

# Trichomonosis of cattle

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## Animal Biosecurity, NSW DPI

Trichomonosis (also known as bovine trichomoniasis) is a venereal disease of cattle which can cause infertility through early embryonic death and abortion. It is caused by a protozoan parasite, *Tritrichomonas foetus*. The parasites can infect the genital tracts of cattle during mating. They can also be spread by contaminated equipment used for calving or artificial insemination (AI), or if contaminated semen is used for AI.

Trichomonosis is an uncommon disease in NSW and the other states of southern Australia. However it is endemic to northern Australia where a significant proportion of bulls may be infected.

## Clinical Signs

Trichomonosis has an insidious onset in a herd. The first sign of a problem may be an extended calving season with more cows calving late in the season. The pattern of the disease will depend on how many bulls are in use and the proportion of bulls that are infected.

If pregnancy testing is carried out, a reduced pregnancy rate may be the first sign of a problem. Typical pregnancy rates in affected herds in Australia may be from 60–80 per cent, depending on the length of the mating period. More devastating losses than these have been reported overseas. Pregnancy rates are usually substantially reduced in small herds where only one or two bulls are used. In larger herds, where only one or a few of the bulls may be infected, the effect may be less severe. If a herd has been infected for some time, the disease pattern may be less obvious and the disease may remain undetected, particularly if the bulls are left in all year-round.

Embryonic death usually occurs shortly after conception, in which case, the cow simply absorbs the dead embryo and comes back on heat. It may therefore appear to an observer that an affected cow is simply having long cycles. If the affected embryo survives longer, abortion may occur, but usually before five months of gestation. These early abortions may also remain undetected with the apparent problem diagnosed as herd infertility. In five to ten per cent of cases, abortion does not occur and the foetus degenerates in the uterus which may then become filled with pus (pyometron).

In recently-infected herds, 5–30 per cent of cows can show clinical signs. These signs may include a mucopurulent (containing pus) discharge and inflammation of the vagina, cervix and uterus.

A discharge is more common with trichomonosis than with other venereal diseases such as vibriosis. However, the discharge is often slight and may not be seen.

### **Carrier state**

Both cows and bulls may carry trichomonosis but show no outward signs of infection.

Bulls may carry the protozoa in microscopic folds of the skin that lines a bull's penis and the lining of the sheath. Older bulls, in particular, with their wrinkly penises can harbour large numbers of protozoa, and are more likely to be infected than younger bulls. All infected bulls should be considered permanent carriers, since the bull's immune system seems unable to rid bulls of the infection.

Infected cows usually recover without treatment within about three to five heat cycles after an abortion. If bulls are still running with them, they will then conceive and calve normally.

Immunity in females is short-lived and re-infection may occur if cows are re-exposed to an infected bull. If they are reinfected in the next breeding season, they can abort again.

Cows can occasionally remain infected throughout pregnancy and then calve normally. These cows can remain a source of infection for clean bulls introduced in the next breeding season. Contact between recently-calved cows and new, clean bulls should be avoided when attempting to eradicate infection.

### **Diagnosis of trichomonosis**

Bovine trichomonosis should be considered in any comprehensive herd fertility investigation.

Abortions due to trichomonosis infection occur quite early and may not be noticed. It is more likely that the producer will simply notice cows returning to service.

In NSW, diseases such as vibriosis (campylobacteriosis), pestivirus, leptospirosis, neosporosis and *Theileria orientalis* are more likely causes of infertility and/or abortion than trichomonosis. These other causes of reproductive loss need to be ruled out by appropriate testing.

Cattle do not usually develop circulating antibodies to the trichomonad parasite and no effective blood test can be developed.

To confirm a diagnosis of trichomonosis, specimens need to be collected from bulls, preferably after at least two weeks sexual rest, as this allows the number of organisms (if present) to build-up in the prepuce, thereby increasing the chance of detection. Cows that have been pregnancy-tested as empty, are known to have aborted, or have a uterine discharge, should also be sampled.

If bovine trichomonosis is suspected, your veterinarian will contact the laboratory to obtain the special sampling consumables needed for their next visit. If the sample is cultured, your vet will use a special culture medium to ensure the organism will survive until it reaches the laboratory. Also available is a test which directly tests for the trichomoad parasite by detecting specific DNA. Testing for both trichomonosis and another reproductive disease vibriosis is usually done on the same sample, collected from the bull's prepuce.

If only one test is carried out, there is about an 80–90 per cent probability of detecting an infected herd. If the test is repeated at weekly intervals three times, detection rates increase to 99 per cent. For this reason, four negative tests are normally required before bulls can enter artificial breeding centres.

## Notification and general biosecurity duty

The risk of trichomonosis in NSW is managed under the *Biosecurity Act 2015* by the general biosecurity duty and a mandatory measure to notify the presence or suspected presence of trichomonosis in cattle.

Any person who suspects an animal is infected with trichomonosis must notify a NSW DPI or LLS authorised officer. Notifications may be made by ringing the local [LLS](#) or [NSW DPI office](#).

The district veterinarian will normally contact the owner of the infected herd and his private veterinarian to offer advice on managing the infection.

The general biosecurity duty requires any person dealing with cattle who knows or ought to know of the biosecurity risks associated with trichomonosis to take steps to prevent, eliminate or minimise the risk as far as is reasonably practicable. It aligns with industry self-management and allows producers to make flexible, risk-based management decisions.

### Herds with confirmed trichomonosis

Steps to meet the general biosecurity duty relating to trichomonosis may include:

- Working with your private veterinarian to develop:
  - A herd trichomonosis elimination plan, or
  - A plan to prevent the spread of infection to neighbours or other producers. This should include details on how straying of bulls will be prevented. It may include notification of neighbours so they can take steps to prevent trichomonosis being introduced to their property.
- Supplying a Cattle Health Statement indicating the cattle have come from a property with confirmed trichomonosis if selling or agisting heifers (other than virgin heifers or heifers that have not shown signs of coming on heat), cows or bulls.

Other actions may be required to prevent, minimise or manage the spread of bovine trichomonosis, depending on your individual circumstances.

## Herds with suspected bovine trichomonosis

A suspect herd is where there is evidence to suspect the presence of *Tritrichomonas foetus*. This includes herds where:

- there is evidence of contact with an infected herd or animals. Most commonly this occurs when a bull(s) strays from a confirmed infected herd.
- A herd contains animals with clinical signs consistent with bovine trichomonosis that remain unresolved
- An infected animal has been introduced to the herd and there has been potential for transmission.

If the owner suspects trichomonosis, they should notify the district veterinarian. A straying bull (s) should be isolated from other stock till a management plan has been developed with the DV. A testing program will be developed to resolve the suspect status.

While the herd is suspect, steps to meet the general biosecurity duty relating to bovine trichomonosis could include:

- Working with the DV or private veterinarian to develop a plan to prevent the spread of infection to neighbours or other producers. This should include details on how straying of bulls will be prevented. It may include notification of neighbours so they can take steps to prevent bovine trichomonosis being introduced to their property.
- Supplying a Cattle Health Statement indicating the cattle have come from a property with suspect bovine trichomonosis if selling or agisting heifers (other than virgin heifers or heifers that have not shown signs of coming on heat), cows or bulls.

Other actions may be required to prevent, minimise or manage the spread of bovine trichomonosis, depending on your individual circumstances

## Treatment

There is no approved, effective treatment or commercial vaccine for trichomonosis available in Australia. (Vaccines used overseas do not prevent infection; but may help speed recovery.)

In the vast majority of situations, the best strategy is to cull all infected bulls. In large herds it may be too costly to replace all the bulls at the same time, and splitting the herd into separate mating groups using virgin bulls on a portion may be the preferred option.

In individual high-value bulls localised treatment applied into the prepuce can be considered but is generally not recommended because it usually only reduces the number of organisms present.

Treatment of cows is generally unnecessary as cows usually recover without treatment with 12 weeks of sexual rest following calving. However, there have been rare cases where cows have carried the infection for longer periods.

## Management recommendations

The following steps will aid in the eradication of the disease from infected properties:

- Ensure that all internal and external fences are stock-proof
- Separate all bulls from cows and young stock
- Test all bulls four times at weekly intervals after a minimum of one week's sexual rest; before they can be assumed to be negative.
- Cull all positive bulls
- Pregnancy test all joined cows two months after the bulls have come out, and cull all empty cows
- Pregnancy test all joined cows again six months after the bulls come out, and cull all empty cows
- Investigate any cows with vaginal discharge, or any that abort for the presence of the disease

For the next breeding season, options available include:

- Artificial insemination rather than natural mating
- Natural mating using only virgin bulls
- Use natural mating and replace positive bulls with virgin bulls, or young bulls less than three years of age as they are less able to transmit infection. (This is mainly included as an option for large herds, where it is too expensive to replace all bulls at once. The use of all virgin bulls is preferred, where possible.)

If you use natural mating in the season after the disease is detected, delay joining until three months after the end of calving, to reduce the likelihood that any cows remain infected. As affected herds generally suffer a drawn-out calving, producers will need to decide on a cut-off date after which any cow that has not calved is to be culled.

Limit the joining period to three months or less, and test all bulls after completion of the program, culling any infected bulls.

## Prevention

There is no vaccine available for trichomonosis in Australia and the best way to prevent your herd being infected is to have a biosecurity plan. The plan may include:

- Requesting a [Cattle Health Statement](#) with the purchase of all cattle
- Purchasing all bulls from reputable studs
- Never buying bull from saleyards
- Keeping boundary fences secure
- Testing any stock with an increased risk of infection e.g. bulls from northern Australia prior to purchase

Virgin heifers or bulls are the safest options when introducing stock.

## General reproductive health

Controlling other reproductive diseases such as vibriosis (campylobacteriosis) and leptospirosis with appropriate vaccination programs will make trichomonosis easier to detect

Buy bulls in advance so there is time to vaccinate them prior to joining. Isolate them on arrival, and (unless you have written evidence they are already fully vaccinated) always give them two doses of vibriosis and leptospirosis vaccine a month apart, before their use in the herd.

Keep accurate breeding records. A tight joining period followed by pregnancy testing is essential to promptly and accurately diagnosing reproductive problems.

### **More information**

For more information contact 1800 680 244.

### **Acknowledgements**

This edition is based on the first edition by the late Belinda Walker, formerly Regional Animal Health Manager, Gunnedah and Bob McKinnon, Team Leader, North West Local Land Services.

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