



Trichomonosis: A Potential Threat to Your Livelihood

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Trichomoniasis or trichomonosis as is often times used today are both used to refer to the reproductive cattle disease “trich”. The increased awareness and problems associated with this disease have led to regulations for the control of trich in many western states.

The Disease

Trich is a venereal disease of cows and heifers caused by a protozoan called *Tritrichomonas foetus*. This organism can live in the lining of the penis and the prepuce (the sheath around the penis) of the bull and does not appear to cause any disease or problems with the bull’s semen or reproductive tract.

Most experts agree that once a bull becomes infected with trich, he is infected for life. Currently, there is no effective treatment for bulls with this disease.

During breeding, the bull infects cows and heifers with the organism which leads to reproductive disease in the cow and heifer. Newly-infected female cattle will usually abort or resorb the fetus at 6 weeks to 8 weeks

after conception. Many of these animals will - over time - develop immunity, clear the infection and rebreed.

Newly-infected herds with a bull turnout of less than 90 days may experience a 50 to 60 percent or less calf crop. Where the bulls are left out for a longer period of time, herds will have a long calving interval but more calves. Chronically-infected herds may have a higher calving rate over an extended calving interval.

The majority of cows will clear the infection from their reproductive tracts. Some cows will not be able to clear the infection and will not be able to rebreed. Less than 1 percent of infected cows will have a normal pregnancy and still be infected with the trichomonas organism for the next breeding season.

Other means of disease transmission are theoretically possible: contaminated semen and insemination equipment and bull-to-bull transmission. The usual means is an infected bull exposing unexposed cows or infected cows exposing uninfected bulls.

Common allotments and adjacent allotments with commingling are two high risk situations that commonly lead to new herds becoming infected.

The Cost of Not Testing for Trich

The financial impact of Trichomonosis may be catastrophic. Newly-infected herds may experience a 50 percent (or less) calf crop.

What is the loss to the average producer who does not test and purge positive bulls? To determine this, the authors have used a program developed by University of Nevada Cooperative Extension (UNCE), Reno, Nev., to estimate producer costs and incomes.

These estimates are based on a 350-cowherd in central Nevada. The three scenarios are: no trich with 85 percent calf crop and calving interval of 90 days; acute trich with 50 percent calf crop and calving interval of 120 days; and chronic trich with 85 percent calf crop and calving interval of 180 days.

This program takes into account all costs, fixed and variable, as well as interest and depreciation. Table 1 on the facing page outlines the income

and loss associated with the outlined situations.

TABLE 1. Net Income/Loss

No Trich.....	\$15,500
Acute Trich.....	- \$53,700
Chronic Trich.....	- \$ 3,000

The difference between no trich and acute trich is more than \$69,000 and would represent a significant financial strain on an operation – if not an outright crisis. A chronic trich situation amounts to more than \$18,000 which is significant to the long-term profit potential of the ranch and the ranch’s ability to survive market changes.

The cost to the industry may also be significant. Using 2005 data from Nevada as an example, 80 trich-positive bulls were found out of 3,400 bulls tested by the Nevada Department of Agriculture Disease Laboratory, Reno, Nev.

This amounts to an incidence of 2.35 percent. In all likelihood, this is an underestimation of the incidence in

the statewide bull herd because many infected herds are not testing.

Total beef bull inventory in Nevada is estimated at 15,000. Using the 2.35 percent figure, there would be a total of 353 positive bulls in the state of Nevada if all bulls were tested.

Total producer cost for these bulls is estimated to be \$705,882 (average purchase cost of \$3,000 less salvage value of \$1,000). Each infected bull will infect a number of cows and these infected cows will potentially infect one to several clean bulls.

If each infected bull reduces the producer’s calf crop by 10 to 20 head, the financial loss in calf crop would be \$6,500 to \$13,000 (average calf estimated to be worth \$650) per infected bull.

Using those figures, the current calf crop loss in Nevada would be \$2.3 million to \$4.6 million. Adding bull cost and calf sales loss, it is estimated that between \$3 million and \$5 million is lost annually due to trich in the state of Nevada alone.

This amounts to a \$6 million to \$10 million impact to Nevada’s rural economy. And we estimate these

figures to be on the conservative side.

Last year, California had 123 infected bulls reported to the California Department of Food and Agriculture. The financial impact of trich to California beef producers is not known, but could be significant.

Diagnosis

Diagnosis of trichomonosis in cattle is less than ideal. Two tests are currently available. The test that has been utilized for years is about 80 percent effective in identifying infected bulls. This means that if there are 100 infected bulls tested, only 80 percent of the tests will be positive.

The test should be performed after a minimum of two weeks of sexual rest. The procedure involves scraping the inside of the prepuce with a pipette. A single round of tests in a bull battery without any history of infertility is very accurate in determining the presence of trich in the herd. However, to adequately determine if a bull from an infected herd is not infected with trich requires three consecutive tests at least a week apart.

Continued on page 72

'TRICHOMONOSIS: A POTENTIAL THREAT TO YOUR LIVELIHOOD' *from page 70*

Approximately 5 percent of positive samples are false positives. These false positive are really trichomonad species from fecal contamination. To accurately differentiate these two different species requires the use of a new specialized DNA test known as a real-time PCR (polymerase chain reaction) test.

This requires an advanced laboratory like the California Animal Health and Food Safety Laboratory in Davis. If the new real-time PCR test is used correctly, 95 percent of infected bulls are identified with only a single test. However, this new test is more expensive to run.

Producers should consult their herd veterinarian to identify the most economical means of trich testing their bull battery.

The diagnosis of trich in cows is even more difficult because the cow has usually cleared the infection by the time a problem has been identified. Testing of the mucus from the cow's vagina or cervix or pus from a pyometra may lead to a diagnosis, but this is not a reliable means of diagnosis.

Prevention, Control and Management

The uninfected herd

Annually test all bulls, including virgin bulls added to the bull battery. The bull battery ideally should be tested two weeks after the end of the breeding season, with new additions tested during semen testing before turnout.

Buy only virgin heifers from a known source. Efforts should be made to prevent commingling of adjacent herds.

In common allotment situations, all producers should regularly test all bulls annually. There is a commercial trich vaccine manufactured by Fort Dodge Animal Health, Overland Park, Kan.

Fort Dodge's TrichGuard and TrichGuard V5L vaccine does not prevent infections, but will reduce the incidence of abortion associated with trich in cows. The vaccine has no proven efficacy in bulls. The vaccine must be given twice, 2 weeks to 4 weeks apart and with an annual booster 4 weeks before breeding season. Most experts agree that vaccinating in the fall for spring breeding is not effective.

The Infected Herd

Test all bulls two weeks after the end of the breeding season. If any bulls are positive, retest the negative bulls two more times at least a week apart.

Send all positive bulls to harvest. Sending the positive bulls to your local livestock auction market, where another producer may buy them only insures perpetuating the disease.

Pregnancy test all cows and cull open and late cows. Cows found to be open at calving or observed to abort before calving should also be culled before bull turnout, because they may be infected with trich.

Institute the other measures used in the uninfected herd listed above. Consider working with neighbors to insure they are also instituting these measures.

Vaccination may be a consideration to minimize the effects of trich. Consult your herd veterinarian.

Conclusion

Trichomonosis is a venereal disease that may cause catastrophic calf crop failures. There is no treatment for infected bulls or cows. There is no perfect vaccine.

A producer should build a relationship with a veterinarian to develop an overall herd health program that addresses trich as well as other reproductive diseases.

On an annual basis, perform a breeding soundness evaluation of your bull battery, which includes a trich test; your future may depend on it.