

# Parasite Concerns in Sheep

Oregon Sheep Growers Annual Meeting – December 1, 2006

The following notes were taken at the Oregon Sheep Growers educational seminar, which is part of the association's annual meeting. Gene Pirelli, Extension Animal Scientist, Oregon State University, prepared this summary of the presentations.

**Dr. Aurora Villarroel**  
Extension Veterinarian  
Oregon State University

## What are Internal Parasites?

Internal parasites are creatures that live off of the host animal, but do not provide any benefit to the host.

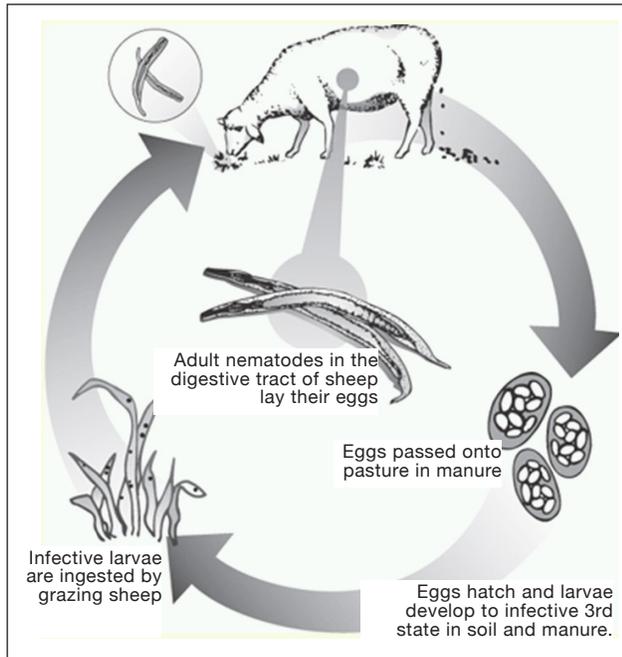
There are many target organs in the animal that are affected by parasites. For example, lungworms infest the lungs, liver flukes infest the liver and intestinal worms are found in the intestine of the animal.

The host is vital for the life cycle of the parasite. The host is infected with larvae of the internal parasite through contaminated feed or pasture, the larvae mature into adults and produce eggs and the eggs are passed out with the feces to start the process over again.

Some of the problems caused by parasites are:

- Anemia in the host because the parasites consume red blood cells.
- Scar tissue may form around the parasite and result in a loss of absorption sites. An example is loss of absorption sites for nutrients in the intestine.

The best way to reduce the losses from parasites is to break the life cycle (anywhere).



to get a prescription for a non-approved dewormer, i.e. one that is approved in the United States for another species, but not for sheep. Remember that only a veterinarian can legally prescribe a non-labeled dewormer, or a dose, that is not on specified on the label.

## What is Resistance?

You can break the part of the cycle from egg in the feces which infect pastures by rotating pastures, reducing parasite larvae numbers. OR....Dewormers will work to break the part of the cycle between host and eggs in feces.

Dewormers labeled for sheep include: Levamisole, Albendazole (only one labeled for liver flukes), Ivermectin and Moxidectin.

A dewormer resistance study in Holland in 2002 showed that some of the older dewormers were not as effective on the more common internal parasites, such as *Haemonchus contortus* and *Ostertagia*.

If approved dewormers do not work in your flock, then you may need

One definition for resistance to a dewormer is the reduction of the number of parasite eggs to less than 60 percent, measured at day zero (day of deworming) and 7-14 days.

Resistance to dewormers is farm specific.

## Management of Parasites in Sheep

You will get **PAID** for managing parasites:

- P – pasture rotation
- A – attention to stocking density
- I – improve sheep resistance
- D – Dewormer selection

You can increase the immunity in the flock by using resistant breeds and with good nutrition and health.

**Dr. Thomas Craig  
Texas A & M University**

***Anthelmintic Resistance –  
Should we be Ready?***

**What is Parasitic Disease?**

Parasitic disease occurs when the number of parasites is in excess of what the host can tolerate. The number of parasites is a function of exposure and resistance.

Younger animals cannot develop the resistance to parasites as seen in adults due to limited exposure.

At lambing time, the ewe's immune system basically "shuts down" and she is most susceptible to problems such as parasites or disease. The problems increase as the lambing rate increases.

The "problem worms" or the ones most likely to become resistant to anthelmintics (dewormers) are:

*Teladorsagia*;  
*Trichostrongylus* (causes diarrhea and ill thrift); and  
*Haemonchus* (eventually results in death).

Why use dewormers to control parasites?

- products are more effective now;
- products are less toxic to the host;
- products are less expensive;
- use of dewormers can increase profits.

**What is the Situation in the United States?**

The importation of the Boer goat introduced many resistant parasites that spread across the United States.

Immunity can be established, but it takes repeated exposure and the immunity will wane over time. Nematodes can have an arrested development stage in the host which allows them to evade unfavorable

conditions outside of the host. For example they can over winter in a host or stay in the host during the hot part of the summer.

Resistance in dewormers is due to selection, not mutation. Selection means the removal of the weaker worms and leaving ones that can survive. Other factors may also be involved that complicate theories of resistance. For example, it is believed that Ivermectin resistant parasites may be less tolerant of cold weather.

Under dosing of animals is a big problem that contributes to dewormer resistance.

1. Underestimating the weight of animals to be treated.
2. Dosing for the flock average instead of grouping by weight or dosing for the heaviest animal.
3. Using a drug with a long tail of activity that falls over time such as an injectable product.

Goats are different than sheep in the way dewormers work.

- goats metabolize anthelmintics faster than sheep or cattle;
- the level of exposure in goats is 1.5 to 5 times less than sheep;
- goats are browsers and do not develop resistance to certain species of parasites;
- damaged worms are not expelled.

**Treating for Parasites**

Suppressive:

Administration of drugs every 3-4 weeks. This is a bad idea.

Strategic:

Administer when a problem is anticipated, such as when the highest proportion of worms are in the host, rather than in the pasture, or at lambing time when larvae are active but not producing eggs.

Moving animals to a "safe pasture" provides a "clean" pasture but also selects for worm resistance if there are eggs deposited on this pasture while the sheep are grazing. This makes the next cycle of parasites more resistant to the dewormer.

**Treatment strategies**

**TACTICAL TREATMENT**

1. Treat sheep two weeks after rainfall. For example in western Oregon, treat in September after the first late summer/early fall rain.
2. Treat sheep when average worm counts are increasing, but not yet at a critical stage.

**SELECTIVE TREATMENT**

1. Treat high risk animals such as young ones or those that are heavily exposed.
2. Treat animals new to the farm.

There is a relationship between a species of worm and the number of eggs in the count. For any particular worm, deworm when egg counts are increasing and do not deworm when egg counts are low or decreasing. This will reduce the trend towards resistance.

**Tests for parasites**

A drug resistance test for parasites was developed by Dr. Ray Kaplan of the University of Georgia. It is expensive at this time.

The fecal egg reduction test can also be used for sheep. Take a random fecal sample of 12-20 sheep on the day of deworming, then a random sample of 12-20 sheep seven to 14 days later. (You can also sample 6-10 animals as a minimum number, but 12-20 gives better results on larger flocks). The goal is a 95% efficacy. A range of 50-95% is clinically acceptable. Use younger animals in the flock for more accurate results, for example younger ewes or ewe replacements.

*Dr. Thomas Craig – continued*

**Other comments:**

Short duration grazing systems increase worm populations if the interval between grazings is less than 30 days.

The effectiveness of dewormers may be enhanced by administering the whole dose over several days or having the sheep fast overnight before deworming.

Some organic controls for worms have been recommended in popular livestock publications. Conjugated tannins in forages may lower the establishment of larvae in pastures. Copper wire treatment may be fatal to sheep. Diatomaceous earth may affect larvae survival but does not kill worms. There is also a fungus that captures larvae and injects a parasite into it.

**Dr. James Thompson,  
Extension Sheep Specialist,  
Oregon State University**

***The FAMACHA TEST for Parasites***

The Famacha test is a visual evaluation of the color of the eyelid to determine the severity of anemia most probably caused by parasite infestation with *Haemonchus contortus*.

This evaluation works on the principle that there is a direct relationship between eyelid health/color and the level of parasite infestation. There is a color chart developed by the University of Georgia that can be obtained after taking the training course.

The scale is 1-5 going from 1 being a pink color to 5 being white. A rating of 3 means that the sheep should be dewormed. With large flocks, a random sample can be used to evaluate the parasite infection.

**ASPECTS OF THE TEST**

The system identifies animals which need to be treated, rather than treating the whole flock.

It may show animals that have resistant parasites and it may slow down resistance to dewormers by selective treatment.

It is only effective for a *Haemonchus* infestation.

It works best as part of a total integrated parasite control program and you must be aware of any existing drug resistance problem before implementing this test.

**Dr. Mike Harms  
Practicing Veterinarian,  
Canby, Oregon**

***A Practicing Veterinarian's View on Parasite Control in Sheep***

Dewormers are important in controlling parasites. A strategic deworming program is best. My recommendations are to begin deworming the flock in April and deworm each month through June.

Then deworm two weeks after the first late summer/early fall rain. The last deworming is in October.

I recommend that my clients use Valbazen(albendazole) in the lambing jugs in order to treat ewes against liver fluke.

When rotating pastures, you can bring the ewes into a drylot, deworm and leave them in the drylot for 3 days. This will help to reduce the number of eggs on the pasture.

Reducing the number of eggs in the grazing area is a key point for parasite control.

I often recommend something other than what is on the label, but this should only be done with the advice of a veterinarian.

In all cases, as a producer, you need to follow the label of the product you are using and if that is not working, seek the advice of a veterinarian.