

Internal Parasites & U.S. Horses: Strongyles

Strongyles, also known as blood worms, are parasites ingested by the horse that can cause colic, anemia, diarrhea, weight loss, poor performance, and other problems. Small strongyles are particularly problematic because they enclose themselves in a cyst within the intestinal wall where they are resistant to many antiparasitic drugs. They can do severe damage, especially when they emerge in large numbers from the encysted stage. A higher level of strongyle infection may have more of an impact on health than a lower level of infection.

The USDA's National Animal Health Monitoring System (NAHMS) collected data on equine health and management practices from a stratified random sample of equine operations in 28 states¹ as part of the Equine '98 study. These operations represented about three-fourths of the equine population and three-fourths of operations with equids in the U.S. Overall 2,904 operations with one or more equids participated in the first interview from March 16 through April 10, 1998.

The biological sampling phase of the Equine '98 study was limited to 1,178 operations with three or more horses on January 1, 1998. Of these operations, 985 operations participated in the parasite portion of the study. Fecal samples were collected from a total of 8,516 horses. The number of horses sampled per operation varied by size of operation. The National Veterinary Services Laboratories (NVSL) in Ames, Iowa, performed a fecal flotation exam² on the samples and counted the number of eggs in one gram of feces. Eggs from large and small strongyles cannot be differentiated by fecal flotation alone and are thus reported here as one group. All estimates are based on analyses and weighted data allowing for inference to the overall horse population in the 28 participating states. More detailed information on the study and the sampling methodology is available on request.

Most of the parasite eggs detected from individual horses

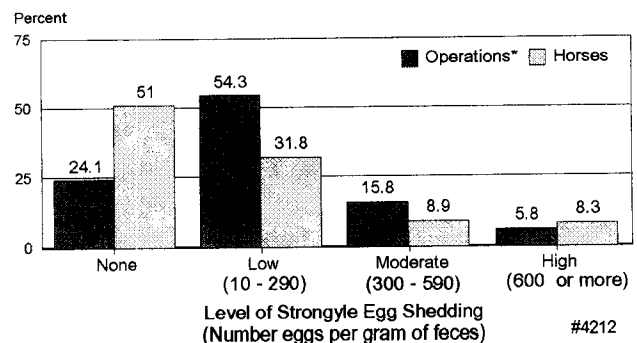
and on operations were from strongyles. Results on other parasites detected are reported in a companion Info Sheet.

Based on Equine '98 results, an estimated 49.0 percent of *horses* shed a detectable level of strongyle eggs. On 75.9 percent of *operations*, at least one of the horses tested shed a detectable level of strongyle eggs. Among horses shedding any strongyle eggs, the average number shed was 324 eggs per gram of feces. The average number of eggs shed was similar among age groups of horses and across sizes of operations.

Horses shedding ten to 290 strongyle eggs per gram of feces were considered as shedding at a low level. Moderate and high levels were 300 to 590 eggs/gm and 600 or more eggs/gm, respectively. The majority of horses (82.8 percent) were either not shedding or were shedding at a low level. The level of strongyle eggs shed on an operation was determined by the average number of eggs shed per horse sampled on the operation. The majority of operations (78.4 percent) had no horses found to be shedding or had low levels of shedding (Figure 1).

Both the percentage of *horses* shedding moderate or high levels of strongyle eggs and the percentage of *operations* with moderate or high levels of shedding were significantly lower in the Western region than in the Southern or Central regions of the U.S. (Figure 2).

Figure 1
Percent of Operations (and Percent of Horses)
by Level of Strongyle Egg Shedding

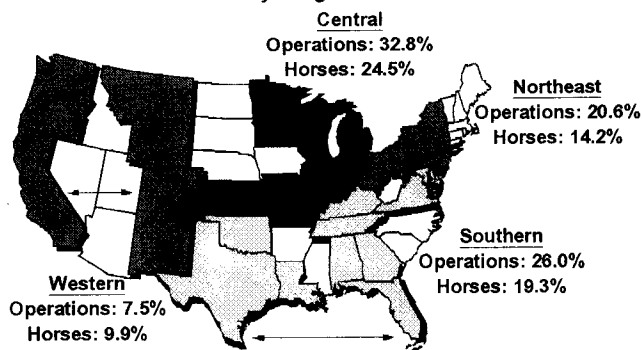


*Based on average number of eggs shed per horse sampled on the operation.

¹Alabama, California, Colorado, Florida, Georgia, Illinois, Indiana, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Missouri, Montana, New Jersey, New Mexico, New York, Ohio, Oklahoma, Oregon, Pennsylvania, Tennessee, Texas, Virginia, Washington, Wisconsin, and Wyoming.

² Modified Stoll's technique using Sheather's solution. Results reported in 10 eggs per gram increments.

Figure 2
Percent of Operations (and Percent of Horses) Positive for a Moderate or High Level of Strongyle Egg Shedding by Region



Shaded states participated in the NAHMS Equine '98 Study.

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The percentage of *horses* shedding moderate or high levels of strongyle eggs was significantly higher among horses primarily used for farm/ranch work (33.1 percent) than for horses primarily used for breeding (16.2 percent), pleasure (15.6 percent), racing (9.4 percent), and show/competition (8.4 percent). The percentage of *operations* with an average of moderate or high level of shedding among those horses tested was significantly higher for those with a primary function of farm/ranch (30.5 percent), breeding (25.1 percent), and residence (19.2 percent) than operations with a primary function of boarding/training (4.6 percent).

Equine '98 results indicate that the percentage of *horses* shedding moderate or high levels of strongyle eggs in the summer (19.0 percent) was not significantly different from the percentage shedding in the winter (14.5 percent). The percentage of *operations* with moderate or high levels of shedding was also similar across seasons.

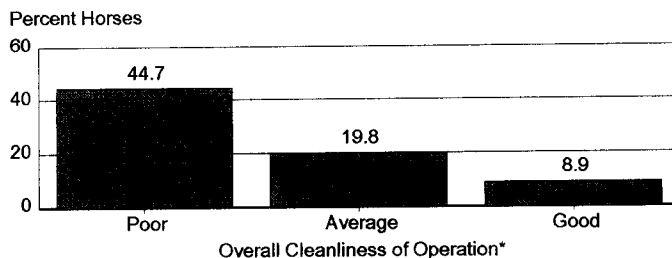
The percentage of *horses* shedding moderate or high levels of strongyle eggs was lower on operations with 20 or more horses (9.6 percent) than on operations with one to five horses (20.4 percent) and six to 19 horses (21.2 percent).

The overall cleanliness of each equine facility was assessed by the sample collector. Study results showed that the percentage of horses shedding moderate or high levels of strongyle eggs decreased as the cleanliness of facilities improved (Figure 3).

Equine '98 found that 96.8 percent of operations had dewormed the majority of resident horses at least once in the previous 12 months. The percentage of operations with at least one horse shedding a detectable level of strongyle eggs was lower for operations where resident horses were dewormed (75.1 percent) compared to operations where they were not dewormed (96.5 percent). Percentages of operations with moderate or high levels of

Figure 3

Percent of Horses Positive for a Moderate or High Level of Strongyle Egg Shedding by Overall Cleanliness of the Operation*



*As determined by data collectors.

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shedding were similar, regardless of whether or not they dewormed the majority of resident horses.

A total of 9.1 percent of operations fed a continuous dewormer to the majority of the horses 18 months or older. No difference was detected in the percentages of operations with at least one horse shedding strongyle eggs, regardless of whether or not they fed continuous dewormer. However, the percentage of operations with moderate or high levels of shedding was lower for operations that fed a continuous dewormer (7.6 percent) compared to those that had not (23.5 percent). The study did not determine the types of products used for deworming or the date of administration.

Over two-thirds of the operations (67.8 percent) had rotated the type of dewormer used in the previous 12 months. The percentages of operations with at least one horse shedding strongyle eggs as well as the level of shedding on operations were similar regardless of whether or not they rotated dewormers. The study was not designed to measure resistance to various types of dewormers.

A goal of any deworming program should be to keep strongyle infection at a low level, because higher levels have more of an impact on health. Regular administration of dewormers can decrease the number of eggs being shed into the environment. This practice, along with removing manure on a regular basis and avoiding overcrowding, will help to reduce the environmental load of parasite eggs. Internal parasites can develop resistance to dewormers and rotating among different classes of compounds may delay resistance. A veterinarian should be consulted to establish an effective deworming program, and periodic surveillance with fecal flotation exams can be used to evaluate the success of the program.

Centers for Epidemiology and Animal Health
 USDA:APHIS:VS, attn. NAHMS
 2150 Centre Ave., Bldg. B, MS 2E7
 Fort Collins, CO 80526-8117
 (970) 494-7000
 E-mail: NAHMSweb@aphis.usda.gov
<http://www.aphis.usda.gov/vs/cah/cahm>

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