

CYATHOSTOMINS (or small strongyles)

Small strongyles, red or blood worms

are all the same and are collectively known as
CYATHOSTOMINS

There are more than 50 species of Cyathostomins that have been identified in horses and because of their high numbers, rapid lifecycle and an ability to produce large numbers of eggs, they are currently regarded to be the most important parasite of horses worldwide.

Cyathostomins have a direct lifecycle, that is, their various stages of development move from the horse, into the environment and back into the horse.

Cyathostomins are 'non-migratory', which means they do not burrow their way through the various vital organs of the horse as do their more infamous big 'brothers', the large Strongyles.

Horses become infected with Cyathostomins when they ingest infective L3 larvae on pasture. For larvae to get to this point, they need to survive many environmental challenges in their transformation from a larvated egg and intermediate L1 and L2 stages. Such challenges include heat/ cold/ freezing, drying out, lack of moisture to aid their passage and being ingested by predators such as soil organisms and insects. They are truly remarkable.

When Cyathostomin larvae reach the infective L3 stage, they can no longer feed as they are encased in a sheath and all they can do at this time is wiggle several centimetres from the dung pile when conditions are just right. When they reach a grass blade they wiggle up towards the top and wait patiently to be ingested by an animal, preferably its 'definitive host', the horse.



Cyathostomin L3 larva. Source: Google Images, 2015

After being swallowed by the horse, Cyathostomin L3 larvae move down into the stomach, through the small intestine and into the large intestine – the colon and caecum – where they park themselves and feed from the mucosal tissue. Here they transition to L4 larvae then onto adult males and females who locate each

other, mate, and the females produce large amounts of eggs which pass out through the faeces and into the environment. Then it begins all over again.

The prepatent period, that is, the time that elapses from when the horse ingests the infective L3 larvae until eggs appear in the faeces is highly variable but is approximately **8 weeks**.

While they are largely confined to the lumen of the caecum and colon, Cyathostomins can also penetrate the intestinal mucosa and will live there in an encysted, or dormant, form until a 'trigger' (possibly an anthelmintic treatment) causes their emergence back into the large intestine. Here they mature to adult forms and begin breeding.

While adult Cyathostomins in the gut lumen may cause mild ulceration of the gut lining, scientists believe the most serious pathology occurs when large numbers of encysted larval forms emerge en-masse from the gut wall. When this occurs, it can precipitate rapid onset of diarrhoea, oedema, raised temperature and, in severe cases, death.

THIS IS REALLY IMPORTANT

The fact that Cyathostomins are able to 'disappear' in an encysted state for long periods (even months) shows how important it is to understand that horses no doubt accommodate Cyathostomin populations even if no eggs are recorded in a faecal egg counts.

At the same time, there is little evidence they are doing physical damage to the horse while they are in this state and, in order to maintain a healthy population of *refugia* (non-resistant worms) it is recommended horses **should not** be given anthelmintics on a 'just-in-case' basis

Horses should only be treated when faecal egg counts provide evidence that the worms are shedding numbers of eggs in quantities that will contaminate pastures to a high degree. Animal parasitologists and veterinarians have provided information about these key egg count numbers and they are freely available on the internet. EBW will also provide this information in a later InfoSheet.