



INTRODUCTION:

The videoconference meeting of the WeCAHN beef network was held Sept. 2, 2022. Participants attending the meeting: beef practitioners, laboratory diagnosticians, veterinary college faculty, and industry representatives.

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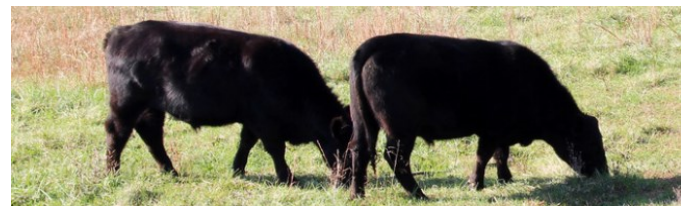
1. Dataset Overview:

- **Clinical Impressions Survey**
- **Laboratory Data:**
 - UCVN Diagnostic Services Unit (DSU)
 - Prairie Diagnostic Services (PDS)
 - Manitoba Veterinary Diagnostic Services Laboratory (VSDL)
- **Scan:**
 - Saskatchewan Agriculture
 - Alberta Veterinary Medical Association
 - Promed

Clinical Impressions Survey and Laboratory Data:

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. For each category of disease, clinical impressions survey findings are followed by relevant laboratory data.



2. Interesting or Unusual Cases:

i. Pneumonia outbreak on a 260 Cow/Calf Farm where the farm lost approximately 45 calves.

- Unfortunately veterinarians were called-out to the farm for the first time when calves were relapsing with pneumonia and needing retreatment, and not during the initial disease outbreak. The farm had experienced a similar outbreak last spring.
- Viral nasal swabs were negative from 4 calves and the one calf that died acutely without treatment had *Histophilus somni* and *M. hemolytica* grown off the lung tissue.
- Majority of the calf (age 2-3 weeks of age) losses were experienced during the snow storm. Suspect crowding, stormy conditions and shredded straw into shelters were risk factors.
- They were administered intranasal vaccine this year and last year.

Interesting or Unusual Cases continued:

ii. *Yersinia pseudotuberculosis enterocolitis* (Non-fatal and Fatal) in a group of 2 yo breeding bulls, leading to severe diarrhea, dehydration, and blood poisoning.

- A group of 6 bulls was delivered on a Saturday (delivery had been delayed due to bereding exam findings/treatment/re-testing); seen by veterinarian on Monday.
- Presentation: Very dehydrated due to diarrhea, and very depressed (examined in pen without restraint)
- R/O included coccidiosis and *Salmonella* spp

COMMENT: Have encountered rarely in young farmed elk. Maybe wildlife contamination of the new feed?

iii. **Salt toxicity** in a herd of 175 steers on grass without water deprivation or poor quality water or excess heat.

- 8 Steers ate a loose salt and sand mixture intended for ice control in the winter. The herd of steers got into 150 kgs of the mixture and over consumed the mixture even though they had been on and still had a continuous supply of block salt in the near vicinity.
- 8 steers died, 3 others were obviously affected and recovered.

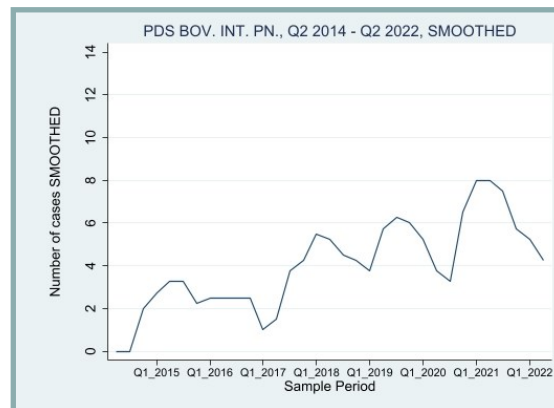
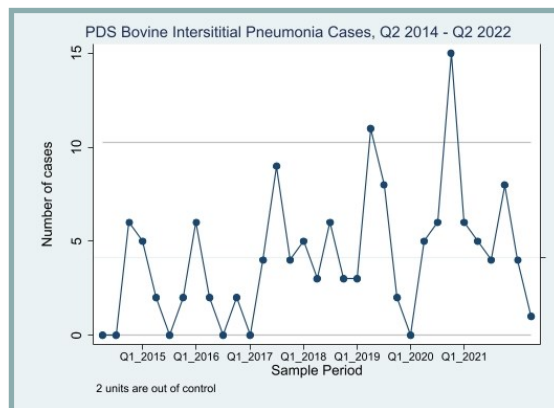
iv. **Blackleg outbreak** in 60 cow/calf herd.

- Producer lost 6-8 calves which were born in January. He "didn't think he needed to be vaccinating anymore".
- Veterinarian was called out on a Sunday and necropsy had some typical post-mortem signs of blackleg infection.



3. Respiratory System

- Respiratory disease was reported Commonly to Very frequently by network practitioners.
- Pneumonia was reported Rarely to Commonly by network practitioners, and associated with *Mannheimia haemolytica*, *Pasteurell multocida*, or *Histophilus somnii*. All were rated Stable for Q2 2022 relative to Q2 2021.
- **One less common form of pneumonia (Interstitial pneumonia)** was reported Rarely (n = 3) to Commonly (n = 1) by network practitioners in Q2.
- The two graphs (below) both show the interstitial pneumonia cases diagnosed at PDS over time, but the second plot has been 'smoothed' by plotting a moving average instead of the raw data (number of cases per quarter). Smoothing is a widely used technique which can make trends more obvious- such as the trend at PDS to increasing pathologic diagnoses of interstitial pneumonia.



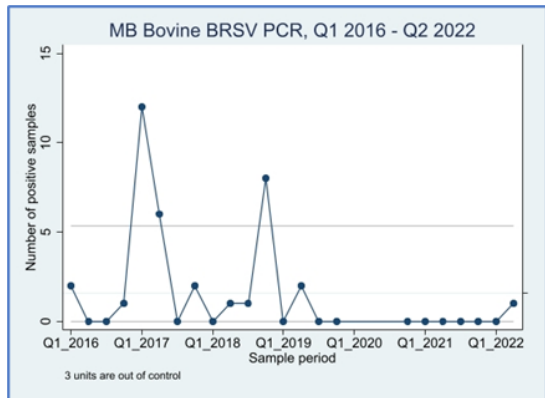
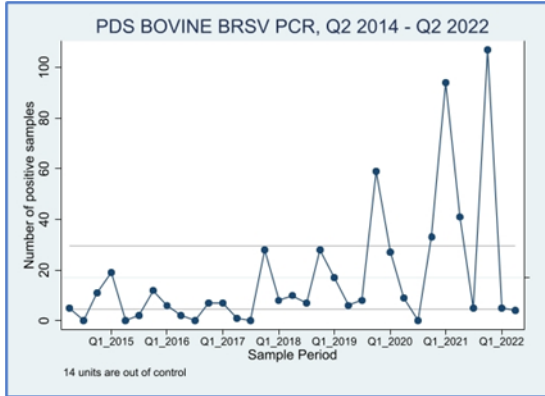
Q: Can we get a breakdown of these cases e.g. by age/class of cattle/agents associated?

A: Working on associating pathologic diagnosis with agents, in collaboration with CWSHIN (swine network)

Breakdown by class of cattle is something we are working on with the labs. Of course, this also requires information being consistently completed on submission forms too.

Respiratory System continued:

- **Bovine Respiratory Syncytial Virus** detection data also suggest a longer- term trend to increasing BRSV detection at PDS, (and not at Manitoba VSDL), which seems to be driven more by increasing total submissions than by changes in proportion of samples positive.



- There are multiple ways of presenting this kind of data, and when the SPC chart (e.g. above) looks like there is a longer term trend, several are tried to see if the trend shows up consistently.
- Takeaway for the BRSV data is that three different presentation methods, all using somewhat different mathematical approaches, indicate a trend upwards over time, in BRSV detections at PDS.

Q: BRSV: If detections and samples submitted are increasing: how does this compare with your experience? What is the context in which you see BRSV?

A1: We are detecting BRSV frequently in calves on arrival at feedlot in project work; often asymptomatic and they stay healthy.

A2: Will see 100% of feedlot cattle seroconvert; most with no clinical signs.

COMMENTS:

Re: distinguishing wild from vaccine strains: If company willing to share some identifiers, may not be difficult to create specific tests which can do this.

LAB: We don't do much BRSV testing, and the ones we do test are basically always negative. Since we mostly do dairy, I think the vaccination rates are higher. We certainly struggle telling the vaccine strain of Bovine coronavirus from wild type infection though with so many people using the oral calf vaccine. We've had luck sequencing and comparing it to the vaccine sequence, but certainly would be cheaper and more efficient to have a PCR more specific to wildtype infection.

PRODUCER: Surprised level of detection isn't higher!



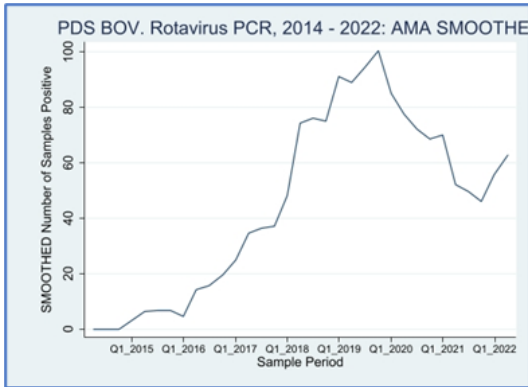
4. Digestive System

Disease was reported Rarely to Commonly to Very frequently by network practitioners.

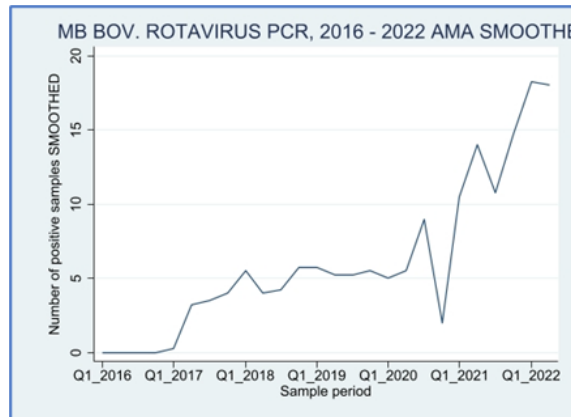
- Diarrhea was reported Commonly (n = 2) to Very frequently (n = 1), and seen associated with *E. coli* Rarely (n = 3) and Rotavirus Rarely (n = 2) to Very frequently (n = 1), by network practitioners. *E. coli* diarrhea or septicemia was reported in six beef calf cases from UCVM DSU, as well as *E. coli* mixed infections with *Strep. gallolyticus* (n = 1) and Rotavirus -Coronavirus (n = 1).
- Diarrhea was associated with Coronavirus Rarely (n = 3) and *Cryptosporidia* spp. Never (n = 2) to Rarely (n = 1), by practitioners. All were rated Stable by network practitioners, relative to Q2 2021 (i.e. same time period last year).

Digestive System continued:

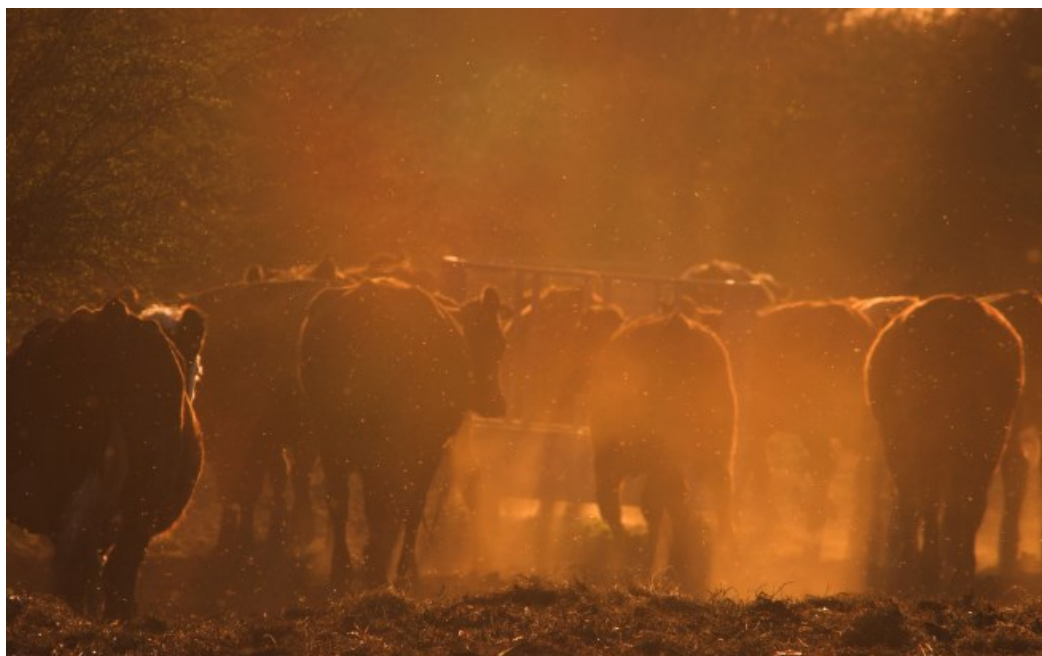
- For both PDS and Manitoba the data for Rotavirus suggest a trend of increasing detections over time.



- Moving average smoothing of the PDS data makes the trend a little more apparent. Interestingly this seems to be mirrored in the total numbers of samples submitted for RV assay.
- This seems to be driven by an increase in samples submitted over time. In contrast, the proportion of samples rated “positive” is fairly Stable.



- The smoothed MB RV PCR detection data also show a trend of increasing detections over time.
- In contrast with PDS, this increase seems to be driven by an increasing proportion of samples for BRSV testing positive over time, with total numbers of samples actually decreasing over time.



Digestive System continued:

Bovine Coronavirus:

Similar to Rotavirus and *Cryptosporidia* data, bovine coronavirus detection appears to be broadly trending upward at both PDS and Manitoba VSDL.



Cryptosporidia:

Again we see a slightly different trend between labs but in both, an increase in detection/demonstrations from the earliest data points to the most recent.

Clostridia:

- *C. perfringens* detections showed an uptick at PDS this quarter.

Q: Is one agent of calf scours more important in your area/practice?

A: Used to see cocci as problem, much less so with toltrazuril treatment available

Dysentery was reported Never (n = 1) to Rarely (n = 1) to Commonly (n = 1) by network practitioners, and associated commonly with coccidia by one practitioner in pre-weaning calves.

Salmonella spp.:

- **PDS:** One herd submitted samples from a one month old calf, having recently lost three others. Clinical signs were runny noses +/- diarrhea. Lung culture yielded *Mannheimia haemolytica*, *Histophilus somnii*, and *Salmonella* Dublin.

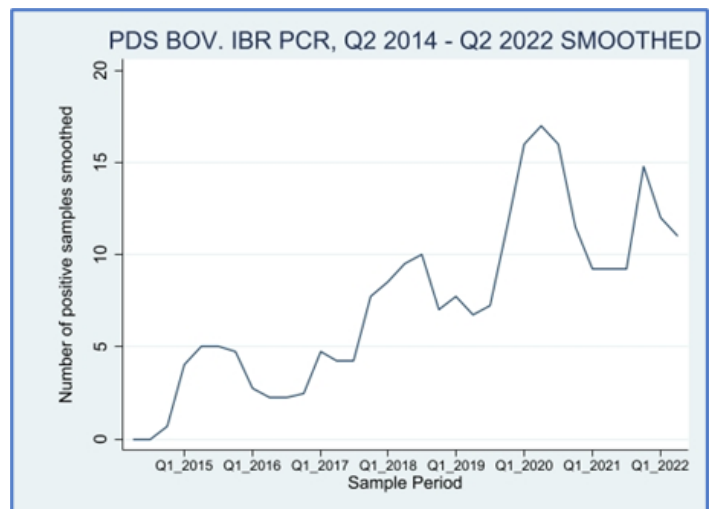
Hepatic necrosis in calves: Update:

- Metagenomics run on some of the previously identified samples did not detect any viral or bacterial involvement.
- Two additional later problem herds identified at PDS:
 - i. Valleyview AB: three 3 day old calves diarrhea and polyserositis - Rotavirus - chronic hepatopathy.
 - ii. Ogema SK : 3 week old found dead with mild hepatic lesions.
- Currently, the thinking is that a non-infectious insult (e.g. toxin) is a more likely explanation for the hepatic lesions in this case series.



Reproductive disease was reported Commonly (n = 1) to Very frequently (n = 3) by practitioners.

- Abortions, primary (individual) female uterine reproductive disease, and primary female ovarian disease were reported Rarely to Very frequently by network practitioners. An increase in percentage of open cows was reported never (n = 1) to rarely (n = 3) by practitioners.
- Primary/individual male reproductive disease was reported Rarely (n = 1) to Commonly (n = 1) to Very frequently (n = 2) by network practitioners in Q2 2022.
- Un-diagnosed abortions as a pathologic diagnosis at PDS remained stable (data not shown).
- *T. foetus* and *Ureaplasma* PCR detections, and *Neospora* serology, remained Stable at PDS and Manitoba VSDL (data not shown).
- IBR PCR detections at PDS display longer-



term trend upwards, apparently driven by increasing submissions while Manitoba IBR detections appear stable (data not shown).

6. Multi-systemic Diseases

- **Blood poisoning and nutritional deficiencies** were both reported Rarely (n = 3) by network practitioners. Calf mortality increased over last year was reported Never (n = 2) to Commonly (n = 1) to Very frequently (n = 1) by network practitioners.

Drought-associated nutritional problems:

Q: With drought cattle on pasture may be deficient in Selenium (Se) and Copper (Cu). Feedlots are concerned calves arriving will be deficient and therefore predisposed to Bovine Respiratory Disease. Is anyone seeing signs of deficiencies, or BRD with nutritional component?

A1: Just talking with nutritionist about feedlot case; group of cattle multiple genetics. One group started to display sudden deaths; now doing liver biopsies. Two sub-groups since one pasture group had mineral throughout pasture period; other had mineral pulled early in summer.

A2: Concern since feedlot nutritionists commonly like to boost zinc levels to help with lameness, antagonizing (tying up) Cu.

A3: Producers need to also be aware as dugout levels drop, sulphate concentrations rise, similarly antagonizing Cu.



Q: If feeding Dried Distiller's Grains (DDG)- any chance cattle coming on feed could be predisposed to polio this year?

A1: Short answer is yes. DDG are relatively high in SO₄; some cattle may be coming from high SO₄ diets on pasture.

A2: Wondered about this last year but did not see it reflected in lab data. That said, think vey small proportion of clinical cases might get submitted to lab.



7. Scan

1. Saskatchewan Agriculture: Anthrax in RM of Piapot #110 (Aug. 23/2022)

- Saskatchewan Agriculture is reminding producers to be on the lookout for anthrax in their animals after confirmation that anthrax has been found in the RM of Piapot #110
- The pen the affected animals were in was a dried slough bottom. Deaths started about 7 days after the animals were introduced to the pen.
- Treatment was instituted with an antimicrobial in the water, and deaths stopped within 24 hours.
- However, winds are thought to have spread the organism across the alley so that a second pen was affected.
- For more information: <https://www.saskatchewan.ca/business/agriculture-natural-resources-and-industry/agribusiness-farmers-and-ranchers/livestock/animal-health-and-welfare/anthrax>.

Scan continued:

2. Alberta Veterinary Medical Association: Anthrax in northern Alberta (Aug. 3/2022)

- Occurring in the extreme northwest, in the area of High Level, with 4 bovine herds and 1 bison herd affected so far.
- The premises are in a location where anthrax has been detected previously and as recently as 2015.
- Also of note, several bison have been lost to anthrax in Wood Buffalo National Park this year, another location known to have had cases in the past.
- Interestingly NOT in the southeast where it might be expected, adjacent to the hot spot in Saskatchewan.
- One community pasture was affected.
- All affected herds have now been vaccinated and deaths slowed down.
- For more information: <https://www.alberta.ca/anthrax-overview.aspx#:~:text=Anthrax%20is%20a%20provincially%20notifiable,federal%20Health%20of%20Animals%20Act>

3. Promed

- **Reports of ongoing Foot and Mouth Disease (FMD) detected in meat being brought into Australia July 20/2022)**
- Foot and mouth viral fragments were detected in meat goods that came into Australia recently from Indonesia and China, Agriculture Minister Murray Watt said at a news conference.
- However, these viral fragments are not live and cannot be transmitted, he said.
- Watt also said despite these findings Australia remains foot and mouth disease free.



8. Meeting Take-aways:

1. Time trends in lab detections of some bovine pathogens:

BRSV detections are increasing at PDS, driven by an increase in samples submitted. Rotavirus and Cryptosporidia detections are increasing at both PDS and the Manitoba VSDL, driven by increasing samples submitted at PDS, and increasing proportion of samples testing positive in Manitoba.

To understand what this means for industry, we need to be able to distinguish between live virus and virus from recent modified live vaccine use, and identify which specific age groups of cattle, and broadly what locations, are most affected.

Work is underway on both points! In the meantime, broad guidelines for cattle vaccination are offered by the American Association of Bovine Practitioners, which includes BRSV in its “core” vaccine program, and Rotavirus in its risk-based group, meaning its use is recommended in some situations based on individual herd risk. (There is no vaccine for Cryptosporidia). Your veterinarian can help you set up a vaccination, biosecurity and hygiene program based on your specific situation.

2. Given the ongoing drought in parts of the west, we can anticipate some cattle will be coming home or moving to feedlots deficient in some minerals (e.g. copper) and vitamins (e.g. vitamin A). It’s important to assess their status and supplement appropriately.

3. As more people resume air travel, recent experience in Australia (where border agents found African Swine Fever virus and Foot and Mouth Disease virus in meat people were trying to bring into the country) reminds us how easy it is to accidentally bring home something un-intended.