



# Equine Deworming Today: A Practical Discussion between You and Your Veterinarian

## **Yellow eggs on the horse's legs and flanks.**

Reduced appetite and subsequent weight loss. Dull hair coat. Tail rubbing. Coughing. All of these clinical signs might lead you to pick up a tube of dewormer the next time you are at the feed store—but before you do—make sure you talk to your veterinarian and get to know the three “rights” of deworming.

Now, more than ever, it is critical to partner with your veterinarian and take an active role in the parasite-control process. Considerations beyond which dewormer to use are at play. Your farm is unique, which

means your horses and their parasite burdens are unique and may benefit from management solutions that go beyond chemical parasite control strategies.

## **Be strategic and scientific**

The goal of a strategic deworming program is not to eradicate all parasites from each individual horse on the farm. It is to reduce the parasite burden in each horse so that no clinical signs are observed and every horse is healthy. The only way to effectively accomplish this goal using the deworming products we have available is to

**By Fairfield T. Bain, DVM, MBA, DACVIM, DACVP, DACVECC**

employ the help of your veterinarian and take a scientific approach to identify the “right horse” and give him the “right dewormer” at the “right time.”

### 1. The right horse

Keep in mind, there is no one-size-fits-all deworming program. Your weanling out in the pasture does not have the same parasitic risks as your 10-year-old performance horse in the stall. Each individual horse’s age, exposure and environment must be considered before deciding their parasite risk and deworming protocol.

Because approximately 20% of the horses shed 80% of the eggs on your farm, fecal egg counts (FEC) should be conducted by your veterinarian to identify which horses are actually shedding the parasite eggs. Horses should then be ranked according to their level of shedding as “low,” “moderate,” or “high,” as designated in the AAEP Parasite Control Guidelines.

Most experts agree animals should be treated differently based on their shedding history. It might be the same individual horse that requires more treatments, but this method helps eliminate the use of dewormers on horses that do not need to be treated. By taking this approach, we can have the most impact on decreasing fecal egg shedding and pasture contamination, while at the same time reducing exposure of parasites to anthelmintics and thus reducing creation of resistance.

### 2. The right dewormer

Every dewormer on the market has some level of resistance and that resistance varies greatly by geographic location, as well as by parasite. The only way to know for certain if there is parasitic resistance to a dewormer on your farm is to have your veterinarian perform a fecal egg count test prior to deworming and then a fecal egg count reduction test (FECRT) two weeks after the horse has been dewormed. If the anthelmintic is still effective, the FECRT should show about 99-plus percent effectiveness. If resistance is an issue the FECRT may be showing less than 85% to 90% effectiveness.

Resistance can vary farm to farm so a select number of horses at each location should be tested. Your veterinarian will be able to help you determine which products to use when.



Ascarid impaction in a weanling at surgery

Photo credit: Merck Animal Health



Photo credit: Merck Animal Health

Encysted small strongyle larvae within large colon wall. It is important to remember that a fecal egg count does not reflect the number of encysted (hibernating) small strongyle larvae.

FECAL EGG COUNT LEVEL <sup>1</sup>		PERCENTAGE OF ADULT POPULATION*
LOW CONTAMINATORS:	0–200 EPG (eggs per gram)	50–75%
MODERATE CONTAMINATORS:	200–500 EPG	10–20%
HIGH CONTAMINATORS:	>500 EPG	15–30%

<sup>1</sup>These values are only estimates and the actual percentage of horses in each category will vary among farms depending on a multitude of factors

CHEMICAL CLASS	TARGET PARASITES
<b>AVERMECTIN (IVERMECTIN AND MOXIDECTIN)</b>	Ivermectin has a broad range of activity (large and small strongyles, pinworms, ascarids, hairworms, lungworms, threadworms and bots), but does not adequately kill encysted small strongyles and is ineffective against tapeworms.  Moxidectin is similar to ivermectin except it is also effective against LL3/L4 stages of encysted small strongyles (not labeled as effective against EL3 stage).
<b>PRAZIQUANTEL WITH AVERMECTIN (TAPEWORM CONTROL)</b>	Targets all parasites according to details above for ivermectin, plus tapeworms.
<b>BENZIMIDAZOLES (EVERYTHING ENDING “-ENDAZOLE,” INCLUDING FENBENDAZOLE AND OXIBENDAZOLE)</b>	Fenbendazole kills large strongyles, small strongyles and pinworms at 5 mg/kg; kills ascarids at 10 mg/kg; and kills migrating large strongyles, migrating ascarids and all stages of encysted small strongyles (EL3, LL3, L4) at 10 mg/kg for 5 days (double-dose).  Oxibendazole is effective against large strongyles, pinworms, ascarids and threadworms, but not encysted small strongyles.
<b>PYRANTEL SALTS</b>	Pyrantel pamoate controls large strongyles, pinworms, ascarids and—to some degree—tapeworms (at double-dose).  Pyrantel tartrate is the basis of daily dewormers and controls large strongyles, pinworms and ascarids.

### 3. The right time

Ideally, deworming should be conducted on the right horse at the right time based on its parasite load. Horses that are low egg shedders (based on their FEC) may need to be treated 2 or 3 times a year, whereas a high shedder may need to be treated 5 or 6 times a year.

Parasite “season” varies by geographic location. In the northern part of the U.S., parasite season is during the summer months. For the south, primary transmission takes place in the spring and fall. Parasite transmission is not as high during the very hot and/or cold times of the year and, thus, not the right time to deworm.

For the low egg shedder, deworming during peak parasite transmission (typically spring and fall) based on your geographic location might be sufficient. One deworming should target migrating large strongyles and the other should target all stages of encysted small strongyles.

These recommendations apply to the moderate egg shedders, as well, but moderate egg shedders may also need a treatment during the summer months.

Horses that are high egg shedders should get the above recommendations, as well as including one additional (non-larvicidal) treatment during the main season of larval transmission (typically summer) and a second non-larvicidal treatment during the “off-season” (typically winter) in your area.

Consult your veterinarian for specific product and timing recommendations based on the parasites present at your farm.

### The cast of characters

Having a basic understanding of the parasites that can be a risk to your horse can help you better navigate the three “rights” of deworming.

Ascarids (roundworms) are often found in foals, weanlings and yearlings. Infective ascarid eggs are ingested by the horse and immature ascarid larvae migrate through the liver and lungs before arriving in the small intestine where they will mature to adults. Clinical signs include respiratory disease, weight loss, diar-

rhea, impaction colic and bowel rupture. Most foals develop natural immunity against ascarids before they are 18 months old. However, we are seeing more ascarids appear in adult horses that were not dewormed effectively as foals and have harbored an ascarid infection into their adulthood.

Small strongyles (cyathostomes) are considered the primary parasite problem in horses today. They burrow and encyst in the lining of the large intestine and can stay there for years, evading the effects of most dewormers. Eggs are laid in the pasture and hatched larvae are ingested by the horse. Depending upon the worm burden, the clinical signs range from none to poor performance, dull hair coat, recurring colic, diarrhea, weight loss and even death.

Large strongyles (bloodworms) used to be the greatest threat to horses. Although their role has lessened, they can still cause problems. The larval stages are ingested on pasture and migrate through the walls of certain abdominal arteries resulting in inflammation and blood clots that can block circulation to the large intestines or result in rupture of the arteries. These parasites can also damage the liver and other internal organs. Clinical signs include weight loss, anemia and fatal thromboembolic colic.

Horse botflies are an irritation inside and out. The female flies look like bees and lay tiny yellow eggs on horses' legs, manes and flanks. These eggs irritate the horse and cause them to lick and chew the affected areas, allowing the larvae to enter the mouth and travel down to the esophagus where they attach to the stomach wall. Clinical signs can include an inflamed mouth and/or tongue, stomach irritation, gastric ulcers and colic.

Pinworms are a cause of tail rubbing since the female lays her eggs in the perianal region. Immunity may occur as the horse ages.

Tapeworms require an intermediate host. The eggs passed in the stool are ingested by a mite and the tapeworm undergoes development within the mite. The horse ingests the mite while grazing and the cycle continues with the tapeworm maturing. It is difficult to confirm the presence of tapeworms with regular fecal exams. Clinical signs include colic and intestinal blockage. The prevalence of tapeworms varies by region of the country.

### Take-Home Message

Clear as mud? If all of this information has you scratching your head while your horse is still out in the pasture scratching its tail, never fear! Your veterinarian spent four or more years earning a DVM so you don't have to carry this burden (pun intended) yourself. By employing your veterinarian's guidance, you can take a scientific approach to making sure you are deworming the right horse at the right time with the right product.

**MeV**

## Take stock of your farm with this deworming self-assessment, and use it to guide the next conversation with your veterinarian.

- How many horses do I have?

---

- How old are my horses?

---

- What dewormers have been used and for which horses? Timing of last administration?

---

- Is my horse's mouth empty when I deworm? Is he spitting part of it out?

---

- Do I read the label on the dewormer before administering?

---

- How much does each horse weigh?
  - Chronic under-dosing can lead to resistance.
  - Here's a simple formula to calculate weight:
    - Use a weight tape (or scale) to avoid under-dosing. Horses are generally heavier than you think.
    - If you don't have a weight tape, you can also use this equation: Body weight (lbs.) = Heartgirth (in.) x Heartgirth (in.) x Body length (in.) divided by 330. (The heartgirth is measured as the circumference over the withers and around the barrel; the body length is measured from the point of the shoulder to the point of the buttocks)

---

- How am I currently disposing manure?

---

- Have I invited my veterinarian to review my management practices? Be sure to ask:
  - What parasites should I be worried about on my farm?
  - When, why and how often should fecal egg counts be performed?
  - What non-chemical parasite control strategies are realistic for my farm?



Shutterstock/acceptphoto

### About the author

*Fairfield T. Bain, DVM, MBA, DACVIM, D ACVP, DACVECC, is an equine technical services veterinarian with Merck Animal Health. A graduate of Auburn University, School of Veterinary Medicine, Dr. Bain's distinguished career includes extensive experience in practice, academia and within the industry. He is known for his work in perinatology and neonatal intensive care, cardiovascular disorders, pathology and hyperbaric oxygen therapy.*