

Abortions in Cattle, a Review  
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Abortion is the premature expulsion of the fetus from the dam and usually occurs because the fetus has died in utero. If death occurs at 1 or 2 months of gestation, it is usually termed “early embryonic death.” This loss of an embryo early in gestation is generally associated with no evident clinical signs in the cow that the pregnancy has terminated. After 2 months of gestation there is usually clinical evidence of a “fetal loss” which is expulsion of the fetus and fetal tissues. These tissues may not be observed however when cattle are maintained on pasture, as the tissues are easily destroyed or consumed by scavengers. When the fetus is near term and born dead it is often called “stillbirth”. This stillbirth could have occurred due to difficult birth and the death of the fetus, or it may have died in-utero due to disease and was expelled. Depending upon the cause of “abortion” a cow may experience, fetal loss, embryonic loss or a still birth.

Most cattle herds suffer abortion rates of 1 to 2 percent. Seeing a single abortion may not be a great cause for alarm, however it is best to separate the aborting dam from other animals and to clean up and dispose of the aborted tissues if present. If the abortion rate increases to 3 to 5 percent that should be some concern for producers and they should begin to make efforts to obtain a diagnosis. In obtaining a diagnosis it is best to utilize the herd’s veterinarian as they are knowledgeable regarding the health of the herd and have received considerable training in working up a case and making a diagnosis. The diagnostic process in cases of abortion will involve multiple steps some of which are; a review of the herd health history, vaccination history, necropsy exams, additions to the herd, breaches in herd biosecurity, and performing laboratory analysis which involves testing of various tissues utilizing area diagnostic laboratories.

If a veterinarian is not available at the time an abortion occurs, collect the aborted fetus and placenta and place in plastic bags and refrigerate. Do not wash off these tissues and the individual collecting the samples should utilize protective clothing to prevent any contamination or infection of themselves and the tissues. After collection, contact the herd’s veterinarian for instructions regarding deliver of samples to them or the nearest diagnostic laboratory. Proper packaging and handling of samples is essential when delivering samples to a laboratory. This packaging and handling is best performed by someone properly trained such as the producer’s veterinarian or a veterinary technician. Accurate diagnosis of an abortion is difficult, time consuming, expensive and often unrewarding.

Cattle producers may blame an abortion on trauma because the cow was bumped however the fetus is well protected in the dam and moderate trauma is unlikely to result in an abortion. There are certain plants and toxins that are associated with abortions in cattle such as: ponderosa pine needles, locoweed, molds and associated mycotoxins, and nitrates. Abortion may also be caused by infectious disease agents. Some of the more common infectious agents causing abortions in cattle will be briefly reviewed:

Bovine Virus Diarrhea (BVD) is caused by a viral agent. There are multiple strains of the BVD virus. It is spread by aerosol or contact especially from persistently infected cattle. BVD is usually associated with mild disease in the dam. Infection of the

fetus can result in; embryonic death, resorption, abortion, congenital defects, a persistently infected calf or a normal health calf. The outcome is greatly influenced by the immune status of the dam, the age of fetus when exposed to the virus and the viral strain.

Brucellosis is a reportable bacterial disease which was once fairly common in herds in the U.S. The disease is caused by the bacteria *Brucella abortus*. Currently there are only a few herds in the U.S. which are experiencing losses due to this disease. A majority of the herds in the U.S. are free of brucellosis due to a long term regulatory program which involved calfhood vaccinations and testing and slaughter of carrier cows. This program was originally initiated due to concerns for human health and a disease known as undulant fever.

Campylobacter or "Vibrio" is a bacterial disease caused by the bacteria *Campylobacter fetus*. This disease is transmitted venereally and is usually associated with early embryonic death and repeat breeders.

Abortions caused by *Chlamydia abortus* are usually associated with sporadic (rare) abortions in cattle. The agent is spread by contact with sheep and oral ingestion of the organism with abortions occurring in the last trimester. Infected calves born alive may show lethargy, depression and may be stunted.

Infectious Bovine Rhinotracheitis (IBR) is caused by a herpes virus. It has caused abortion storms in herds resulting in five to sixty percent loss. The agent is readily spread via aerosol or contact and is a common cause of respiratory infections in cattle. Abortions are most common in the last half of gestation.

Leptospirosis is a bacterial infection involving several different serovars all associated with abortion in cattle. Lepto is spread by infected urine and contaminated water. A variety of animals other than cattle may also be infected and carry the organism including rodents, dogs, cats and humans. Cattle abortions may occur at any stage of gestation but is most common during the last trimester. Some infected calves may also be born alive but weak.

Neospora is caused by the protozoan *Neospora caninum*. It is more common in dairy cattle but also occurs in beef cattle. Infected dams appear to abort when they are severely stressed while pregnant. The calves born from these dams are almost always infected and carry the organism for life and infect their offspring. The infection is not spread from cow to cow within the herd but rather by exposure to dog feces. The majority of abortions occur at four to six months of gestation.

Sarcocystis is a protozoan parasite which only rarely causes abortions in cattle. Infected dogs, coyotes, foxes and cats shed the protozoan in their feces. Cows become infected while grazing, and severely affected cows usually abort during the last trimester.

Trichomoniasis or "Trich" is caused by the protozoan *Tritrichomonas fetus*. This organism is venereally spread. The majority of infected cows will clear themselves of the infection after several estrus cycles. Bulls once infected tend to remain infected and carry the organism from one breeding season to the next. Trich usually results in early embryonic death with cows appearing as repeat breeders.

Vaccines are available for select infectious causes of abortion, and their use is highly recommended. A producer is encouraged to work with their herd veterinarian to develop herd health plans which will aid in minimizing reproductive failure within a herd regardless of the etiology.

Summary of Infectious Agents associated with Bovine Abortions.

Infectious Disease	Samples for Diagnosis	Usual Stage of Gestation	Control methods
BVD	fetus serology, virology IHC, Elisa, PCR	2 months after exposure	Vaccination of dams, cull PI animals
Brucellosis	fetus, placenta, serum of dam	Last Half	Regulatory program, vaccinate heifers, test/cull
Campylobacter Vibrio	cervical mucus, fetus, placenta, preputial scrapings	Early embryonic death or abortion	Vaccinate dams bulls. Antibiotic treatment
Chlamydia	placenta and fetus Serology, PCR	Last trimester	Separation and sanitation
IBR	Fetus, placenta serum dam, herdmates histology, virology, PCR, vial isolation	Last half	Vaccination program
Leptospirosis	urine of dam, fetus, serum-dam, herdmates, PCR	Any stage	Vaccine, antibiotic
Neospora	serum of dam, fetus PCR	4-6 months	Dog control- fetal tissues' out of feed area
Sarcocystis	caruncle from uterus, formalin fixed heart, skeletal tissue	Last Trimester	Canine fees away from feed
Trichomoniasis	fetus, placenta, cervical mucus, preputial scraping, PCR	Early embryonic death or under 5 months	Identify and cull infected bulls; control breeding, vaccine