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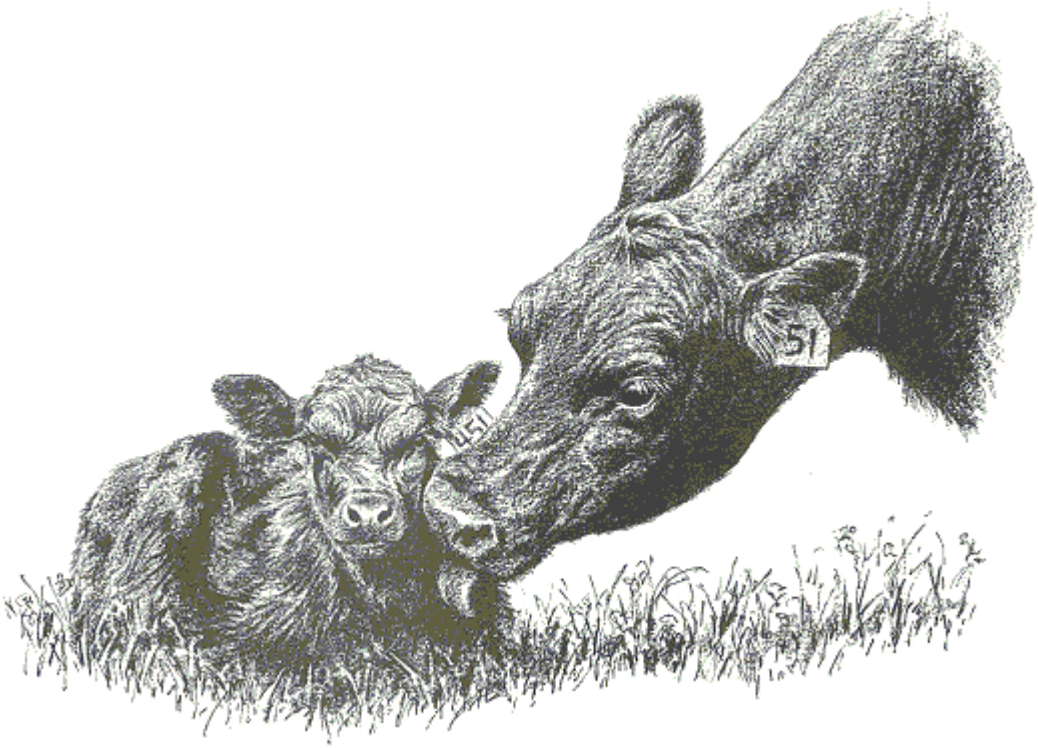


Bovine Viral Diarrhea (BVD)

Why should you test your herd, or additions to your herd?

Answer: BVD has been shown to cause lower pregnancy rates, increased abortions, higher calf morbidity and mortality; increased treatment costs, treatment failures, and reduced weight gain.

Where should you begin?

Answer: The Twin Forks Veterinary Clinic team recommends testing all replacement females early in life, (i.e. branding or at the time of Bangs Vaccination). Future herd bulls should be tested and have a negative BVD-PI status prior to bull turnout. It is strongly recommended that all additions (bulls, cows, heifers, calves) be tested prior to arrival to farm or be quarantined from your herd until testing is performed and a negative status proven. If BVD is found or suspected in your herd or you have

questions about appropriate tests, please discuss the best approach to take with one of the Doctors.

BVD Facts for Beef Cattle

•BVDV can cause a variety of clinical and subclinical reproductive, enteric, and respiratory syndromes and immune dysfunction.

•BVDV is unique in that a fetus that is infected from its transiently or persistently viremic dam prior to formation of a competent immune system (2-4 months of gestation) can become persistently infected (PI) with the virus.

•PI cattle will shed BVDV from body secretions throughout their life.

•PI cattle are considered the primary reservoir for BVDV in both cow herd and feedlot situations.

•A current estimate is that about 10% of beef cow herds have at least 1 PI animal, and about 0.25 to <1% of calves born are PI.

•PI cattle should be removed from herds immediately and marketed directly to slaughter or euthanized. BVDV is not a human health risk, but PI cattle are a health risk to other cattle and are often in poor health themselves.

BVD Myths

- **PI calves will be killed by MLV vaccination**.
  Fact: Controlled experiments have not been able to induce morbidity or mortality in PI calves following MLV vaccination. However, case reports indicate that MLV vaccination can cause a PI animal to become moribund or die—although far less than 100% are negatively affected.

- **PI calves will be thin, have a rough haircoat, and be a poor-doer.**
  Fact: While many PI animals are unthrifty, reports have indicated up to 50% will appear normal and may enter the breeding herd or feedlot pen in excellent condition. PI calves cannot be identified visually.

- **Calves are PI because their dam is PI.**
  Fact: Research has shown that 7% of PI calves' dams were PI, the other 93% of calves have dams with a normal immune response to BVDV and are not persistently infected.

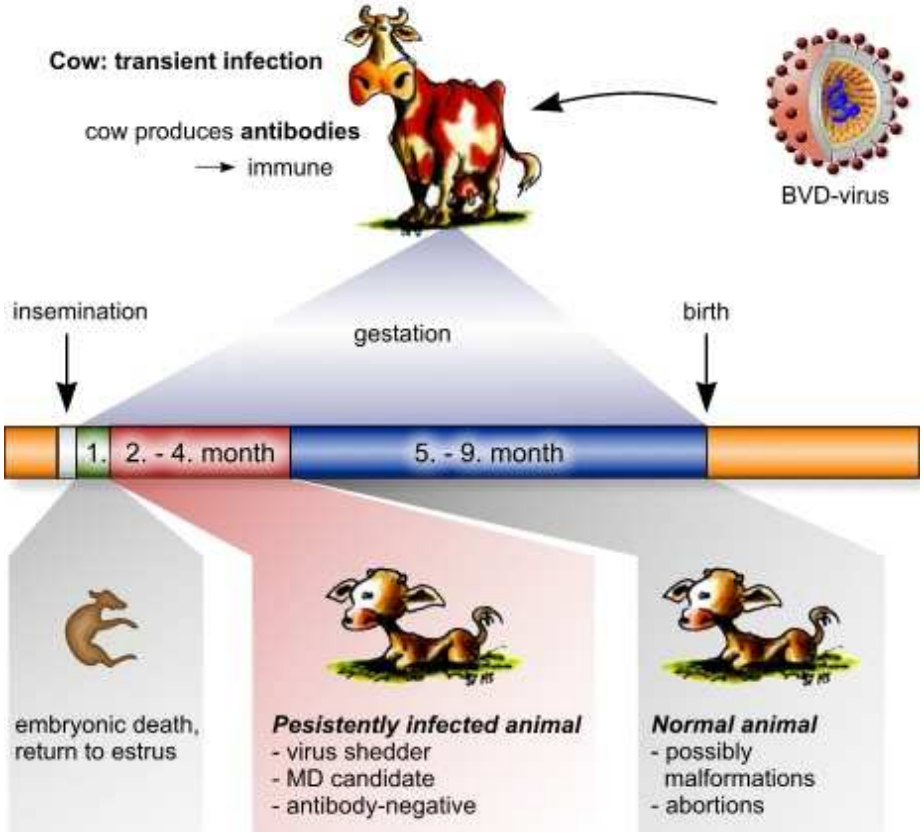
- **The greatest cost associated with a PI calf is the death of that calf.**
  Fact: The reproductive losses associated with lower pregnancy percentages, more abortions, and higher calf mortality are the greatest economic costs of exposure to PI animals. In addition, increased morbidity, treatment costs, treatment failure, and reduced gain in feedlot or stocker penmates greatly exceed the cost of PI death in feeder cattle.

- **BVDV problems will always be obvious.**
  Fact: If BVDV was introduced into the herd via a PI animal several years previously, after an initial period of noticeable losses, the herd may currently experience only low reproductive loss and BVDV-associated morbidity. This low loss however, may not be compatible with economic sustainability.

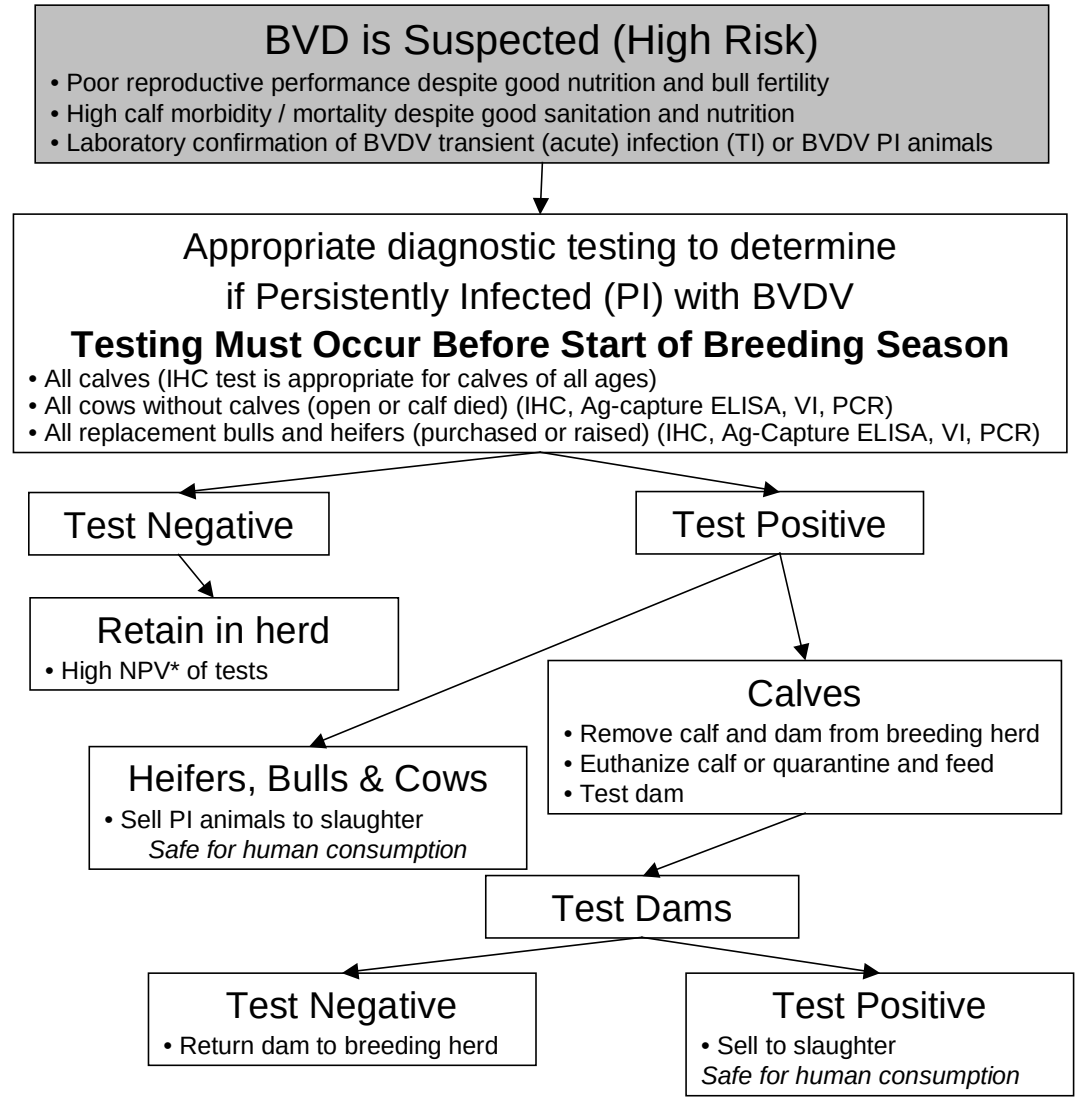
- **BVDV won't affect my herd because I vaccinate.**
  Fact: The tremendous amount of virus secreted by a PI calf can overwhelm a level of immunity that is protective under less sever exposure. There are documented cases of herds with vaccination protocols in place for several years that have endemic BVDV because of the presence of PI animals.

Vaccination alone will not solve BVDV problems!

Possible outcomes of intra-uterine infection of fetus with BVD virus.



Cow/Calf Herd (BVDV-Suspect Herd)
Whole Herd Testing Approach



- All cows still pregnant at time of testing must be removed from breeding herd because fetus is of unknown BVDV PI status
- Absence of confirmed PI calves does not guarantee absence of BVDV problem. If you are still suspicious, testing the next calf crop is recommended.
- Use IHC (immunohistochemistry), pooled PCR, ELISA of skin samples, or Virus isolation (VI)
- Implement complete vaccination program prior to breeding in replacement animals and appropriate boosters in adults
- Prevent direct contact with cattle of unknown BVDV control status

* NPV = negative predictive value, i.e. likelihood that a test negative animal is truly PI negative

Note: Many good tests are available for BVDV. It is best to discuss test options with a doctor to determine the most cost effective approach for each herd.

Cow-Calf Herd

Other Biosecurity Concerns

Purchased Open Females

- Heifers/cows must be PI test-**negative** (IHC, PCR, or VI) prior to introduction to herd
- Quarantine for 30 days prior to introduction to herd

Purchased Bred Females

- Heifers and cows must be PI test-negative (IHC, PCR, or VI) and quarantined until after calving and calf is proven non-PI because PI status of fetus is unknown
- Introduce purchased pair to herd after calf is proven non-PI

Bulls

- Persistently and transiently infected bulls will shed BVD virus in semen as well as other body secretions
- Transmission of BVDV can occur following insemination with raw, extended or cryo-preserved semen
- Semen used for AI should be collected according to Certified Semen Service (CSS) guidelines
- BVDV-infected semen will not directly cause PI calves, but contact with BVDV-infected bulls or maternal viremia following virus transmission via infected semen can cause fetal infection and PI calves
- Purchased bulls should be isolated for 30 days and PI test-negative prior to contact with cow herd

Fomites

- Virus can survive in fecal matter and other body secretions in the environment for hours to days depending on temperature, humidity, and exposure to sunlight
- BVDV has been experimentally transmitted from PI animals to susceptible via nose tongs, injection needles, and palpation sleeves

Embryo Transfer

- Donor and recipients should be PI test-negative
- Recipients should be quarantined for 30 days prior to transfer
- All laboratory fluids of bovine origin must be free of BVDV

Wildlife ? (significance of risk is unknown)

- BVDV has been serologically identified to infect buffalo, pigs, sheep, deer, and elk.
- Deer and Elk – experimentally-infected deer and elk shed virus for several days
- Unknown if PI state can be induced in deer or elk (or other species)

Note: Vaccination provides an insurance policy against biosecurity failure but is not a cure-all in preventing BVDV problems.