



## Deworming Protocol

### New Recommendations

Internal parasites are silent killers; horses can be infected with dangerous numbers and still appear healthy. The effects can range from unthriftiness and dull haircoat to colic and death. Ridding your horse of these parasites by establishing a control program is necessary for their health and well-being. In the past, it was recommended that deworming be done on a regular rotational schedule. On-going studies and experiments have shown that for most horses, this is over-use of anthelmintics, or dewormers. Not only is it unnecessary for a majority of horses, but we are also creating resistance to our deworming medications. This is a similar process to antibiotic resistance; overuse allows the parasite to become immune to the product, making the dewormer ineffective. If this happens with all available products, we are left with nothing to kill the parasites.

#### **Signs of Parasitism:**

- Dull, rough haircoat
- Lethargy (decreased energy) or depression
- Decreased stamina
- Unthriftiness or loss of condition
- Slowed growth in young horses
- Potbelly (esp. young horses)
- Colic
- Diarrhea

#### **Common Parasites of the Horse:**

Clinically significant parasites in our area include large strongyles (bloodworms or redworms), small strongyles (cyathostomes), tapeworms, pinworms, bots and roundworms (ascarids) in foals (Table 1).

Large strongyles are found in horses of all ages, and are potentially the most damaging of all parasites. Larvae penetrate the lining of the bowel and migrate through various parts of the body. They become especially problematic when they burrow into the walls of arteries resulting in the formation of clots and disrupting blood flow to organs. Extensive damage and even death can occur with even small numbers of these larvae. (Figure 1)

Small strongyles are one of the most clinically significant internal parasites we deal with. They comprise 85% of the adult horse worm burden. They have the highest level of resistance to dewormers due to their ability to become encysted in the lining of the intestine. This protects them from most deworming medications. (Figure 2 & 3)



Tapeworm eggs are ingested by pasture mites, which are then in turn ingested by horses while grazing or eating hay and grain. These infections are hard to diagnose because they do not shed eggs on a regular basis. (Figure 4)

Pin worms are found in horses of all ages, and are acquired by horses ingesting eggs by manure-contaminated water. Larvae mature in the large intestines and the adults migrate to the rectum and deposit sticky eggs around the anal region.

Bots are not worms, but rather fly larvae. Adult bot flies lay eggs on the hair around the front legs, chest, throat latch and chin, which are then ingested by the horse and attach to the stomach lining. Prevention is important when dealing with bots. Eggs are laid primarily in the fall, so removing them prior to ingestion will help prevent infections. (Figure 5)

Round worms (ascarid) are primarily a problem in young horses under a year of age. Larvae migrate through internal organs (ie. Liver) to reach the lungs and complete their life cycle, therefore, large infections can cause liver or lung damage. As horses mature, they develop immunity to these worms. Expectant mares should be dewormed 30dys before and/or at foaling. (Figure 4 & 6)

**Table 1**

<b>Common Parasites</b>	<b>Symptoms</b>	<b>Effective Dewormers</b>
Large Strongyles (Bloodworms or Redworms)	Unthriftiness, wt loss, poor growth in young, anemia, colic; Larvae block large blood vessels and cause tissue damage and colic. May be lethal.	Most available dewormers incl. Ivermectin, Moxidectin, Pyrantel
Small Strongyles (Cyathostomes)	Diarrhea, colic, loss of appetite, wt loss, slowed growth in young, poor coat, lethargy (lack of energy)	Double dose Fenbendazole for 5 days or Moxidectin
Tapeworms	Ileocecal impaction or intussusceptions; spasmodic colic	Praziquantel
Pin Worms	Intense itching and scratching of the tail area and loss of the tail hair	Ivermectin
Bots	ulcerations in the mouth, Inflammation of stomach lining, gastric ulcers and colic	Ivermectin or Moxidectin after the first frost
Roundworms (Ascarids)	Poor growth, rough hair coat, pot belly, chronic respiratory problems, coughing, anemia, colic/bowel obstruction, potentially death	Ivermectin, Pyrantel



### **Management and Prevention Recommendations:**

1. Remove manure regularly (at least twice a week), and spread on crop land or un-grazed land or compost in a covered pit away from pasture.
2. Practice frequent mowing and harrowing of pastures. This exposes eggs and larvae to sunlight and environmental factors to decrease their chance of survival. (larvae can survive freezing, but can't tolerate extreme heat and drying)
3. Rotate pastures every few months to reduce parasite build-up and increase chances for natural death of parasite eggs and larvae.
4. Avoid overcrowding and prevent overgrazing of pastures; this contributes to parasite build-up, close grazing and increase rates of re-infection.
5. Avoid feeding horses from the floor or ground. Provide feeders for hay and grain.
6. Graze weanling and yearlings separate from older horses.
7. Isolate new horses until dewormed and fecal negative.
8. Provide a clean water supply free of manure contamination.
9. Coordination of deworming; horses that share pasture, stable, etc should be dewormed at the same time.
10. If possible, graze horses alternately with cattle or sheep, this interrupts the life cycle of equine parasites.
11. Remove bot eggs regularly from haircoat (a flea comb works well in some cases).
12. Have fecal exams run by your vet to evaluate how well your parasite control program is working and identify high and low shedders.

### **Importance of Fecal Egg Counts:**

In order to decrease resistance problems and avoid unnecessary and costly deworming, we now recommend individual testing using routine fecal egg counts (FEC). This allows us to decide which horses need to be dewormed and when, which is known as strategic deworming. Some horses are more resistant to internal parasites and have a smaller worm burden. Others, especially the very young and the very old, tend to have a higher worm load. In addition testing can help identify resistance to different types of dewormers. This is done by using fecal egg count reduction tests (FECRT), performed around 14 days after horses are dewormed. This should be done at least once every 2 years to ensure the efficacy of each product on your individual farm. The American Association of Equine Practitioners (AAEP) is emphasizing the importance of selective use of the remaining effective dewormers to reduce resistance. Testing is simple; you provide us with a fresh fecal sample (<24 hours old) from each horse, and we evaluate it for parasite eggs. The fewer the eggs, the fewer the parasites and the less often your horse must be dewormed. The horses are broken down into two groups based on the number of eggs present in their feces. Low shedders are categorized as horses with FEC <400 eggs per gram of feces (epg) and high shedders are >400 epg. The new deworming recommendations for each group are outlined below (Table 2)



**Table 2**  
**Recommendations for Low Shedder (<400 eggs per gram)**

March	Submit Fecal	Deworm with Pyrantel or Oxibendazole
June	+/- Fecal	If > 400epg, deworm with Moxidectin
September	Submit Fecal	If > 400 epg, deworm with Pyrantel
November	No fecal if one in Sept	Deworm with Ivermectin + Praziquantel

**\*Low shedders should have fecal egg counts performed at least twice a year (spring & fall)**

**Recommendations for High Shedder (>400 eggs per gram)**

March	Submit Fecal	Deworm with Pyrantel or Oxibendazole
June	Submit Fecal	Deworm w/ Moxidectin +/- Praziquantel
September	Submit Fecal	Deworm with Pyrantel
November	Submit Fecal	Deworm with Ivermectin + Praziquantel

**\*High shedders should have fecal egg counts performed more often, ideally 4 times a year to ensure proper deworming regimen.**

\*\*Fecal Egg Count Reduction Tests (FECRT) should be performed 10-14 days after administration of Pyrantel or Oxibendazole at least every 2 years, to ensure efficacy, due to increased resistance to these dewormers.

Recommendations for Young Horses	Fecal Egg Count	Dewormer
~2 months	No	Fenbendazole (10mg/kg)
3-4 months	Yes	Pyrantel
5-6 months	+/-	Ivermectin
7-8 months	Yes	Oxibendazole or Pyrantel
9-10 months	+/-	Ivermectin + *Praziquantel
12+ months	Yes	*Moxidectin >700lb, Power Pak <700

**\*Do not use Moxidectin or Praziquantel in foals less than 6 months of age!!**

We would like to thank our partners at the AAEP for their support in owner education.



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**Figure 1: Large Strongyle - adult**



**Figure 2: Small Strongyle Egg**



**Figure 3: Adult Small Strongyle in Manure**



**Figure 4: Tapeworm Egg bottom left,  
Roundworm Egg top right**



**Figure 5: Bot Larvae in Intestine**



**Figure 7: Adult Roundworms in Manure**

