Western Canadian Animal Health Network

WECAHN DAIRY NETWORK REPORT

October - December 2024

The WeCAHN Dairy Network held a quarterly videoconference meeting on January 23rd, 2025, to discuss the animal health events occurring from October to December 2024, with veterinary practitioners, diagnosticians, veterinary college faculty, researchers, and industry representatives in attendance.

Overview

Data sources in this report include:

1. Clinical Impressions Surveys completed by network practitioners.
2. Data shared by western veterinary diagnostic laboratories: Manitoba Veterinary Diagnostic Services (VDS) laboratory, Prairie Diagnostic Services (PDS), and University of Calgary College of Veterinary Medicine Diagnostic Services Unit (UCVM DSU).
3. Scan: bovine surveillance reported by other sources or networks.

Invited presentation on antimicrobial use and resistance in dairy cattle in Canada:

Dr. Daniella Rizzo is a veterinary epidemiologist for the Public Health Agency of Canada (PHAC)'s Canadian Integrated Program for Antimicrobial Resistance Surveillance (CIPARS) Dairy Surveillance component (a short biography can be found here).

- More details are provided in the Nov. 2024 report (CIPARS Integrated and Key Findings for 2023 and CIPARS AMU and AMR Surveillance: Dairy Cattle 2023).
- Farm-level 2023 antimicrobial use (AMU) results:
  - Increase in reported AMU in 2021-2022 compared to 2019-2020 due to the increased reporting of tetracyclines in feed and water.
  - Decrease in the use of antimicrobials in feed and water.
  - Stable use of high-importance antimicrobials.
  - Decrease in the use of medium-importance antimicrobials.
  - The majority of intramammary AMUs was attributed to dry cow treatment rather than lactating cow treatment.
- In 2023, dairy ranked seventh across commodities for the quantity of antimicrobials sold (mg/kg of biomass) according to the Veterinary Antimicrobial Sales Reporting in Canada (CIPARS-VASR) system (CIPARS-VASR, 2025).
- With the reporting of AMU and antimicrobial resistance, increased exposure and experience will help producers understand these concepts and summary indicators.

Interesting cases

The highly pathogenic avian influenza (HPAI) of concern is influenza A virus subtype H5N1 genotype B3.13 and D1.1 in dairy cows.

USA:

- As of February 19, 2025, there were 36 new confirmed cases of HPAI in cattle in 4 states in the last 30 days. US Department of Agriculture (USDA)'s most up-to-date information can be found on their website (LINK).
- USDA's National Milk Testing Strategy (NMTS) continues with mandatory milk bulk tank surveillance. A map of the status of each State can be found here.
- HPAI can be detected in bulk tank milk before signs of illness in the herd ("Early Detection of HPAI H5N1 Virus in Bulk Tank Milk," National Milk Producers Federation, 2024).

- "Some California Veterinarians Say Virus-Hit Dairies See More Abortions in First-Calf Heifers and Dry Cows" (Bovine Veterinarian, 2025).
  - It is not necessarily HPAI that is causing disease in these animals, but "the virus amplifies existing health and management issues."
- CDC confirmed 68 cases of avian influenza A(H5) in people in the USA as of February 18, 2025. Forty-one infections were associated with exposure to affected dairy cows and 23 with infected poultry. (LINK)
- "Trump administration has instructed federal health agencies to pause all external communications… The instructions were delivered Tuesday [January 21, 2025] to staff at agencies inside the Department of Health and Human Services, including the Food and Drug Administration, the Centers for Disease Control and Prevention and the National Institutes of Health" (The Washington Post, 2025).
- Fewer dairy workers, compared to poultry workers, affected by HPAI reported wearing personal protective equipment (e.g., eye protection, face mask (Garg et al., 2024)).

Canada:

- As of January 31, 2025, the Canadian Food Inspection Agency (CFIA) laboratories tested 1,944 raw (unpasteurized) milk samples at processing plants; all samples were negative (LINK).

A short history of HPAI was discussed among multiple network members:

- HPAI in dairy cattle is likely a single spillover event from wild birds (Nguyen et al., 2024 (preprint); Worobey et al., 2024 (preprint)). Since the spillover, this strain (B3.13) has been transmitted between cows and back into domestic poultry.
- Implementing biosecurity measures to prevent infected cows from entering Canada reduces the risk of HPAI in Canadian dairy herds (CFIA).
- The genotype affecting Fraser Valley poultry (genotype D1.1) differs from the genotype affecting dairy cattle in the USA.
- Multiple cats have died after eating raw food. Some cases have been linked to a turkey farm in California. (AVMA, 2025)
- There have been no HPAI-related deaths in cats in Canada.
- There is a CAHSS fact sheet with important information on HPAI in cats (LINK).

UPDATE: The USDA has confirmed the detection of a D1.1 influenza (i.e., similar to the influenza circulating in birds in North America, both wild and domestic) in dairy cattle in Nevada (LINK) and Arizona (LINK).

Case report: Ketosis outbreak

- **History:** The veterinarian was called to the farm for an apparent outbreak of ketosis in many cows.
- Most cows did not have high ketones. There was an error in using the test strips; the user believed the cows had high ketones, but the test measured blood sugar levels.
- The error occurred because the local pharmacy sold the producer glucose strips instead of ketone strips to use with a hand-held measurement device.

Case report: Monensin toxicity in a group of heifers

- **History:** There were 10 sudden deaths in 2 pens of pre-breeding heifers (aged 9-11 months; 100 animals). A few heifers had swelling of the hip/leg/joint with fevers of 40°C or higher. Two heifers had fluid buildup in the brisket and neck with difficulty breathing (signs of heart failure). The producer did not report a decrease in feed intake in the group of heifers.
- **Field post-mortem** (3 heifers): There was muscle damage in 2 heifers, and the third had blood-filled intestines. The diagnosis was backleg. The producer declined further testing.
- **Treatment response:** Vaccination of the population with Bovilis®Covexin® Plus (9 clostridial pathogens and tetanus from Merck Animal Health), a vaccine booster 3 weeks after the initial vaccine, and prompt administration of an antimicrobial and a non-steroidal anti-inflammatory drug (NSAID) for any new cases.
- **Bloodwork** on heifers with heart failure signs showed muscle damage.
- **Lab post-mortem** (British Columbia Animal Health Centre (BC AHC): 1 heifer): The pathology report noted muscle and heart damage.
- **Final diagnosis:** Ionophore toxicity.
- The producer did a deep-dive nutrition analysis. There was a miscalculation in the feeding software of the amount of mineral mix (where monensin (Rumensin®, Elanco) is pre-mixed) to be fed to the heifers. After correction, there were only 2 cases of similar illness and no mortalities.

Escherichia coli scours (British Columbia Animal Health Centre (BC AHC))

- **History** of sudden onset scouring in 2-4 day old calves that were lethargic. The calves were treated with antibiotics, electrolytes and NSAIDs. Two died within 24 hours of the onset of scours and were submitted for post-mortem.
- **Histopathology:** There was damage to the cells lining the intestines.
- **Bacteriology:** *E. coli* toxin typing found toxins typical of *E. coli* infection that cause watery diarrhea but do not damage the cells, as seen in this case. The *E. coli* in these calves likely produced an additional toxin not included in the toxin panel. Several such toxins are described, and probably several have not been described. They are uncommon in domestic animals.

Syndromic surveillance

Clinical impression surveys

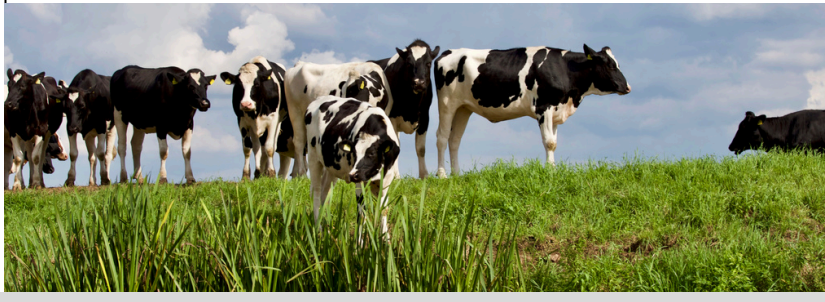
Important note on the clinician impression surveys:

- **Never**
- **Rarely** (1-2 times over the 3 months)
- **Commonly** (1-2 times per month)
- **Very frequently** (3+ times per month)

Clinical impression surveys for dermatological disease

Dermatological disease was reported **Rarely** (3/4) to **Commonly** (1/4).

A practitioner noted in the survey that they are dealing with mange in multiple herds despite applying pour-on once a year.



Clinical impression surveys for respiratory system disease

Respiratory disease was reported **Commonly** (2/3) to **Very frequently** (1/3).

Clinical impression surveys for digestive system disease

Digestive disease was reported **Rarely** (2/3) to **Very frequently** (1/3), compared to **Commonly** (3/3) last quarter.

- **Diarrhea** was reported **Commonly** (1/1).

Clinical impression survey for reproductive disease

Reproductive system disease was reported **Never** (1/3) to **Rarely** (1/3) to **Very frequently** (1/3).

- **Abortions or infectious infertility** were reported **Never** (1/1).
- **Disease of the uterus** was reported **Very frequently** (1/1).
- **Disease of the ovaries** was reported **Commonly** (1/1).

Clinical impression survey for multisystemic and metabolic diseases

Multi-systemic disease was reported **Rarely** (1/2) to **Commonly** (1/2).

- **Septicemia** was reported **Rarely** (1/2) to **Commonly** (1/2).
  - *Salmonella enterica* subspecies enterica serovar Dublin was **Rarely** but **increasingly** diagnosed in pre-weaning calves (1/1).
- **Un-differentiated neonatal loss** was reported **Never** (1/2) to **Commonly** (1/2).

Metabolic disease was reported **Rarely** (1/3) to **Commonly** (1/3) to **Very frequently** (1/3).

- **Ketosis** was reported **Very frequently** (2/2).

Clinical impression surveys for mastitis

Teats and udder disease were reported **Commonly** (2/3) to **Very frequently** (1/3), as compared to **Never** (1/3) to **Rarely** (1/3) to **Commonly** (1/3) in the previous quarter.

- **Acute mastitis** was reported **Rarely** (1/3) to **Commonly** (1/3) to **Very frequently** (1/3).
- **Chronic mastitis** was reported **Rarely** (1/3) to **Commonly** (1/3) to **Very frequently** (1/3).

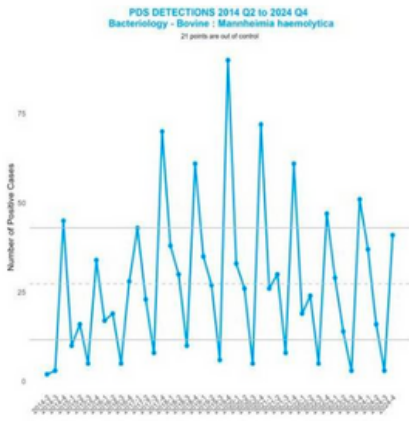
Laboratory diagnoses

Important information on 'control charts'

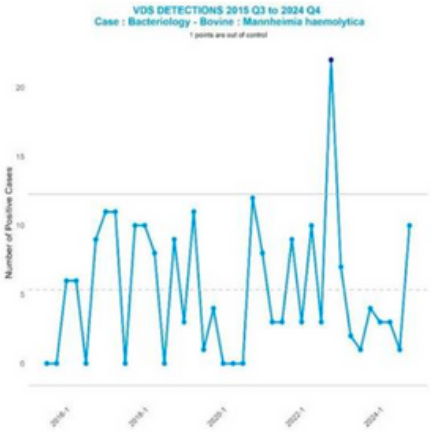
In the following document, under the sub-heading 'laboratory diagnoses,' there are multiple graphs called 'control charts.' Control charts are a simple way of presenting data collected over time (e.g., increasing or decreasing detection frequencies). Each data point reflects the number of positive samples or cases reported by a diagnostic laboratory over 3 months (quarter of a year). The upper and lower horizontal lines are called control limits. Individual points lying outside the control limits (special cause or unstable point) suggest a need for investigation to determine whether/how significant a signal they represent. In some situations, control charts are not applicable (e.g., when the previous data points do not have a horizontal trend line), but these plots can still be used to demonstrate time trends.

Laboratory diagnoses for respiratory system disease

At the Prairie Diagnostic Services (PDS) laboratory, there was an increase in the number of cultures of *M. haemolytica,* a bacteria associated with pneumonia in bovines. The number of cultures of *M. haemolytica* cases (the definition of a case is a submission; there may be multiple samples or animals as part of a case) for Q4 2024 was within the control limits of the control chart. However, we cannot rely on the control chart in this case because of its limitations. One of these limitations is a strong seasonality component to the trend of *M. haemolytica* cases. The seasonal trend noted in the number of *M. haemolytica* cultures is most likely driven by the larger number of beef commodity submissions compared to dairy cattle (4 cases) and 'unknown' (6 cases; 'unknown': spcies not listed or truly unknown). There appears to be a decreasing trend in *M. haemolytica* cultures in bovines since 2019 Q4 at PDS.



At the Veterinary Diagnostics Services (VDS) laboratory this quarter, there was an increase in the number of cultures of *M. haemolytica*, which was above the number of cultures for the past year and a half, but the number of cases for Q4 2024 remained within the control limits of the control chart (acknowledging the limitations of the control charts). This quarter, the number of *M. haemolytica* cases was lower than the peak in Q4 2019.



Laboratory diagnoses for digestive system disease

The number of positive tests for *Salmonella* ser. Dublin was lower this quarter than the last at PDS (data not shown). There were fewer tests performed this quarter compared to the previous quarter. However, the percentage of positive cases divided by the total number was higher in Q4 (27%, 6/22) compared to Q3 (18%, 6/34).

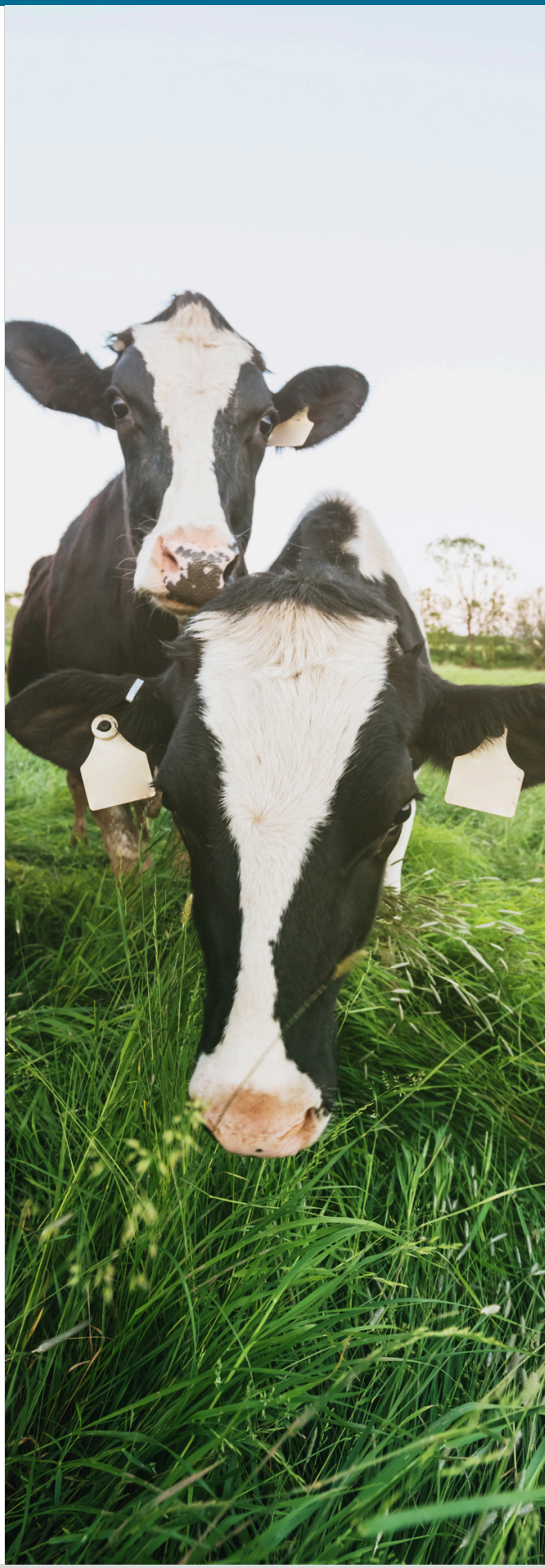
There were no cultures of *Salmonella* ser. Dublin at VDS this quarter. There were two cases with isolation of *Salmonella* spp., and the reference laboratory identified one case as positive for the serogroup B (e.g., serovar Typhimurium (Cornell University)) and the other was negative for the serogroups D1 and B (e.g. of D1, serovar Dublin).

Comment: *Salmonella* enterica ssp. enterica serovar Typhimurium monophasic variant is of concern because it can cause disease in humans, and there is an increasing prevalence of multidrug resistance characteristics (Schonfeld et al., 2021).

Laboratory diagnoses for mastitis

Common mastitis bacteria cultures were within the control limits of the control charts at PDS (data not shown).

The number of cultures of the common mastitis bacteria was within the control limits of the control charts at VDS (data not shown).



Scan

1) Foot and Mouth Disease (FMD) was diagnosed in Germany in water buffalo (LINK and United Kingdom's preliminary outbreak assessment LINK).

- No additional cases of FMD were found in the 1 km vicinity of the first case identified, but investigations are ongoing (LINK).

2) Resistance to antimicrobials was identified in a mastitis bacteria in Danish dairy cows (Kløve et al., 2025).

- These bacteria could act as a reservoir for antimicrobial resistance genes and share these genes with other bacteria.

3) Western Canadian Dairy Seminar from March 4 to 7, 2025, in Red Deer, AB (LINK).

4) In Alberta, a research team at the University of Calgary Veterinary Medicine (UCVM) continue surveillance of various infectious diseases using bulk tank testing.

- They sampled the bulk tanks of all AB dairy herds.
- Samples tested for antibodies against *Salmonella* ser. Dublin was approximately 10% positive in June 2024.
- In July 2022, approximately 8% of the farms were positive for *Salmonella* ser. Dublin antibodies (Shaukat et al., 2024).
- The status of some positive and negative farms changed between 2022 and 2024 (e.g., a positive farm in 2022 was negative in 2024, and vice versa).

Takeaways

1. The HPAI situation in the US demonstrated cows can transmit viruses to people. To stay safe from bacteria and viruses that cows can pass to people, wear gloves and a face mask, and wash your hands and clothes after working with cows.
2. When Foot and Mouth Disease was identified in Germany it had significant impacts on trade. Please request that visitors to your farm wait one week after visiting a farm in another country.

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