

## **GRAZING YOUR WAY TO FEWER PARASITES**

*Taken from the Summer 2008 issue of the Small Ruminant Dairy Newsletter*  
[www.uvm.edu/sustainableagriculture/smallrumi.html](http://www.uvm.edu/sustainableagriculture/smallrumi.html)

A few months ago, Carol Delaney approached me to write an article for this newsletter based on the work I do with grass-based farmers. With her good recommendations in mind, I'd like to remind you that the way you manage your pasture affects your herd's health. Here are some strategies for pasture management to help reduce small ruminant parasite problems.

### **Adding Other Plant Species**

*Put chicory and birdsfoot trefoil in your pasture:* Chicory (*Chicorium intybus* L.) has a daisy-style blue flower and is considered a "common roadside weed". It is a biennial plant, flowering in the second year and dying at the first frost. Birdsfoot trefoil (*Lotus corniculatus* L.) has a small yellow flower and is a perennial legume. Chicory and birdsfoot trefoil both have beneficial characteristics in the control of small ruminant parasites, as explained below.

A New Zealand study measured the effects of plant species on the presence of larvae that parasitize sheep. The researchers contaminated plots in pasture with feces containing *Trichostrongylus columbriformis* and/or *Ostertagia circumcincta* eggs (Niezen et al, 1998). Some of the forage plants in the plots being studied we also see here in the northeast: ryegrass, white clover, tall fescue and chicory. In the weeks after contamination, the researchers collected third stage larvae from the feces and the plants at a range of heights (third stage larvae are the ones that infect the animals when they eat them on the plant). There was a striking difference in the number of larvae on different plants. *Ryegrass was among the species with the greatest number of larvae, while white clover and chicory were in the group hosting the fewest larvae.*

Because the rate of fecal decomposition is linked to future potential infections (because worm eggs are destroyed), more rapid decomposition is desirable. Feces decomposition from grazing sheep was most rapid under chicory in a United Kingdom study comparing chicory, white clover, perennial ryegrass and birdsfoot trefoil. Feces breakdown was slowest in grazed ryegrass (Williams and Warren, 2004). This differs from the New Zealand study mentioned above, where fecal matter was applied by the researchers and decomposition was fastest under white clover. In the UK, when sheep applied the feces themselves it changed the measured rates of decomposition. In another study, lambs in the UK grazed plots of chicory, birdsfoot trefoil or a ryegrass/white clover mix. Fecal egg count after seven days and adult helminthes at 35 days were lowest for lambs on birdsfoot trefoil (Marley et al., 2003). Fecal egg counts from lambs on the chicory were not lower than those from the other two plots, but adult helminthes numbers were lower than those of the lambs on the ryegrass/white clover.

The underlying conclusion from these varied studies: Adding chicory and birdsfoot trefoil to your pasture can reduce parasite problems for grazing sheep and goats.

### **Herd Size and Type**

In theory, lower stocking density (fewer animals per acre) could mean fewer parasite eggs present in a pasture. However, reducing stocking density isn't always an economical or realistic answer, especially if deworming is already necessary to decrease

egg numbers in feces. Likelihood of infection is more a product of the concentration of eggs present in feces than slight changes in stocking density (Stear et al., 2007).

The more diverse your herd, the more your land can support—you get more bang for your buck. *By grazing cows or horses along with your goats or sheep, the other animals will consume larvae with no ill effects, reducing the likelihood of infection to the small ruminants.*

### **Soil Health**

Soil with vigorous populations of different organisms will decompose feces more rapidly. Faster removal of feces translates to reduced risk of infection. Improvements in soil quality translate into a better soil ecosystem, with more soil organisms. Earthworms especially have an enormous impact on the rate of feces decomposition. A soil rich in organic matter (5% or more), at a pH which supports a healthy mix of pasture plants (6.2-6.8), with good structure (it crumbles nicely), will be a welcoming habitat for earthworms and other soil organisms.

Soil testing is a valuable tool for improving soil quality in pasture management. Whether or not you plan to apply amendments such as lime or wood ash, soil testing gives you some ideas of where and how to focus your energy. Information on soil testing through the University of Vermont Testing Lab is available at [www.uvm.edu/pss/ag\\_testing/](http://www.uvm.edu/pss/ag_testing/) or by calling 802-656-3030.

When Williams and Warren (2004), UK researchers mentioned above, applied feces to the soil themselves, they found a direct relationship between the number of soil organisms and the rate of decomposition. More organisms led to faster feces breakdown. When the sheep grazed, they had more patterns to where they chose to deposit their feces, leading to differences in soil organism populations from area to area within the field.

Ironically, soil can also host parasite eggs. As you continue to improve your soil, remember that healthy soil is not a cure-all, just one part of the solution.

### **Grazing Management**

*The goal in grazing with small ruminants is to keep animals off previously grazed land for as long as possible- in a dream world it would be at least a year between grazing periods. Move the herd between a large number of small paddocks frequently (daily is ideal) to keep them from returning to previous fecal patches, help provide more even “application” of nutrients and grazing of forages, and lead to better forage and soil quality. To plan your grazing strategy most effectively for your farm, start with a farm map. Get an idea of how much land and forage you have for grazing, and how you can divide it into paddocks. Calculations for paddock sizing based on herd needs and available forage are available at our website ([www.uvm.edu/pasture](http://www.uvm.edu/pasture)).*

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