



Redworm

Strongyles are nematode parasites that infect horses grazing on pastures contaminated with strongyle larvae. These larvae hatch from eggs passed in the faeces of infected horses. The strongyle parasite is commonly called a 'redworm' and there are two groups that infect horses: large strongyles (large redworms) and small strongyles (small redworms). There are several species of both large and small redworm.

The large redworm is red in colour and measures 1.4cm to 2.5cm in length. While the large redworm can cause severe illness, modern worming regimes have reduced their prevalence and infection is rare.

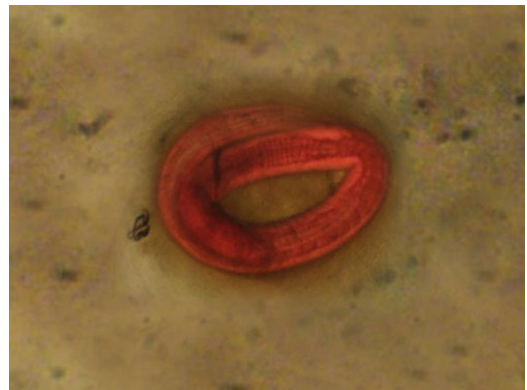


Figure 1 - Small Redworm

The small redworm is either red or white in colour (Figure 1) and measures 0.5cm to 2.5cm in length. Small redworm are common and are arguably the most significant parasitic threat to horse health; 95% of the parasitic burden found in horses are small redworm. The small redworm has an unusual developmental stage (described later), where the larvae burrow into the horse's gut wall and encyst with the potential of causing serious illness when they re-emerge.

Life Cycle

- **Redworm Laval Stage.** Eggs of the small and large redworm are passed in the faeces of horses, where they hatch into L1-stage larvae, before then moulting twice, first to the L2 stage and then to the L3 stage. The L3 larvae are infectious and are consumed by horses when grazing. The rate of development of the larval stages depends on the environmental temperature. In the UK temperatures, the larvae will develop from L1 to L3 within weeks, but hot summers and heavy frosts can kill the larvae. Although eggs will not hatch in the winter months, in more temperate conditions, the larvae (and particularly those of the large redworm) can survive.

- **Small Redworm.**

After they are ingested, the small redworm L3-stage larvae penetrate the wall of the large intestine and/or cecum (Figure 2). Within 1 to 2 weeks, each larva is encysted in a fibrous

capsule within which it continues to develop. The adult redworm, capable of laying eggs, normally emerges from the cyst after 4 to 6 weeks.

Adult small redworm, living in the horse's large intestine and/or cecum, cause little damage; they have small, shallow oral cavities, making it hard for them to attach to the gut lining. Most damage is caused when the larvae first penetrate the intestinal wall and when they later emerge from their encysted state.

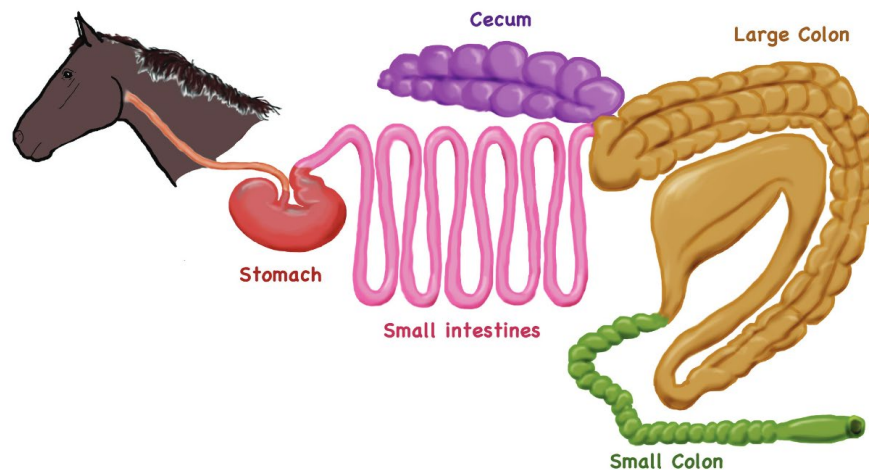


Figure 2 - Simplified Diagram of the horse's digestive system

Small redworm larvae have a protective mechanism that allows them to enter a dormant stage in late autumn. They then remain encysted until the weather warms in late winter and early spring when they emerge at the same time and in considerable numbers. This can cause severe intestinal wall damage and prompt a condition called larval cyathostominosis, resulting in severe diarrhoea and colic and with a high mortality rate of up to 50%.

A horse with larval cyathostominosis will require urgent treatment in the form of fluids, medication to control the diarrhoea and steroids to reduce gut inflammation, as well as a suitable deworming product to remove the encysted larvae. Horses that survive may take two to three months to recover fully. If the horse is sharing its pasture with other (particularly young) horses, you should contact your vet to discuss their treatment also, since aggressive deworming can trigger the disease in more animals.

- **Large Redworm**

Development of the large redworm is broadly similar to that of the small redworm but some species migrate to the liver and the abdominal cavity. They then return to the large intestine where they develop into egg-laying adults. The life cycle of the large redworm is around six months.

The damage caused by adult large redworms living in the large colon can lead to loss of blood and protein, while the chemicals the worms release also affect the natural movement of the gut. The migrating larvae can cause inflammation within the blood vessels and lead to the

formation of blood clots, which can affect the blood supply to sections of the intestine, leading to serious colic. Migrating larvae can also cause hepatitis and peritonitis.

Testing for Redworm

- **Faecal Egg Worm Count (FEWC).** A FEWC should be undertaken 3 times per year during the period from Spring to Autumn. This will detect the presence of egg-laying adult worms. FEWC is not necessary during the winter months as the adults are less likely to be producing eggs and the FEWC cannot detect the presence of the encysted larvae.
- **Small Redworm Blood Test.** A Small Redworm Blood Test can be undertaken by your vet in late Autumn, which will identify burdens of small redworm, included those at the encysted stage in their life cycle.

A guide to what test should be undertaken when is at Figure 3; if in doubt, consult your vet.

What Test When?											
		Faecal Egg Worm Count									
		1			2			3			
									Encysted Red Worm Blood Test		
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Figure 3 - What Test Should be Taken When

Treatment for Redworm

The aim is not to attempt to eliminate worms from every horse. It is healthier for the horse and its herd mates to maintain a low level of worms in the gut, and important to maintain a population of worms that are still susceptible to the different anthelmintic drugs. Aiming for a nil worm count can increase drug resistance in the worm population.

- **Foals:** Foals can be given anthelmintics up to the age of 18 months at three- to four-monthly periods (moxidectin should not be used in a foal less than four months old). FEWCs are useful to confirm that small redworms are present.
- **Adult horses:** Adult horses should only be wormed when FEWC or Blood Tests show that a horse is carrying a worm or encysted larvae burden at a level that requires action. Horses that have a FEWC of below 200 eggs per gram would not normally require treatment. Your vet will advise on whether the Blood Test indicates that treatment is necessary. It is not recommended to treat all horses with worms as a low worm burden may help the horse to gain immunity. Your vet can advise you on whether action should be taken.

- **New arrivals:** When a new horse joins your establishment, a FEWC and/or Blood Test should be done immediately to find out whether they are carrying a burden of worms that would prompt treatment.

Before deworming your horse, a weight tape should be used to find out the horse's actual weight. It is important that you know the weight accurately so that the correct amount of a relevant drug can be given. If you guess your horse's weight, you risk under-dosing, which could lead to the worms currently affecting your horse developing a resistance to the active ingredients, making it more difficult to remove them in future.

To assess worm resistance to an anthelmintic, a repeat FEWC can be undertaken 10 to 14 days later after treatment. If the drug is working, the second count should have reduced the eggs per gram by at least 95%; if there are resistant worms, the count will not have reduced as much. If you think you may have resistant worms, then you should discuss this with your vet.

How does pasture management help with Redworm control?

Effective pasture management can reduce the risk of redworm infection. It is recommended that:

- Droppings are picked up at least twice weekly, particularly during warm weather
- The muck heap is located away from areas where horses graze
- Cross-grazing with cattle or sheep is encouraged where possible. Cattle and sheep will consume the redworm larvae, reducing the number that are ingested by and can infect horses
- Pasture is not overstocked or overgrazed. Where possible, allow 0.4 to 0.6 hectares (1 to 1.5 acres) of grazing per horse. If overstocking is unavoidable or intended (for example, to aid in weight management), droppings must be picked up more frequently than twice weekly
- Pasture is not harrowed to spread droppings, as this just spreads the redworm eggs and larvae across the entire pasture