Equine Parasite Control Update 2019

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1. Status on dewormer efficacy:

There is anthelmintic resistance on every horse farm. The two major parasites are the small strongyles (cyathostomins) and the ascarids, and both have widespread levels of resistance to the currently available dewormers. Table 1 summarizes current global levels of dewormer resistance in equine parasites.

Table 1. Current global findings of anthelmintic resistance in equine parasites

Drug	Cyathostomins (small strongyles)	Large strongyles	Ascarids
Ivermectin	Emerging resistance	Full efficacy	Wide-spread resistance
Moxidectin	Emerging resistance	Full efficacy	Wide-spread resistance
Fenbendazole	Wide-spread resistance	Full efficacy	Few published cases (USA, AUS)
Oxibendazole	Wide-spread resistance	Full efficacy	Anecdotal evidence
Pyrantel	Common resistance	Full efficacy	Few published cases (USA, AUS, EU)

Fenbendazole and oxibendazole appear to be the best treatment options for ascarid parasites, but are not likely to work well against small strongyles. Similarly, ivermectin and moxidectin are unlikely to work against ascarids, but

generally still reduce strongyle burdens. However, the effects no longer last as long as we commonly see egg counts return as soon as 4 weeks post treatment (see Figure 1).

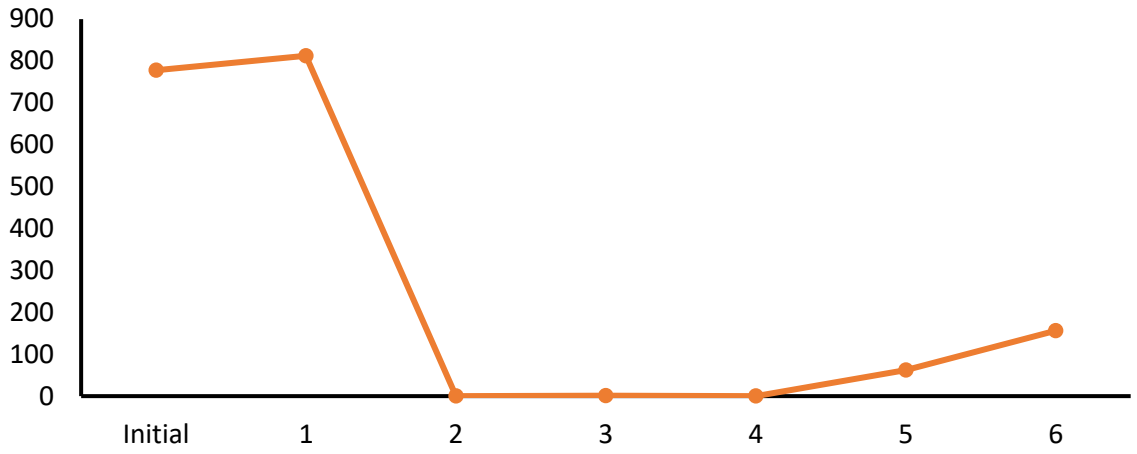

Figure 1. Moxidectin (Quest) strongyle egg reappearance period in Central Kentucky. Horses treated in week 1 and eggs reappearing in the fecal samples 4 weeks later. Egg Reappearance used to be 16-22 weeks for moxidectin.

2. How to interpret parasite egg counts:

Whether an egg count is low, moderate, or high depends on the age of the horse, and the type of parasite. We expect yearlings to have the highest strongyle counts, whereas foals will have the highest ascarid counts. Table 2 provides a guideline to interpreting fecal egg counts

Table 2. Low moderate and high egg count levels for different age groups and for strongyle and ascarid parasites, respectively. The table refers to parasite egg counts as typically determined with the McMaster method.

	Strongyles			Ascarids		
	Low	Moderate	High	Low	Moderate	High
Foals	0-500	500-1000	>1000	0-500	500-1500	>1500
Yearlings	0-500	500-1500	>1500	0-200	200-500	>500
Adults	0-200	200-500	>500	0	0-100	>100

3. Treatment recommendations

Foals:

The primary parasite target prior to weaning is ascarids. The transition to strongyles happens around the 5-7 month age range, and we need to make sure we change the products accordingly. **There is no value in dewormer rotation**.

2 months:	Oxibendazole (Anthelcide) or fenbendazole (Panacur)
4-5 months:	Fecal sample. Oxibendazole or fenbendazole for the ascarids. If strongyle positive, follow up with ivermectin/praziquantel 4 weeks later.
7 months:	Ivermectin or Moxidectin plus praziquantel (for tapeworms).

Fecal samples to monitor efficacy and presence of ascarids. Ascarid-positives can be treated with oxibendazole or fenbendazole.

General comment: It is recommended to make sure that all foals have received one treatment with praziquantel before the end of their first calendar year. A double dose pyrantel pamoate is just as effective against tapeworms, but will have less effect against strongyles due to resistance.

Yearlings:

We are targeting strongyles and tapeworms in this age group. **There is no value in dewormer rotation.**

February/March:	Ivermectin
May:	Ivermectin
July:	Ivermectin
August:	Moxidectin (Quest Plus, yearlings going to the September sale)
September:	Moxidectin (Quest Plus, all yearlings not going to the sales)

November: Ivermectin

General comment: Egg counts are useful in this age group for two purposes; checking for presence of ascarids, and checking for treatment efficacy with the fecal egg count reduction test. Ascarids can sometimes occur sporadically in young yearlings, and should be treated with a benzimidazole.

Adults (showhorses and mares):

We are targeting strongyles and tapeworms. **There is no value in dewormer rotation.**

March/April: Ivermectin all horses. Fecal egg counts from all.

May/June: Ivermectin for moderate and high shedders. Leave low shedders untreated.

September: Ivermectin/praziquantel for high shedders. Leave low and moderate shedders untreated.

November: Quest Plus for all horses. Fecal egg counts from all to check strongyle egg shedding level.

General comment: The duration of the parasite (i.e., grazing) season should be taken into account. In colder northern climates, the moderate and high shedders could be treated once in the middle of summer, whereas farms in more southern climates can follow the schedule outlined above. Equine operations in arid/dry areas may not need much strongyle and tapeworm control.

Checking treatment success:

It is important to routinely check and monitor treatment efficacy in your program with Fecal Egg Count Reduction Tests (FECRTs). It is advisable to check each product category (drug class) against each parasite category (strongyles and ascarids) every year. In practice, this means checking ivermectin/moxidectin

against strongyles (in adult horses), and checking oxibendazole/fenbendazole against ascarids in the foals once a year. The pyrantel (Strongid type) products, could work well against ascarid parasites as well, but should be evaluated.

The classic FECRT is performed with a group of horses (a minimum of 6 is recommended), collecting fecal samples at the day of treatment and again 14 days post treatment. Then calculate the percent strongyle egg reduction. With ivermectin and moxidectin, there is value in collecting post treatment samples at 4 weeks post treatment to check for early egg reappearance.

4. More information

Nielsen and Reinemeyer. Handbook of Equine Parasite Control, 2nd Edition.
https://www.wiley.com/en-us/Handbook+of+Equine+Parasite+Control%2C+2nd+Edition-p-9781119382812

Dr. Nielsen's website about the unique parasitology research horses:
https://horseparasites.ca.uky.edu/

The AAEP Parasite Control Guidelines:
https://aaep.org/sites/default/files/Guidelines/AAEPParasiteControlGuidelines_0.pdf