

## **TRICHOMONIASIS**

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This disease is caused by a microscopic one-celled parasite *Tritrichomonas fetus*, which infects the cow's uterus resulting in abortion and infertility. Trichomoniasis has been recognized in all major cattle-producing countries during the past 100 years. It was first characterized in Europe at the turn of the century as a bovine infertility problem.

With the widespread use of artificial insemination there was an apparent disappearance of the disease in parts of the world where cattle are intensively managed. However, it persisted where cattle graze regions considered unsuitable for intensive agriculture.

Few economic analyses have been made to assess the disease's cost to the rancher. But, one study done in the late 1950's suggested the overall loss associated with this infection could be as high as \$800 per bull per year. In another more recent estimation a loss of anticipated revenue loss of \$43,000 developed in a 360 cow herd the year trichomonas infection occurred. The pregnancy rate had dropped from 95 to 64.5% and almost 10% were cycling late.

The bull is the important link in the transmission of the disease in the herd. The parasite is present on the mucosa of the penis and in the crypts of the prepuce of the bull. These crypts are

downfoldings of the epithelium which forms the lining of the prepuce and they offer an environment that is conducive to the proliferation of the trichomonas organisms. An important fact in the prevention and control of the disease is the poor development of prepucial crypts in bulls less than four years of age.

Trichomoniasis causes a very mild inflammation of the affected tissues in the bull with virtually no clinical signs of disease. Transmission then occurs from sexual contact between animals. Bulls can passively transmit the organism when a non-infected bull serves an infected cow and, soon after, serves a non-infected cow, however infection rates by this means of transmission are low. A more common scenario occurs with the introduction of a mature bull in the herd, who is infected by a cow who actively transmits the organism which establishes itself in the prepucial crypts where it evidently stimulates little immune response on the part of the bull. This animal can then infect many cows in the herd and subsequently other herd bulls.

The organism can be found in the cervix, vagina and uterus of cows after both experimental and natural infection. The part of the tract where long-lasting infections occur has not yet been identified. As with the bulls, clinical signs of the disease are not usually apparent; although infrequently a cow may show a slight vulvar discharge.

An infected cow will abort between 18 days and five months of gestation; losses most commonly occur at 40-60 days. The infection results in the development of an intrauterine environment not conducive to the maintenance of pregnancy. For the most part, the infection is rather short lived in the cow; researchers report a duration of 90-100

days. Following the initial infection, a period of temporary immunity exists during which a cow can conceive and carry a calf to term.

There have been reports that the carrier condition occurs with this disease. In this case, the infected cow conceives and carries the organism through gestation, calves and maintains the infection for at least six to nine weeks following calving. It is believed that this does not occur often, and thus, we can be encouraged that the majority of cows that have calved normally are uninfected.

In herds with short breeding periods, the disease can result in a high number of non-pregnant cows. With a longer breeding season, there may be more pregnant cows since there is adequate time for immunity to develop. In the latter case, cows become infected, abort, develop immunity and go on to conceive again and carry the calf to term. It is entirely possible that a given cow can go through this cycle more than once before carrying a calf to term; in this instance the rancher will observe a significant measure of repeat breeding in his herd. In either case, there are also an increased number of late calves.

The definitive diagnosis of Trichomoniasis depends on the cultivation and identification of the organism from cervical mucus or prepuceal smegma. In most cases the sampling of the bull battery for the organism is recommended and it is important that the sample be properly and adequately collected. For best results, an insemination pipette to which a 10cc syringe is attached, is inserted into and as far back in the prepuce as possible. The prepuceal lining is scraped by a backward-forward movement of the pipette, the tip against the lining, done in a vigorous manner for 30 seconds to 1 minute. The pipette is withdrawn from the back of the prepuce while pulling back the plunger of the syringe.

There should be 4-8 inches of pink to red mucus in the pipette. If this mucus recovery is not achieved the lining of the prepuce was inadequately scraped and the process should be repeated. This is important as it increases the chance of recovering the organisms that lie in the deep parts of the prepuceal crypts. If the sample is not satisfactorily taken, and there are false negative results, the disease will continue to cause production loss unabated.

A plastic 2-chambered pouch ("In Pouch") containing an improved trichomonas culture media is available, that can be used for the collection and transporting of cervical and smegma samples. The material in the insemination pipette is transferred directly into the upper chamber of the pouch. The mixture is then squeezed into the lower chamber by rolling down and sealing the top chamber. The pouches can be sent to the diagnostic laboratory where they are incubated and subsequently examined under the microscope. These pouches make sample inoculation, shipping and the laboratory examination much easier with better results than the previous methods employed. The pouch held at room temperature has a shelf life of six months and is reasonable in price.

Treatment for infected animals is not, for the most part, effective or practical. Prevention is the only satisfactory approach to this disease. A vaccine is commercially available but there is a good deal of controversy as to its efficacy. A number of management recommendations can be offered which will help to prevent introduction of the disease in the herd. Replacements should be only virgin bulls and heifers and use, as much as possible, home raised heifers. Ideally bulls should be replaced after 4 years of service. A mature bull introduced in the herd should be tested for trichomonas at least 3 times on successive weeks with a negative test, before exposure to

cows. Surveillance of breeding behavior of the animals, in particular the observation of excessive repeat breeding, may give a warning of possible infection.

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