

CAUSES OF ABORTION

BY HEATHER SMITH THOMAS

IN COWS



Under normal conditions, about one out of 200 cows will abort for some reason or another. This is usually no cause for alarm, says Robert Cope, a veterinarian in Salmon, Idaho. However, if the abortion rate in a herd rises above 1%, it's time to look for answers. In the following story we'll outline possible causes of bovine abortion.

Injury and stress

Some abortions in late pregnancy are caused by injury — such as a cow slipping and falling on ice, fighting, being knocked around by other cows— or extreme stress, says Cope.

Stress can trigger the release of hormones in the body that can start the cow into labor and cause her to calve prematurely. Usually when a cow aborts following injury, it is the stress (pain, inflammation, etc.) that triggers the actual abortion rather than the injury itself. The uterus and its fluids cushion the fetus well and protect it from trauma even if the cow herself is seriously injured.

An injection of dexamethasone during the last three months of pregnancy often will cause the cow to go into labor, says Cope. Dexamethasone is sometimes given to cattle to reduce swelling, inflammation and pain from injury or disease. "It's not wise to give dexamethasone to any pregnant cow because of the risk of abortion, but definitely not if she is in the last trimester of gestation," he says.

High fever may also cause a cow to abort

Poisons

■ **Iodine.** Poisons such as iodine are another cause. Sodium iodide (given intravenously to treat bony lump jaw) should not be given to a pregnant cow. Flushing an abscess with an iodine solution also may be unwise, cautions Cope.

Poisonous plants. Abortions can be caused by ingesting toxins in certain plants. One of the most common causes of abortion from plants is from ponderosa pine needles. These abortions occur most frequently from late fall to early spring, according to Kip Panter of Utah State University.

"Ponderosa pine grows in every state west of the Great Plains and in western Canada and has greater distribution than any native tree in the U.S. except Douglas fir," says Panter.

"Cattle may eat the needles when hungry or cold or whenever the needles are readily available— such as downed trees or branches that are easy to reach, slash from logging, windfalls, dried fallen needles or even discarded Christmas trees," he says. Cattle seeking shelter in the trees or being herded through the timber may eat the needles, or they may be eaten inadvertently when cows graze the grass around the trees or eat hay fed on top of fallen needles.

"Retained placenta occurs regardless of the stage of gestation," says Panter. He also says cows that abort should be closely watched for signs of illness or problems. Some of these abortions may be complicated by weak contractions, excessive bleeding and incomplete dilation of the cervix. Some cows may develop toxemia before or shortly after aborting and will need prompt treatment to save them.

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Many early abortions take place without being noticed by the stockman because, at early stages of gestation, the embryo or fetus may not be large enough to be seen easily.

In the cow, abortions before the fifth month of pregnancy often have few external signs, says Robert Cope, Salmon, Idaho, veterinarian. These abortions are seldom followed by retention of the placenta. Abortions after the fifth month are often characterized by retained placenta.

Table 1: Characteristics of aborted fetuses that determine age

Length of gestation	Description of fetus
2 months	Size of a mouse
3 months	Size of a rat
4 months	Size of a small cat
5 months	Size of a large cat
6 months	Size of small dog, hair around eyes, tail
7 months	Fine hair on body and legs
8 months	Hair coat complete, teeth slightly erupted
9 months	Incisor teeth erupted



About the size of a small dog, this fetus was aborted at 6 1/2 months of age.



This 4 1/2 month-old fetus was aborted after the cow endured a high fever caused by pneumonia.

HEATHER SMITH THOMAS PHOTOS

Serious outbreaks sometimes follow the concentration of cattle for feeding, vaccinating or pregnancy checking.

■ **Molds.** A few abortions are caused by eating certain types of mold. Pete South, a University of Idaho veterinarian, says some types of mold are most deadly to the fetus from the third through the seventh month of gestation, while *Aspergillus* usually causes abortion during the last trimester. Molds are thought to cause 3%-10% of abortions in cattle, he says.

Infections

Most late-term abortions are caused by infections, says Cope. If the abortion rate in a herd rises above 1% or 2%, there's a good chance an infection of some kind is involved.

The most common cause of abortion in cattle worldwide is brucellosis (Bang's disease), but in this country it has been controlled by widespread use of vaccination. Now the most common cause of infectious abortion in the United States is leptospirosis (lepto), says Cope.

■ **Lepto.** There are many types of lepto bacteria. "Abortion from any lepto serotype can occur at any stage of pregnancy," he says, "but it is usually thought of as a third-trimester abortion just because these are more readily noticed."

The organisms are spread in the urine of sick and carrier animals and can contaminate feed and water. The bacteria can enter the cow through breaks in the skin on feet and legs when walking in contaminated water or through the nose, mouth and eyes by contact with contaminated feed, water or urine.

The bacteria affect unborn fetuses, and cows in the last half of gestation will usually abort one to three weeks after recovery from the acute stage of the disease. Even if the cow did not appear sick, she may abort.

The incidence of lepto abortions in a herd may vary from 5%-40% of the herd, depending on the number of susceptible cows in the last half of gestation.

"Most so-called abortion storms are due to infection by lepto," says Cope. However, not all infected cows will abort.

Sometimes an infected cow will give birth to a live, weak calf that dies within a few days.

The vaccine gives immunity for about six months, Cope says. "Since lepto can be a problem at any time of pregnancy, we recommend that cattle be vaccinated twice a year."

Abortion outbreaks from lepto can occur any time of year, but they are common during summer and early fall. Lepto can be introduced into a herd by purchasing an infected cow; from cows infected at sales, fairs or shows; from pigs mingling with the cattle; or from contact with infected wildlife or rodents.

"Deer, elk or antelope urinating on a feed ground or infected rodents contaminating feed or water can spread the disease," says Cope. "Anything with a *Leptospira* urinary infection can pee in a haystack — mice and dogs are especially good at that — and start a disease disaster," he says.

Serious outbreaks sometimes follow the concentration of cattle for feeding, vaccinating, pregnancy checking, etc.

Abortions from lepto often cause retention of the placenta and infection of the uterus, but the cows usually recover and breed again.

■ **IBR.** Another common cause of third-trimester abortions is infectious bovine rhinotracheitis (IBR). The virus can cause upper respiratory disease, which is common in feedlots or wherever many cattle are confined together, says Cope. "This is our second-most-often-diagnosed infectious cause of abortion in cattle. It most often appears in the last third of pregnancy and can easily be mistaken for lepto."

If a cow is pregnant, the IBR virus may infect the fetus, causing abortion within a few days. In a herd outbreak, more than half the cows may abort, depending on the severity of the outbreak and the number of susceptible cows in advanced pregnancy.

"Since so many ranchers in Lemhi County have been routinely vaccinating for IBR with modified-live virus before breeding season, the number of IBR



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abortions we have diagnosed has dropped dramatically,” says Cope of his own experience with vaccinations. “We have used intranasal IBR vaccine in the face of an outbreak, and this has also worked well to stop an abortion outbreak.”

Intranasal vaccination can halt the infection’s going through the herd, but it may not be effective immediately in stopping the abortions. Some fetuses already may have been infected and can be aborted for some time after vaccination.

Intranasal vaccination is usually safe for pregnant cows or for calves nursing pregnant cows, but the modified-live injection for controlling the respiratory disease may cause pregnant cows to abort, cautions Cope. Abortions due to vaccination usually occur two to 10 weeks after the injection. The best way to avoid this sort of problem, says Cope, is to vaccinate the cows each year during the period they are not pregnant, and vaccinate young stock at weaning time to start building their immunities. If calves are vaccinated while still on their mothers, the intranasal or killed vaccine should be used.

■ **Vibrio.** Vibriosis (vibrio), a venereal disease that can be transmitted to a cow

at the time of service from an infected bull, can cause cows to abort. The infection causes early embryonic death, says Cope. “Often the embryo dies so early that the cow returns to heat very soon, and the rancher doesn’t think she settled but in some cases the fetus is carried a few months and then aborted.”

This bacterial disease can be prevented by vaccination and by using uninfected bulls. Bulls can be carriers for several years if not treated.

■ **BVD.** Another common cause of abortion is bovine viral diarrhea (BVD). It can cause abortion or mummification of the fetus or calves that are carried full term but born with abnormalities (eye lesions, partial hairlessness and other problems). A BVD abortion is rarely noticed, says Cope, because the aborted fetus is so small.

“More commonly, we find BVD to cause abortion indirectly,” he says. The BVD virus can inhibit a cow’s immune system and make her more susceptible to other types of infection such as leptospirosis (IBR), even though she may have been vaccinated against these diseases.

“Failure to include BVD as a routine part of your herd health program can neutralize all the other good things you

do,” Cope says. Heifer calves should be vaccinated at weaning time. Cows should be vaccinated after calving but before rebreeding.

■ **Others.** There are a few other diseases that can cause abortions in cows, says Cope, including listeriosis (caused by bacteria that can be carried by rodents and other animals) and trichomoniasis (caused by a protozoa and spread by infected bulls).

When to seek help

If a herd experiences an abortion rate higher than 1%, it would be wise to work with a veterinarian to determine the cause, advises Cope. Develop a vaccination or management program to prevent losses.

Often the cause of abortion can be determined if your veterinarian can send a freshly aborted fetus, blood samples from the aborting cow or the placenta to a diagnostic laboratory.

Some of the vaccines used for preventing abortion-causing diseases (such as leptospirosis) should be included in your fall vaccination program.

