

# *Dangers to Pregnancy in Sheep and Goats*

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Abortion is the loss of the fetus at any time during gestation. Usually the loss is detected during the final 2 months of gestation with evidence of the expelled fetus. In contrast, early embryonic loss results in resorption of the fetus and can sometimes be detected when the ewe or doe unexpectedly returns to estrus or develops bloody vaginal discharge. Either way, abortion is always a frustrating event to a livestock producer.

In sheep and goats, an abortion rate of 5% is common. The two species are similar in abortion rates because they have similar timelines of fetal development and are often handled in a like manner. Sheep and goats share noninfectious causes of abortion such as nutritional deficiencies that lead to pregnancy toxemia and reactions to pharmaceutical drugs. However, infectious causes of abortion can be species-specific. The important infectious causes of abortion in Arkansas include Chlamydiosis, Toxoplasmosis, Campylobacteriosis, Leptospirosis, and Q fever. The following article explores the different causes of abortion, how to prevent them, and how to treat them.

**Pregnancy Toxemia** is a metabolic disorder caused by increasing demands on the bodies of does or ewes during late pregnancy. Although the disorder does not cause abortion directly, often the fetus is purposely aborted to save the dam. Females that are underconditioned (Body Condition Score (BCS)  $\leq 2$ ) or that are overconditioned (BCS  $\geq 4$ ) and carrying more than one fetus are most at risk. It is important to note that ideally conditioned animals on an acceptable ration can develop the disorder as well. In the last 30 days of gestation, the liver increases gluconeogenesis rapidly to allow glucose distribution to the developing fetus. This shift in distribution causes a negative energy balance for the dam. Furthermore, mobilization of fat stores increase, which may overwhelm the liver's capacity and result in ketone body development (ketosis) or hepatic lipidosis (fatty liver). Individual variances of the dam's response to insulin or capacity for mobilizing fat influence the severity of symptoms. Early in the process, the dam goes off feed and appears depressed. As the metabolic disorder advances, the dam develops neurological signs such as muscle twitching, teeth grinding, or difficulty walking, which eventually leads to recumbency and death. Ensuring that pregnant animals maintain an ideal body condition is the best way to prevent pregnancy toxemia. If clinical signs are seen, contact your veterinarian as intervention is critical for survival. If caught early, animals can be treated by administering oral or intravenous glucose and giving oral propylene glycol (a glucose precursor) until the dam recovers or gives birth. Other electrolyte imbalances will also have to be addressed. Treatment after the dam becomes recumbent is often not rewarding. If the fetuses are alive and within 3 days of a calculated due date (gestation length 147 days), then an emergency cesarean section may be considered after the dam is stabilized. Another alternative is to chemically induce parturition while providing medical support. Regardless of the therapeutic plan, the animal should be offered a palatable, energy-rich, highly digestible feedstuff.



*Healthy twin lambs in the Arkansas River Valley.*

**Pharmaceutical drug reactions** are another leading cause of abortion in sheep and goats. Administration of steroids can lead to abortion. Dexamethasone is a corticosteroid often given purposely to induce abortion. Drugs commonly used in sheep and goat medicine that can cause abortion include the dewormer Valbazen (albendazole) and the antibiotic LA-200 (oxytetracycline). For this reason, drug labels should always be read carefully before administering to a pregnant animal. When in doubt, contact your veterinarian.

**Chlamydiosis**, also called enzootic abortion, is caused by the bacteria *Chlamydomphila abortus* and is one of the most common causes of bacterial abortion in sheep and goats in the United States. Sheep and goats are exposed to the organism through mouth or nose contact with aborted tissues, vaginal discharge or contaminated newborns. The bacteria infect the cotyledons, which interferes with nutrient transfer to the fetus. As a result, the cotyledons appear necrotic and gray-brown while the fetus is unaffected. Abortions usually occur during the last 2 to 3 weeks of gestation. The disease can be treated with tetracycline in feed for the last 4 to 6 weeks of gestation. There is also a vaccine available, but the efficacy is questionable.

**Toxoplasmosis** is a disease caused by the protozoan *Toxoplasma gondii*. The definitive host for the organism is cats which can shed millions of oocysts. Sheep and goats ingest the oocytes in contaminated feed. The organism multiplies in the placenta, thus interfering with the nutrient and oxygen supply to the fetus. The cotyledons appear swollen with scattered gray necrotic areas and mineralization while the fetus appears unaffected. Embryonic resorption occurs if infection is in the first 40 days of gestation. Abortion results if infection occurs between 40 and 120 days of gestation and stillbirth results if infection occurs after 120 days of gestation. Once a ewe or doe aborts, she becomes immune and will not abort again. There is no effective treatment. Prevention is best achieved by keeping cats away from your operation.



*Newborn twin Boer kids.  
Photo courtesy of jbolles, Flickr*

**Campylobacteriosis** is a disease caused by the bacteria *Campylobacter fetus* and is a significant cause of abortion in sheep. The bacteria are often found in the intestines and gallbladder of sheep, dogs, and some birds. Sheep are exposed to the bacteria when ingesting feed contaminated with feces, aborted fetal tissue, or vaginal discharge. The bacteria invade the fetus, especially the liver, causing fetal death. As a result, the fetus is autolyzed. Late-gestation abortions, stillbirths, and weak offspring are common. Ewes commonly develop metritis after the abortion. The disease can be prevented by using tetracycline in the feed or by vaccinating with a Chlamydia/Campylobacter combination vaccine.

**Leptospirosis** is a disease caused by the bacteria *Leptospira interrogans* that causes abortion mainly in goats. Animals come into contact with the organism by ingesting free standing water that has been contaminated by infected urine. Abortion usually occurs in the final trimester of pregnancy. The doe can show clinical signs of anorexia, jaundice, and anemia, which may mimic symptoms of copper toxicosis.

**Q Fever** is a disease caused by the bacteria *Coxiella burnetii*. The disease causes abortion in sheep and especially in goats. Cattle, sheep, goats, dogs, and birds can all be carriers of the bacteria. The bacteria can be found in milk, urine, feces, uterine fluids, and placentas. Many species of ticks can carry and transmit the disease. Goats and sheep are mainly exposed by

contact with cattle, either directly or through shared use of pastures, water sources, or feed sources. The disease causes a placentitis which prevents the fetus from getting appropriate nutrients and oxygen. The placenta may have white areas of necrosis and mineralization on the cotyledons while the fetus appears unaffected. Abortion can occur at any stage of gestation. Dams that abort do not develop an effective immunity and will likely have subsequent abortions.

Many of the infectious causes of abortion are "zoonotic", meaning that people can become infected. Caution should be used around any animal suspected of having an infectious disease. Contaminated urine and feces are highly infectious for people and susceptible animals, especially when these body fluids contact mucous membrane surfaces or abrasions and cuts. Latex gloves should be worn when handling infected animals including aborted fetuses, urine, and feces. Protective goggles and masks should be worn when hosing contaminated areas.

Pregnancy loss can be kept to a minimum by following a sound herd health plan developed in collaboration with a veterinarian. Providing a balanced high energy diet for pregnant animals will prevent pregnancy toxemia and help boost the immune system. Vaccines are available for several of these diseases and should be administered accordingly. If treating a pregnant animal, drug labels should be read carefully prior to administration. Giving the animals plenty of room and access to clean water and feed will reduce disease transmission. Keeping cats, dogs, and wildlife away from feed is also important. By planning ahead and following a few simple principles, sheep and goat abortions can be controlled.



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