

This article was presented on  
June 22, 2000 at the Purdue Forage Day.

## **PARASITE CONTROL WHILE GRAZING**

Mike Neary, Extension Sheep Specialist  
Animal Sciences Department, Purdue University

Sheep make efficient harvesters of forage crops. However, one of the biggest challenges of grazing sheep is economical and effective control of internal parasites.

Internal parasites can cause unthriftiness, reduced production, increased susceptibility to disease and other pests, and even death of sheep. Controlling internal parasites in sheep takes management, monetary resources, and labor resources.

In the upper Midwestern United States, the intestinal roundworm of most significance is *Haemonchus Contortus* or the barber pole worm. Certainly, there are other important species of roundworms, yet, if one understands the life cycle and control of *Haemonchus Contortus*, the other species will be controlled as well.

Internal parasitism in sheep is a complex biological interaction between the pasture and forages, animal factors, the life cycle of the parasite, and weather and seasonal affects. To develop an effective control strategy requires knowledge of all these factors, and sometimes the expertise and assistance of a veterinarian.

**Parasite Life Cycles.** The life cycle of *Haemonchus Contortus* is 21 days in length and starts in late winter/early spring. At this time, there are two sources of infective larvae. One source is larvae that have survived in the tissues of sheep in an arrested state of development termed hypobiosis. The other source of potentially infective larvae comes from those that survived the winter on pastures to be grazed. The magnitude of total amount of infective larvae from both potential sources will depend on numerous and often times complex factors. However, it is usually accurate to conclude that early in the grazing season, untreated sheep are the major source of infective larvae that lead to an animal health problem later in the grazing season. Later in the grazing season (August, September), the pasture contains the majority of the infective larvae that lead to serious parasite problems.

Larvae that overwinter in sheep generally become active two to four weeks before ewes lamb. This is termed the "periparturient rise" in fecal egg counts. Eggs are excreted from the ewe and contaminate the pasture. The eggs hatch

and go through a series of larval changes culminating in an infective stage that seeks out the high spots on grass blades. The sheep then consumes the larvae, it goes through further sequences of development and becomes an adult capable of producing eggs, thus completing the cycle. The whole cycle takes 21 days and an exponential increase in numbers of larvae infecting pastures is possible after several cycles have run the course.

**Control and Prevention of Parasites.** Effective control of internal parasite problems requires: 1) prevention of life cycle completion by use of anthelmintics, 2) use of “safe” pastures after treatment, 3) use of other animal species, and 4) managing animals and pastures effectively. The most effective strategy to controlling parasites is to prevent further pasture contamination of larvae and to prevent larvae that survive winter on the pasture from completing an initial life cycle. Preventing early grazing season contamination of pastures by parasite eggs and larvae is the only effective method of controlling internal parasites in sheep.

**Use of anthelmintics.** Strategic deworming of sheep with approved drugs is an important strategy in controlling internal parasites. Approved drugs include ivermectin drench, levamisole drench, and albendazole drench. All three belong to different classes of anthelmintics. Most veterinarians recommend an annual rotation of the three different classes of drugs. For example, year one could use ivermectin, year two could be levamisole, year three could be albendazole, and year four would rotate back to ivermectin. This is recommended to help prevent parasite resistance to certain classes of drugs. The class, or family of dewormers, needs to be rotated and not just brand names. For instance, albendazole and fenbendazole (Panacur, Safeguard) are both drugs classified as benzimidazoles; resistance to a specific dewormer in this class often means resistance is present in other drugs belonging to the same class of dewormers.

A strategic deworming program involves treating ewes near lambing with a larvicidal type dewormer to control activity associated with the periparturient rise in parasite activity, treatment again at the initial turnout to grazing in the spring (if different than lambing time) and then again 21 days after the initiation of grazing. This is admittedly a “front loading” treatment program, but it has the affect of trying to prevent pasture contamination. The lambing time and turnout treatments have the affect of interrupting the parasite life cycle originating in the ewe, while the post grazing 21-day treatment targets those larvae that survived the winter on pasture. In fact, where stocking rates are high, or there is a history of parasite problems in a flock, additional 21-day treatments early in the grazing season may be necessary.

It is important to administer the correct dosage of dewormer to sheep. Dose at levels consistent with the heaviest sheep in the flock. This requires knowing an accurate range of weights in the flock.

Recent research has also found that the effectiveness of anthelmintics is increased when sheep are fasted for 12-24 hours around treatment time. This may present some practical problems with bloat for sheep returning to high legume pastures.

**Treat and Move.** After sheep have been dosed for internal parasites, they should be moved to a safe pasture, if possible. A safe pasture is one that has not been grazed by sheep for several months after winter, is a pasture that has been harvested for hay, one that has been grazed by cattle or horses prior to putting sheep on, or is one containing seasonal forages. Treating sheep and then placing them right back onto a contaminated pasture does not allow the interruption of the parasitic life cycle that is desired.

Producers using a grazing system that utilizes high stocking rates with short grazing duration and rapid movement through a pasture via paddocks may or may not have an advantage in controlling parasites. Once a grazing area has become infected with larvae it will take several months for the number of larvae on the pasture to decrease in an appreciable amount. However, if one does treatment early in the rotation in early spring, the animal movement may be somewhat of an advantage.

**Use Other Animal Species.** Most parasites are species specific, thus using cattle and horses in a grazing program can be effective. Although sheep, goats, and llamas are different species they do share the same internal parasites. Therefore, it is less effective to use goats or llamas to attempt to clean up a pasture containing larvae that infect sheep, than cattle or horses.

**Animal considerations.** There are varying levels of susceptibility to parasite infection by sheep. This is influenced by age of the sheep, production demands on the sheep, general health and fitness of sheep, and previous exposure to parasites. Mature sheep that are fit and nonlactating do exhibit some resistance to internal parasites if challenged previously. However, in the case of a heavy parasite or other challenge, they can still become infected at a level high enough to cause disease.

Young, growing lambs that are on pasture and consuming forage are the most susceptible class of sheep to parasite infection. Lactating ewes on pasture are the next most susceptible class, followed by late gestation ewes, with dry ewes the least susceptible.

**Other considerations.** Often, in specific cases where internal parasites are a historical concern in a sheep operation, working with a veterinarian to implement a control program may be beneficial. Treatment programs can be planned and a follow-up program utilizing fecal exams for egg counts can be used to monitor a control program.

## Summary

- Prevent pasture contamination by larvae in early spring via timely and planned treatment strategies.
- Utilize multiple, early spring closing to prevent late summer build-up of larvae on grazing areas.
- The life cycle of *Haemonchus Contortus* is 21 days.
- Rotate different classes of drugs on an annual basis.
- Do not under dose sheep when using anthelmintics.
- Utilize safe pastures in a treat and move scheme.
- Utilize alternate livestock species in a control program.
- Get technical assistance if needed.