

Abortions in Sheep

Causes, Control and Prevention

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The lambing season can be the most exciting time of the year for a sheep producer.

The long-awaited opportunity to evaluate that new ram or great set of replacement ewes finally arises. So, when the first two ewes abort, the next ewe has a stillborn lamb and the fourth ewe has a set of twins that are weak at birth and soon die, the experience can be very depressing and frustrating. These are all signs of an infectious abortion outbreak that should motivate you to 1) identify the cause(s) of abortion in your flock and 2) develop a plan to control or prevent abortions from occurring in the future.

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Identifying the Causes of Abortion

Identifying the exact cause of abortion in your flock requires knowledge of the clinical signs, flock history and laboratory diagnostics. You should deliver the proper samples (fetus and placenta) to your local veterinarian or state diagnostic laboratory. Samples always should be placed on ice in a spill-proof, insulated container. Your diagnostic laboratory likely will provide results for one of the four common types of infectious abortion. The clinical signs and mode of transmission for each of these four types are described below.

1. **Enzootic abortion** is caused by *Chlamydia psittici*. This organism will spread through infected fetuses, placentas, vaginal discharges, feces and nasal secretions. The organism enters the bloodstream but causes no signs of infection in the ewe unless she is, or becomes, pregnant. During pregnancy, the organism enters the uterus and causes inflammation of the placenta and death of the fetus. If infection occurs before conception, the ewe will abort during midpregnancy. If infection occurs during early pregnancy, abortion will occur 60 to 90 days thereafter. If infection occurs during mid or late pregnancy, stillbirths and weak lambs at birth may result.

Ewes in their first pregnancy are most susceptible to infection. In the Western U.S., isolated range flocks are highly susceptible when the organism is introduced. Similarly, Western ewes introduced

into infected Midwestern flocks are very susceptible. Approximately 25 percent to 60 percent of ewes will abort, depending on the time of the outbreak relative to initiation of pregnancy. Older ewes will become immune to *Chlamydia psittici*, thereby minimizing the annual flock abortion rate to 1 percent to 5 percent. *Chlamydia psittic* infection also can occur in young lambs and may lead to pneumonia.

2. **Vibrio abortion** is caused by *Campylobacter sp.* The organism is discharged with the membranes, uterine fluids and fetus at the time of abortion. Transmission will occur when ewes ingest infected membranes or fluids, or through consumption of feeds contaminated with *Campylobacter sp.* If infection occurs during early pregnancy, the ewe likely will reabsorb the fetus. If infection occurs during midpregnancy, abortion will occur 10 to 20 days later. A late-pregnancy infection will result in stillbirths and weak lambs at birth.

In general, 20 percent of ewes in a flock will abort following introduction of *Campylobacter sp.*; however, some outbreaks have led to 80 percent or 90 percent of ewes aborting. As with enzootic abortion, older ewes may become immune, but 5 percent to 10 percent of the infected flock will continue to abort each year.

3. **Toxoplasmosis abortion** is caused by *Toxoplasma gondii*, a protozoa that causes coccidiosis in cats. Infection will occur following ingestion of feed or water that

has been contaminated with oocyst-laden cat feces. If infection occurs during early pregnancy, the embryo or fetus generally will be reabsorbed and rebreeding may occur. If infection occurs during midpregnancy, abortion will occur and the ewe may be susceptible to a secondary infection. During late pregnancy, infection will lead to abortion, stillbirths, mummified fetuses or weak lambs at birth.

Abortion can occur in 5 percent to 50 percent of the ewe flock, with typical losses averaging 15 percent to 20 percent of the lamb crop. In healthy, nonpregnant ewes, toxoplasmosis will not cause clinical symptoms or detrimental effects.

4. **Salmonella abortion** is a rare occurrence that is caused by various salmonella organisms.

Stress and the number of ingested salmonella bacteria will determine whether the pregnant ewe aborts. If abortion does occur, it usually is during the final month of pregnancy. Most of the ewes will exhibit diarrhea, and some will die from metritis, peritonitis and/or septicemia. Healthy, young lambs also may contract the disease and die.

Controlling Abortion

When faced with unexpected abortion outbreaks, here are some general practices that producers can use to minimize the risk of spreading the infectious organism:

- Check feed and water supplies for sheep and cat feces contamination.
- Sanitize feeding and watering equipment.
- Separate ewes showing signs of abortion and house them apart from the remainder of the flock.
- Properly dispose of (burn or bury) the infected placenta and fetus.
- Do not feed ewes on the ground.

The following treatments also can be used to minimize the number of ewes aborting in an infected flock:

- Immediately vaccinate the remaining pregnant ewes for enzootic and/or vibrio abortion.
- Begin feeding 500 milligrams (mg) of chlortetracycline per head per day for five days, and then reduce to 250 mg per head per day for the remainder of the pregnancy.
- If the outbreak is severe, inject all ewes with long-acting tetracycline (LA 200) at the rate of 10 mg/pound subcutaneously.
- If salmonella is the causative agent, inject ampicillin at the rate of 5 mg/pound. Spectinomycin also may be used at the rate of 5 mg/pound per day for three days.

Preventing Abortion

After an abortion outbreak, you must develop a plan for preventing abortions from occurring in the future. You should consider the following guidelines:

- Vaccinate – Vaccines are available for vibrio and enzootic abortion. Campylobacter fetus (cause of vibrio abortion) vaccine is given 30 days before breeding and repeated 60 to 90 days later. Chlamydia psittici (cause of enzootic abortion) vaccine is given 60 days before breeding and repeated 30 days later. *(Note: The supply of both vaccines has been unreliable, so you need to place your order early in the year)*
- Maintain sanitary feed and water supplies.
- Manage first-lambing ewes in a separate flock.
- Do not purchase replacement ewes from an infected flock.

Summary

Infectious abortions result from four major causes. Accurate determination of the infectious agent requires a diagnostics laboratory. Antibiotics, vaccines and sanitary facilities all can be used to minimize the risk of abortions and ultimately improve reproductive efficiency of the ewe flock.

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