

ABORTION DISEASES OF CATTLE



These
diseases are
known to
occur in
Afghanistan.



1. Definition

Abortion in cattle is commonly defined as a loss of the fetus between the age of 42 days and approximately 260 days of gestation. Infectious agents such as *Brucella abortus* (Bang's disease), *Leptospira*, *Campylobacter*, and *Trichomonas* are perhaps the most frequent causes of bovine abortion.

2. Etiology

Brucellosis is a bacterial disease caused by *Brucella abortus*.

Leptospirosis is a bacterial infection of which five common serovars have been identified as causing abortion in cattle: *Leptospira canicola*, *L. icterohaemorrhagiae*, *L. grippityphosa*, *L. hardjo* and *L. pomona*.

Campylobacteriosis is caused by the bacterium *Campylobacter fetus*, which lives in the crevices of a bull's prepuce (foreskin), but usually does not become established in the bull until it is about 4 years old or older.

Trichomoniasis is caused by the protozoan *Tritrichomonas fetus*.

3. Transmission

Brucellosis: The bacteria are spread among cattle by contact with aborted tissues and fluids. The discharges then contaminate the pasture

and other feeds, such as hay, threatening other cattle. Although infection usually occurs via ingestion, a susceptible animal may also pick up bacteria through the skin or eye.

Leptospirosis: The *Leptospira* bacteria are spread by infected urine or contaminated water (oral ingestion). Droplets of urine from infected cows can infect normal cows after contact with the eye or mucous membranes of the nose or mouth.

Campylobacteriosis: The disease is spread from an infected bull to a cow during breeding. Bulls also may be infected by breeding infected cows. This disease can be transmitted through artificial insemination. Untreated, infected bulls can remain carriers for a long time.

Trichomoniasis: This organism is spread at breeding (venereal) only. The majority of cows clear themselves of the infection after several estrus cycles. Bulls tend to remain infected and carry the organism from one breeding season to the next.

4. Species affected

Brucellosis and leptospirosis are zoonotic. Owners should be advised to wear gloves when handling aborted fetuses and to burn or bury any placentas and fetuses not needed for diagnostic efforts. In addition pasteurization of milk for human consumption should be stressed.

**Both *Brucella abortus* and *Leptospira* spp. can
cause serious zoonotic diseases!**

5. Clinical signs

Brucellosis: Brucellosis causes abortions in the second half of gestation (usually ~7 months), produces weak calves, retained placenta or causes cows have trouble breeding back. Abortion or stillbirth occurs 2 weeks to

5 months after initial infection. Orchitis and inflammation of the accessory sex glands can occur in males.

Leptospirosis: The disease causes repeat breeders, low-grade uterine infections, abortions, mastitis and occasionally systemic infection. Cattle abortion may occur at any stage of gestation but is more common during the last trimester. Some calves may be born alive but weak or they may die in-utero and be retained for up to 72 hours. The aborting dam is usually not ill.

Campylobacteriosis: The disease usually results in infertility but occasionally causes abortion between 5 and 8 months of gestation.

Trichomoniasis: The disease usually results in infertility and repeat breeders, but occasionally causes abortion in the first half of gestation.

6. Pathologic findings

Brucellosis: Affected cotyledons may be normal to necrotic, and red or yellow. The intercotyledonary area is focally thickened with a wet, leathery appearance. The fetus may be normal or autolytic with bronchopneumonia.

Leptospirosis: The leptospire cause a diffuse placentitis with avascular, light tan cotyledons and edematous, yellowish intercotyledonary areas. The fetus usually dies 1-2 days before expulsion and therefore is autolyzed.

Campylobacteriosis: The fetus can be fresh with partially expanded lungs or severely autolyzed. Mild fibrinous pleuritis and peritonitis may be noted, as well as bronchopneumonia. Placentitis is mild with hemorrhagic cotyledons and an edematous intercotyledonary area.

Trichomoniasis: Placentitis is relatively mild with hemorrhagic cotyledons and thickened intercotyledonary areas covered with flocculent exudate. The placenta is often retained, and there may be pyometra. The fetus has no specific lesions.

7. Diagnosis

Given the low diagnostic success rate, the high cost of laboratory work, and the low profit margin in both the beef and dairy industries, investigators should not attempt to make an etiologic diagnosis in every abortion. Instead, they should become concerned if fetal loss is >3-5% per year or per month.

Brucellosis: Diagnosis can be made by maternal serology combined with fluorescent antibody staining of placenta and fetus or isolation of *B. abortus* from placenta, fetus, or uterine discharge.

Leptospirosis: Placenta and fetus should be submitted to the laboratory for fluorescent antibody staining or PCR testing for *Leptospira*. Urine from the dam can be used to culture the organism for up to two weeks after aborting.

Campylobacteriosis: The preferred samples for diagnostic work are the fetus and placenta, cervical mucus from the dam, or sample swabs from the genitalia of the bull. *Campylobacter* spp. can be identified by darkfield examination of abomasal contents or culture of placenta or abomasal contents.

Trichomoniasis: Diagnostic samples can include the fetus, placental fluids and cervical mucus from the dam. Preputial scrapings from the bulls can also be used to grow and identify *Tritrichomonas*.

8. Treatment

Brucellosis: Treatment is unsuccessful.

Leptospirosis: In an outbreak, antibiotics such as tetracycline, or erythromycin could be used to reduce shedding.

Campylobacteriosis: Treatment with a topical antibiotic ointment containing neomycin and erythromycin is an option for valuable bulls.

Trichomoniasis: Treat the uterine infection in the female and provide sexual rest. Usually a 90-day period of sexual rest eliminates the organisms from the uterus.

9. Prevention and control

Safe and efficacious vaccines are available for many of the infectious diseases that can cause abortions in cattle. It is generally accepted that a vaccination program targeted at reproductive diseases should include, at a minimum, Leptospirosis (usually 5 serovars are included).

Long-term regulatory programs involving calfhood vaccination and testing and slaughter of carrier cows are required for brucellosis eradication.

Special attention should be focused on the health status of bulls in herds that utilize bulls in their lactating cow or heifer herds. Purchased bulls can not only introduce disease into the herd, but may also spread venereal diseases within a herd. In situations where bulls are introduced to the herd from outside sources, a minimum 10-14 day quarantine period should be routinely imposed in order to evaluate the health status of the imported animals. Bulls should be purchased only from herds that have a good herd health program in place and whose health status is known.