

# BOVINE GENITAL CAMPYLOBACTERIOSIS

## SUMMARY

### Definition of the disease:

Bovine genital campylobacteriosis (BGC) is a venereal disease also known as bovine venereal campylobacteriosis (BVC). The causal agent of this sexually transmissible disease is *Campylobacter fetus* subsp. *venerealis*. The species is divided into two closely related subspecies: *C. fetus* subsp. *venerealis* and *C. fetus* subsp. *fetus*. By definition *C. fetus* subsp. *venerealis* is associated with BGC, causing fertility problems with **considerable economic losses**, particularly in endemic regions. Bovine infections with *C. fetus* subsp. *fetus* are associated with abortion and have a more sporadic occurrence.

### Description of the disease:

BGC is a venereal disease that is characterised by infertility, early embryonic death, and abortion. The disease is caused by *C. fetus* subsp. *venerealis*, a bacterium with pronounced tropism for the genital system of cattle. Transmission of the causal agent takes place mainly during natural mating, and the presence of *C. fetus* subsp. *venerealis* **in the semen of bulls creates the risk of spread of the disease through artificial insemination.**

### Identification of the agent:

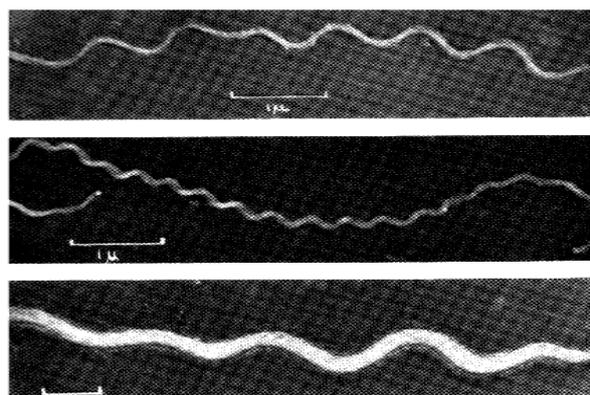
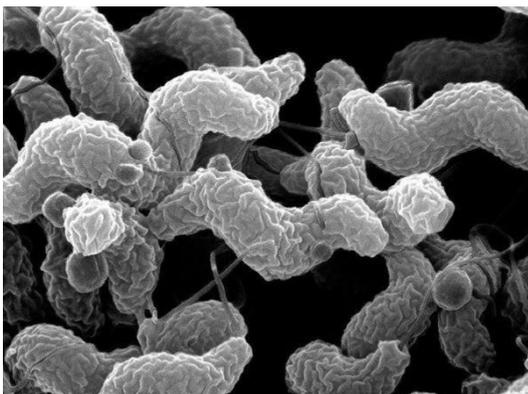
Samples taken from bulls, cows or aborted fetuses can be analysed for the presence of the causal organism. The organism is a thin Gram-negative curved rod that may form S-shapes, seagull-shapes and spirals, and can be cultured at 37°C for at least 3 days in a microaerobic atmosphere. Confirmation of the isolate and discrimination between the subspecies of *C. fetus* can be performed by biochemical or molecular methods. Immunofluorescence may also be used to identify the organism, but it will not differentiate between different subspecies.

### Serological tests:

Enzyme-linked immunosorbent (ELISA) can be used for testing herd immunity, but is not suitable for diagnosis of the infection in individual animals. This test cannot differentiate between infections caused by the two subspecies.

### Requirements for vaccines and diagnostic biologicals:

A vaccine may be prepared from *C. fetus* subsp. *venerealis* and/or *C. fetus* subsp. *fetus* that shares antigens with *C. fetus* subsp. *venerealis*. This vaccine is inactivated with formalin, and may be administered in an oil-emulsion adjuvant.

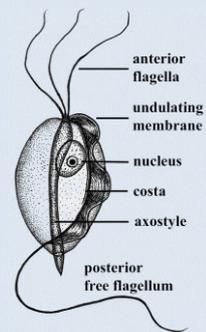


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CHAPTER 2.4.17

# TRICHOMONOSIS

## SUMMARY



### Definition of the disease:

Bovine venereal trichomonosis is caused by *Tritrichomonas foetus*, a flagellate protozoan parasite. It is world-wide in distribution and at one time was of major economic importance as a cause of abortion and infertility, especially in dairy cattle. The widespread use of artificial insemination in many areas of the world has contributed to reduced prevalence. Nevertheless, trichomonosis **is still of importance in herds or where artificial insemination is not used.**

### Transmission:

Transmission of the disease is primarily by coitus, but mechanical transmission by insemination instruments or by gynaecological examination can occur. The organism can survive in whole or diluted semen at 5°C. **Bulls are the main reservoir of the disease as they tend to be long-term carriers, whereas most cows clear the infection spontaneously. For these reasons samples from bulls are usually preferred for diagnosing and controlling the disease in herds.**

### Identification of the agent:

*Tritrichomonas foetus* is a flagellate, pyriform protozoan parasite, approximately 8–18 µm long and 4–9 µm wide, with three anterior and one posterior flagellae and an undulating membrane. The organisms move with a jerky, rolling motion and are seen in culture tests of preputial samples of infected bulls and vaginal washings or cervico-vaginal mucus of infected cows, or sometimes in aborted fetuses. *Tritrichomonas foetus* can be cultured in vitro, and may be viewed in a wet mount or stained slide. The standard diagnostic method for bulls involves the appropriate collection, examination and culture of smegma from the prepuce and penis. Smegma can be collected by a variety of means including preputial lavage or scraping the preputial cavity and glans penis at the level of the fornix with a dry insemination pipette. A number of in-vitro culture media exist, but a commercially available field culture test kit allows for trichomonad growth and direct microscopic examination.

### Alternative tests:

Bovine trichomonosis may also be detected by polymerase chain reaction amplification. In the past, an agglutination test using mucus collected from the cervix and an antigen made from cultured organisms has been used as a herd test. Similarly, an intradermal test using a trichloroacetic acid precipitate of the organism has been used in herds.

### Requirements for vaccines:

A partially efficacious, killed whole-cell vaccine is commercially available as either a monovalent, or part of a polyvalent vaccine containing *Campylobacter* and *Leptospira*.