

Livestock Health Series

Internal Parasites of the Horse

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Introduction

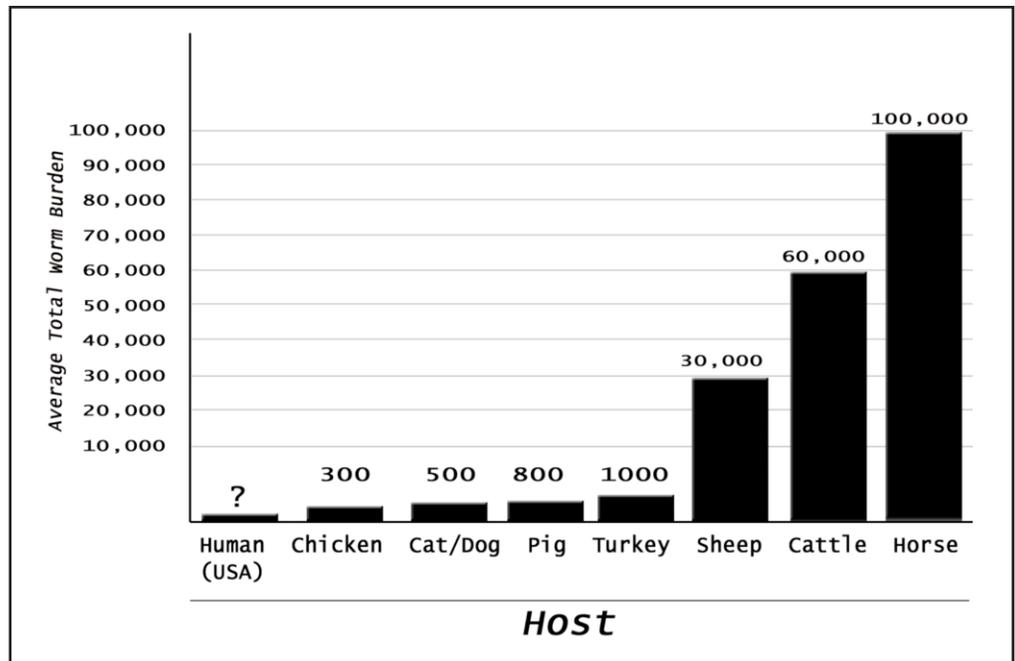
The “normal” parasite burden of horses should be put into perspective, relative to the burdens of the other farm animals and man (Figure 1). If man has one worm, that’s probably one too many. Chickens generally host worm totals rarely exceeding 300. Cats and dogs harbor worms of 10 or more species, with total worm loads averaging about 500. Turkeys host average worm burdens of approximately 1,000 (all of only one species). Sheep, cattle and horses graze pastures. Therefore, by virtue of diet, these animals consume the source of their parasites on a continuous basis and carry extremely large worm burdens as

a result. Of these herbivores, horses usually harbor the largest worm burdens, with worms from 40 or more species well represented. And, if the worms aren’t enough, horses also serve as hosts to “bots,” insect larvae that live in the horse’s mouth and stomach during their parasitic existence prior to exiting the horse for a short life as flies.

The Parasites of the Horse

In general, we can categorize horse parasites within eight categories that account for more than 95 percent of the parasite presence in horses. These groups are presented in Table 1.

Figure 1. “Average” total worm burdens for selected hosts.



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Table 1. The major categories of horse parasites.

Scientific Name	Barnyard Name	Site of Infection	Comment
<i>Gasterophilus</i> spp instars	Bots	Mouth and stomach	<ul style="list-style-type: none"> • 100% incidence • Ivermectin is drug of choice • Treat after second killing frost
<i>Habronema</i> , <i>Draschia</i> and <i>Trichostrongylus</i>	Stomach worms	Stomach	<ul style="list-style-type: none"> • More of a problem as “summer sores” than internal infection • <i>Trichostrongylus</i> is “shared with” cattle
<i>Parascaris equorum</i>	Roundworm	Liver and small intestine	<ul style="list-style-type: none"> • Typically in foals only • Heavy infections require careful treatment
<i>Strongyloides westeri</i>	Threadworm	Small intestine	<ul style="list-style-type: none"> • Primarily in foals • Can penetrate skin plus come in “on” the colostrum
<i>Anoplocephala</i> spp	Tapeworms	Small intestine	<ul style="list-style-type: none"> • Can be a concern on some farms but usually of minor importance • Requires a free-living pasture mite in the life cycle
<i>Oxyuris equi</i>	Pinworm	Large intestine and anus	<ul style="list-style-type: none"> • Not all that common • Excessive rear-end rubbing is a sign
<i>Onchocerca cervicalis</i> , <i>Setaria equina</i> and <i>Thelazia lacrimalis</i>	Filariids	Neck ligament, abdominal cavity and eye, respectively	<ul style="list-style-type: none"> • Usually not a problem but skin and eye lesions are possible • Avermectins should effect removal
<i>Strongylus</i> spp and small strongyles	Strongyles	Large intestine and cecum	<ul style="list-style-type: none"> • <i>Strongylus vulgaris</i> larvae can damage the cranial mesenteric artery (blood vessels to the intestine) • Small strongyles are the most important group of parasites in the horse

Horses will consistently play host to parasites due to a number of factors, which include:

- The adult horse immune system is not 100 percent effective in preventing or eliminating most parasite populations.
- Horses are constantly exposed to new parasites since all horse pastures reservoir infective stages.
- No dewormer is 100 percent effective or protective against parasite infections.

Each of the parasites listed in Table 1 can be severely pathogenic but are usually not. Most parasites are subclinical in their detriment, meaning that they adversely affect the horse but not so much that it is visible to the horse owner. In addition, most of the parasites listed have restricted incidences – only occurring in significant levels on some farms but not others, in certain age groups but not others, etc. However, one group of parasites, the small strongyles, are most deserving of discussion because they are in every horse and on every farm and are regarded by all horse parasitologists as the most important group of horse parasites.

Parasite Control Measures

Basically, parasite control measures encompass two broad objectives:

- To minimize levels of exposure to parasites.

- To minimize the level of parasites maintained by the horse.

Generalized procedures for accomplishing the above objectives include both managerial and chemical means of control:

1. Collect and compost as much fresh horse manure as possible prior to its dispersal onto the pastures. Prevent fecal contamination in feed and water troughs.
2. Keep pastures in good shape. The closer horses graze to the ground and old stool piles, the more worms they get. Rotating pastures can be an effective management tool.
3. Keep stocking rates low.
4. During fly season, remove bot eggs daily from leg and body hairs.
5. Keep horses healthy. Although immune responses aren't adequate to completely protect horses from parasite burdens, a healthy horse will ward off more parasites than an unhealthy horse. Plus, healthy horses are better at repairing tissue damage caused by parasites.
6. Use an effective and strategic parasite treatment program.

Life Cycle of Small Strongyles

One key to any parasite control program is to interrupt the life cycle of the parasite. The life cycle employed to some extent by all of the 40 or 50 small strongyle species is presented in Figure 2. Six different life cycle stages are completed by each species, with all stages accomplished in as short as 70 days or as long as 2½ years. A number of factors are involved in dictating the speed of the parasite's rate of development.

The life cycle can be divided into three segments:

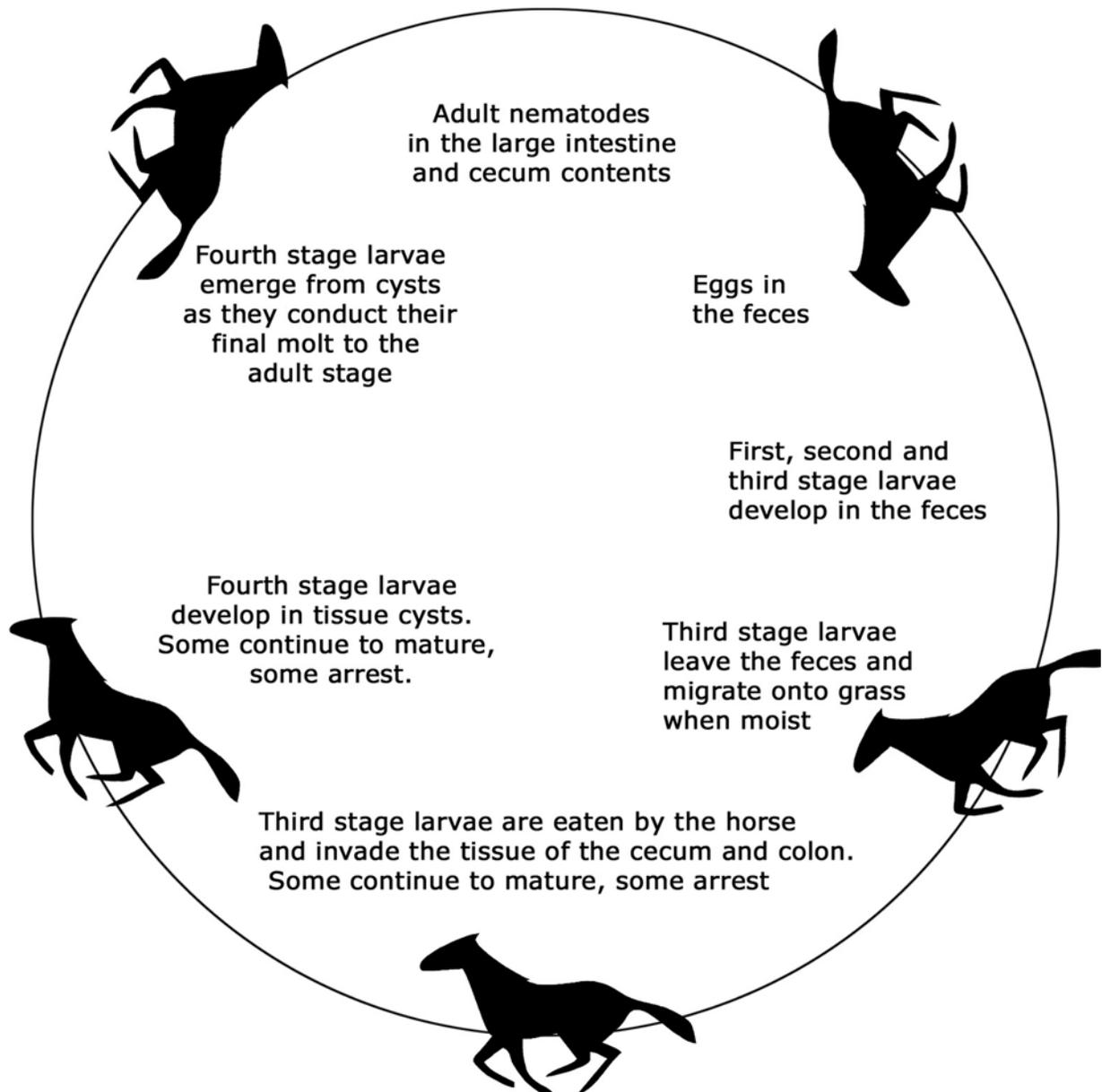
- The environmental phase (eggs and larvae on pasture)
- The luminal phase (adults in the intestinal contents)
- The tissue phase (larvae in the intestinal wall)

Given the many stages, phases and reservoirs involved in the life cycle of small strongyles, it is readily apparent that this disease complex is impossible to remedy completely. Rather, one must reduce parasitisms to a level that allows for optimal horse health.

Treatment

A sound parasite control program requires planning and consultation with your veterinarian. There are several classes of anthelmintics (dewormers) that can be utilized for horses. However, drug resistance does currently exist and treatment efficacy may be limited with some products. Furthermore, routine treatment of all horses on a farm may not be indicated. Alternatively,

Figure 2. The generalized life cycle for horse, small strongyles.



selective treatment may be applied to individual animals that are harboring significant infections warranting treatment. In some situations, parasite levels may be low enough that horses require minimal treatment. In other situations, such as overstocked pastures, treatment may be required more often. In regard to parasite treatment in horses, keep in mind the following:

- Ivermectin and moxidectin are effective against bots.
- When administering an anthelmintic, the animal should receive the proper dose based on

their current body weight (a weight tape is a necessity).

- Pyrantel and praziquantel are effective against tapeworms (therapeutic doses).
- Horses should be treated for bots and tapeworms in the late fall/early winter after cold weather has reduced bot fly and pasture mite populations.
- Benzimidazoles (fenbendazole, mebendazole, oxbendazole, oxfendazole) may have limited efficacy against some parasites of horses.

Visit with your veterinarian about initiating a strategic deworming program on your farm.

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