Parasitism in Goats

By Maggie Leman

Goats are not naturally resistant to internal parasites. In the harsh environments where most wild goats occur, resistance is not particularly needed; the environment itself kills most parasite eggs and larvae quickly. Wild goats range over great distances looking for adequate food; so many parasites dropped in the feces are never consumed by the host animal and die before the herd returns to that area. Goats are browsers not grazers, preferring to eat at least 10 inches from the ground feeding on brush, leaves, bark, twigs and tall grass where parasite larvae are not found in great numbers. When man domesticated goats they were made to change. Goats are now kept in fenced pastures, "forced" to graze grass close to the ground, and are often overcrowded. They are kept on the same pasture for years. They are kept in warm and moist environments where parasites can flourish, rather in the desert conditions of their wild ancestors. Their exposure to parasites can be overwhelming in many areas.

Gastrointestinal nematodes, worms, are the number one killer of goats in the US. The most harmful is the barberpole worm (*Haemonchus contortus)*. There are other blood-sucking worms that infect sheep and goats *Trichostrongylus colubriformis*, *T. axei*, *Teladorsagia* (*Ostertagia*) *circumcincta*, *Cooperia* spp., *Oesophagostomum*, *Trichuris ovis*, *Strongyloides papillosus*, and *Bunostomum*. All of these contribute to the problem of parasitism in our herds, but the barberpole worm is the most serious. It is very hardy, the eggs and larvae can survive a long time in the environment. It reproduces very quickly with the lifecycle completed in less than 3 weeks. One female barberpole worm can lay 5000 eggs A DAY. The signs of a heavy infestation of barberpole worm include anemia, edema under the jaw (bottle jaw) and in lower extremities and the lower abdomen, underweight, unthrifty, and sparse rough hair coat. Sometimes, but not always, a goat gets clumpy stools or loose diarrhea, but these worms can kill before those symptom appears. Tapeworms are not on this list. They do not suck blood but eat the partially digested food in the gut of the goat. Tapeworms very rarely bother a well-fed goat.

Because of the misuse, overuse and underdosing of anthelminthics (deworming medications) the most serious parasites have become very resistant and difficult to kill. Many years ago rotating the type of dewormer was recommended and many drug companies jumped on the bandwagon, neatly packaging several different types together so the livestock owner could buy a year's worth of deworming medications at once. The thought here was that parasites could not build up a resistance because the drug was changed every time. The truth is that some worms would survive each time and with each passing year the survivors would become more resistant to ALL of the different drugs at once. This left the livestock owner with nothing to turn to once this program stopped working. Every day low dose deworming became the rage. Again the surviving parasites were soon resistant to those drugs and every drug in its class. Livestock owners were told it was ABSOLUTELY necessary to deworm ALL of their animals regularly whether they needed it or not. So once again all surviving worms in that herd were resistant to the dewormer(s) being used.

This has become a critical problem with keeping goats all over the world, but there is hope. The FAMACHA program was developed in South Africa to help control the barberpole worm. Goats are examined, looking at the color of the mucus membrane of the lower inner eyelid once every 14 to 28 days. The level of anemia is determined and goats are dewormed accordingly, this is called Smart Drenching and is part of the FAMACHA program. This does several things; it saves the goat owner time and money, only those goats needing treatment get it. You can begin to select goats for natural immunity; those goats that always need treatment can be culled. Suffice it to say a goat should have deep pinkish red membranes, much the same as ours (saying you aren't anemic yourself). Pale pink to white membranes indicate a severe problem and the goat should be dewormed. It has been proven that 20-30% of the animals in the herd harbor 70-80% of the parasites. Treating these goats dramatically decreases the level of parasite eggs being put into the environment. It slows the development of resistant worms in the herd by creating *refugia* for the non-resistant worms. Leaving some worms that are not drug resistant to lay eggs, be consumed by the herd, and mate with the remaining resistant worms, lowers the genetic resistance in future generations of worms. This particular parasite control strategy has been largely ignored until now because it seemed we always had powerful dewormers. The only time a goat is automatically dewormed is right after kidding. Due to the stress of kidding, even a normal delivery, and the hormonal changes occurring in the doe's body, dormant worms become very active, taking advantage of the doe's lowered resistance. Kids are also especially vulnerable and susceptible to ingesting any eggs passed by the worms the doe is carrying.

Pasture rotation, resting a pasture for 30 to 90 days, was once thought to be very helpful for controlling worms, but this does not work well for controlling the barberpole worm. It can survive a year or more in the environment, especially in the south. For rotational grazing to work best you need to graze a different species behind the goats to clear the infective larvae from the pasture. Grazing horses or cattle behind your goats will accomplish this, grazing sheep will not as they share the same parasites as goats.

Checking the level of anemia and deworming accordingly is only one part of a comprehensive deworming program. Doing fecal egg counts is the other testing procedure necessary to a good parasite control program. Doing routine testing of the goats you deworm and a representative population of your other goats will tell you if the deworming was effective or if the worms are becoming resistant to the drug you are using. It will tell you this LONG BEFORE you have a problem so you can take action. Doing routine fecal exams will tell you if another species besides barberpole worm is becoming a problem in your herd.

I have taken the FAMACHA course and have the color chart for detecting anemia. I feel it does the program a disservice to try to scan it and include it here as colors do not stay true. Several websites have pictures of anemic goats and examples of bottle jaw, a good one can be found at http://www.barnonemeatgoats.com/wormsorno.html. You really need to take the entire FAMACHA course, it only takes about 6 hours to become certified and you will learn SO MUCH. The FAMACHA program is being taught all over the country. You can learn more and get a listing of classes at http://www.acsrpc.org/index.html.