

## Targeted De-worming! A Solution to the Growing Equine Parasite Resistance?

As part of our practice philosophy, Unionville Equine Associates attempts to keep our clients informed of current advances in equine medicine. As you may be aware, significant drug resistance has developed in the equine parasite population. Unfortunately, resistance to some commonly used de-wormers has been recorded at 95% in some herds of horses in the United States. It has also been recognized that only 1 in 5 horses shed significant numbers of parasite eggs in their manure. Most healthy horses are naturally immune to heavy parasite infestation. In fact low levels of parasites in adult horses can stimulate the immune system and promote a natural reduction in parasite burden.

Recently a new strategy for parasite control has emerged that targets treatment of the horses shedding the most parasite eggs (20% of the population). The goal of this program is to lower but not eliminate the parasite load in adult horses and to reduce contamination of the environment. By maintaining a low fecal egg count (FEC) in some horses we can cultivate a parasite population that can become less resistant to de-worming, which is known as refugia. The strategy outlined below only applies to horses with a mature immune system (2 years and older).

### Step One - Determine which horses are shedding parasites

1. Submit fecal samples from all of the horses on your farm to your veterinarian. It is essential to wait the following interval post de-worming before submitting a fecal sample to get an accurate FEC:  
moxidectin- 4 months, ivermectin- 3 months, pyrantel -10 weeks, fenbendazole -8 weeks.  
\*See below for brand names.
2. Your veterinarian will perform a FEC on each mature horse and rank them according to the number of parasite eggs the horse is shedding in its' feces. The FEC is reported in eggs per gram (EPG) of manure. The horses will then be divided into categories of Low, Moderate and High shedders.

### Step Two - Determine the effectiveness of our available de-wormers (i.e. resistance)

1. Out of the horses that are moderate to high shedders, work with your veterinarian to determine the efficacy of each de-wormer. Your veterinarian will repeat a FEC, 10 to 14 days post de-worming, in order to calculate a percent reduction in FEC to determine the resistance to that de-wormer for your farm. De-wormers that are found to be effective on your farm should be tested yearly to determine if they are maintaining efficacy.

### Step Three - Establish an annual plan for each horse based on the level of shedding and efficacy of de-wormers

Your veterinarian will work with you to develop a treatment plan based on the individual needs of your horse(s) and the peak parasite transmission period for our region (Spring, Summer & Fall). See chart below.

- a. Low Shedders: Twice per year in Spring & Fall
- b. Moderate shedders: Three times per year in Spring, Summer & Fall
- c. High Shedders: Four times per year in Spring, Summer & Fall

Your veterinarian can assist you in determining which de-wormer to use and when. De-wormer selection is determined based on a working knowledge of the parasite life cycle, as not all de-wormers target all species or stages in each life cycle. Most programs are based on the use of ivermectin and moxidectin. Using one or the other twice per year is enough for low shedders. Moderate or high shedders should be treated more frequently with something other than an ivermectin based product to reduce environmental contamination. Praziquantel is added to some products to target tapeworms.

Below you will find a de-worming schedule to follow once you and your veterinarian have discussed the shedding potential of your horse. Every horse in the program will be treated at least twice a year. Some horses will need to be treated additional times, with approved products, as determined by your veterinarian. The approved products will be chosen based on their efficacy on your farm.

	<i>Jan/ Feb</i>	<i>Mar/Apr</i>	<i>May/ June</i>	<i>July/Aug</i>	<i>Sept</i>	<i>Oct/Nov</i>	<i>December</i>
<b>Low</b> Shedder		Moxidectin		Fecal +/- de-worm with approved product		Ivermectin + Praziquantel	
<b>Moderate</b> Shedder		Moxidectin		Fecal +/- de-worm with approved product		Ivermectin + Praziquantel	Repeat Fecal +/- de-worm with approved product
<b>High</b> Shedder		Moxidectin		Fecal & de-worm with approved product		Ivermectin + Praziquantel	Repeat Fecal & de-worm with approved product

\*Common brand names of paste de-wormers that might be used to treat your horse/s:

Ivermectin = Zimecterin<sup>®</sup>

Ivermectin plus praziquantel= Equimax<sup>®</sup>, Zimecterin Gold<sup>®</sup>

Moxidectin= Quest<sup>®</sup>

Moxidectin plus praziquantel= Quest Plus<sup>®</sup>

Oxibendazole= Anthelcide<sup>®</sup>

Pyrantel Pamoate= Strongid<sup>®</sup>

Fenbendazole= Panacur<sup>®</sup>, Safe-Guard<sup>®</sup> (Large scale resistance against this drug has been demonstrated, use only if advised by your veterinarian.)

Effective period or length of time before surviving adults begin shedding eggs:

Fenbendazole, Oxibendazole = 4 weeks

Pyrantel pamoate = 4 weeks

Ivermectin = 6-8 wks

Moxidectin = 12 wks