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Worming and Faecal Egg Counts

Internal parasites, or worms, are silent thieves and killers. They can cause extensive internal damage without you even realizing your animals are heavily infected. The effects of internal parasites on a horse range from a dull haircoat and unthriftiness to colic and death. Internal parasites lower the horse's resistance to infection, rob the horse of valuable nutrients, and in some cases, cause permanent damage to the internal organs. In terms of management priorities, establishing an **effective parasite control program** is probably second only to supplying the horse with clean, plentiful water and high-quality feed. **It's that important!**

TYPES OF INTERNAL PARASITES

There are more than 150 species of internal parasites that can infect horses. The most common and troublesome are the following:

- Large strongyles (bloodworms or redworms)
- Small strongyles
- Roundworms (ascarids)
- Tapeworms
- Lungworms
- Pinworms
- Bots
- Threadworms

Probably the most important, in terms of health risk, are the first four: **large and small strongyles, roundworms and tapeworms**.

The lifecycle of most internal parasites involves eggs, larvae (immature worms), and adults (mature worms). Eggs or larvae are deposited onto the ground in the manure of an infected horse. They are swallowed while the horse is grazing, and the larvae mature into adults within the horse's digestive tract (stomach or intestines). With some species of parasite, the larvae migrate out of the intestine, into other tissues or organs, before returning to the intestine and maturing into egg-laying adults.

There is no scientific data but I think we have a huge problem in Capetown with the worms also being spread by the wind!!!!!!!!!

Large Strongyles

Large strongyles, as larvae, penetrate the lining of the bowel and migrate along the blood vessels that supply the intestines. Even small numbers of these larvae can cause extensive damage and possibly death.

Infection with large strongyles can cause unthriftiness, weight loss, poor growth in young horses, anemia (low numbers of red blood cells) and colic. In most cases, colic caused by these parasites is relatively mild, but severe infections can result in loss of blood supply to a portion of the intestine, leading to severe and potentially fatal colic. **Fortunately, large strongyles can be effectively controlled by most available dewormers for horses.**

These are large strongyles in fecal material

This picture shows the destruction large strongyles cause to arteries.

Small Strongyles

Small strongyles have become a group of major importance. Unlike the large strongyles, small strongyle larvae do not penetrate the intestinal wall or migrate through the tissues. Instead, they burrow into the lining of the intestine and remain dormant, or "encysted" (enclosed in a cyst-like structure), for several months before completing their life cycle. **During this time, the larvae are resistant to most dewormers. Moxidectin (Equest) is one of the few drugs that has little resistance to it. Prolonged courses of fenbenzadole can also be effective, but there is growing resistance to this drug. Remember it is the WORM that develops resistance, not the horse.**

Small strongyle larvae can cause severe damage to the lining of the intestine, especially when large numbers of larvae emerge from the encysted stage all at once. Adult small strongyle females are very prolific and their eggs comprise over 95 percent of those found in fecal egg counts of horses. Colic and diarrhea are common in heavily infected horses. These parasites also cause weight loss, slowed growth in young horses, poor coat condition and lethargy or lack of energy, diarrhea and protein loosing enteropathies. While lighter infections are not obvious, it is common for a horse's general health and performance to improve after treatment for these parasites.

The early and late larval stages (before and after they burrow into the lining of the intestine) and the adult parasites are susceptible to several dewormers. But currently there are only two types of dewormer that are effective against the encysted larval stage—the stage that causes the most damage. Strategic use of these products is called **larvicidal therapy**, as it is targeted at the encysted larvae. The products that are currently most effective-**Equest (moxidectin) or a 5 day course of Panacur Equine Guard (fenbendazole).**

Equest kills the worms out right by paralyzing them. Panacur kills the encysted worms more slowly, by starving them. So if you suspect a HIGH infection level with encysted small strongyles, it can be safer to do a 5 day course of Panacur. If you kill lots of the encysted worms quickly, it causes a rapid emergence through the gut, potentially causing serious gut damage, diarrhoea and colitis.

<u>Roundworms</u>

Roundworms, or ascarids, are most often a problem in young horses (especially foals, weanlings and yearlings). Older horses do tend to develop resistance to round worms but they can be a problem in stressed or immuno-compromised horses. Adult roundworms are several inches long and almost the width of a pencil; in large numbers they can cause blockage (or impaction) of the intestine. In addition, roundworm larvae migrate through

the internal organs until they reach the lungs. They are then coughed up and swallowed back into the digestive tract to complete their life cycle. Large infections can lead to damage to the liver or lungs due to migration of these larval forms.

Roundworm infection in young horses can cause coughing, poor body condition and growth, rough coat, pot belly and colic. Colic is most likely in older foals (over 3 months of age) that are heavily parasitized with roundworms when dewormed for the first time. It is the most pathogenic worm in the foal. By this stage, the roundworms can have matured into adults that could cause an impaction. Resistance to many of the dewormers has become a big problem in controlling ascarid infections in foals over the past few years.

Roundworm infection can occur in adult horses with poor immunity or poor previous worming control. There is a growing problem with resistance to the ivermectin wormers (ivermectin, moxidectin, abermectin) as these de wormers are used so heavily in foals. If adults are having high Parascaris counts then resistance has to be considered as one of the causes.

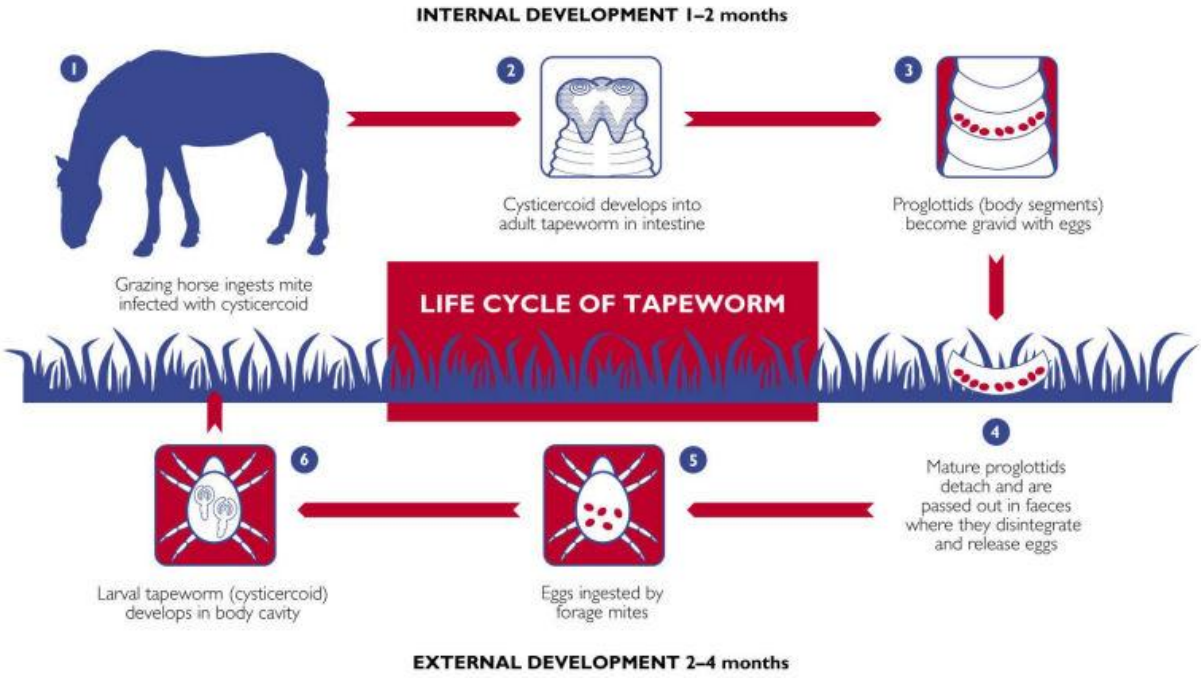
The roundworm eggs can survive for up to **TEN YEARS** on the pasture, passing infection from one foal crop to the next, and possibly into adults as well. It is vital that faeces are removed from the pasture to prevent the spread of Parascaris infections.

Round worms causing a blockage in the small intestine, leading to colic and life saving surgery.

Tapeworms

We now know that tapeworms can cause colic, ranging from mild cramping to severe colic that requires surgical treatment. The tapeworm life cycle involves a tiny pasture mite as an intermediate host, and horses are at a risk of developing tapeworm infection when they eat this mite in the grass, hay or grain.

Praziquantel has been demonstrated to be highly effective against tapeworms. Several pharmaceutical companies have developed combination products (eg equest, pegamax, pegaforte).



Courtesy of the university of liverpool

Other Internal Parasites

Lungworms cause chronic coughing in horses, ponies, and mules. Donkeys are the natural host of this parasite, so typically they don't show any obvious signs of infection.

Pinworms lay their eggs on the skin around the horse's anus. The irritation they cause makes the horse repeatedly rub its tail.

Threadworms are mostly a problem in young foals, in which they can cause diarrhea.

Bots don't usually cause major health problems, although they can damage the lining of the stomach where they attach. Since ivermectin has become such an easy deworming medication to obtain, bots are rarely found in properly dewormed horses. They may also cause small areas of ulceration in the mouth, where the larvae burrow into the tissues for a time after the eggs are taken into the mouth.

SIGNS OF PARASITISM

Contrary to popular belief, horses can have potentially dangerous numbers of internal parasites while still appearing to be relatively healthy. But in some individuals, especially young horses, parasites can take a visible toll. Common signs of parasitism include the following:

- Dull, rough haircoat
- Lethargy (decreased energy) or depression
- Decreased stamina
- Unthriftiness or loss of condition
- Slowed growth in young horses
- Pot belly (especially in young horses)
- Colic
- Diarrheoa
- Anaemia
- Weight loss

METHODS OF WORM CONTROL

FAECAL EGG COUNTS

One of the most useful tools in a parasite control program is the fecal egg count—microscopic examination of fresh manure for parasite eggs. This simple and inexpensive test allows the vet to determine which parasites are present and whether the infection is light, moderate, or heavy. This information is important in developing a deworming program for your horse or farm, and in monitoring the effectiveness of the program.

Fecal egg count involves collecting two or three fresh manure balls from the horse to be tested and sending the manure sample to a veterinary laboratory. Results are expressed as eggs per gram (epg) of manure. A fecal egg count of less than 200 epg suggests a light parasite load. Horses with high fecal egg counts of 500-1000 epg suggest the interval between deworming is too long, or if recently wormed, that there is resistance to that de wormer drug by the worms in that horse.

It is important to note that a negative fecal examination does not mean the horse is free of internal parasites. Some types of parasites produce eggs only intermittently. Larvae do not produce eggs at all, and may be present in large numbers in a horse with a fecal egg count of zero. And tapeworm eggs may be missed with routine fecal egg count techniques. The results are most useful when several horses on a farm are tested on the same day. This information gives the vet and yard manager a good idea of the level of parasitism on the property. If horses test zero, then retest them in 6-8 weeks. It is very difficult to see tape worm eggs on a FEC. In the UK there is a blood test to look for antibodies produced against tapeworm but this isn't yet available in South Africa. There fore it is advisable to deworm for tapeworms using praziquantel or double dose pyrantel twice yearly at least.

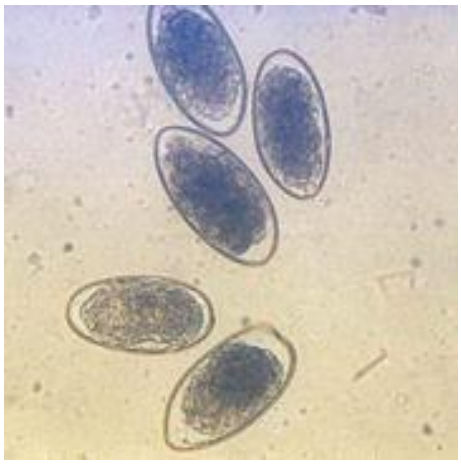
A zero worm egg count is not always desirable. Infact you want your horse to have a small 'resident' population of worms (FEC no greater than 200epg). This decreases the chances of a build up of resistance worms as the resident worms provide competition for the resistant worms.

By doing FEC'S you are;

Avoiding overworming horses that require deworming, thus saving money and decreasing the risk of worms developing resistance

You can monitor the problem cases and aim to eliminate the 'shedders'

You can monitor the development of resistance by doing FEC's before and just after deworming. If worm burdens haven't decreased by at least 90% then you now there are resistant worms to that drug in that horse.



DEWORMERS

There are several different dewormers, or anthelmintics, currently available. Most are broad-spectrum, meaning that they are effective against several different types of parasites. It is generally best to use a broad-spectrum dewormer as the basis of your deworming program. If a specific problem is identified, such as tapeworms or encysted small strongyles, a more specific dewormer can be used.

No deworming product is 100 percent effective in ridding every horse of all internal parasites. However, it is not necessary for a product to kill every worm in order to improve the horse's health, minimize the risk of serious disease, improve feed efficiency, and reduce pasture contamination with parasite eggs and larvae.

There are two main ways to worm:

1. In response to FEC'S *THIS IS BY FAR THE BEST WAY, IF THE WHOLE YARD COMPLIES AND THEY ARE DONE REGULARLY AND THAT YOU REMOVE MANURE FROM THE PADDOCKS REGULARLY*.

2. Blanket routine worming all year round

Treatment Interval

The various deworming compounds each have benefits and weaknesses against different parasites as well as a defined period of time for which they are effective. It is a good idea to have your vet help you determine the best deworming interval for your horse. Fecal egg counts can be very useful in this regard, as well as in evaluating the effectiveness of the product you are using. **THE BEST WAY TO WORM, IF THE PADDOCKS ARE BEING CLEARED OF MANURE IS IN RESPONSE TO FEC RESULTS. THIS ENSURES THAT YOU ARE NOT OVER WORMING CLEAN HORSES, BUT TARGETTING INFECTED HORSES.**

NEW HORSES SHOULD BE FEC TESTED AND DEWORMED UPON ARRIVAL AND KEPT OFF PASTURE FOR 48 HOURS.

DESIGNING A DEWORMING PROGRAM

There is no single deworming program that suits all horses and all situations. The ideal program for your horse(s) depends on the type, number and ages of the horses on your farm, pasture management and your geographic location. It is best to have your vet help you devise an appropriate deworming program for your horse or farm.

Monitoring

Having your veterinarian perform fecal egg counts to determine the amount of egg shedding that your horse has is important. This information will help ensure that the dewormers that are being used are effective and also help determine the frequency of deworming necessary to keep your horse healthy. The outlay of time and money will be well worth it.

A COMPLETE MANAGEMENT PROGRAM

Chemical control using dewormers is just one part of a complete parasite control plan. As parasites are primarily transferred through manure, good management is essential:

- Keep the number of horses per acre to a minimum to prevent overgrazing and reduce pasture contamination with parasite eggs and larvae
- Pick up and dispose of manure regularly (at least twice a week, even in dirt or sand yards)
- Do not spread manure on fields to be grazed by horses; instead, compost it in a pile away from the pasture
- Consider rotating pastures by allowing sheep or cattle to graze them, thereby interrupting the life cycles of equine parasites
- Keep foals and weanlings separate from yearlings and older horses to minimize the foals' exposure to ascarids and other parasites
- Use a feeder for hay and grain rather than feeding on the ground
- Remove bot eggs regularly from the horse's haircoat
- Consult your vet to set up an effective deworming program for your horse(s) and monitor its effectiveness.