



## Coccidiosis in Goats

By Jackie Nix

Coccidiosis is a potentially fatal intestinal disease of goats and is one of the most economically significant diseases faced by goat producers today. An outbreak of coccidiosis can be economically devastating. Unfortunately, poor management practices exacerbate the problem and result in increased coccidiosis outbreaks. However, with improved management and knowledge of the parasite, coccidiosis can be controlled.

### **What are Coccidia?**

Coccidia are single-celled protozoan parasites that live in the intestines of goats. All adult goats contain coccidia in their gut, even healthy goats; therefore, fecal samples indicating that coccidia are present do not necessarily mean that disease is present. There are many species of coccidia (*Eimeria*) that infect goats. Coccidia are species-specific meaning that coccidia from one species do not infect another (i.e. chicken coccidia cannot infect goats or vice versa). At one time it was believed that sheep coccidia might be able to infect goats, but now that theory is largely discounted.

### **Coccidian Lifecycle**

In order to manage the impact of coccidia in your goat herd, it is necessary to understand the coccidian lifecycle. The coccidian lifecycle begins when goats consume infective sporulated oocysts (infective coccidia eggs). Once inside the goat, coccidia are released from the oocyst and invade intestinal cells. Rapid multiplication occurs resulting in the destruction of intestinal cells and increased numbers of coccidia. In roughly 21 days, oocysts (coccidia eggs) are formed and passed in the feces. Oocysts are not immediately infective once they are shed into the environment. Proper moisture, temperature and oxygen levels are required for oocysts to become infective. When conditions are right, this process can occur in as little as 24 to 48 hours. Once oocysts become infective they are very hardy and can remain viable in the environment for up to a year; however, 2 to 3 months is the norm. Infective oocysts survive best in moist, shaded areas and can even survive freezing temperatures. When a goat consumes an infective oocyst the process starts over again.

### **What is Coccidiosis?**

Coccidiosis is the disease that results from uncontrolled infection of coccidia. Disease symptoms are directly related to destruction of cells of the intestinal lining and ruptured blood vessels. Coccidiosis symptoms can be either subclinical or clinical. Subclinical cases result in decreased feed intake, reduced weight gain and unthrifty appearance and are difficult to detect due to an absence of diarrhea. Undiagnosed subclinical cases of coccidiosis are quite common. If left untreated, subclinical cases can develop into clinical disease. Clinical coccidiosis can vary in severity. Some goats experience a slight loss of appetite and decreased weight gain along with light, short-term diarrhea. Severe cases of coccidiosis can result in copious amounts of dark, bloody, foul smelling diarrhea, diarrhea containing mucous and blood, persistent straining in an attempt to pass feces, loss of weight, rough hair coat, dehydration, and, in some cases, death within 24 hours of the first symptoms.

### **What Animals are Most at Risk?**

Young, sick and stressed goats are most susceptible to development of coccidiosis symptoms. Kids less than 5 months of age are particularly susceptible since their immune system is often still developing and they are prone to stress. Stresses that can induce a coccidiosis outbreak include: weaning, drastic weather changes, rapid feed changes, transport and rough handling.

Long-term exposure to a particular species of coccidia stimulates an immune response that results in limited protection against that particular species of coccidia. This is why adult goats tend to be resistant to the development of coccidiosis. Also, kids raised in pasture conditions will often develop immunity on their own. However, severe challenge or stress can depress the goat's natural immunity to the point that disease is induced.

Goats that survive are usually immune to future coccidia challenge; however, they may be permanently unthrifty and stunted due to extensive scarring and damage to the intestinal lining. The damaged intestinal lining is unable to effectively absorb nutrients needed for production. Due to the extreme damage that coccidiosis can inflict, prevention is the best course of action.

### **What Causes Coccidiosis?**

The three most common factors contributing to a coccidiosis outbreak are: 1. A severely contaminated environment. 2. Stress-related depression of immunity 3. Pathogenicity (ability of the parasite to do harm) of the coccidia species involved. Some coccidia are non-pathogenic (non-harmful); others range from mildly to severely pathogenic.

### **A Prevention Plan**

Since we cannot control the relative pathogenicity of the coccidia present in the herd, prevention lies in management practices targeted at reducing the parasitic challenge and minimizing stresses that result in compromised immune function. Some of these management practices include:

- Avoid feeding goats on the ground – use raised feeders and clean them often
- Expose pens and stalls to sunlight whenever possible
- Maintain good sanitation – minimize damp, shady areas and regularly remove built up manure
- Design feeding and watering areas so as to minimize fecal contamination
- If possible, rotate pastures so as to minimize exposure to infective oocysts
- Eliminate or minimize overcrowding
- Provide proper nutrition so that goats do not face stresses caused by deficiencies
- Do not make rapid changes to feed rations
- Handle goats as calmly and gently as possible when working (avoid excessive yelling and hitting)
- Minimize the amount of time that goats go without feed or water when transporting long distances
- When high exposure or stress is imminent, use coccidiostats strategically

### **Use of Coccidiostats**

Coccidiostats are drugs that inhibit the development of coccidia. Using feeds containing coccidiostats prior to anticipated susceptible periods (prior to kidding or weaning for example) can be an effective management tool. Coccidiostats that are presently labeled for use in goats include monensin (Rumensin<sup>®</sup>) and decoquinate (Deccox<sup>®</sup>). Contact your veterinarian for recommendations for use of these and other coccidiostats. As mentioned previously, coccidiostats do not kill coccidia, but act to slow down their development. Thus goats will still be exposed to coccidia, but in smaller amounts that their own immune response can handle. To be most effective, these medicated feeds should be fed early in the coccidian lifecycle before massive parasitic challenge overwhelms goats. For example, offer coccidiostat-medicated feed several weeks prior to kidding and continue

until roughly 60 days postpartum. Start kids on coccidiostats in creep rations and continued on until after the stress of weaning has subsided.

Care should be taken to use coccidiostats properly. Indiscriminant use of coccidiostats can result in populations of coccidia that develop resistance to the given coccidiostat. As a result, it is not recommended to feed coccidiostat medicated feed year-round but to strategically feed in response to anticipated stress periods. Some veterinarians recommend that coccidiostats be rotated just as dewormers are rotated.

In summary, coccidiosis is a potentially fatal and economically significant disease of goats caused by an intestinal protozoan parasite that is naturally present in the herd. Kids of weaning age and younger are most susceptible to coccidiosis. Disease symptoms are brought on by severe challenge and/or stresses that compromise the natural immune response. Prevention of coccidiosis involves utilization of management practices that limit the exposure of goats to infective coccidia and minimize stresses involved in goat production. Strategic use of coccidiostats in response to expected coccidiosis outbreaks is also an effective management practice.

Sweetlix offers the **16:8 Meat Maker with Rumensin**, a medicated mineral supplement for goats designed to prevent coccidiosis and deliver necessary minerals and vitamins. No longer do you need to feed cattle products to your goats to deliver Rumensin. When used as directed, **Sweetlix 16:8 Meat Maker with Rumensin** will help prevent coccidiosis caused by *Eimeria crandallis*, *Eimeria christenseni* and *Eimeria ninakohlyakimorae*. Based on the same mineral and vitamin package as the original Sweetlix 16:8 Meat Maker goat mineral, **Sweetlix 16:8 Meat Maker with Rumensin** delivers the same high quality supplement package that you have come to trust.

Sweetlix also offers a medicated milk replacer for the prevention of coccidiosis. **Sweetlix Goat Kid Milk Replacer with Deccox** is an instant milk replacer designed especially for the nutritional needs of goats that is also medicated with Deccox for the prevention of coccidiosis caused by *Eimeria christenseni* and *Eimeria ninakohlyakimorae*. With easy to follow mixing directions, this high quality milk replacer is the next best thing to mother's milk.

Visit your local Sweetlix dealer or call 1-87SWEETLIX for a free product brochure or more information.

*References available upon request.*

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