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FACTSHEET

INTERNAL PARASITE CONTROL

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UNDERSTANDING AND CONTROLLING EQUINE INTERNAL PARASITES

A summary of the AAEP Parasite Control Guidelines

Chemical dewormers, also referred to as anthelmintics, rapidly became a staple in almost every barn, tack shop, and veterinary pharmacy since their introduction to the market about 50 years ago. Their popularity stemmed from their safety, ease of use, and efficacy in rapidly controlling internal parasite populations and, therefore, minimizing parasite-related diseases, including the dreaded colic. Today, chemical dewormers remain popular; however, concerns regarding their efficacy have emerged due to parasites' increasing resistance against them.

This Fact Sheet summarizes important facts about equine internal parasites and their control as described by board-certified parasitologists and equine veterinary specialists who collaborated and produced the American Association of Equine Practitioners' (AAEP) Parasite Control Guidelines.[1]

These guidelines were created to help veterinarians design improved parasite control strategies. One must appreciate, however, that there is no one-size-fits-all program. Instead, these guidelines offer a multitude of suggestions for designing tailor-made programs that take individual farms' needs into consideration. In other words, no one program will meet all equine operations' requirements for parasite control.

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IMPORTANT FACTORS IN PARASITE CONTROL

The AAEP developed its parasite control guidelines with the following facts in mind:

- Large strongyles such as *Strongylus vulgaris* are no longer the most important internal parasites in adult horses. Instead, small strongyles (cyathostomins) and tapeworms (*Anoplocephala perfoliata*) occur more commonly in adult horses.
- In foals and weanlings, roundworms (*Parascaris spp.*) remain the most important internal parasite.
- Anthelmintic resistance is prevalent in cyathostomins and *Parascaris spp.* in the United States and other regions of the world. Keep this in mind when devising any parasite control program.
- Horses younger than 3 are more susceptible to internal parasite infection and parasite-related diseases. Consider this population of horses separately from adult horses.
- Finally, adult horses vary in their cyathostomin egg shedding levels. Thus, give these horses individual attention to ensure their parasite control needs are being met.

OUT WITH THE OLD, IN WITH THE NEW

When chemical dewormers were first introduced, the most common and concerning internal parasite was *S. vulgaris*. The goal was to simply eliminate adult large strongyles before they could lay eggs and contaminate the environment. Because strongyle egg reappearance in feces occurred approximately two months after deworming adult horses, many parasite control programs involved deworming horses every two months to prevent eggs from being shed on pasture and infecting grazing horses.

This strategy was highly effective, making disease related to *S. vulgaris* infection very rare. With the downfall of *S. vulgaris*, small strongyles, roundworms, and tapeworms became the leading causes of infection and parasite-related disease. Because the biology, lifecycles, and host-parasite dynamics of these common parasites differ markedly from *S. vulgaris*—and because most other than tapeworms have become resistant to treatment—frequent deworming is neither appropriate nor effective for controlling small strongyles, roundworms, and tapeworms.

Take, for example, cyathostomins—a highly ubiquitous group of parasites that usually only causes disease in horses with very high levels of infection (which is also true for other parasites). All grazing horses are considered infected; however, deworming horses every two months is not necessary, as serious disease is uncommon. Instead, the AAEP Parasite Control Subcommittee recommends properly timed treatments using effective products based on the parasite life cycle and an individual horse's parasite burden.

ANTHELMINTIC RESISTANCE

In addition to being economically draining, frequent deworming contributes to anthelmintic resistance. Resistance develops with repeated administration of anthelmintics to populations of internal parasite that have "resistance genes." Parasites possessing these genes survive anthelmintic application and pass the resistance genes to subsequent generations. Ultimately, a sufficient proportion of the parasite population will possess resistance genes, resulting in anthelmintic treatment failure.

Be assured that resistance is real, and researchers have identified it in the United States against all three classes of chemical dewormers. Currently, a fecal egg count reduction test (FECRT) is the only way to assess resistance. This test involves collecting fecal samples from moderate- to high-egg-shedding horses (at least six from one herd), getting a fecal egg count (FEC), applying a dewormer, then repeating the FEC in two weeks. The percent reduction between pre- and post-treatment FECs can then be calculated. Ideally, you should see at least a 95% reduction in FECs after deworming. If values are lower than expected, resistance could be present. For additional details, suggested cutoff values, and caveats pertaining to the FERCT, please refer to the Guidelines.

KEYS TO DESIGNING A PARASITE CONTROL PROGRAM

The AAEP Parasite Control Subcommittee described three main goals of a parasite control program:

- Minimize the risk of parasite-related disease caused either by adult worms or larvae;
- Control parasite egg shedding to limit environmental contamination by infective larvae; and
- Limit the further development of anthelmintic resistance.

Fecal egg counts play an integral role in achieving these goals. Again, this test is not perfect, as described in detail in the AAEP Parasite Control Guidelines. Further, standard FEC techniques will fail to identify large strongyles and tapeworms, necessitating the use of alternate tests or modified approaches, including blood tests (i.e., ELISAs). Nonetheless, the benefits of knowing the type of parasite and the horse's shedding status, as well as the absence/presence of resistance, far outweigh the limitations. Note that all Guideline recommendations were made assuming that FEC surveillance was adopted.

The AAEP Parasite Control Subcommittee emphasized the need to avoid anthelmintic administration in climates or environments with low infection risks (e.g., hot summers, cold winters). Typically, one or two strategically timed treatments a year will treat most adult horses sufficiently. Foals, yearlings, and weanlings usually require more frequent deworming beginning around 2 to 3 months of age, addressing roundworms and tapeworms specifically. See the Guidelines for details.

Considering most horses become infected while grazing, embracing appropriate manure and pasture management will decrease reliance on chemical dewormers. Stocking density, time spent on pasture, ages of horses, whether the herd is open or closed, an operation's willingness to commit the necessary time and energy to manage manure/compost, pasture rotation, etc. all impact parasite control's efforts.

While it is impossible to fully summarize all of the important, evidence-based information presented in the Guidelines, recall that not all horses will respond similarly to even the highest quality parasite control program.

Recommended Resource

1. Nielsen MK, Mittel L, Grice A, et al. AAEP parasite control guidelines. 2017. aaep.org/guidelines/parasite-control-guidelines.