

Extension Update for Veterinarians

VDL Infectious Disease Update

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Questions?

To ask questions, type into the Q&A or Chat. To find these options, hover your mouse over the screen and click on the chat or question icon. If not visible, click bubble with three dots and select Q&A



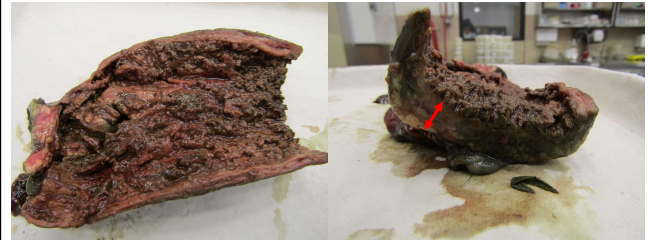
Calf enteric disease

- No concerning trends in detection/diagnosis from this past spring
- Bovine enteric panel PCR results

Infectious Agent	Positives/823 Total tests	Percent positive
Bovine coronavirus	236	28.68%
Rotavirus	251	30.50%
K99+ <i>E. coli</i>	18	2.19%
<i>Cryptosporidium parvum</i>	217	26.37%
<i>Salmonella</i> sp.	64	7.78%

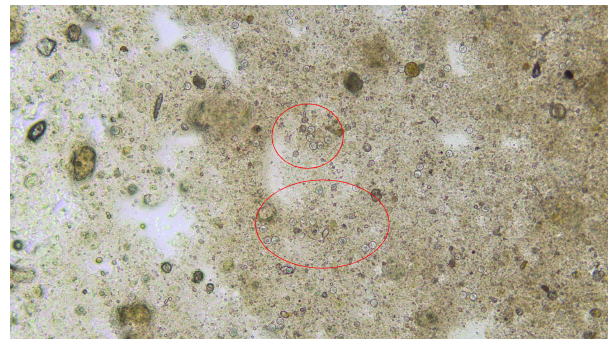
Severe cases of coccidiosis

- No increase in the number of coccidiosis cases , but several remarkably severe cases observed



Send fresh and fixed colon!

- Make certain to include fresh and fixed (several pieces) colon in all enteric cases
 - Rumen/abomasum also commonly missing from submissions
- Impression smears of the colon mucosa: quick way to ID coccidia



Abortion diagnostics

• Nov. 1, 2019 through Apr. 30, 2020

• 79 bovine abortion cases

• Idiopathic: 34

• BVDV: 1

• IBR: 3

• *Neospora*: 4

• *Campylobacter* sp: 3

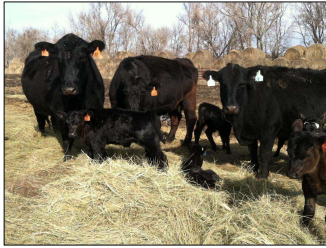
• *Listeria*: 3

• Mycotic: 3

• Placentitis: 5

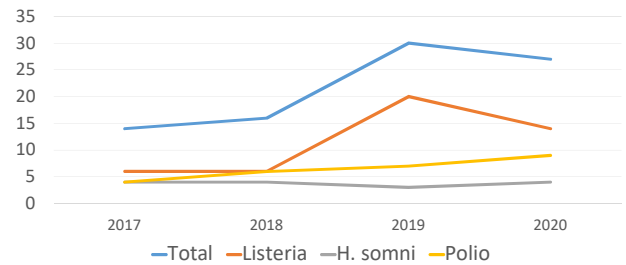
• Misc. bacterial: 14

• Other: 9



Recent increase in feedlot neurologic cases

• Same time frame: Nov. 1 through Apr. 30



Neurologic cases: *Listeria monocytogenes*

• Potential contributing factors

• Fall 2018: Wet weather during harvest in some parts of Iowa

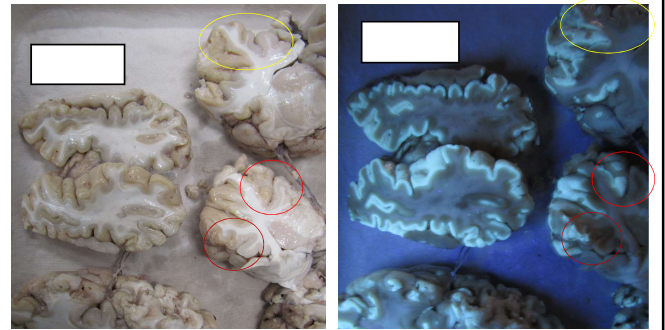
• Spring 2019: Marked delay in planting (wide distribution)

• Fall 2019: Wet weather, very tough harvest conditions

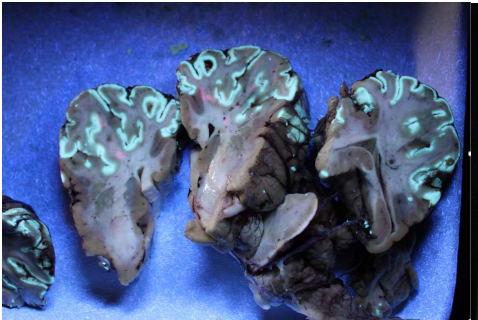
- Differences in crop maturity?
- Differences in moisture content?
- Differences in overall quality?

• Consistency of ensiling/fermentation?

Neurologic cases: Polioencephalomyelitis



Neurologic cases: Polioencephalomyelitis



Neurologic cases: Polioencephalomyelitis

• Case submission information

• Feed changes

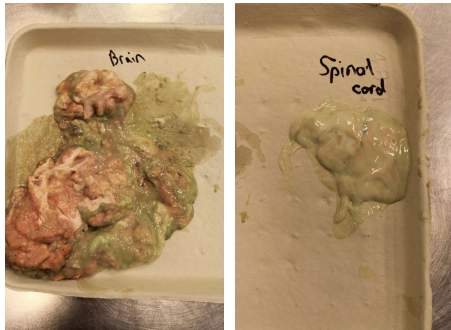
• Distillers product availability/consistency

• Source of ration components

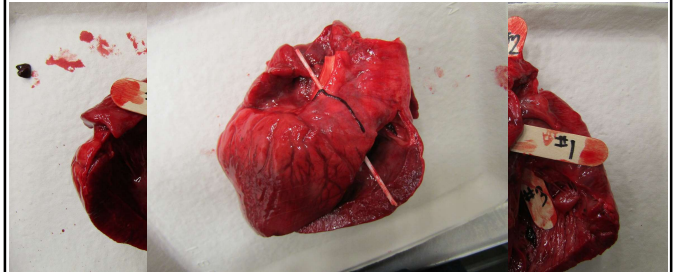
• Very similar total bovine case numbers during these timeframes

• Increased investigation of neurologic cases?

Neurologic cases: submit brain....even if it doesn't look like brain anymore!



Heart defects in calves

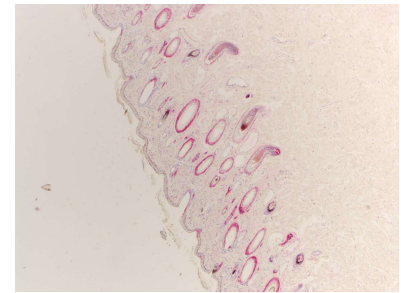


BVDV Persistent Infection

- Historical positive IHC rate: ~0.14%
- 2019: increase to 0.4%
 - Some portion attributed to extensive testing of a small numbers of herds following a positive test
- 2020 (so far): return back to historical rate

BVDV PI testing options

- Fixed ear notches
 - BVDV IHC
- Formalin fixed
- Trimmed on arrival
- Results next day



BVDV PI testing options

- Fresh ear notches
 - BVDV Antigen ELISA
- BVDV PCR
 - Fresh ear notch submitted individually; placed in PBS at arrival
 - Next day: PBS extracted for pooled PCR testing; ear notch placed in formalin
 - If all pools are PCR negative → testing complete
 - If PCR positive, ear notches from the positive group trimmed in for IHC testing (to ID any individual PI calves)
 - Next day: IHC testing completed, individual results reported

BVDV PCR for PI testing

- Potential advantages
 - Don't have to place ear notch in formalin
 - Pooling samples → Decreased cost (in some situations)
- Example: 100 samples
 - BVDV IHC: 100 samples x \$3.75 = \$375 (regardless of result)
 - Pools of 20: 5 PCR tests x \$30 = \$150 (if all negative)
 - Each positive pool adds:
 - 20 samples x \$3.75/IHC test = \$75

BVDV PCR for PI testing

- Potential disadvantages
 - Other sources of BVDV than PI (acute infection, vaccine)
 - PCR positive groups → all IHC negative individual samples
 - Need to clean collection tools when collecting samples
 - Can track BVDV onto subsequent samples
 - Can delay ID of positives one day (or over the weekend)
 - Time until fixation → some degree of autolysis that may affect IHC testing
- May work well for testing low risk populations
- May not work well for high risk groups, processing crews that don't/won't clean collection tools, or recently vaccinated cattle

Johne's disease

- Majority of our Johne's disease cases: individual testing of mature cows with typical clinical disease (weight loss, watery diarrhea)
- PCR detection rate during herd level surveillance remains low
- Johne's serology: ~4.0% positive and ~0.75% suspect
 - Questions regarding serology test reliability

Johne's disease: Serum ELISA + Fecal PCR

- 2015-2019: 554 occurrences of both tests from same animal at the same time
 - 451 negative ELISA's → 98.4 % were also negative on fecal PCR
 - 1.6% PCR positive/suspect: Potential contamination during sample collection?
 - Strong positive ELISA's
 - Greater than 1.2 → 97.6% were positive/suspect on fecal PCR
 - Suspect/weak positive ELISA's (only 19 total tests)
 - 0.45 through 1.2 → basically a coin-flip for fecal PCR results
- Be very careful with suspect/weak positive serology results; also realize that false negatives occur fairly commonly with serum ELISA
 - Reported diagnostic sensitivities of commercial ELISA tests: 30-45%
- Long term: we need reliable predictive testing options

Johne's disease: Fecal sample collection

- Clean, clean, clean...
 - Must avoid contamination between samples
 - New sleeves for every animal
 - Collect feces from sleeve into container (50ml conical, small plastic cup)
 - Have a helper scrape feces off of glove with tongue depressor
 - Label (legibly) and ensure the outside of the container is clean
- Herd level surveillance/pooled sampling
 - Organize samples to reduce the number of positive pools needing retest
 - Group by age
 - Body condition
 - Fecal consistency
- Avoid sending multiple samples in tied-off OB sleeves or gloves!

Submission forms

- Provide pertinent information
 - Accurate clinical history/physical exam findings → incredibly important!
 - Perform full necropsy exam; provide complete gross descriptions
- Have a diagnostic question.....and a plan to utilize the results
- Handwriting
- The less sure you are after the necropsy....the more tissues you should send (depending on your diagnostic question)

Thank you!

- Participating veterinarians
- Iowa State University Extension and Outreach
- Iowa State University Experiment Station
- Iowa Beef Center

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