



# Coccidiosis in Goat kids- Diagnosis, Prevention and Control measures

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## Abstract

Coccidiosis is a protozoan infection and it is caused by Eimeria coccidia parasites that develop in the small and large intestine and primarily affect goat kids. Several species of Eimeria are known to involve in causing disease, but only a few are highly pathogenic and manifest clinical diseases. Coccidiosis is one of the major economic concerns due to losses caused by clinical and subclinical infections. Clinical diarrhoea and the presence of Eimeria species oocysts in faeces are used to diagnose coccidiosis. The use of anticoccidial drugs and hygienic measures between kidding and weaning seasons are the mainstays of control of the coccidial diseases.

## Introduction

The global goat population has increased dramatically in the recent years, reaching 875.5 million heads, with Asia having the highest goat population (FaO, 2013) mostly in developing countries including India and Pakistan (Aziz, 2010). However, gastrointestinal parasites are a serious concern for livestock production in tropical countries like India and coccidian parasites of the genus Eimeria are the most common cause. Coccidia go through a complex "life cycle" in the intestinal cells of goats. In the process, they produce large numbers of eggs (technically called oocysts) that are passed in the feces. In the process of growth and multiplication in the goat intestinal epithelial cells, the coccidia may destroy many intestinal cells. This may cause diarrhoea and other signs of the disease coccidiosis (Mohammed *et al.*, 2000). Coccidiosis is the most common cause of diarrhea in goats between 3 weeks and 5 months of age. This is especially true when goats are housed in confinement. Coccidiosis commonly strikes young goats shortly after weaning because of the stress



of being suddenly separated from their dam. Nearly all adult goats carry coccidia in their intestines. The very small eggs or oocysts passed in the faeces of adult goats hatch in the environment and goats pick up the infective stages of the coccidian either directly from the manure or in contaminated feed and water. When coccidian present in small numbers, they normally cause no problem. Therefore, the number of coccidia that invade the intestines will determine the severity of the infection. There are many different species of coccidia, some being non-pathogenic, and others being mildly, moderately or severely pathogenic. Faeces may, for example, contain a high number of non-pathogenic coccidia eggs, or a low number of more pathogenic coccidia eggs (Jones *et al.*, 1996). In general, if the animals don't show any clinical signs (diarrhea, etc.), the infection is probably not significant. In the presence of appropriate temperature, moisture and oxygen, coccidia eggs (oocysts) passed in the faeces "hatch" (technically referred to as sporulation) and become infective in two to several days and can readily contaminate feed and water. Upon ingestion by other goats, these infective forms (sporocysts) pass through the stomach and into the intestines. Then the sporocysts invade the intestinal cells and undergo several changes (Soulsby, 1982). Sick, young and stressed goats (weaning is extremely stressful on kids) are more susceptible and in these cases the coccidia may proliferate and causes destruction of cells lining the intestines and damage to tissues, which give rise to the signs of coccidiosis. When a coccidiosis outbreak begins, only good sanitation and isolation of sick animals will prevent its spread through the herd (Smith and Sherman, 1994), Coccidia eggs are resistant to many disinfectants and may survive more than a year in the environment. They can stay alive in a pasture as long as they are in a moist and dark environment, but will die when temperatures drop below freezing. Goats that survive from coccidiosis, develop a degree of immunity to future coccidian problems.

### Clinical signs

Clinical signs divided into two categories:

#### ❖ Subclinical

- Decrease in feed intake and weight gain, and are difficult to detect because of the absence of diarrhea.

#### ❖ Clinical

- Loss of appetite and decrease in weight gain and slight, short lived diarrhea to severe cases involving great amounts of diarrhea, fluid faeces containing mucus and blood, persistent straining in attempt to pass faeces, loss of weight, rough hair coat, dehydration, and in some cases death in as short as 24 hours.



- The primary pathology associated with coccidiosis involves intestinal cell destruction. Scarring and damage to the lining of the intestines following treatment or recovery may result in permanently unthrifty and stunted goats because the ability of these goats to absorb food is impaired.

### Diagnosis

- There are different diagnostic methods available for specific identification of Eimeria. They are mainly clinical history or clinical signs, microscopic examination of diarrhoeal or bloody faeces, and post-mortem analysis.
- Presence of coccidia eggs in the feces of normal goats indicates that the goats are infected, but not necessarily diseased. Coccidia eggs (Oocysts) can be found in the faeces of most goats, including healthy goats.

### Prevention and Control

- Coccidiosis is usually controlled by a combination of good management and treatment with anti-coccidial drugs or prophylactics
- Amprolium powder for 5 consecutive days (1 gram per day, orally), this is often considered an effective form of treatment.
- Sulfa drugs (sulfadimethoxine-sulfamethazine) such as Albon and Sulmet are most effective in the early stages of acute infections when coccidia are multiplying rapidly. Sulfa drugs may not cure coccidiosis but are often given to infected goats to prevent secondary infections such as bacterial enteritis.
- Regular removal of manure and wasted feed, not feeding on the ground, designing feeders and water systems that minimize fecal contamination, providing a clean source of water, cleaning water tanks and feeders regularly, making sure that watering systems do not leak and that sufficient sunlight enters buildings are examples of such husbandry practices.
- If goats are kept on solid floors during the winter, maintaining clean and dry bedding is important. On farms where coccidiosis problems keep recurring, it may be advisable to treat the herd preventively.
- Monensin, Decoquinate and Diclazuril are also used in the treatment and prevention of these infections.



## Conclusion

Coccidia are very host specific. Therefore, the species of coccidia that infect goats only affect goats. Coccidia found in birds, cattle, dogs, and rabbits will not infect goats. For some coccidia, there may be some cross-infection between sheep and goats. Virtually every goat has some level of infection, but illness occurs only in some animals. Fecal samples from virtually any goat of any age, sex, breed, and physiological stage can contain coccidia eggs. The disease is almost always going to occur in young animals. Kids less than 5 months of age are especially susceptible. Kids will become infected early on from the environment. Adults will have immunity to the parasite that is reasonably effective in preventing disease, but not infection. The primary sign of coccidiosis is diarrhea. Look for the signs of the infection in stressed animals. Happy, well-nourished kids left with their dam may show no diarrhea until they are weaned. The stress of weaning may depress the immunity and it will be enough for the coccidia to get the upper hand and cause infection. Good husbandry practices are the best preventive measures against coccidiosis.

## References

- Food and agriculture Organization of the United Nations. FaO Statistical Year book. 2013. World food and agriculture. Rome: Food and agriculture Organization of the United Nations; <http://www.fao.org/docrep/018/i3107e/i3107e00.htm>
- Aziz M A. 2010. Present status of the world goat populations and their productivity. *Lohmaan Inf* ; 45: 42-52.
- Mohammed R A, Idris O A, Sanousi S M and abdel salam E B. 2000. The effect of coccidian infection on the gut microflora of Nubian goat kids. **107**: 389–428.
- Jones T C, Hunt R D, King N W. 1996. *Veterinary Pathology*. 6th ed. Lippincott Williams and Wilkins: Mary Land; pp. 549-554.
- Soulsby, E.J.L. 1982. *Helminths, arthropods and Protozoa of Domesticated animals*, seventh ed. Bailliere Tindall, London; pp. 809.
- Smith M C and Sherman D M. 1994. *Goat Medicine*. Lea and Febiger, Philadelphia. pp.81-85.