more for farmers trying to improve the situation on their farms. Animals can be infected but take a while to convert to show up positive on the serology. So the accreditation schemes are often based on years of test results to improve the confidence that the farm might actually be Johnes free. “



- <https://checs.co.uk/diseases/johnes-disease/>
- <https://www.cattlehealthscheme.com/>
- <https://biobest.co.uk/hihealth-herdcare-cattle-health-scheme/>

Scan



HPAI update:

1) Human H5N1 case BC: The investigation into the human H5N1 infection in a teenager in B.C. has concluded, reporting that no additional human cases occurred from contact with the patient, and the infection source remains unclear. The case isolate was genotyped as D1.1, the genotype circulating in wild birds, and NOT the one infecting dairy cattle and some poultry in the U.S. For more information:

<https://news.gov.bc.ca/releases/2024HLTH0155-001601>

2) Dairy detections, as of 22 Dec. 2024: In the last 30 days, 247 dairy herds detected in 3 states, for a total of 875 positive herds confirmed in 16 states of the U.S. For more information:

<https://www.aphis.usda.gov/livestock-poultry-disease/avian/avian-influenza/hpai-detections/hpai-confirmed-cases-livestock>

3) Swine detections: 2 of 5 pigs in a backyard herd in Oregon were detected infected with the predominate strain circulating in wild birds (after being observed eating wild birds), NOT the dairy strain.

For more information:

<https://www.aphis.usda.gov/news/agency-announcements/usda-animal-plant-health-inspection-service-shares-update-h5n1-detection>

4) Vaccine candidate trials: As of November 2024) USDA-APHIS has approved field safety trials for two additional vaccine candidates for H5N1 in cattle, bringing the total number of candidates approved for field trials to four.

For more information:

<https://www.aphis.usda.gov/news/agency-announcements/usda-animal-plant-health-inspection-service-shares-update-h5n1-detection>

Meeting takeaways:

One western veterinary diagnostic laboratory has a trend to increasing bovine coronavirus detections in respiratory case submissions. A project is underway to study the genomic variation in circulating strains, and compare the genome of circulating and vaccine strains.

As well as checking calf mortalities for infectious disease, studying their liver tissues for vitamin-mineral status can be useful in understanding underlying contributing causes of infection.

Johne's disease status of individual cows can be useful information in culling decisions. Known Johne's positive cows appropriate for slaughter should be identified as such and NOT allowed back into the breeding herd. Management guidelines drafted and endorsed by professional groups (e.g. WCABP) and industry could be helpful to veterinarians and producers.



Financial support was provided under the Sustainable Canadian Agricultural Partnership, a federal-provincial-territorial initiative.