

What Is Coccidiosis?

Coccidiosis is an intestinal disease caused by the protozoan *Eimeria* (primarily *E. bovis* and *E. zuernii*), and represents a major economic loss for cattlemen in cow/calf, stocker, feedlot and dairy production systems.

How Is Coccidiosis Transmitted?

Coccidia are transmitted by ingestion of the *Eimeria* eggs (oocysts) present in feces. Most cattle are infected at an early age and carry some level of coccidia through adulthood. Cattle carrying *Eimeria* are a source of infection for other cattle. After continuous exposure to the organism, cattle will develop some degree of immunity. However, immunity to coccidia is species specific; those cattle that are exposed to only *E. bovis* and develop immunity will only be immune to *E. bovis*. Similarly, they only become immune to *E. zuernii* when adequately exposed to that species of coccidia. The oocysts are also animal species specific. Coccidia species affecting cattle act upon only cattle, not pigs, chickens, etc.

How Does Coccidiosis Affect Cattle?

Bovine coccidia have a life cycle (from ingestion of the egg to passage from the calf in the feces) of roughly 18 – 21 days. About 70% of the life cycle is spent in the small intestine, where the organism burrows in and out of intestinal cells. These damaged cells have reduced capacity to absorb required nutrients. Clinical signs don't appear until late in the *Eimeria* life cycle (around day 18). Cattle experiencing severe bouts of coccidiosis may never perform as well as non-infected pen-mates. Infection also places a demand on the calf's immune system, making it more susceptible to other diseases.

What Are the Symptoms?

The clinical (outward) signs of coccidiosis in cattle include diarrhea (sometimes bloody), straining, weakness, rough hair coat, and dehydration. Cattle can also be infected with coccidia and not show overt clinical signs (subclinical coccidiosis). Only 5% of the coccidiosis is clinical, while, 95% of the disease is due to the subclinical form.

How Do You Diagnose Coccidiosis?

Diagnosis coccidiosis can be difficult and should be undertaken by qualified health professionals. A preliminary diagnosis can be made on clinical signs. Unfortunately, clinical signs of coccidiosis can resemble those of other intestinal pathogens.

Proper diagnosis includes examining fecal samples from infected calves to determine the number of eggs and *Eimeria* species involved (count and speciation). Many health professionals lack adequate experience in the microscopic examination of coccidia. Only health professionals who examine fecal samples on a routine basis should be used. Misdiagnosis can result in overlooking other diseases that are present and contributing to overall health problems.

Preventing Coccidiosis

A number of management techniques can help prevent coccidiosis. These primarily focus on limiting fecal-to-oral pathogen transmission. Steps taken to control coccidiosis have the added benefit of preventing many other diseases. Controlling fecal-to-oral pathogen transmission is simply good practice. Here are the major considerations:

1. Good hygiene/sanitation... starting before the calf is even born.

- a. Maternity Pen: Cow manure is the greatest threat for infecting calves. Clean maternity pens regularly and often.
 - b. All-in All-out: Fully clean all calf pens between calves. Do not allow a newborn calf access to the bedding, hutch or pen from an older animal. Break the cycle of passing pathogens from one animal to another by following all-in all-out principles.
 - c. Equipment: Make sure all feeding and handling equipment is fully cleaned after use by calves (especially older animals).
 - d. People: Do not let anyone who has been working with the older heifers or cows work on calves until they have cleaned up, changed coveralls, boots, etc. It does not take much manure from the cow herd to infect the calf area.
2. Nutrition: This may seem like common sense but using proper nutrition in the adult cow herd and the calves will help these animals develop their immunity to pathogens. Don't cut corners when it comes to protein, energy, mineral and vitamin nutrition.
 3. Colostrum Program: Good colostrum is probably the number one way to ensure calves are healthy. Studies have shown that calves

receiving adequate colostrum will grow faster, be healthier and even milk more than calves that do not receive enough colostrum.

4. Anti-coccidial medications. These medications are mentioned below and can be very effective for helping to control or prevent coccidiosis.

Medications to Help Prevent Coccidiosis

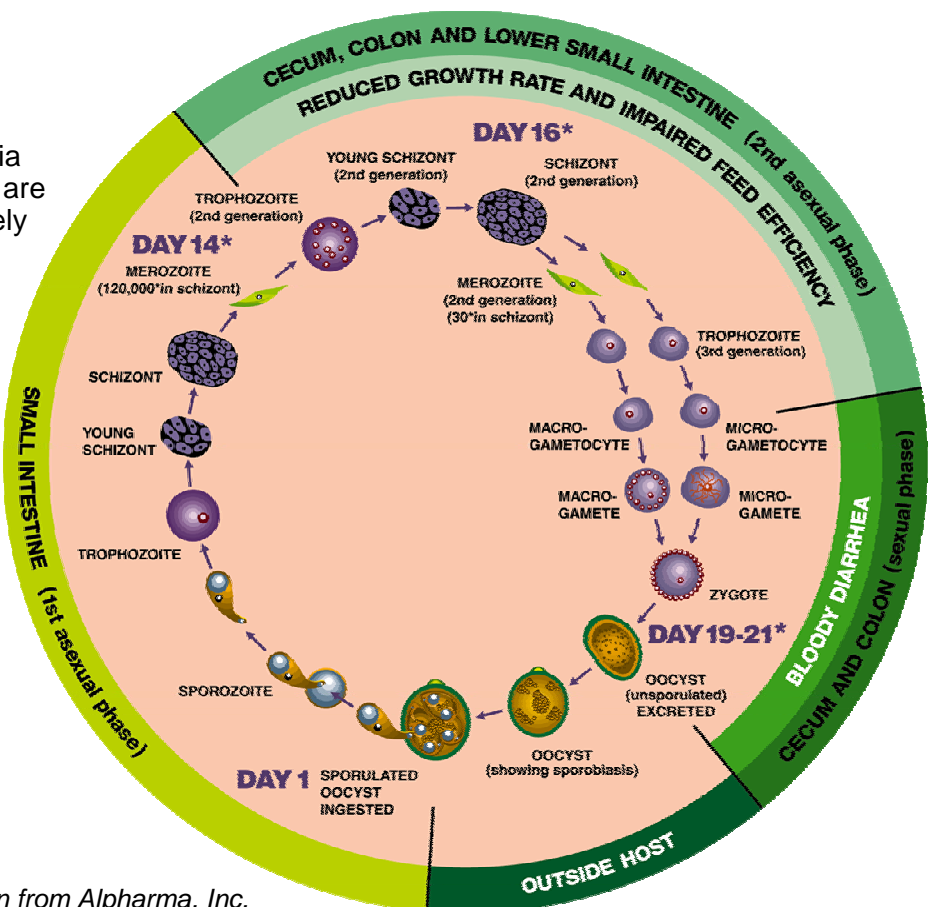
A number of products can control or prevent coccidiosis. Deccox (decoquinate), Bovatec (lasalocid), Rumensin (monensin), Corid (amprolium) and sulfaquinoxaline can be used. While all are labeled for use, each product has specific dosages and attributes (safety, efficacy) that should be considered prior to implementation. Proper management protocols (pen size, bunk space, hygiene, etc.) are essential for any anticoccidial to achieve success.

Treating Coccidiosis

Sulfaquinoxaline and amprolium are labeled for treating coccidiosis, while the ionophores and decoquinate are not. As with other diseases, prevention of coccidiosis is much more economical than treatment after clinical signs appear. Once coccidiosis is diagnosed, it is usually more economical to treat the whole pen of cattle, rather than relying on individual calf treatment.

COCCIDIAL LIFE CYCLE

Like many intestinal parasites, coccidia have a complex life cycle. Symptoms are easily confused with other causes. Rely on an experienced professional for proper diagnosis.



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