Parasite control: What should we do?

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Aim

The overall aim with the parasite control strategies is to avoid parasitic disease in our horses. We aim to achieve this by 1) making sure we use dewormers that work against the target parasites, 2) avoiding unnecessary deworming, and 3) reduce the overall parasite infection pressure in our horses' environments.

Drug resistance

Equine parasites are widely resistant to commonly used dewormer products and no equine operation is free of drug resistant parasites. Similarly, no dewormer product is free of resistance issues, so the only way to know if a given dewormer works is through resistance testing with the Fecal Egg Count Reduction Test (see side bar for explanation).

In the table below is a presentation of the general occurrence of drug resistance in equine parasites. This is just a probability table outlining which dewormers are likely to work or not, but the only way to know what the situation looks like on your property is through testing of each product.

Table 1. Current levels of documented drug resistance in equine parasites world wide.

Drug class*	Small strongyles	Large strongyles	Ascarids	Pinworms
Benzimidazoles	Widespread	None	Early indications	None
Pyrimidines	Widespread	None	Early indications	None
Macrocyclic lactones	Early indications	None	Widespread	Widespread

* Benzimidazoles: Products containing fenbendazole, oxibendazole or similar. Pyrimidines: Products containing pyrantel or morantel. Macrocyclic lactones: Products containing ivermectin, moxidectin, or abamectin.

EXAMPLE 1: How to Deworm Adult Horses for Strongyle Parasites

1. In the spring and fall, collect manure samples from each horse, and have your veterinarian perform fecal egg counts (FEC).

2. Based on the FEC results, determine whether your horse is a low, moderate, or high strongyle egg shedder. All adult horses should receive baseline treatments consisting of a spring and a fall deworming, regardless of FEC. Additional treatments decided based on egg count level and duration of grazing season:

Low: 0-200 eggs per gram (EPG): no additional treatments

Moderate: 200-500 EPG: One additional treatment in the middle of summer

High: >500 EPG: One additional treatment in the middle of summer. If grazing seasons are longer than 6 months, then an additional treatment in late fall (November)

3. Have your vet perform a fecal egg count reduction test with post deworming samples collected 10-14 days later to determine whether the drug used is effective against the parasites on your farm.

4. Test each anthelmintic class at least once every three years, and base future deworming decisions and timing on drug efficacy and horses' shedding status.

As can be seen in Table 1, ivermectin and moxidectin are generally most effective against strongyle parasites and are therefore recommended. Other dewormer types can be effective as well, but should only be used if shown to be effective on the farm, and treatment effects should be continuously monitored.

For horses with access to pasture, it is recommended to include a product with activity against tapeworms once a year, with the fall being the most appropriate timing.

What's that word?

Anthelmintic A drug used to deworm with. The main classes of anthelmintics used in horses are benzimidazoles (e.g., fenbendazole), pyrimidines (e.g., pyrantels), and macrocyclic lactones (e.g., ivermectin, moxidectin). Praziquantel is a dewormer with activity against tapeworms only.

Anthelmintic resistance An inherited trait in which parasites survive dewormer treatment and pass their resistance on to subsequent generations of worms.

Fecal egg count (FEC) The number of parasite eggs per gram (epg) in a horse's manure sample.

Fecal egg count reduction test (FECRT) The method to test for drug resistant parasites. It is the percent reduction in parasite eggs between a sample collected on the day of deworming and another sample from the same horse collected 10-14 days post-deworming.

Strongyle The largest group of intestinal parasites infecting horses. The small strongyles, also known as cyathostomins, are infecting virtually every single horse on the planet.

Ascarid The large roundworm parasites infecting primarily foals, weanlings and short yearlings. All foals are exposed to infection with this parasite.

Tapeworm The equine tapeworm, *Anoplocephala perfoliata*, is very common in grazing horses all over the world.

EXAMPLE 2: How to deworm foals, weanlings and yearlings

For this age group, the main target for the first several months is ascarids, but strongyles and tapeworms should receive consideration from around weaning age.

1. Treat foals for the first time at around 2-3 months of age and use a benzimidazole (see Table 1). Egg counts are not useful at this age.

2. A second treatment targeting ascarids should be administered before weaning, and preferably around 5 months of age. Again, a benzimidazole should be used. At this age, egg counts are recommended for the first time to monitor the presence of ascarids versus strongyles. If strongyles are present, the benzimidazole treatment should be followed up with ivermectin.

3. Before the end of the calendar year, foals with access to pasture should also receive a product with activity against tapeworms. For foals born late spring or early summer, his can be part of the ivermectin treatment mentioned above (by using one of the combination products with praziquantel added).For foals born earlier in the year, the weaning treatment should be followed up with another treatment before the end of the year. This treatment should be with ivermectin and praziquantel, but egg counts are recommended to evaluate if ascarids are still present. If this is the case, a benzimidazole treatment can be required as well.

4. In the yearling year, most horses should receive around four treatments. These treatments should be primarily with ivermectin, but egg counts should be done to check for presence of ascarids. In the fall, all yearlings should receive a moxidectin treatment for encysted small strongyles and this treatment can be combined with praziquantel for tapeworms.

5. It is important to routinely check dewormer efficacy with the Fecal Egg Count Reduction Test.

Table 2. Overview of major equine parasites.

	Small strongyles (cyathostomins)	**Tapeworms (*Anoplocephala perfoliata*)**	**Roundworms, ascarids (*Parascaris*)**	**Pinworms (*Oxyuris equi*)**	**Bloodworms (*Strongylus vulgaris*)***
Horses Infected	All horses over 6 months of age	All horses over 6 months of age	Foals younger than 6 months, some yearlings	All ages	All ages
Prevalence	Widespread throughout the U.S., particularly in moist environments	Widespread throughout the U.S., particularly in moist environments	Widespread on breeding farms	Widespread throughout the world	Rare in managed horse populations
Disease manifestations	Weight loss, diarrhea, fever, lethargy, dull hair coat, poor performance	Colic due to issues related to the junction between ileum and cecum	Small intestinal impaction, ill thrift, poor growth	Itching, intense tail rubbing, skin irritation around anus	Peritonitis and colic due to intestinal damage
Deworming Suggestions	See examples above	Yearly praziquantel or pyrimidine treatment	Benzimidazole treatment at 2-3 months and 5-6 months old	A benzimidazole upon diagnosis	See examples above

* The bloodworm is one of the large strongyles.