Western Canadian Animal Health Network

WECAHN DAIRY NETWORK PRODUCER REPORT

APRIL-JUNE 2023

Dairy Network Meeting

The WeCAHN Dairy Network held a quarterly videoconference meeting 24th August 2023 to discuss the animal health events occurring April to June 2023, with veterinary practitioners, diagnosticians, veterinary college faculty, researchers, and industry representatives in attendance.

Report Contents:

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).

iii. Pertinent bovine surveillance data scanned from other sources (e.g. Promed).

2. Interesting Cases

i. Liver flukes causing red water in 1st lactation cow in Manitoba

- Veterinarian received text from a client regarding first calf heifer 200 DIM with bloody urine. Four hours later the cow died.
- Post-mortem: classic signs, plus some jaundice (yellowing of tissues).
- Diagnosis was clostridial infection secondary to liver fluke damage, causing destruction of blood cells resulting hemoglobin in urine.
- History: this herd experienced increased number of replacement heifers, and so unusually for their normal procedures, this heifer had history which included having been out on pasture [potential exposure source].

QUESTION: Is the frequency of fluke infestations in cattle in western Canada changing?

TAKEAWAY: Flukes continue to be seen sporadically in recognized areas of the west (Alberta and especially Manitoba), with disease prevalence fluctuating with changes in weather.

Important to ascertain species of fluke involved in infection if possible:

i. Physical differences*: with Fasciola hepatica* we grossly observe 2 flukes per cyst in liver at necropsy; with *F. magna*, only one. *F. hepatica* could be here in Canada but we haven't seen it when we look for it.

ii. Treatment differences:
F. magna: dead end host and infected animals doe not shed eggs in feces. Need to treat animals when they come off pasture.
F. hepatica - primary host so infected animals shed eggs while on pasture. Therefore control requires a de-worming protocol which covers the pasture period. Practitioners may assume that animals are infected with *F. hepatica* and treat accordingly since it's safer.

Manitoba is currently drafting plans for a prospective survey of animals identified infected with liver flukes at slaughter, to speciate flukes in infected animals. The survey findings could then be used to support updated treatment guidelines.

Interesting Cases (continued)

ii. *Ureaplasma* abortion investigations at UCVM, PDS, and Manitoba laboratories.

- Maybe coincidence that *Ureaplasma* abortion was a pathologic diagnosis in 2 of 3 labs reporting, and investigated at third lab with a *Ureaplasma* spp. PCR, given suggestive findings on post-mortem and microscopic exam.

QUESTION: how frequently do you see *Ureaplasma* abortion?
ANSWER:

i. It would be one of the top 10 causes of abortion in cattle (AHC).
ii. It's important to be mindful that with molecular assays, our capacity for detecting things has increased. Detection does not equal causation!
iii. In this case the lesions are suggestive of *Ureaplasma* abortion so had it been detected it would likely be causative agent.

iii. Congenital hepatic fibrosis.

- **History:** herd is high health, involved in embryo transfer and flushing. From Nov. 2022- June 2023, of 27 recipients, 9 1st and 2nd trimester, and 6 3rd trimester abortions. Cleanup bull used has been *Ureaplasma* negative.
- PRELIMINARY FINDINGS: 8 month gestation fetus.
- FINAL DIAGNOSIS**:** Congenital hepatic fibrosis (reported in cattle and children) i.e. abnormal scar tissue in liver.

COMMENT: The fetus appeared small in size. It was expelled dead as the lungs appeared collapsed. The liver appeared slightly firm and had occasional white nodules. The changes in the liver are very suggestive of congenital hepatic fibrosis. This is a genetically determined condition. It has been reported in aborted fetuses in past, but it is not clear if this is the cause of abortion. Examining all of the aborted calves in this case for these lesions may be helpful to identify if this is a sire issue.

COMMENT: no follow-up work has been reported to identify whether other similar cases might be associated with this sire.
QUESTION: has anyone seen this kind of pathology before/in their practice?
ANSWER: a couple of cases have been diagnosed at PDS. This pathology is identical to ductal plate malformation, which occurs in multiple mammalian species.

3. Syndromic Surveillance

a) Respiratory Disease

Update: IBR outbreaks in BC herds: follow-up for Q1 2023 meeting discussion

- Overview: 4 dairy herds in one practice had outbreaks of clinical IBR with clinical signs including fever, decreased production, respiratory signs including laryngo-tracheitis, and red swollen udders.

i. 2 un-vaccinated or inadequately vaccinated:

- 1 herd lapsed 14 - 16 months ago. The other had 2 year-olds coming in not properly vaccinated prior to freshening.
- Both herds were vaccinated intra-nasally with Inforce, which seemed to resolve clinical signs and drops in production. Followup going forward was with Express 5.

ii. 2 vaccinated (according to manufacturers' recommendations) herds:

- one was boosted with killed vaccine, and no more clinical cases were seen.
- one was kept on herd schedule and problems subsided.

QUESTION: have you seen other vaccine breaks in vaccinated herds?

ANSWER: No, not in 12 years of practice here (Fraser Valley).

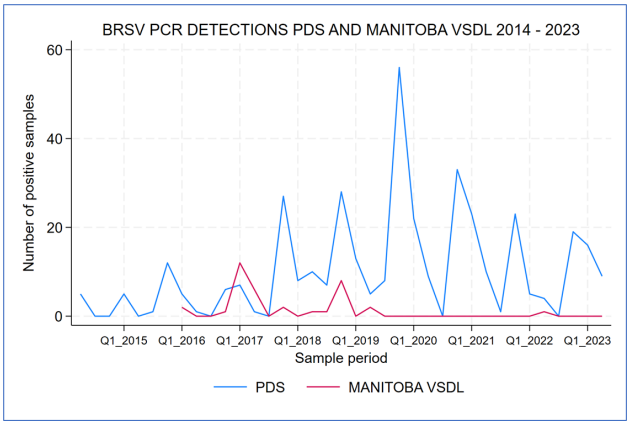
Syndromic Surveillance (continued)

QUESTION: do you have ideas regarding what factors could contribute to these breaks?
ANSWER: there have been a lot of stressors here [Fraser Valley] over the past couple of years as downstream consequences of extreme weather (drought and flood): unusual animal movements, different feedstuffs. Also in general increasing numbers of animals are being kept on the same land base. So there could be several factors:

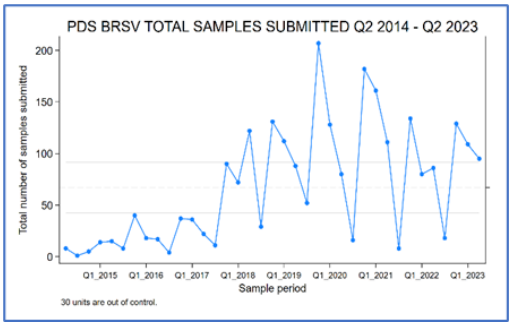
- increased viral load with increased animal density and viral shedding,
- some failures in maintaining vaccine protocols due to increased animal movements.
- To minimize the stress of boosting live vaccines in lactating cows, we currently delay till 30 DIM. It could be better to extend this waiting period to 50 days to maximize their vaccine response.

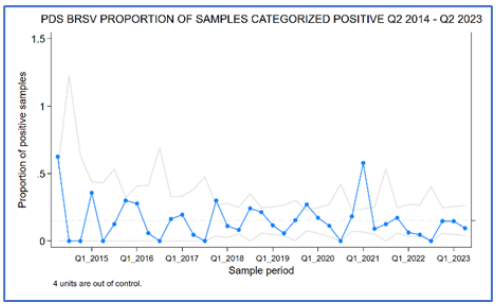
b) Bovine Respiratory Syncytial Virus

The trend of BRSV detections has varied between reported PDS and Manitoba submissions. The following graphic displays number of positive detections aggregated quarterly (i.e. totaled over 3 month period), for both laboratories, on the same axes.



PDS has reported an increase in BRSV detections starting roughly in 2017 and peaking in 2019, while in Manitoba BRSV detections peaked in 2017 and have relatively declined since. The rise and subsequent decline in detections was driven by samples submitted, as the proportion of samples categorized as positive every quarter has not changed significantly over time (below).





Potential risk factors could include a change in assay applied, a change in the population at-risk, environmental changes such as a decline in nutrition, or a change in the agent ,meaning emergence of a new strain. A project to sequence circulating BRSV strains to identify subtypes circulating in the west and compare field and vaccine strains is being developed.

c)

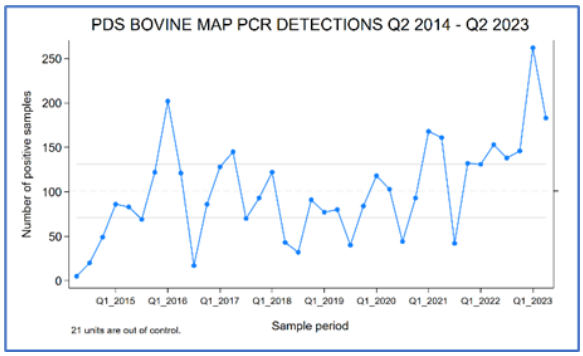
Digestive Disease

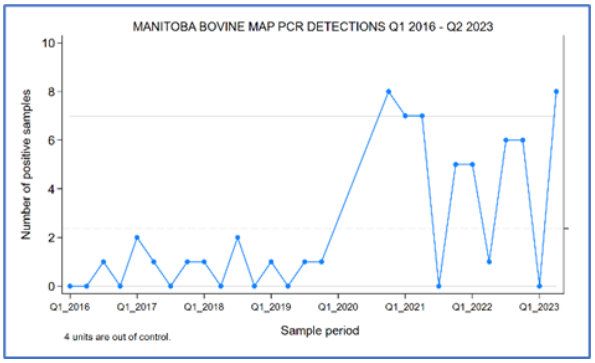
Potential diarrhea agents were rated as Stable by network practitioners for Q2 2023, including *E. coli*, Rotavirus, bovine Coronavirus, Cryptosporidia, and Clostridial infections in pre-weaning calves, and this was supported by laboratory data from PDS and Manitoba VSDL.

***Mycobacterium ssp avium paratuberculosis* (Johne's disease or MAP)**

At both PDS and Manitoba VSDL there is a trend to increasing MAP PCR detections over time. In contrast with the PDS BRSV data, the trend in MAP detections is closer to a linear increase (albeit with variation across quarters).

One case of S. Dublin was reported by Manitoba VSDL, with none reported this quarter by PDS or UCVM DSU.





The B.C. *Salmonella* Dublin program is moving into a new phase, and participants are being recruited to complete a survey of management practices which could have an impact on S. Dublin infection on-farm. Findings of this survey will be incorporated in a B.C.-specific risk assessment tool to provide guidance on mitigation and control strategies. Those interested in participating can contact: https://www.sdublinbc.ca/survey

Jejunal hemorrhage syndrome was reported Commonly by two practitioners.

d) Mastitis

Discussion: clinical mastitis diagnostics

i. Clinical presentations:

QUESTION: for cows with mastitis who are systemically sick, are these consistently with Gram negative infections (e.g. *E. coli*)? Or are any of these Gram positive (e.g. staph or strep)?

ANSWER: multiple practitioners report occasional cow systemically ill with a Gram positive infection, e.g. *Staph. aureus* in all 4 quarters.

ii. Purposes for culturing:

- Evaluate herd hygiene e.g. bi-weekly culturing on robotic herds.
- Distinguish between *E. coli* and *Klebsiella.*
- Establish whether individual cow 'can be saved'; not for individual cow treatment but for individual cow culling!
- In general culturing is used for both individual and herd-level assessment of health and hygiene.
- Resistance findings are less important since we only have 2 options for acute therapy and 3 (including oxacillin) for dry cow.

4. Scan

i. Bovine tuberculosis in Saskatchewan June 2023

On February 23, 2023, the United States Department of Agriculture (USDA) notified the CFIA that tissues collected at slaughter from a heifer originating from Canada had a positive polymerase chain reaction (PCR) test for bovine tuberculosis. The animal was exported from Saskatchewan in September 2022 and was in a US feedlot until its slaughter.

In May 2023, all animals over six months of age in the herd of origin were tested for bovine TB and the reactor animals were removed for slaughter

and post-mortem examination for signs of the disease. Tissues from the suspect animals were shipped to the CFIA's Ottawa Laboratory–Fallowfield where PCR testing confirmed 2 cases of bovine TB on June 19.

ii. July update

The index herd has been slaughtered and tested. A herd has been quarantined in MB due to fenceline contact during summer grazing over the last 5 years or so. Four animals from the index herd were found alive in a feedlot in AB. The pen has been quarantined and those 4 will be slaughtered and tested (if positive, rest of pen will be tested but as all are to slaughter there is no concern about additional herds or premises implicated because of these 4 animals).
For more information: https://inspection.canada.ca/animal-health/terrestrial-animals/diseases/reportable/bovine-tuberculosis/saskatchewan-2023/

Meeting takeaways:

Multiple factors contributed to outbreaks of IBR and BRSV in dairy cattle.

Liver flukes continue to be seen in certain areas of Alberta and Manitoba. Practitioners, labs, and provincial veterinarians monitor post-mortems and slaughter cattle to determine which species of fluke is occurring, since this guides treatment.

The provincial S. Dublin program in B.C. is recruiting producers for the next phase. For more information: https://www.sdublinbc.ca/survey