

## Livestock Management

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# Toxoplasmosis in Sheep

A common unicellular parasite of cats is *Toxoplasma gondii*. As with most parasites, this parasite is species-specific. All felids, mostly the common domestic cat, are its final hosts. Cats usually become infected by ingesting oocysts shed in other cats' feces. After being ingested, the oocysts continue developing in the cat's intestines to form schizonts and gamonts in the epithelial cells. Both of these stages greatly multiply the number of parasites in the cat's intestines. More oocysts are formed, which may infect any mammalian species, including sheep.

When nonfeline hosts ingest oocysts, they become intermediate hosts in which the parasite develops a tissue phase. The parasite penetrates the intestinal wall and spreads throughout the host animal through the blood vascular system. In the early acute stage (tachyzoite), the parasite multiplies quickly within host cells. Most animals respond by producing antibodies that limit the spread of tachyzoites and limit the pathogenic or damaging effect of these organisms. Usually, cysts form, which contain bradyzoites that are slower growing and may lie latent in the intermediate host. Humans or predators that consume meat containing these intermediate stages may become infected. This method of transmission may cause abortions, stillbirths, or CNS damage to human fetuses.

The intestinal stage of *Toxoplasma* normally does not cause disease. It is the tissue stage of the tachyzoites and bradyzoites in the sheep intermediate host that causes abortions, stillbirths, or the birth of weak lambs. Shepherds may experience all of the above conditions within their

flocks, depending on the stage of pregnancy when a ewe becomes infected. Unfortunately, these same production losses may be caused by chlamydia, vibriosis, campylobacter, or leptospirosis. It is important for the producer to determine the cause of the lamb losses and take the correct actions to minimize future losses. That means getting your flock veterinarian involved.

Toxoplasmosis in sheep may be diagnosed by examining aborted fetuses, placental membranes, culturing *Toxoplasma*, or serological samples. Blood samples should be taken as soon as the abortion occurs and again one to two weeks later to test for changes in blood antibody titres.

Many times, young ewes in their first pregnancy will experience abortions associated with *Toxoplasma*. If these ewes are kept and rebred, they often lamb normally, because they have developed a level of immunity as a result of their original infection.

Even though there is no approved treatment for ewes exposed to or infected by *Toxoplasma*, your veterinarian may prescribe the use of Rumensin or Deccox to lessen the effects of *Toxoplasma*. A vaccine is available in England, but it has not yet been approved for use in the United States.

Farmers may reduce the incidence of infection in sheep by taking measures to reduce the chance of their animals' feed and water being contaminated by cat feces containing the *Toxoplasma* oocysts.