

## Alternative Parasite Control in Dairy Goats, An On-going Study

Frances Zacharakis-Jutz, Blazing Stars 4-H Club, Solon IA

*(Editors' note: These reports from Frances Zacharakis-Jutz and her mother, PFI board member Susan, are reproduced here at some length. That's because this on-farm research is the first of many PFI trials with alternative worming practices, and we want members to have some idea what the issues are and how this research can work.)*

### Introduction

When I was five years old we got our first dairy goat. As soon as I was old enough, I started showing goats in 4-H shows. Three years ago we started a goat dairy. Now we have 47 milking does and 35 kids. We also have 50 ewes, 75 lambs and 30 pigs, all of which we are trying to raise organically. Because, at this time, organic standards do not allow the use of chemical wormers, we are always looking for alternative ways to deal with parasites.



At the beginning of this year my mom and I decided to do a research study on alternative wormers with Practical Farmers of Iowa (PFI). Our plan is to make this an on-going research project until we have found an herbal wormer that works and is reasonably easy to give to the animals.

### Parasite Cycle

It is normal in nature to find internal parasites in animals and humans. However, internal parasites (worms) can be very destructive, especially in young animals. Worms can affect growth, development and performance. Worms can also cause tremendous economic loss, poor health, discomfort, and sometimes death.

Under most conditions it is impossible to have a worm-free herd, so it is important to have a program that reduces worms to a safe level in your animals. A healthy diet, a clean environment, an understanding of the parasite cycle, and the monitoring of internal parasites through regular fecal sampling are important factors in developing a good internal parasite management program.

There are several different kinds of internal parasites in ruminants. Nematodes and Cestodes are two of the major internal parasite classes. A third is the Flukes, which can cause serious damage. However, they are more commonly seen in areas with high snail population levels. The most common kind of parasite egg we found in our study was that of the Haemonchus Nematodes (roundworms).

### Treatments

Most wormers are designed to decrease the amount of eggs in the animal by killing the adult worm and/or killing the eggs. Reducing the level of eggs will reduce the level of re-infection and therefore reduce the worm level in your animal. Before the use of synthetic wormers became a common practice, many types of plants were used. Some of those most frequently mentioned in books on herbs are garlic, wormwood, tansy and tobacco. These have been used individually and in herbal mixtures. There are also homeopathic preparations available, which are made from plants as well.



Frances and Reuben Zacharakis-Jutz at milking time.

When we began to look for alternative wormers, we found that there are several commercial, "natural" wormers for goats and sheep available through various catalogs and web sites. However, we found that many of these herbal mixtures have not been tested in a reliable way. The companies could tell us about people with small numbers of animals who reported that a certain brand of "natural" wormer had worked for them, but we were unable to locate any comparison studies done with commercial dairy goat herds or flocks of sheep over 50 ewes.

We decided to use a liquid herbal mixture of black walnut, cloves, Echinacea, hyssop, and wormwood along with a vitamin and mineral extract developed by Groff Brothers Farm, in Pennsylvania. Although they had not researched the use of the herbal wormer on goats, they had a study in progress using it with horses, and some neighboring farmers were reportedly using it successfully with their dairy herds.

For the chemical wormer we needed something that is approved for use in dairy animals. There are only two - Panacur and Ivomec Pour-On (Eprinex). We decided to use Panacur, since we had used it successfully in the past.

I decided that I would collect the fecal samples, and Dr. Allan Beyer, at the West Branch Animal Clinic,

agreed to read the samples for us. In each case, the individual fecal sample was collected fresh from the goat, sealed in a plastic Ziplock snack bag, and refrigerated until delivery to the vet the next morning.

On April 22, we took composite fecals on each group of milking does and on the penned group of sheep. The milking does in the big barn were positive for roundworms, so we decided to do the study with the older does in our big barn rather than the younger does, which continued to sample negative for worm eggs. Originally when we designed our study we had planned to use a control group (no wormer), but once we saw the level of eggs present in some of our does we decided we could not take the risk of compromising their health. The composite fecal on the ewes showed a high positive for worms, and we decided to withdraw them from the study because we were not confident we could monitor their health as closely as we could that of the does.

From the does in the big barn we randomly selected 12 individuals and took a fecal from each on April 29. We split this group of does in half and treated one group of six with the herbal wormer from Groff Brothers Farm and the other group of six with Panacur. The does were weighed individually and treated according to the following recommended dosage level:

- Herbal wormer - 30cc for a 175# doe once daily for 10 days
- Chemical wormer - 7cc for a 175# doe one time (1cc/25#)

All the does were given the prescribed dose of wormer on the morning of April 30th. The does in the herbal wormer group continued to receive their appropriate daily dose each morning for ten consecutive days. All the does in this study lived in the same pen and received the same feed and hay ration. They were milked twice daily.

## Results

On May 20, fecal samples were collected from each of the 12 does. Much to everyone's surprise, ours and our vet's, all 12 does had a significant number of worm eggs present in their feces. Overall, the herbal does showed slightly fewer worm eggs than the chemical does (a nonsignificant difference, Figure 2).

Because we were concerned about the health of these does, we decided to do another herbal-vs.-chemical comparison, but this time we would use Ivomec Pour-on as our chemical wormer. We did not take additional pre-test fecals before this second trial. Instead we used the post-test fecals taken May 20. The does were weighed on the morning of May 27 and dosed according to the following recommended dosage level.

- Herbal wormer - 30cc for a 175# doe once daily for 10 days
- Chemical wormer - 8cc for a 175# doe once (1cc/22#)

The does in the herbal wormer group continued to receive their appropriate daily dose each morning for ten consecutive days.

A post-test fecal sample was taken on June 17. This time there was a significant difference between the number of eggs found in the herbal group and in the chemical group (Figure 2). Five of the six does in the chemical group showed a reduction in eggs, while four of the six does in the herbal group had an increase in the number of eggs found. One of the does in the chemical group that showed a 4+ on the post-test following the Panacur chemical wormer trial was treated with Ivomec but died soon after that, probably due to worms.

## Conclusion, First Trial

In the first comparison using Groff Brothers herbal wormer and Panacur as the chemical wormer, the herbal wormer group showed a slightly lower number of eggs than the chemical wormer group. However, neither was effective in reducing the parasite egg load to a level that we considered acceptable.

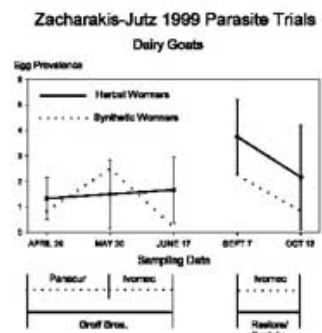
In the second comparison using the Groff Brothers herbal wormer and Ivomec, the chemical wormer group showed a significant reduction in the number of eggs while the herbal group remained the same or in some cases got worse.

From this study

we have concluded that the Groff Brothers wormer was not effective in reducing the parasite egg load in our milking does to an acceptable level. We will continue to try other herbal wormers as well as looking at other alternative parasite control methods.

## Second Wormer Trial

Susan Zacharakis-Jutz, Solon



After reviewing the results the results of the fecals from Study # 1, we decided to try another herbal worming product, which the seller said was designed specifically for goats and sheep. The name of the product is Restore and Sustain, produced by Farmstead Health Supply, P.O. Box 985, Hillboro, N.C. 27278. Product ingredients are as follows.

Restore: Wormwood, garlic, gentian, fennel, psyllium, centaury. "...a pure, botanical anthelmintic compound..."

Sustain: Coltsfoot, coriander seed, fennel seed, Irish moss, juniper berry, yarrow herb, rosehips, rhubarb root, sea kelp. "...a rich botanical supplement for livestock that is used along with Restore to build resistance to parasites and promote enhanced overall health."

We used a procedure similar to the one used in Study # 1. We were able to use the same six does for the herbal alternative but had to substitute 2 does in the chemical group because two of the does we had used previously had been sold. For this study we decided that Frances would read the samples at home and randomly select several samples to take to Dr. Beyer to cross check for accuracy.

Pre-test samples were collected and read on the twelve does on September 7, 1999. The six does in the chemical group were treated with Ivomec Pour-on for the chemical wormer and the six does in the herbal group were treated with Restore and Sustain from Farmstead Health Supply. They were dosed according to the following recommended dosage level.

Chemical wormer - 8cc for a 175# doe once (1cc/22#)

Herbal wormer - 1 T. of Restore and 1 T. of Sustain for each worming. To be fed AM and PM for 10 days and then weekly throughout the year.

All the does were given the prescribed dose of wormer on September 9. The does in the herbal group continued to receive their appropriate daily dose AM and PM for ten consecutive days and then weekly beginning September 26. We initially tried feeding the powdered wormer to them in their feed, but when they refused to eat their feed we began mixing it with water and administered the wormer as a drench for the 20 recommended doses. As indicated, these does all live in the same pen, receive the same feed and hay ration, and are milked twice daily.

## **Results - Study # 2**

On October 12, fecal samples were collected and read from each of the twelve does. Four of the six does in the herbal group showed a reduction in the number of eggs in their fecals, with two of them showing a marked reduction in egg count. The other two showed no change in the number of eggs in their fecals. Five of the six does in the chemical group showed a reduction in egg count, with four of them showing a significant decrease. One doe's fecal egg count went from a moderate to a high level in this group.

## **Conclusion - Study # 2**

In this comparison using Farmstead Health Supply's Restore and Sustain as the herbal wormer and Ivomec pour-on as the chemical wormer, the chemical wormer showed a marked reduction in fecal egg count in four of the six does, while the herbal wormer showed a marked reduction in egg count in two of the six does and a slight reduction in egg count in one doe, although the chemical and natural groups were starting from different infection levels. From this study we have concluded that this herbal wormer may have potential, and we intend to use it in another trial, probably augmented with another herbal product from the same company.