



What Are Bots?

- Bots are the immature form (larvae) of certain types of flies. *Gasterophilus nasalis*, *Gasterophilus hemorrhoidalis* and *Gasterophilus intestinalis* are the most common species of bots in horses.
- Bots are very common parasites of horses all over the world.
- The larvae are found attached to the inside of the stomach wall of horses.

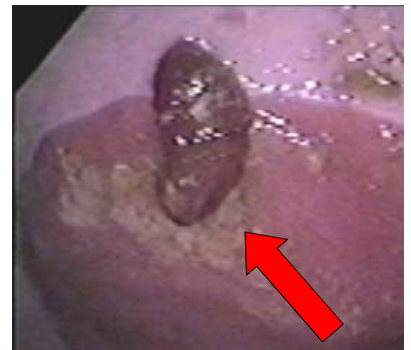
How Do Horses Get Bots?

- The adult *Gasterophilus* flies lay eggs on the hair of horses, particularly on their legs, during late summer and fall.
 - The eggs are small (1-2 mm) but they can be seen fairly easily with the naked eye if you look for them (see picture right).
- When the horse licks itself, it may get some of the eggs in its mouth. The eggs then hatch. Eggs that are laid around the mouth of the horse may hatch on the skin where they are laid.
- The newly-hatched larvae penetrate into the tongue or other tissues in the horse's mouth.
 - This does not cause any problems or discomfort for the horse.
 - The larvae stay in the mouth tissues for a few weeks, and then migrate down to the stomach.
- The larvae attach to the inside lining of the stomach (see picture below), where they continue to grow and mature. Then they detach from the stomach wall and are eventually passed in the horse's manure.
- The mature larvae pupate in the manure, and ultimately an adult fly emerges. The cycle then begins again.



What Do Bots Do?

- Usually bots don't do anything harmful at all. Sometimes the bots leave small erosions (mild ulcers) where they attach to the wall of the stomach, but there is very little evidence that these have any effect on the horse.
- Uncommonly, very large numbers of bots larvae may be present, but even with these severe infestations, the horse rarely shows signs of illness. Theoretically, a very heavy burden of bots could cause weight loss, ill-thrift, and interference with normal stomach emptying, but these signs are very rare, if they occur at all.



How Are Bots Diagnosed?

- Bots are usually found accidentally when a horse has a gastroscopy (i.e. "scoping" of the stomach, during which the inside of the stomach is examined using a flexible camera (endoscope)).
- Occasionally, bot larvae can also be found in the horse's manure.
- Bot eggs are usually easy to see on a horse's haircoat, especially if the horse has dark hair. If there are bot eggs on the horse's haircoat, then it is reasonable to assume that the horse has been exposed to bot larvae.



How Are Bots Treated?

- Although bots do not cause significant disease in horses, most deworming programs for other intestinal parasites will also be effective against bots.
- A dewormer such as ivermectin or moxidectin used twice a year will typically eliminate bots.
 - In areas with a temperate climate, it is best to give one of these treatments in early to mid winter, once the potential exposure to the adult *Gasterophilus* flies is over for the season.

Should I Remove Bot Eggs From My Horse's Legs?

- The eggs on a horse's haircoat can be removed manually, but this may take a lot of work!
- Manually removing bot eggs is probably not worth the effort, since bots so rarely cause problems and they are easily killed with dewormers.