

Abortions in sheep - the silent killer

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While abortion outbreaks in sheep are seen less frequently than in cattle, they are of significant economic consequence, reducing marking percentages and increasing the number of dry sheep.

Rapid investigation is essential in any case of sheep abortion, not only to implement practices or treatment to reduce potential spread, but to ensure a correct diagnosis is reached. This will enable management practices, such as vaccination in the case of *Campylobacter*, to be successfully implemented to prevent outbreaks in the future.

It is considered normal for one and a half to two percent of ewes to abort each year with any more than five percent being classified as an abortion storm and requiring investigation.

Detection of abortion in sheep may be difficult as predation of incompletely formed fetuses and lack of clinical signs in ewes can mean the first sign of a problem is seen at marking when large numbers of dry ewes and poor marking percentages are seen.

For producers that don't routinely scan, differentiating infertility (the failure of ewes to become pregnant) and abortion as the cause of poor marking percentages can add an extra challenge.

Like abortions in cattle, a variety of toxins can cause abortions in sheep. However, infectious causes are most common.

The major infectious agents causing abortions in sheep

- *Campylobacter* sp,
- *Toxoplasma gondii*,
- *Listeria* sp,
- *Brucella* sp and
- *Salmonella* sp.

A number of infectious agents resulting in sheep abortions are zoonotic and will cause disease in people and care should always be taken when handling aborted material.

***Campylobacter* sp**

- *Campylobacter* sp are a major cause of infectious sheep abortions in both Australia and New Zealand. *Campylobacter fetus. fetus* is the leading cause of diagnosed sheep abortions but the species *C jejuni jejuni* and *C. cloi* have also been implicated.
- Research conducted in 2014-2015 showed 86 percent of sheep flocks tested had significant levels of *C.fetus.fetus* and in 33 percent of these flocks the disease was associated with abortions.

- Aborted material contains large bacterial counts that serve as the source of infection for pregnant sheep. Once ingested, the bacteria spreads to the uterus of pregnant sheep where it multiplies resulting in placentitis and subsequent abortion. The aborted fetus is usually autolyzed with orange to yellow foci on the liver and an accumulation of serosanguineous fluid in the thoracic and peritoneal cavity.
- Following abortion, sheep generally develop life-time immunity as do non-pregnant sheep exposed to the bacteria. Infected ewes present initially with vaginal discharge followed by abortion two to three days later.
- The bacteria survive best in cool, wet environments and is therefore more common during winter and spring.
- The infection enters a property in the intestines of seemingly healthy animals for *C.jejuni*, but *C. fetus fetus* can be introduced by carrion spread by wild animals and in the faeces of crows and foxes for weeks after ingestion of contaminated material.
- The disease tends to be cyclical, with abortion events occurring every four to five years. Coopers Animal Health have developed a vaccination to aid in the control of reproductive losses caused by both *C fetus fetus* and *C. jejuni*. Unvaccinated sheep require two pre-joining vaccinations a minimum of three weeks apart followed by an annual pre-joining vaccination.

Treatment: There is no treatment once abortions have started, but ewes may be treated with antibiotics to reduce the incidence of metritis. During an outbreak, isolation of aborted ewes is recommended as an effort to reduce further infection.

Toxoplasmosis gondii

- *Toxoplasmosis gondii* is a protozoal parasite and a major cause of abortion in small ruminants throughout the world.
- *Felids* (domestic cats) are the definitive host shedding infective oocytes in their faeces. Sheep and other small ruminants become infected when they ingest feed and water contaminated by cat feces.
- In non-pregnant sheep infection leads to life time immunity and they rarely have any other clinical signs.
- In pregnant sheep the parasite multiplies in the placenta resulting in multiple areas of necrosis and placental abnormalities.
- Infection of ewes in early to mid-gestation results in fetal death with resorption or mummification.
- Lambs that survive are either stillborn or born weak and die shortly after birth.
- When infection occurs in late gestation the fetus can mount a sufficient immune response and are usually born live, infected and immune although, extensive placental damage can lead to abortions or the birth of weak lambs even when infection occurs in late gestation.

Treatment: There is no vaccination for *T.gondii* infection, but following infection both pregnant and non-pregnant sheep develop sufficient immunity to prevent future abortions.

Listeriosis

- *Listeria sp* can cause a wide range of disease in sheep including encephalitis, gastroenteritis, meningitis, septicemia and abortions.
- *Listeria monocytogenes* and *L. ivanovii* are the most common species encountered in ovine abortions. Both species are ubiquitous in the environment, however, they are most commonly seen in cold wet weather in animals grazing spoiled, decomposing plant material or being fed poorly fermented silage.
- Abortions generally occur in the last trimester of gestation and there are often abnormalities in the fetal liver, specifically yellow to white areas of necrosis.
- Ewes generally show no evidence of clinical disease however, some may become septicemic or develop neurological signs consistent with meningitis.

Treatment: In an outbreak ewes are often treated with antibiotics and pasture or feed changed if it is suspected to be the inciting cause.

Salmonella

- Multiple species of Salmonella have been responsible for causing abortion in sheep but abortion secondary to *Salmonella typhimurium* is most common.
- Ewes become infected when they ingest the bacteria which can enter the flock through asymptomatic carrier sheep or the contamination of feed and water by birds or other mammals.
- Most infected ewes become dull, lethargic, inappetent and febrile prior to aborting.
- Abortion is often accompanied by profuse foul smelling bloody diarrhoea and deaths are not uncommon. There are no specific changes to the placenta and the fetus is often autolyzed.
- Once an outbreak has occurred, strict hygiene practices are needed to reduce spread.

Treatment: Infected animals are managed with antibiotic treatment.

Brucellosis

While the common manifestation of *Brucella ovis* is contagious epididymitis and subsequent infertility in rams it can also cause late term abortions and stillbirths in ewes and the birth of weak non-viable lambs.

B.ovis abortions are seen late in gestation and result from placentitis with edema and necrosis of the cotyledons and thickened, leathery intercotyledonary areas.

For more information contact your local vet.