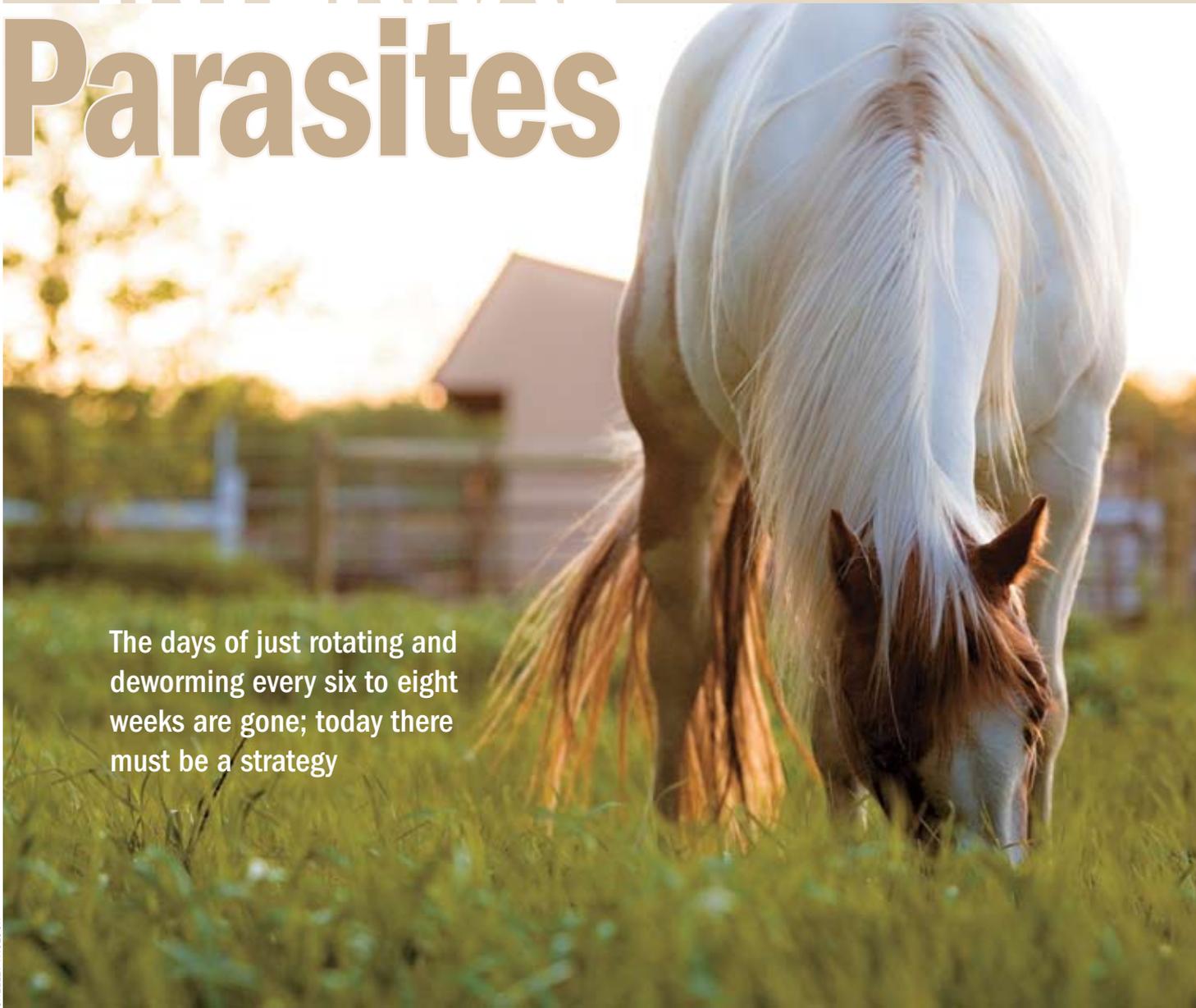


# INTERNAL Parasites



The days of just rotating and deworming every six to eight weeks are gone; today there must be a strategy

SHELLEY PAULSON

**T**here are several major internal parasites of horses, and control is aimed at reducing their numbers at certain stages in their life cycles. These stages will vary with the seasons, which, in turn, can vary with the geography and climate where you live. A seasonal approach to deworming is always more effective than routine intervals, according to Craig R. Reinemeyer, DVM, PhD, president of East Tennessee Clinical Research Inc., because parasites must return to the environment between successive generations.

No matter the season, parasites are a continual threat, so your prevention strategies can never stop.

# INTERNAL Parasites

"In North America the major differences in climatic conditions can be summarized generally as Northern vs. Southern," he says. "Confinement vs. pasture is also a critical distinction."

## Late Winter/Early Spring

Many Northern horses are in stalls during winter, although they might be turned out some during the day. "There's not much worm transmission this time of year for mature confined horses, but it's time to start thinking about your annual parasite control program, beginning when horses are turned out on pasture—which may be April or May," says Reinemeyer. "In the South, horses are at risk for parasitism in late winter because they've probably been on pasture. Weather is mild enough that there can be a lot of worm transmission occurring through winter. Southern horses are probably exposed to more parasitism during this period than other months of the year, since parasite numbers on pastures decline dramatically during the hot summer months.

"The best way to ensure horses aren't being exposed in late winter is to have done parasite control in the fall to keep them from contaminating pastures," he adds. "You must look at the whole program as a continuing cycle throughout the year."

Thomas Craig, DVM, PhD, a professor in the Department of Veterinary Pathobiology at Texas A&M University, says larval cyathostomes (small strongyles) hiding in the wall of the large intestine start to emerge as the days begin to get longer. "We see an increase in (fecal) egg counts at this time," Craig says. Fecal egg counts allow veterinarians and owners to monitor potential parasite transmission and presence. "In our area of Texas we see this in February, but it may be March or April farther north. These worms are producing eggs that will hatch into larvae at the proper time to be waiting on new green grass to be ingested by horses."

Deworm for small strongyles at the proper time in your region to thwart extensive egg-laying that would contaminate spring pastures.

"During early larval stages, the larvae are inactive, deep in the intestinal wall, and do no damage," says Craig. "But when they start to emerge, they grow larger and stimulate a response by the host, which may be damaging, plus the fact they injure

the wall. They were tiny when they went in, but much larger when they come out, and disrupt the lining."

Emergence of large numbers in horses usually occurs in late winter or early spring, especially if horses picked up large numbers of small strongyle larvae from pastures in the fall.

This is why late winter deworming is important. "My choice of drugs at this point is moxidectin," says Craig. "Ivermectin gets the adults and any active larvae, but doesn't get the inactive ones that are hiding. Fenbendazole at high doses over several days will also work. It kills adults on the first dose, and this signals the immature worms to come out since this is their chance to take up space vacated by the eliminated adults. Then if there's still an adequate blood level of fenbendazole, it kills these younger worms as well."

Reinemeyer recommends owners and managers discontinue deworming at foaling time. "With resistance issues we now face (parasites are becoming increasingly resistant to the anthelmintic classes we

“With resistance issues we now face, we should stop treating horses so frequently and only focus on treatments that are absolutely necessary.”

DR. CRAIG R. REINEMEYER

## LARGE STRONGYLES

Bloodworms (large strongyles), once the most damaging internal parasites of horses, became rare after the advent of ivermectin in the early 1980s. But recent studies in Denmark have shown that prevalence of large strongyle infections in horses in that country is on the rise.

"Denmark has changed its anthelmintic prescription practices; those drugs are no longer available over the counter, and even a veterinarian may not use a dewormer in a horse without a specific diagnosis. So horses are being dewormed a lot less in Denmark now, and some of the older worm infections are coming back," says Craig R. Reinemeyer, DVM, PhD, president of East Tennessee Clinical Research Inc.—Heather Smith Thomas

use), we should stop treating horses so frequently and only focus on treatments that are absolutely necessary," he states. "We used to treat mares in late gestation to prevent transmission of *Strongyloides* (threadworms) to their foals through the milk. This is not a serious parasite and is easy enough to treat if it does cause clinical problems such as diarrhea. It will not kill a horse without warning. Current recommendations are moving away from those old deworming programs and schedules we used to follow meticulously."

## Spring/Summer

In the North horses are turned out to pasture in spring. "The important thing is that horses be treated at least four or five days before turnout," says Reinemeyer. The minimum parasite control recommendation for adult horses is to maintain eradication of large strongyles (*Strongylus vulgaris*). Most farms have already accomplished eradication, and the simplest way to keep farms large strongyle-free is to treat with a larvicidal drug every six months and keep up that schedule.

"Three products work for this: any of the ivermectins, moxidectin (Quest or Quest Plus), and Panacur Powerpac," says Reinemeyer. "Using any of these at roughly six-month intervals will work, and no matter what your climate is, spring and fall are probably the ideal times to do this. In the North especially, it should be done before horses go to pasture in the spring.

"Southern conditions are not that different, with the same recommendations for large strongyles," he adds. "Of the two systems, however, Northern horses are more at risk because their egg counts will spike in the spring, and worms will intensely contaminate pastures. In the South it becomes a self-limiting thing as the weather heats up."

By summer, you need to think about ascarid control in foals. "We've been treating too much for these, however, and need to back off on onset and frequency," says Reinemeyer. "Foals should not be treated routinely for any worms until they are at least 60 days old. Foals may have some parasites at a younger age, but they are ones we probably can't do much about because the efficacy of these dewormers gets better as the worms get older. The younger the worm is when you expose it to the drug, the less likely the drug will work."

So it's best to give foals as much time as you can before deworming the first time. "After that it gets tricky, regarding



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intervals of deworming for foals,” says Reinemeyer. “We are starting to see resistance of roundworms to the macrocyclic lactone class of drugs, which includes ivermectin and moxidectin. Dr. Gene Lyons at the University of Kentucky has found a local ascarid strain that is resistant to a second class of drugs as well (pyrantels). This is mostly due to overusing these drugs.”

In the southern United States, Reinemeyer doesn't recommend using any dewormers during hot, dry summer months, at least in mature horses, since worm transmission is dramatically decreased. “In foals you could maintain minimum control recommendations for ascarids,” he says. “In the North, summer is a more important season of transmission than winter, so you may want to maintain strongyle control through summer. One recommendation is to not deworm the whole herd. We can find out (using fecal egg counts) which horses don't need help and which ones do, and base our control recommendations on individual horses.”

A problem in certain Southern regions is summer sores (habronemiasis) caused by tiny stomach worms deposited in breaks in the skin by biting flies. These worms were a serious problem until the advent of ivermectin, which kills them in the horse's body tissues.

“Now the only place I see them is in large stables where horses are on different regimens of deworming or lack thereof,” says Craig. “Some of the horses that end up with lesions were dewormed with something that would be effective against the adult stages of the worms (in the stomach), but not the immature larvae in the body tissues. This problem always seems to be related to large numbers of horses in a stable. Even if your horse was treated with ivermectin, what about the horse two stalls away, where the fly is coming from?”

Flies might have been feeding on horses that were not dewormed; thus, fly control should be part of the approach to eliminate summer sores.

## Fall/Early Winter

Spring and fall are usually ideal for worm transmission in nearly every climate due to moist, moderate temperatures, and these are the best times of year to implement an every-six-month treatment for large strongyles. “Since this is the time you are deworming every horse on the place,

## STRATEGIC DEWORMING OF INDIVIDUALS

Parasite problems add up to a numbers game. Some horses develop natural resistance. “Egg counts in mature horses show that many of them don't have levels that would cause problems,” says Thomas Craig, DVM, PhD, of the Department of Veterinary Pathobiology at Texas A&M University. “Yet another horse in the same pasture, same conditions, same age, may have a tremendous number of worms.”

Thus, it makes sense to just deworm the wormy individuals during summer, for instance. “Probably all foals, weanlings, and yearlings need dewormed, since they are highly susceptible,” says Craig. “But for adults, selective deworming may be good management, and you are not aiding development of resistant worms as much as when you continually deworm the whole herd.”

One of the early reasons for continual deworming was to control large strongyles, but this major parasite has nearly disappeared with the advent of ivermectin.—Heather Smith Thomas

it's a good time to also use something for tapeworms,” says Reinemeyer. “If using Quest, use Quest Plus. If using ivermectin, use Equimax or Zimectrin Gold. All three of these products include praziquantel to kill tapeworms.

“During autumn, Northern horses may be going indoors for winter, and your worm problems are over for that season,” he continues. “In the South, it's important to realize that in the fall you are just getting into their annual transmission season. It's more important to do parasite control early on, in the cool months, rather than later. In the South, winter pastures may stop growing and horses just keep eating the plants shorter, constantly increasing risk of exposure to worms.”

The larvae are always on the lowest part of the plant near the ground, so the closer a pasture is grazed, the more worms horses will pick up.

In some regions, the highest transmission of small strongyles is in autumn pastures, notes Craig. “If we knock down the worm populations on spring pastures, we don't get these transmissions in autumn and are ahead of the curve,” he says. “A lot of the larvae transmitted in autumn never become adults until the following year or later; they go into hibernation and overwinter in the horse.”

In some instances horses need to be dewormed in autumn for small strongyles just to make sure they don't infest autumn pastures in a late-season emergence.

“There are two mechanisms involved with their dormant period, and one is environmentally induced,” explains Craig. “It's cooler at night, days are getting shorter, so the worms go dormant until spring. The other factor involves space. In any particular horse, a certain number of worms are the ‘crop’ for that horse. As those die off or are removed with a drug, they are replaced by others that are waiting in the intestinal

wall. Studies done with drugs that are only effective for adults (not reaching into the wall of the intestine to kill the hibernating larvae) showed that in the presence of no new exposure, and adult worms removed monthly, there are still worms coming out of the intestinal wall after two years.”

In the fall owners traditionally treat for bots about 30 days after the first hard frost—whenever it happens in their respective region. Once flies are gone, there are no more eggs laid on the horse. “Some of the eggs already on the hair coat may continue to infect the horse for weeks, so there can be some transmission continuing into winter,” says Reinemeyer. But if you have to pick a single time of year to get the most for your money from one treatment, it would be late autumn/early winter.

“Ivermectin is extremely effective against bots,” Reinemeyer notes. “Moxidectin is not as good, but still effective.”

If horses were not treated in the fall, they can be treated for bots any time during winter or early spring as long as it's ahead of when the larvae will pass out in the manure to burrow into the ground and pupate—which can be as late as April or May in Northern climates.

## Take-Home Message

Just deworming on rotation every six to eight weeks isn't a proper way to care for horses anymore. Because of anthelmintic resistance, it is up to us to work with our veterinarians and figure out a system of testing our horses, deworming, and protecting the environment to prevent horses from getting parasites in the first place. 🐾

## ABOUT THE AUTHOR

*Heather Smith Thomas ranches with her husband near Salmon, Idaho, raising cattle and a few horses. She has raised and trained horses for 50 years, and she has been writing freelance articles and books nearly that long, publishing 20 books and more than 9,000 articles for horse and livestock publications.*