



INTRODUCTION:

Participants attending the meeting:

The videoconference meeting of the WeCAHN beef network was held June 3, 2022, discussing the period January—March 2022.

Participants attending the meeting: dairy practitioners, laboratory diagnosticians, veterinary college faculty, and industry representatives.

Report Contents:

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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

- New Syndrome: hepatic necrosis in beef calves
- Outbreak data: WCVN DIU
- CgFARAD spring newsletter

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. Nutritional cases reported Q1 2022

- Seen in MB in lots of smaller farms (~100 cow herds), presenting as: herd stressed nutritionally over winter, with currently very variable Body condition score (BCS) and now seeing lots of very thin cows out on grass.
- Many conversations with clients regarding incorporation of high nitrate feed in ration, often re-growth on canola stubble. (e.g. one farm lost couple of cows, stopped feeding the suspect ration, and deaths stopped, so presumptive diagnosis).
- Saw lots of abortions and aborted calves submitted to lab.
- Also saw lots of digestive upsets around incorporation of novel feedstuffs e.g. baled bulrushes/slough hay/mouldy straw.
- **Comment:** Similar experience SK. Also now seeing low BCS in some bulls at testing.
- Also increased baby calf losses in some cases, although very little scours, partly associated with current drought.



Interesting or Unusual Cases continued:

ii. Unusual cattle movements 2021-2022

- Some breeding beef cows were moved to commercial feedlots with comprehensive nutrition programs and nutritionist part of team. These came home looking good!
- And also hearing this from other practitioners; in contrast some other herds wintering in feedlots did not fare so well, depending maybe on size of receiving feedlot and how much consultative support was involved in their care. (e.g. one herd was brought home early since clearly cows in feedlot were being underfed).
- Did observe unusual amount of ringworm in cows after coming home. However anticipated worse problems, haven't seen them yet.

Q: any chance calves might have reduced immunity/increased susceptibility to BRD in future?

A: still waiting for negative repercussions from these movements! But haven't really seen them yet.

iii. IBR outbreak in 2 week old calves:

- Occurred in west central AB. Herd was not vaccinated.
- Presenting sign noticed by owners was eye lesions. The herd problem was worked up by the local clinic.

Range of post-mortem signs involving many body systems were seen at the lab.

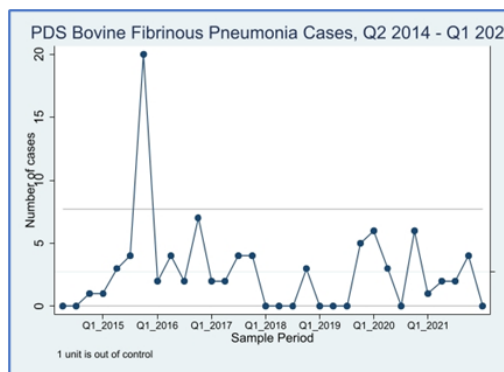
The American Association of Bovine Practitioners (AABP) updated their bovine vaccination guidelines last year.

AABP core vaccine guidelines: “Core vaccines have clearly demonstrated efficacy and safety, and thus exhibit a high enough level of patient benefit and low enough level of risk to justify their use in the majority of patients.”

Infectious Bovine Rhinotracheitis virus (IBRV) (Bovine herpesvirus 1) is included in the list of core vaccines.

3. Respiratory System

- Disease was reported Commonly to Very Frequently by practitioners, with **un-differentiated pneumonia (i.e. no lab work involved in diagnosis) and fibrinous pneumonia the most frequently reported syndromes** (both reported commonly).
- **Fibrinous pneumonia (a very common type of pneumonia to diagnose at post-mortem) was reported Commonly in pre-weaned calves or feeder cattle.** This was associated with *Mannheimia haemolytica*, *Pasteurella multocida*, and *Histophilus somni*.



Laboratory Data:

Fibrinous pneumonia: Prairie Diagnostic Services (PDS)

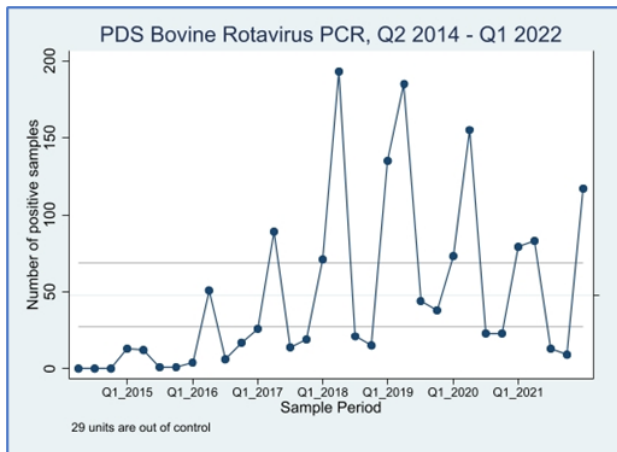
Recap on control charts: each dot represents the number of cases of a specific agent or disease syndrome, diagnosed by a specific laboratory, over a 3 month interval.

The parallel horizontal lines are similar to 95% confidence intervals, and so dots falling outside the lines represent findings which could be further investigated. However, strongly seasonal outcomes will tend to have the ‘busy’ season fall outside the parallel lines, and trends should be assessed year-to-year instead of quarterly.



4. Digestive system

- Disease was reported Rarely to Very frequently by practitioners.
- Diarrhea was reported Very frequently by 1 practitioner, and Very frequently associated with both Rotavirus and Cryptosporidia.



An uptick in bovine rotavirus detections was noted at PDS in Q1.



Q: When do we see calf diarrhea cases in western beef calves?

A: 10 days of age to branding, except for coccidiosis cases (which are pretty rare this year since so dry).

A2: as a pathologist, most of the calf diarrhea cases we see are neonatal to the second week of life. This could be for several reasons: maybe genuine increase in this age group; [maybe this is when they are closest to human supervision to find and submit]. In this age group, the agents we think are most significant are coronavirus and cryptosporidia.

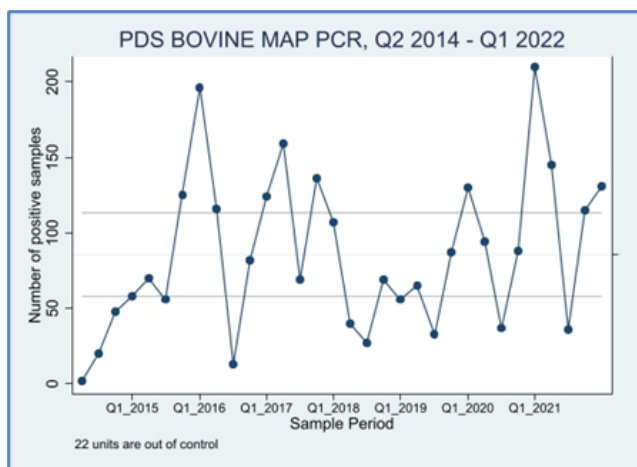
Q: These are mostly non-bacterial agents associated; are clients complying with treatment regimens (or do they want to use antimicrobials for non-bacterial problems)?

A: We have multiple handouts regarding calf diarrhea causes and treatments, which we work through with clients to tailor to their situation. [so once they have been through that process, aim is that they understand the reasons for treatments prescribed].



Digestive System continued:

- **Diarrhea was also associated with Johne’s disease (MAP) in breeding cows**, and rated increasing, by one practitioner.
- Apparent time trend in the laboratory MAP data varied across the range of possible tests used, with slight uptick in MAP PCR positives at PDS in Q1 2022 after decline Q4 2021, and other tests relatively stable (data not shown).



- **Stomach disease** (e.g. impaction, indigestion) was reported Commonly by 1 practitioner.
- **Hardware disease (traumatic gastritis)** was reported Very frequently by 1 practitioner.
- **Rectal disease** (e.g. prolapse) was reported Very frequently by 1 practitioner.

5. Reproductive system

- Primary female uterine disease was reported Very frequently by 1 practitioner.
- Primary/individual male reproductive disease (e.g. seminal vesiculitis) was reported Very frequently by 1 practitioner.
- **Abortions were reported Commonly** by practitioners.

Laboratory data:

- Data pertaining to infectious infertility in cattle (*Trichomonas foetus*, *Campylobacter venerealis*, *Ureaplasma diversum*) continued to be largely stable for Q 4 2021 (Data not shown).
- However, a slight uptick in *C. burnetii* and *N. caninum* positives was noted at PDS.
- Un-diagnosed abortions as a pathologic diagnosis at PDS continued to be stable over time, i.e. no change compared to previous years.

6. Multi-systemic Diseases

- While septicemia was reported Rarely by practitioners, Un-differentiated neonatal loss (early calf mortalities without diagnosis) and nutritional deficiencies were each reported Commonly by one practitioner.

7. New Syndrome: Liver Disease in Neonatal Western Canadian Beef Calves

A group of 20 cases of severe liver disease in very young beef calves has been reported (9 from UCVM DSU, mostly in February-March, and 11 from PDS in April-May). It's important to note that this is a very small total number of cases, relative to the beef population on the prairies, but also unusual post-mortem/pathology findings. Investigation of these cases is ongoing by laboratories and veterinary college disease investigation units. Genomic sequencing of some samples from the cases identified this spring is underway to further try to rule out an infectious cause.

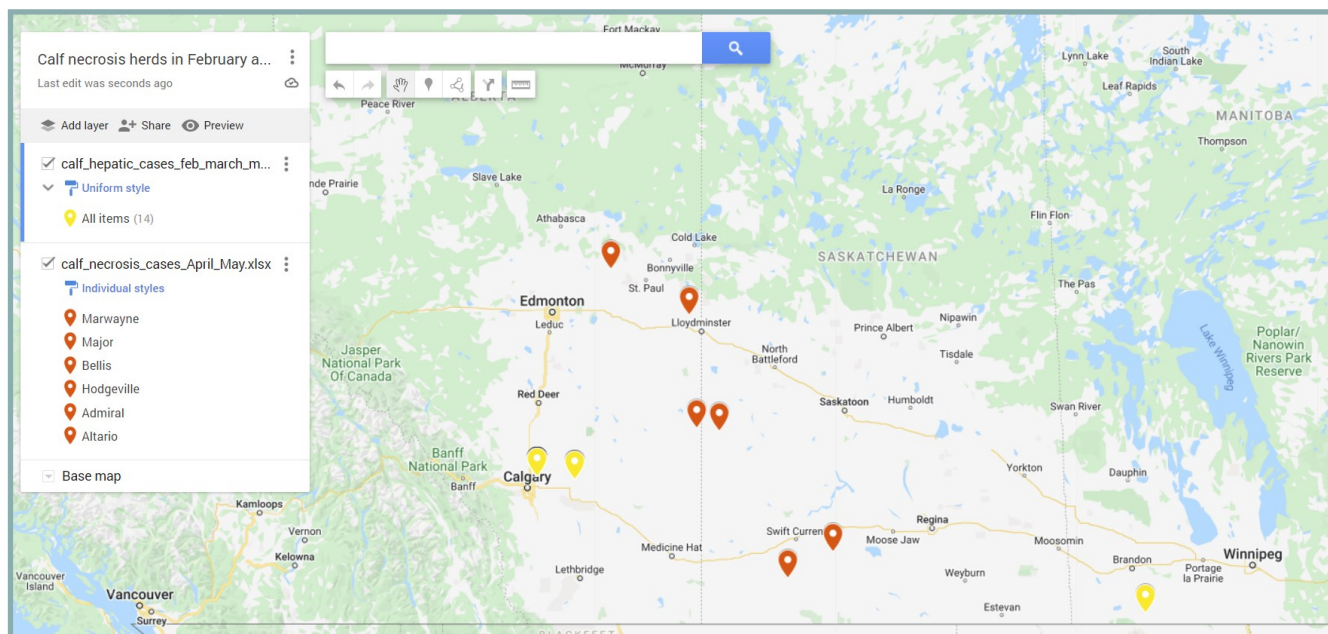
Descriptive Summary of Western Canadian Neonatal Beef Calves Identified with Liver Damage, Spring 2022

| Potential risk factors | UCVM DSU | PDS |
|--------------------------------------|---|---|
| Age | 1-5 days | 1-5 days |
| Sex | Equal proportions recorded | Equal proportions recorded |
| Breed | Hereford, Angus, Akaushi | NR, Charolais, Angus |
| Calving date | Feb., March, April | April, May |
| Location | 35-95 Km from Calgary | East central AB, west central and south SK |
| Known potential risk factors: | | |
| Feed | Unknown | Two herds fed US corn: mold? Possible plant toxicity? |
| Treatments | Two herds administered oral mineral supplement to calves. | One herd administered oral mineral supplement to calves . |

UCVM DSU = University of Calgary Veterinary Diagnostic Services Unit;

PDS = Prairie Diagnostic Services Unit

Bovine Liver Damage Cases Reported by Western Veterinary Diagnostic Laboratories Feb. – May 2022



These red or yellow marked locations represent sample submissions to UCVM DSU (yellow markers), PDS (red markers), all of which were very young calves, and one submission to Manitoba VSDL (yellow marker) which was from a yearling bull identified with similar liver damage to some of the calves.

8. WCVI Disease Investigation Unit Annual Report April 1, 2021 to March 30, 2022

- The DIU saw cases of *Mannheimia* pneumonia in cattle last fall, as per previous network discussions. However, these cases were somewhat different from the acute/peracute cases described at recent beef and dairy network meetings in several respects: more chronic presentation, and some underlying nutritional problems involved.
- The DIU has seen multiple nutritional problems in beef herds over the winter and spring.

| INVESTIGATION REQUEST | SPECIES | DIAGNOSIS |
|--------------------------|---------|---|
| LEAD TOXICITY | Bovine | Lead toxicity |
| RESPIRATORY OUTBREAK | Bovine | <i>P. multocida</i> |
| ADULT COW MORTALITY | Bovine | Selenium deficiency |
| ABORTION STORM | Bovine | Unknown |
| NEUROLOGICAL DISEASE | Bovine | Unknown |
| EHV-4 | Equine | Strep. equi and EHV-4 |
| NEONATAL CALF BRD | Bovine | <i>Mannheimia hemolytica</i> bovine respiratory disease |
| SMALL BIRTHWEIGHT CALVES | Bovine | Unknown |
| CALVES FAILURE TO NURSE | Bovine | Copper Deficiency |
| MORTALITY IN BISON | Bison | Copper Deficiency |
| WEAK CALVES AT BIRTH | Bovine | Renal oxalosis in calves |
| SUDDEN DEATH IN COWS | Bovine | Water deprivation - polioencephalomalacia |
| NEUROLOGICAL | Bovine | Lead toxicity |
| SUDDEN DEATH IN COWS | Bovine | Sulphate toxicity |

| INVESTIGATION REQUEST | SPECIES | DIAGNOSIS |
|----------------------------|---------|--|
| HYPOCALCEMIA HORSES | Equine | Hypocalcemia |
| ADULT MORTALITY DAIRY COWS | Bovine | <i>Mannheimia haemolytica</i> bronchopneumonia |
| ADULT MORTALITY BEEF COWS | Bovine | <i>Mannheimia haemolytica</i> bronchopneumonia |
| ABORTION OUTBREAK | Bovine | <i>Coxiella burnetii</i> |
| BLOODY DIARRHEA CALVES | Bovine | Coccidiosis |
| SUDDEN DEATH ADULT COWS | Bovine | Protein Energy Malnutrition |
| CALVES NEUROLOGICAL | Bovine | Septicemia/Failure of Passive transfer |
| NEUROLOGICAL LAMBS | Ovine | |

9. Scan

Promed: Reports of ongoing Foot and Mouth Disease (FMD) in the Middle East, and a new outbreak in Indonesia (which eradicated FMD in the seventies) in May, highlight the need for vigilance in keeping FMD out of Canada.

For more information: <https://promedmail.org>

10. Meeting Take-aways

- Nutrition:** Many cases of especially digestive and reproductive problems were likely linked to the drought of 2021 and ensuing feed shortages, with the use of a range of 'alternative' feeds.
- Liver disease in neonatal beef calves:** a small number of cases (N = 20) were identified in Alberta and Saskatchewan from February – May of 2022. Studies are ongoing to determine the cause of these cases.
- Basics are important, come hell (drought) or high water (flood):** Reminder of AABP 'core' vaccine guidelines include IBR, BVD, BRSV, and Clostridial vaccines.