



Trichomoniasis in Beef Cattle

Background

Trichomoniasis is a sexually transmitted protozoal reproductive disease of cattle caused by *Tritrichomonas foetus*. There has been a re-emergence of the disease due to increased movement of breeding cattle. The disease is characterized by infertility and early embryonic death. Most producers do not recognize a problem until cattle are checked for pregnancy. Affected herds may experience 40-60% late-bred and/or open cows. Bulls are asymptomatic carriers of the protozoa and infect the cow during breeding. Infected cows will experience fetal loss and then clear the infection and be able to sustain a subsequent pregnancy.

Transmission

The *T. foetus* protozoa can live in the cow's reproductive tract and on the surface of bull's penis. In bulls, the protozoa will embed into penile crypts and most infected bulls will become permanent carriers. The penile crypts become deeper as the bull ages allowing the protozoa to permanently infect the bull. The bull spreads the disease during breeding. Up to 90% of cows will become infected when bred by a carrier bull. The organism grows in the vagina and uterus of the cow. After approximately 50 days the embryo will die from inflammation within the uterus caused by the protozoa. Cows will eventually clear the infection (2 estrus cycles), develop a temporary immunity (2-6 months) and be able to maintain a pregnancy from a subsequent breeding. If there is an extended breeding season, cows that develop temporary immunity may be late bred. With shorter breeding seasons, the cow will not have time to develop immunity and will not get pregnant. Cows that have not cleared the organism after losing their embryo will be able to infect clean bulls. Occasionally, a cow can maintain a pregnancy and remain infected into the next breeding season allowing the herd to remain affected even if infected bulls are culled.

Herd impacts

The progression of the disease within a herd is variable depending upon source of the infection and duration of breeding season. Often, the disease is not diagnosed the

first year it infects a herd. For example, if an infected open female is unknowingly added to the herd, there would be very little change in reproductive performance during the first year. A small percentage of cows may become infected and become late bred animals after being bred by a bull infected from the carrier cow. However, a bull likely became an infected carrier and will infect up to 90% of the cows he breeds the following year. Subsequently, more bulls will become infected as the breeding season progresses in the second year. In the third year multiple bulls may be infected and up to 50% of the cows will likely be open or late bred. If the disease is allowed to persist in the herd, pregnancy rates will recover in subsequent years but reproductive performance will never be optimal. If exposure of the herd is from the use of an infected carrier bull, then decreased reproductive performance may be evident the first year although severe affects may not be recognized until the second year.

Diagnosis

Diagnosis of trichomoniasis is either by direct examination of a culture or a PCR test. Many states require a negative *T. foetus* test by an accredited veterinarian prior to importation of breeding animals. To obtain a sample from a bull, the surface of the preputial and penile mucosa is vigorously scraped with a rigid insemination pipette while applying negative pressure with a syringe (Figure 1). Bulls need to be sexually rested at least 2 weeks before sampling. For cows cervical mucus or uterine secretions can be obtained with a pipette positioned in the cervix or vaginal floor.

The PCR test is very sensitive and specific for *T. foetus*. However, sample collection technique hampers true sensitivity of the diagnostic test. Therefore, a single negative test may not accurately determine if a bull is truly negative for *T. foetus*. For this reason many bull studs require 6 negative tests before their semen will be released for distribution.

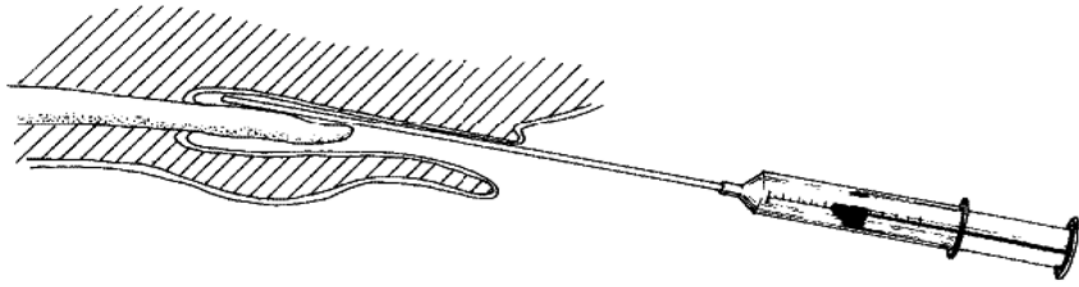


Figure 1. Preputial scraping for *T. foetus*.
(Adapted from BonDurant, R. H., *Diagnosis, Treatment and Control of Bovine Trichomoniasis*. Compendium on Continuing Education for Veterinarians, 7(3): March 1985, S179-S187.)

Regulations

Trichomoniasis is a reportable disease most states. Many states require any bull over 12 to 24 months of age or any non-virgin bull must have a negative *T. foetus* test within 30 days of transport across state lines while some states require any non-virgin bull sold within the state to be tested or go straight to slaughter. Check regulations for states, shows or sales before shipping cattle since regulations vary between states and change regularly.

Prevention and Control

Preventing introduction of *T. foetus* into a herd is the best method to control the disease. Only virgin bulls should be purchased or leased for use in the herd. If virgin bulls are not available, bulls should have at least 2 negative PCR tests prior to introducing into the herd. For females, virgin or pregnant heifers from reputable sources are recommended. Open cows should not be introduced into the herd. Occasionally, cows will become infected and still be able to maintain a pregnancy; therefore, buying older pregnant cows should also be avoided. Producers should maintain adequate fences to prevent neighboring bulls from intermingling with the herd. Avoid communal grazing if possible or require bulls to be tested.

If you suspect your herd may be infected, contact your veterinarian to have your bulls tested. If a herd becomes infected, the producer will need to initiate an active testing and culling program. All bulls should be tested at least 3 times and positive bulls culled to slaughter. There are no treatments for this disease. Carrier bulls should be culled for slaughter. Many states require positive bulls to be identified as slaughter only. Replace bulls with virgin bulls or implement an AI program. Cows should be pregnancy checked and all open and late-bred cows culled; they may be carriers. Implement a 60 day breeding season to decrease potential for transmission of the disease. A vaccine is available for *T. foetus*. However, vaccination will not clear a herd. Vaccination may limit the duration of the infection in a cow but will not substantially alter the spread within a herd.

Trichomoniasis continues to be a problem in beef cattle herds across the United States. Increased movement of cattle has allowed the disease to spread beyond the traditional open rangeland areas. Iowa cow-calf producers should be vigilant in their cattle purchases to prevent introducing Trich into their herd.

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