Kansas State University College of Veterinary Medicine

Recommendations for managing *Tritrichomonas* infections in beef herds

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Tritrichomonas foetus causes early embryonic death, abortions, and infertility in beef herds. Definitive diagnosis requires culture and identification of the organism from an animal in the herd. In infected herds, ranchers may not notice any indications of a problem until the time of pregnancy examination when an increased number of open cows are detected. If the breeding season is long (more than 90 days) the astute rancher may notice an increased number of cows cycling at the end of the breeding season. The number of cows that calve can be reduced by 20% to 40% and the mean calving date will be later and the calving season will be spread out longer than in non-infected herds. Proper herd management techniques are necessary to limit losses due to the disease in future years.

Bulls colonized with *Tritrichomonas foetus* are the primary reservoir for infection in the herd, yet are typically asymptomatic. The infection is localized in the prepuce and penile crypts and there is no known treatment to clear infection. Bulls less than 3 years of age may clear the infection, while those 3 years of age and older are usually infected for life. All non-virgin bulls should be considered potential sources of infection for a herd. Although young bulls may not become permanent carriers, they can still spread the infection to susceptible females during the period that they are infected. Culturing bulls (preputial samples) for the organism is an important component of control programs, but the test produces many false-negative results. In order for a bull to be considered negative for trichomoniasis, he must have three samples taken at weekly intervals be culture-negative. All positive bulls should be sent to slaughter. Bulls that were not previously tested should also be tested 3 times. All bulls including new imports should be tested in cases where *Tritrichomonas* is suspected.

Infection in the cow occurs primarily by exposure to an infected bull at breeding. Initial infection of the female does not cause rapid conception failure, rather the pregnancy progresses to about 60-120 days with a peak loss at 70-90 days, at which time the embryo/fetus dies and is resorbed or aborted. The first sign of Trichomoniasis in a herd is that infected cows and heifers return to estrus one to three months after breeding. A period of infertility may last for another two to six months as a result of the infection. Cows that are infected with *Tritrichomonas foetus* typically clear the infection within a few months. Immunity, however, is not permanent and the cow is subject to re-infection and abortion in subsequent breeding periods. Occasionally an open cow will fail to clear the infection or a pregnant cow will remain infected through pregnancy and be a source of infection for the herd at the next breeding season. Ideally open cows should be culled at the end of each breeding season. Infected cows will also occasionally have an abortion due to *Tritrichomonas*. All abortions should be examined to be sure they are not caused by *Tritrichomonas.* Cervical mucus from the cow can be inoculated into the *In Pouch* and cultured for identification. Cows that are open or abort due to *Tritrichomonas* should be culled prior to the breeding season.

A vaccine is available and may help infected animals clear the infection more rapidly resulting in improved calving rates compared to non-vaccinates. Cows may be vaccinated with Trichguard® (Ft Dodge Animal Health) before breeding. The first vaccination should be given 8 weeks prior

to breeding and the second 4 weeks prior to breeding. Previously vaccinated cows should be revaccinated annually 4 weeks prior to breeding. Vaccination may be a helpful adjunct to other *Tritrichomonas* control measures, but vaccination without institution of other controls has limited value.

Summary Recommendations for Positive *Tritrichomonas* Herds:

Bulls

1. Send all *Tritrichomonas* test positive bulls to slaughter
2. Retest bulls (3 negative tests) for *Tritrichomonas* prior to each breeding season
3. Test all imported bulls regardless of age (3 negative tests to enter herd)
4. Keep the average bull age as young as possible. Some experts recommend removing bulls greater than 3 years of age – others suggest that aggressive annual testing of bulls plus removal of bulls greater than 5 years of age is adequate.
5. Maintain a controlled breeding season to allow assessment of reproductive performance.

Cows

1. Cull all open cows
2. Remove bulls after no more than a four month breeding season. Examine the herd for pregnancy and cull all open heifers and cows.
3. Cull all cows that have a *Tritrichomonas* positive abortion
4. At pregnancy palpation watch for pyometras in cows, cull any cows with a pyometra.
5. Increase efforts to keep neighbor cows and bulls out, and inform neighbors of the situation.
6. Optional: Vaccinate cows 8 weeks and 4 weeks prior to breeding with Trichguard

SAMPLE COLLECTION

- The preferred sample is from the glans penis. This can be obtained by using a sterile insemination pipette and performing a vigorous back and forth scraping motion along the glans while applying negative pressure with an attached 10 ml syringe. A separate pipette and syringe should be used for each animal.
- The preferred sample from the female is the cervical mucous or uterine secretions. These samples can be collected by applying negative pressure with a syringe attached to a sterile insemination pipette, while the pipette is positioned within the open cervix or positioned to collect fluid from the vaginal floor.

Figure 1. Diagrammatic representation of sampling method in the bull. (Adapted from BonDurant, R.H. Diagnosis, Treatment and Control of Bovine Trichomoniasis. Compendium on Continuing Education for Veterinarians, 7(3): March 1985, S179-S187.)

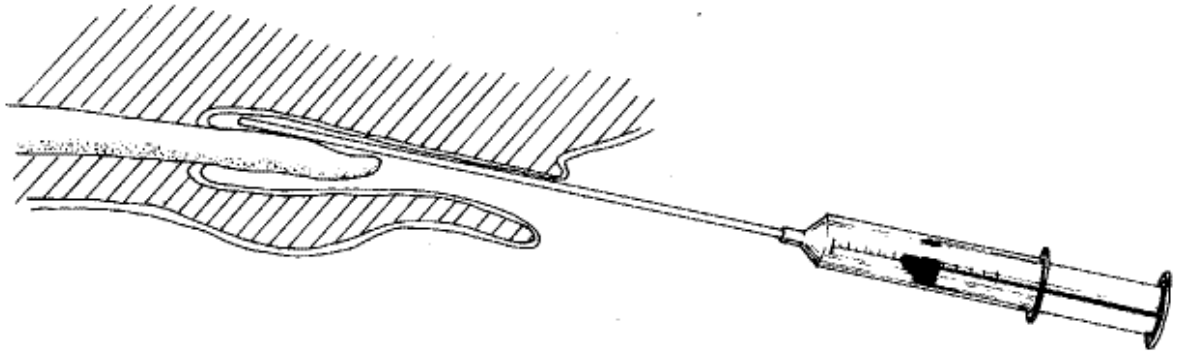

Figure 2. Prepuce culture procedure using AI pipette and attached syringe

Figure 3. Collected material in pipette (blood-tinged smegma is acceptable)

InPouch TF Pouch: The pouch is a commercially prepared and packaged proprietary media. The pouches are available from Bio-Med Diagnostics Inc., 1388 Antelope Road, White City, OR 97503-1619. CALL TOLL FREE: 800-964-6466 Telephone: 541-830-3000 Fax: 541-830-3001

Inoculate the sample into the small upper chamber of the pouch, flush out the pipette, and squeeze or "squeegee" the liquid down into the lower chamber. Carefully express air bubbles out of the lower chamber to maintain the anaerobic environment. Roll the top of the plastic pouch down to the top of the lower chamber and fold the wire strips across to hold and seal it. **Don't stir or mix the content and keep the packet upright at all times once the lower chamber is inoculated. Label the pouch clearly with sample date and animal identification.**

Shipping: In-Pouch TF media can be transported by commercial carrier, but this must be by overnight express/one-day delivery. Do not pack in ice or directly on top of an ice pack. Be sure the lab will be open to receive samples.

Handling and Care of Pouches: The handling and/or shipping of the inoculated media samples is one of the most critical steps in Trichomoniasis diagnosis. The inoculated media should be kept at 65° F to 75° F until it is incubated. It is especially important to avoid overheating or freezing. Ship the inoculated pouches in insulated containers **(no ice)** that will protect the samples from extreme temperatures. Trichomonads are very susceptible to either freezing or overheating. It is important to arrange shipping so the samples arrive at the laboratory or clinic that will perform the testing within 40 hours of collection.