

FACT SHEET

L-1420

INTERNAL PARASITES OF THE HORSE

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Texas has an estimated 680,000 head of horses. A few years ago, most of the horse population was on farms and ranches, and animal concentration was very low. In the past two decades, however, the horse population has shifted from rural areas to the suburbs, and now most of the horses in Texas are concentrated in a few areas. Under these conditions, internal parasites propagate readily.

Parasites are organisms that live on or within other organisms and obtain food from their hosts. This generally causes some detriment to the host animal. The symptoms of parasitism are varied, depending on 1) the number of parasites in the host, 2) whether or not the parasites consume blood for food, and 3) whether or not they migrate through the body and damage organs. In horses, internal parasites produce one or more of the following symptoms:

1. Dry, rough hair coat
2. Incomplete shedding
3. Erratic appetite
4. Hard keepers
5. Diarrhea
6. Anemia
7. Colic
8. Intermittent lameness

Worming Program

A specific worming program can best be outlined by your local veterinarian, who is familiar with climatic conditions and parasites which cause the greatest problems in your area. In general, it is a good practice to worm foals four times the first year, starting in May or June, and at a frequency of every other month. Periodic treatment for horses 2 years old and older will vary from two to six times a year depending on how prevalent parasites are in your area and the training program your horse is on.

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The last worming of the year should occur approximately 1 month after the first killing frost. This will give the best control of Bots. In areas where freezing does not regularly occur, worming should be a year-round program.

A Sample Program of Periodic Treatments

Date	Number of treatments per year		
	6	4	2
February 1	X		
April 1	X	X	X
June 1	X	X	
August 1	X	X	
October 1	X		
December 1	X	X	X

Basic Management Program

There is more to a good parasite control program than just routinely worming your horse, especially when the animal is confined in a relatively small area. A basic sanitation program is necessary to disrupt as much as possible the life cycle of the parasite. Figure 1 illustrates a general life cycle of three major internal parasite groups which attack horses, Strongyles, Ascarids and Pinworms.

It is apparent from the parasite life cycle that the closer the animal is confined the greater is the possibility of its feed and water being contaminated with manure which contains the infective stage of the parasite. Keeping manure shoveled up daily is the best sanitation method. When removing manure is impractical, routine harrowing will expose a large percentage of the eggs to direct sunlight, which kills parasite eggs and larvae.

Draining or fencing off stagnant ponds is advisable, because the eggs and larvae of most worms require moisture for development. Temperature also is an important factor in parasite development. Cold temperatures usually retard growth, while warm temperatures

accelerate it. Although parasites are more prevalent in the warm, humid southern and southeastern parts of the U.S., they cause significant livestock losses in northern and western areas also.

Another important management practice is placing feed in troughs and racks, because feeding on the ground greatly increases parasite infection. Pasture rotation is also recommended. Research at Texas A&M

University involving rotation between two pastures at a 60-day interval, in combination with a worming program, resulted in good control of parasites. But the pasture must be completely free of horses during its 60-day rest period.

Control of internal parasites can be achieved only through a routine worming program and the use of good management practices.

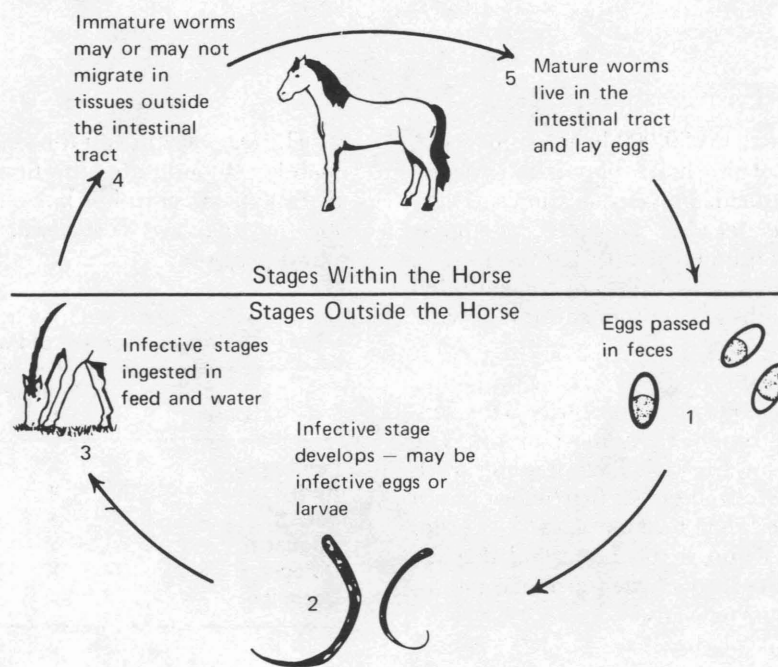


Figure 1. Life cycle of Strongyles, Ascarids and Pinworms.

Strongyle Group (Bloodworms, Redworms, Palisade Worms)

These worms are blood suckers, and of the four major groups they do the most damage to the horse. Many people judge the effectiveness of a worm medicine by the number of dead worms found in the horse's stool the following morning. To judge on this basis requires very close observation, since there are approximately 40 species of strongyles that are less than 1 inch long. These are referred to as small strongyles. Three other species, the large strongyles, vary from 1 to 2 inches in length.

Strongyles damage the intestinal wall at the point of attachment through which they suck blood. These worms wander from place to place within the intestine

and the points of attachment become ulcerated. A heavy infestation will produce anemia, digestive disturbances and emaciation.

One large strongyle, *Strongylus vulgaris*, (commonly called the blood strongyle), is very dangerous. Its larval form penetrates the wall of the intestine and moves into the blood vessels. This migration continues through several organs, including the liver, lungs and heart, and in each organ healthy tissue is destroyed. This parasite attaches primarily to the anterior mesenteric arteries, one of the main lines of blood supply to the intestines. The worm weakens the artery wall, causing a sac-like bulge called an aneurism. Blood pressure may cause the aneurism to rupture, resulting in the horse bleeding to death in a short time. More frequently, however, blood clots develop in the an-

eurism. These clots frequently break loose, especially when an animal is worked hard. The clots lodge in smaller blood vessels, reducing the supply of blood to that area. Interference with the circulation of blood to the intestines predisposes the animal to colic. Death may occur in severe cases. It is commonly believed that most cases of colic in horses result from the disturbance of blood circulation by this large strongyle. A clot lodging in a blood vessel of the leg may cause lameness.

Several species of strongyle larvae penetrate the intestinal wall, enter the bloodstream and migrate through the liver, heart and lungs. Larvae in the lungs are coughed up and swallowed. The adult stage develops in the large intestine. Worm medicines are effective against worms in the intestinal tract but do not kill larvae migrating outside the intestinal tract. For this reason it is possible to find large numbers of eggs in the stools of horses a few weeks after they have been properly wormed. A series of two or more wormings 2 to 3 weeks apart may be necessary to completely rid the horse of these parasites.

Ascarids (Roundworms)

Ascarids are most detrimental to young horses. Horses over 4 or 5 years old seldom have any major problems.

After a horse swallows the eggs, the larvae hatch in the intestinal tract. They immediately penetrate the intestinal wall and migrate through the bloodstream to the liver, and later to the heart and lungs. Damage to these organs may cause hemorrhage, pneumonia and fever. This migration continues up the trachea where the larvae are coughed up and swallowed. The larvae remain in the intestinal tract this time and mature to adult worms in the small intestine. This cycle requires 2 to 3 months. Therefore, colts exposed at an early age suffer considerable tissue damage at a critical time in their lives.

The large size and great numbers of these worms may cause partial or even complete blockage of the small intestine. This results in colic and possibly death.

As with the strongyles, worm medicines do not affect ascarid larvae migrating outside the intestinal tract. Ascarid eggs are very resistant to changes in environment and to chemical disinfectants. The eggs remain infective for a long time; consequently, a very high concentration of eggs can develop under close confinement conditions unless good sanitation is practiced.

Pinworms

Mature pinworms are located in the colon and rectum. Pinworms are the least damaging internally to

the horse. Itching caused by irritation around the rectum provokes tail rubbing, and the resulting loss of hair spoils the horse's appearance.

Habronema

This parasite (a small roundworm) normally is located in the stomach of the horse. Eggs and larvae are passed in the horse's stool. The larvae are ingested by the maggot of either the house or stable fly. The cycle is completed when the infective larvae are deposited on the lips of the horse when the fly is feeding, or more commonly, when the horse eats flies which get into its feed or water.

There are several species of the horse stomach worm; most of them live on the surface of the stomach, but one species penetrates the stomach wall and forms large nodules from 1 to 4 inches in diameter. These nodules contain several worms and pus.

Irritation to the stomach, which leads to poor digestion and sometimes colic, is the usual pathological change produced. Worm medicines are effective against the species that remain on the stomach surface, but have little or no effect on the species that is encapsulated in nodules.

Summer sores, or Jack sores, is another disease caused by this parasite. It may occur when the feeding fly deposits the larvae in a wound. The larvae penetrate and irritate the wound area. This retards healing and produces a pulpy mass of material. This material is commonly called proud flesh, and the wound usually will persist for several months. These sores usually occur on the lower part of the leg. Organic phosphate pesticides given orally have been the most effective treatment for summer sores. Surgical removal of proud flesh is frequently required.

Bots

The life cycle of the bot is a little different from that of the other parasites discussed, in that the female bot fly lays its eggs from spring to fall by attaching them to hairs of the horse.

The bot fly is black and yellow and resembles a bee. The adult fly only lives for about 2 weeks. The eggs are yellowish and are generally attached to hairs under the chin and from the knees down on the front legs of the horse. The eggs are capable of remaining infective on the hair for as long as 2 months. As the horse rubs and licks its legs, eggs are picked up on the tongue and lips. The eggs hatch rapidly under the stimulus of moisture and warmth. The larvae then penetrate the gums, tongue and surrounding tissue, where they remain for approximately 1 month. Then they pass to the stomach and attach themselves to the stomach wall. They cause inflammation and pitting of the stomach wall, which may predispose the horse to indigestion and infection.

To effectively control bots, one worming must be scheduled at least 1 month following the first killing

frost. There is no satisfactory method of preventing the flies from laying their eggs.

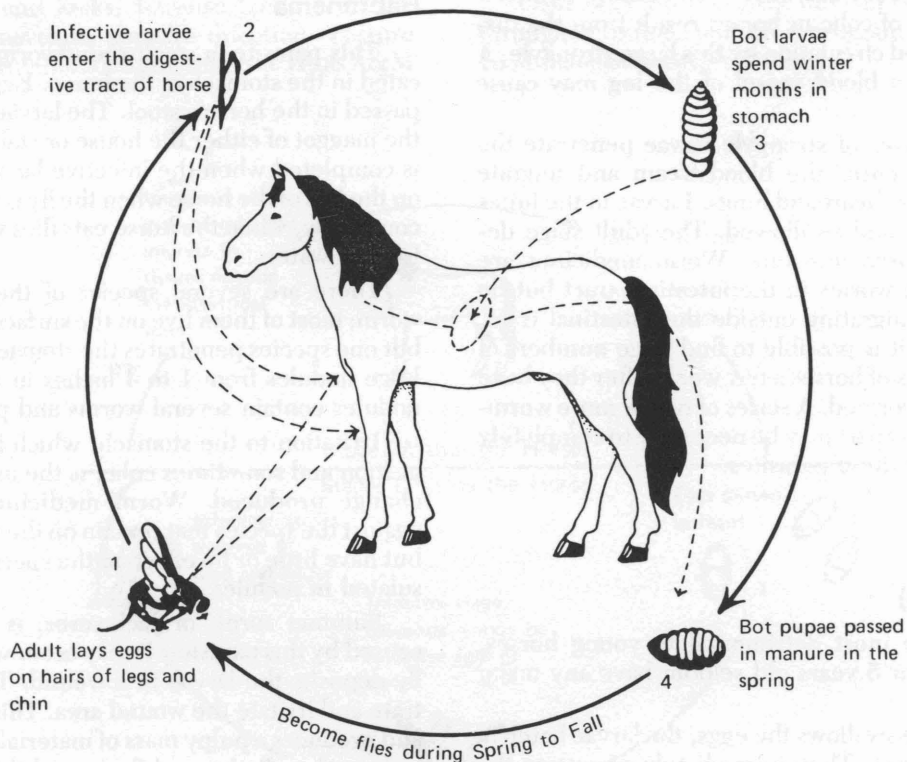


Figure 2. Bot life cycle.

Illustrations were taken from "Controlling Internal Parasites of the Horse," by W. E. Wise, J. H. Drudge and E. T. Lyons, published by the University of Kentucky College of Agriculture Cooperative Extension Service.

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