



WHAT GOES AROUND COMES AROUND...

by Stephen Angelos, DVM, DACVIM

The control of internal parasites in horses and large animals is a complex problem. While we would like to assume that by simply giving a deworming medication we will completely fix a problem or potential problem, it is no longer always the case. Parasite resistance is already a severe problem in small ruminants, especially sheep and goats, and parasite resistance in horses is becoming a more severe problem. The days of administering a dose of ivermectin every 6-8 weeks and assuming parasite control is taken care of are no longer possible. More and more, we have now come to realize that adaptation by parasites to resist killing by medication is widespread. In some species, such as

sheep, new methods of parasite control are focused on methods to easily identify which animals may be most affected, and then targeting just that population. By administering medication in this way, we are less likely to contribute to the problem of resistance. It is similar to the careful use of antibiotics to avoid antibiotic resistance. In an effort to avoid unnecessary application of a deworming medication into a herd, the following recommendations are made for the appropriate species below:

- **Horses:** because of susceptibility of **young horses** to internal parasites, we currently recommend that foals receive ivermectin at least 6 times in the first year of life (ie., every 2 months). Ivermectin is available by itself or in conjunction with praziquantel, a medication that kills tapeworms, as well. For **mature horses**, it is advantageous to administer deworming medication based on the results of a fecal examination. Because of the impact of deworming chemicals on the environment and the increasing problem of resistance to common dewormers, minimizing their use through the use of fecal exams is wise. A fecal exam performed right before the next scheduled deworming would indicate if a longer or shorter interval would be more appropriate. Fecal egg counts of less than 50-100 eggs per gram are considered acceptable. The best time of year to perform a quantitative fecal exam is early summer. We can collect the sample at a routine visit, if you would like, or you can drop off the sample at our office. It is still advantageous to administer an ivermectin product or Quest, at least twice a year because stomach bots can still occur and do not show up on a fecal examination. In addition, tapeworms do not shed large numbers of eggs so their absence in a fecal sample does not rule out that your horse may still carry tapeworms.

- **Camelids:** in this part of the country, LAMA strongly recommends camelids be dewormed with ivermectin injection or doramectin (Dectomax) every 4 weeks. This is specifically to prevent meningeal worm infection. This parasite, *Parelaphostrongylus tenuis*, is ingested by small ruminants and camelids, while grazing and it is not seen on fecal examination, as domestic small ruminants and camelids are considered dead end hosts. This means that the parasite kills its host in the process of completing its life cycle. We recommend that this schedule be followed from about March 15 through January 1. In the interim months, a double dose deworming with fenbendazole is recommended.

- **Sheep and Goats:** Parasite resistance in goats and sheep is an extremely difficult and complex problem. There are methods of trying to avoid excessive use of anthelmintics (anti-parasite drugs) such that only those animals carrying significant parasite loads are dewormed (look up "FAMACHA" on Google for more information). Because small ruminants are also very susceptible to meningeal worm (see above), the same protocol used for camelids is recommended for small ruminants. However, with this schedule there is the problem of selecting for resistance to other parasites besides meningeal worm. In these cases, we recommend that an owner contact us for additional information and discussion to help determine the best plan for the herd. Ultimately, it is best to base decisions on deworming in the herd on results of a fecal examination. Please call the office if you would like to have this performed on animals in your herd, or on a group sample from the herd.