

Sexually transmitted diseases in beef bulls: Recent advances in BVD, Trichomoniasis and Vibrio

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Bulls can be important carriers for reproductive diseases including: BVD, Trichomoniasis, and *Campylobacter fetus* subspecies *venerealis* (Cfv) (or *Vibrio*)

The costs of BVDV infection in cow-calf herds

- Decreased reproductive performance
 - ↓ pregnancy rates, ↑ abortion rate
- Increased frequency of calf treatment and cost of treatment
 - PI calves treated > 6 x more often
 - # treatments 3 x higher for PI calves
- Increased calf mortality
 - Calf losses - 1.6 x higher in herds with PI

The costs of BVDV infection in cow-calf herds

- Decreased weaning weight
 - PI calves on average weaned >70 kg lighter in one recent study
 - ✓ Note: PI calves can also appear normal
 - However, other calves exposed to the PI calves also weaned up to 15 kg lighter in the same SK & AB study



Bull can play an important role in the spread of BVDV

- PI bulls will transmit the infection to susceptible cows during breeding
- Acutely infected bulls can also transmit the infection although the risk is lower
- Prolonged testicular infection (up to 3 years) in acutely infected animals has been documented but is very rare

Threats to BVDV biosecurity

- Purchased pregnant cows and heifers
 - The unborn calf could be PI and cannot be tested until after is born
- Purchased yearling bulls
- Mixing cattle on communal pastures and fence-line contact with other herds
- Exposure to feeder cattle

Should you be concerned about BVDV in your herd?

- In a recent SK & AB study, at least **9%** of herds had a PI animal

How do we control BVDV?

- Good biosecurity
- Testing and removal of PI calves
- Vaccination of replacement heifers, cows, and bulls

Testing for BVDV

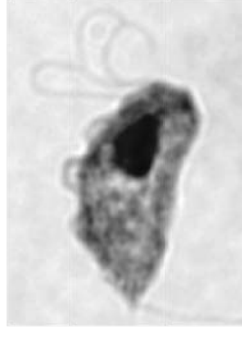
- Based on a recent US study only 4% of producers have tested for BVDV
 - 16% for large herds
- A skin biopsy can be used to check if an animal is persistently infected (PI) with BVDV
- Objective is to find and remove the PI animals
 - PIs are the primary source of continued infection & losses in the herd

Should I vaccinate my bulls for BVD?

- Consult your veterinarian on what is best for your herd
- The Academy of Veterinary Consultants (AVC) ad hoc BVD Committee recommends vaccination of bulls with **2 doses of modified-live** vaccine with the 2nd dose > 30 days before breeding followed by annual revaccination with modified-live vaccine

Trichomoniasis

- *Trichomonas foetus* can cause early embryonic death or abortion from breeding to 7 months gestation
 - Most losses 50-70 days
- Cows can remain infected for > 150 days
- Control is based on testing and removal of infected bulls
- 3 negative cultures provide a high degree of certainty the bull is actually free of infection

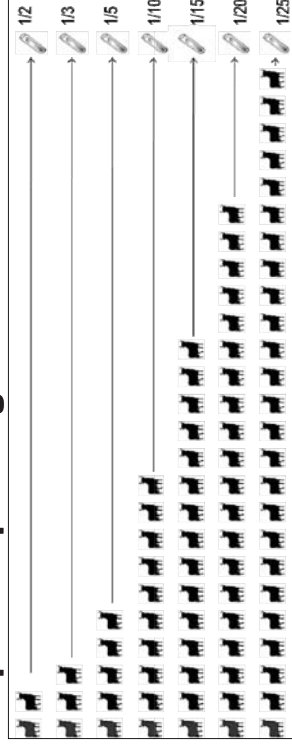


Trichomoniasis

- Some laboratories are suggesting that one negative PCR test is adequate
 - There are no scientific data to support the use of a single test to demonstrate an a bull is free of infection, particularly when testing moderate or high risk bulls
 - The risk of false-positive test results from the PCR is not known
- In 2011, 2400 samples from SK and AB were tested by one lab : 3 were positive

Trichomoniasis

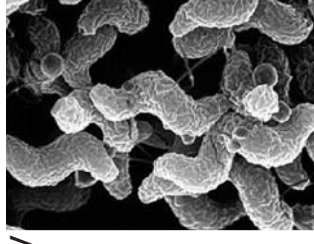
- A recent WCVM study looked at the impact of pooling on RT-PCR results



- To cut lab costs, how many bulls can we test at one time and still reliably find a positive (if it is there)?

Trichomoniasis

- Can we pool samples from more than 1 bull to reduce lab costs?
 - After dilutions of 1:2 through 1:25, the RT-PCR detected the positive bull in 94% of sample pools
 - There were no significant differences among the reported dilutions
- Other research is investigating the use of pooled samples collected without commercial media:
 - Further potential \$\$\$ savings



Campylobacter fetus subspecies *venerealis* (Cfv)

- Organism is also known as ‘Vibrio’ and has a worldwide distribution
- Venereal pathogen responsible for early pregnancy loss and temporary infertility in cows and heifers
- Found on mucosal surfaces in the reproductive tract
- Many similarities with *Trichomonas foetus*

Campylobacter fetus subspecies *venerealis* (Cfv)

- No clinical signs in infected bulls
- Few bulls will clear the infection
- Most females clear infection from uterus and oviducts within a few months
- Some cows will carry infection in the vagina for longer periods
- After clearing infection, cows can become re-infected and transmit the organism

Cfv Transmission

- Infected bulls to susceptible cows
- Cows with vaginal infection to susceptible bulls
- Environment – very low risk
- What about bull to bull transmission?

Campylobacter fetus subspecies *venerealis* (Cfv)

□ Vaccination

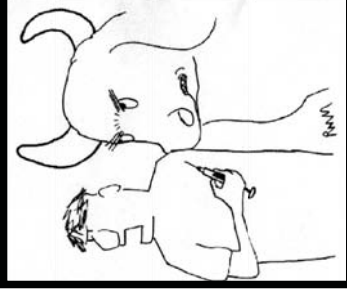
- Most sources recommend bacterins with oil-adjuvant
- Also suggest booster at 1 month after first vaccination
- Annual revaccination shortly before breeding season
- 60 day withdrawal time



Campylobacter fetus subspecies *venerealis* (Cfv)

□ Vaccination

- 2.5 X the label dose for bulls (8wks & 4wks before breeding) (Givens 2006)
- **CAUTION:** Potential for tissue reaction and swelling
- Vaccinated bulls can still act transmit the infection from an infected cow to a susceptible cow



Campylobacter fetus subspecies *venerealis* (Cfv)

□ Diagnosis

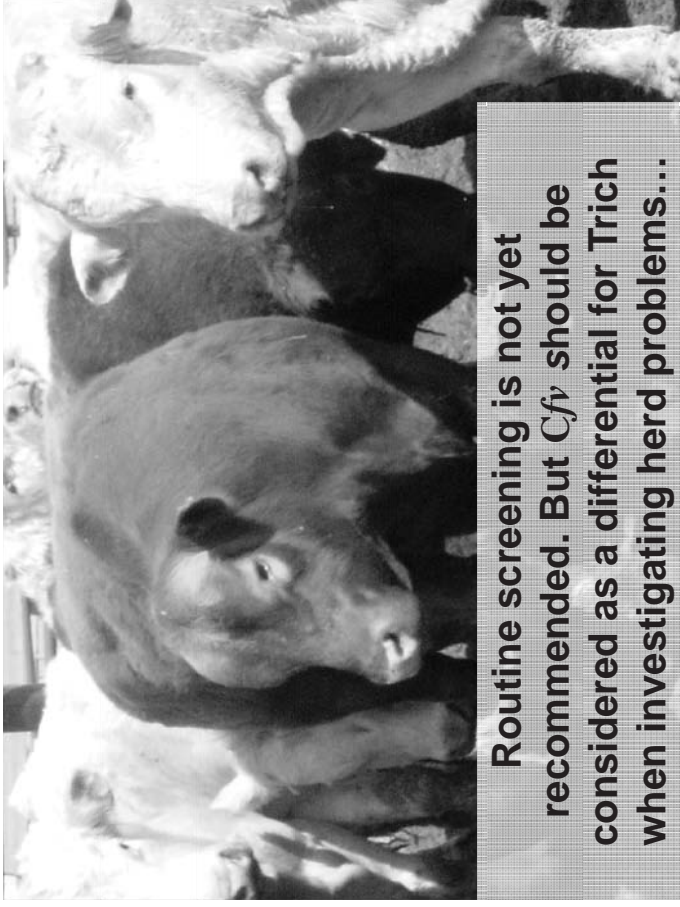
- Organism is very difficult to grow
- Current research focussed on direct detection of organisms using PCR
- Similar sample to Trich, but flushed into PBS
- Advantages:
 - ✓ Sample can be frozen or stored in cool conditions until delivery to the lab



Research to date suggests that *Cfv* is a problem in some herds from SK and AB



Of >670 samples tested to date from SK and AB, 30 were positive (most from herds with reproductive problems).



Routine screening is not yet recommended. But *Cfv* should be considered as a differential for Trich when investigating herd problems...



What testing is necessary for my herd?

- Talk to your vet and determine the risk level for your herd
- Reproductive problems
- Large and expanding herds
- Communal grazing
- Previous animal positive for BVDV or Trich

Testing incoming bulls?

- Yearling bulls:
 - BVDV (skin biopsy - IHC) (2 year olds?)
- Older bulls:
 - Trich test

