

## Worm Wars

**Science and strategic thinking are the best defenses for protecting your horse from parasites.**

*By Sharon Biggs*

April 2010 Extra

In an economy where funds are low and expenses are high, people are tightening their budgets any way they can. Although cutting extra costs around the barn where feasible is a good thing, your horse's health is the last place to be frugal.

Deworming is a form of preventive medicine, says Jenifer Nadeau, Ph.D., associate professor and equine extension specialist for the University of Connecticut. "You can't always tell what's going on from appearances. Your horse might look healthy, but there could be something happening inside," she says. "Even if a horse is moderately infested, parasites can build up over time and cause health problems." If left unchecked, parasites can rob your horse of essential nutrients and cause diarrhea, depression, mouth lesions, colic and internal ruptures.

Parasitologists agree that deworming is not an easy science; worms are constantly evolving and becoming more resistant to certain chemicals. However, understanding how parasites affect your horse can help you create a good deworming program that is both effective and economical.

### Parasite Primer

Endoparasites, commonly called worms, are parasites that live in the internal organs of an animal. They need the animal host for shelter and food to develop into mature egg-laying adults. Worms have co-existed with the horse for thousands of years. Wild horses are able to keep worms at bay because they constantly move as they graze over thousands of acres, so parasites never get a chance to build up in large numbers. Since domestic horses are kept in smaller areas and often graze or eat hay in the same place daily, worms can accumulate in horses' bodies and manure.

Worms become infective at various stages depending on the species, and not all horses are affected by worms the same way, says Craig Reinemeyer, DVM, Ph.D., president of East Tennessee Clinical Research, Inc. in Rockwood, Tenn. In fact, he says that some horses can manage a parasite load with no ill effects. "But that changes if you have management problems, such as poor nutrition, overstocked pastures or stress due to training," he says. "Then the horse is unable to manage that load. Most parasitic illnesses are usually associated with poor management. If you have a parasite problem in a herd of horses, then you really have a management problem," he says. "Occasionally, an individual horse will have a genetic problem with parasites; it's like a kid in daycare who always comes home sick. There's not a lot you can do except to closely manage the horse's deworming program."

In order to control the problem, it's important to be familiar with the parasites that pose the most risk to your horse and know how to boost his defense against them. The following worms are most commonly found in horses.

### Large Strongyle or Bloodworm

(*Strongylus vulgaris*, *S. equinus* and *S. edentatus*)

The large strongyle can grow up to 11-12 inches long and lives in the horse's colon and cecum. This parasite does the most damage during migration as the worm moves throughout the body of the horse to develop further. All of this moving creates problems such as the formation of lesions in the walls of the blood vessels, blood clots, intestinal colic and gangrene of the bowel. *S. equinus* and *S. edentatus* can also cause liver damage and peritonitis. Because of this potentially extensive damage, large strongyles used to be enemy No. 1 with horse owners, but thankfully, Reinemeyer says they have been largely eradicated throughout North America. "At this point we need to keep that status, so it's important to continue to deworm for large strongyles," he says.

Treatment: Broad-spectrum dewormers to kill the adult worms. Nearly all dewormers are broad-spectrum, meaning they kill a range of common parasites.

### Small Strongyle

(*Cyathostome*)

The small strongyle is a threadlike worm, less than 1 inch long, which lives in the cecum and large colon. It differs from the large strongyle because it tunnels into the lower intestine and turns into a cyst. There it can either develop into an

adult or remain “encysted” for many years.

Small strongyles are currently the parasite of concern with horse owners because of their numbers: Up to a million small strongyles can infect a horse at one time, and it’s possible to find 2,000 eggs per gram in the manure of a severely infected horse.

“There may be 25 species of small strongyles,” says Thomas Klei, Ph.D., associate dean of research and advanced studies at the Louisiana State University School of Veterinary Medicine. “Some are bigger, some are smaller, others live in different parts of the intestines, and some are less susceptible to drugs. For practical purposes, we treat them as one worm. We don’t know if the adults do much damage at all. Increased [numbers] might cause weight loss, and some data suggests that they cause colic.” Currently, only the larvae are known to affect horses.

“Most of the damage occurs when the parasites emerge from the cyst,” says Reinemeyer. “That’s when all the parasites’ waste products that have been building up are released.”

Cysts in the large intestine also absorb protein from the horse’s digestion.

“When the horse loses protein that far back in the intestine, he cannot recover it and he will be protein deficient,” Reinemeyer continues. “It doesn’t matter what the percentage of protein is in the food you give the horse; it won’t help him. Without protein the horse can’t build muscle and won’t have healthy skin. The body also has to mount an inflammatory reaction against the small strongyles, so it will use protein first for that instead of building muscle.”

Since all encysted larvae emerge from the cyst together, diarrhea, dehydration and colic can occur if there is a large number of larvae.

Treatment: Broad-spectrum dewormers for the adult stages, and your vet may advise treatment for the encysted stage, typically a single dose of moxidectin, or fenbendazole administered at a double dose for five days in a row. Ninety-five percent of small strongyles have an inherited resistance to benzimidazole, and 50 percent are resistant to pyrantel, so check with your vet about recommendations for dewormers from this group.

#### Pinworm

(*Oxyuris equi*, common pinworm; *Probstmayria vivipara*, minute pinworm)

Pinworms, named for their pin-like tail, develop in the colon and are passed to the anus, causing an infected horse to rub his tail, which creates bald patches. The female pinworm grows to nearly 2 1/2 inches, much longer than the 1 1/2-inch males. Although pinworms are irritating to the horse, internal damage is rare. “Some sensitive horses can become restless and go off their feed and lose weight,” says Nadeau.

Pinworms used to be more prevalent in young horses but affect horses of all ages. Reinemeyer says that pinworms are becoming more common in older horses. “Ten years ago, it was unusual to find them in adult horses,” says Reinemeyer. “Something is changing in the [horse’s] immune reaction. We used to think horses controlled pinworms by acquired immunity because they were rare in horses over 3. However, I’ve found pinworm infections in horses in their teens.”

Treatment: Broad-spectrum dewormers usually kill pinworms; however, Reinemeyer says that if a given treatment doesn’t remove all of the pinworms, talk to your vet to find another option.

#### Tapeworm

(*Anoplocephala perfoliata*, *Anoplocephala magna*)

The tapeworm can grow up to 2 inches long depending on the species. It develops in the cecum, colon and small intestine.

“Pasture mites are the intermediate host,” says Nadeau. “The horse eats the mite, and then the infective larvae develop into adults inside the intestinal lining. If there is a light infestation, you won’t see any signs. If there’s a heavy infestation, the horse will be depressed, lie down a lot or colic.”

The adult tapeworms attach to the lining of the gut, where they grow, absorb nutrients and reproduce.

Treatment: Klei says that problems caused by tapeworms are due to heavy infestations, but they can be controlled with a single treatment of praziquantel once a year. Many broad-spectrum dewormers have another version which includes praziquantel in the dose.

## Bot

(*Gasterophilus intestinalis*)

Adult bot flies are yellow with dark stripes. “There is a common bot fly and a throat bot fly,” says Nadeau. “The common variety lays eggs on the shoulders and forelegs [and causes itching]. The horse licks the eggs and ingests them.

“The throat bot fly lays eggs on the chin and throat,” Nadeau continues. “They will hatch on their own, burrowing under the skin into the mouth. Both species remain in the lining of the tongue and cheek for a month before moving down to the stomach. A bad infestation can cause ulcers in the mouth.”

The bots remain in the horse’s stomach until spring, when they are passed with the horse’s manure and begin their life cycle again.

Treatment: Ivermectin or moxidectin. Because bots hibernate inside the horse during the winter, deworm in early winter after the first frost. In the summer, remove the eggs from the coat with a special bot knife.

## Ascarids

Ascarids, or roundworms, usually affect foals and younger horses. Foals have certain issues with parasites that need to be addressed by a veterinarian. Ascarids can cause weight loss, diarrhea, poor growth and various types of colic that may require surgery.

Foals can be treated with ivermectin, moxidectin, fenbendazole, pyrantel tartrate, pyrantel pamoate and other dewormers. However, according to Craig Reinemeyer, DVM, Ph.D., president of East Tennessee Clinical Research, Inc., there have been reports that some strains are developing a resistance to ivermectin, moxidectin and pyrantel pamoate.

## Deworming That Won’t Break the Bank

There are two economical ways to go about deworming: treat every horse on your property with the same method, or customize a program for each horse.

Customizing an individual program for each horse means you have to identify which horse has the most problems with parasites; your veterinarian can do this with a Fecal Egg Count Reduction Test (FECRT). The vet will conduct this test before and after deworming to determine if parasites are building up a resistance to a drug. “You can see which horse is a heavy carrier and just treat him,” says Nadeau.

“When customizing a program, you can rank the horses in a herd by their fecal egg-count tests,” says Reinemeyer. “The bottom 50 percent won’t need much deworming, the middle 30 percent will need a little bit more, and the top 20 percent will need the most.”

“Deworming the horse with the most worms and not the others will also reduce the contamination in pastures,” adds Klei. “Deworming isn’t just about getting parasites out of the horse, but getting them out of the pastures. By treating only those horses that need it, you reduce the chances of drug resistance.”

Reinemeyer says another option is to deworm all of your horses every six months with a dewormer that is effective against the migrating larval stages of large strongyles—ivermectin or moxidectin with praziquantel, which also treats tapeworms, or fenbendazole at a double dose for five days. “In most climates the optimal time [to deworm] is spring and fall,” Reinemeyer says. “This will eradicate large strongyles and give adequate control of tapeworms, pinworms and small strongyles for most horses. However, the top 20 percent of horses that shed 80 percent of the eggs can be treated more often. Then you would be saving money and doing a better job in controlling parasites.”

There is a geographical component to consider when choosing an appropriate deworming program, too. Horses in the northern states become infected during the summer. Reinemeyer says that’s when your treatment should be concentrated, with less concern in the winter. Horses in the southern states become infected in the autumn and spring but not as much in the summer because it’s too hot.

“The biggest problem with parasite control is related to over-treatment,” says Reinemeyer. “Historically, people have dewormed too often and too carelessly. People would be well-served to take a step back and look at what they are doing. Ask, ‘what is still effective in this herd?’ We only have three classes of drugs to use: benzimidazoles, pyrimidines and macrocyclic lactones. Ninety-five percent of small strongyles are resistant to benzimidazoles and 50 percent are resistant to pyrimidines. Only the macrocyclic lactones are consistently effective.”

Deworming can be complicated, and it is important to be accurate so your horse gets the best possible protection. Always involve your veterinarian in the decision-making process, and stay on top of a regular schedule.

Watch a video tutorial on how to deworm your horse.

Download a deworming chart to keep track of your parasite control schedule.

Sharon Biggs is a frequent contributor to Horse Illustrated and a dressage instructor. She is the author of *Advanced English Horsemanship* and *In One Arena* (Half Halt Press).

This article originally appeared in the May 2009 issue of Horse Illustrated. [Click here to subscribe.](#)