



# 5 worming essentials

A worm infestation could result in weight loss, colic, or even death. But, with the right management, worms can be kept at bay. **Linda Belton MRCVS** examines what you can do to keep your horse as worm-free and healthy as possible.

## 1. Know your parasites

### Small and large redworms

First of all, make sure you know your enemy.

The most common and harmful parasite is the small redworm, which is known as the strongyle worm. Strongyle eggs are passed in the horse's faeces and contaminate the pasture. The eggs develop into infective larvae, which migrate out onto the grass when it is damp. The grazing horse eats the larvae on the contaminated grass, and the ingested larvae of the small redworm burrow into the gut wall.

They may emerge from the gut wall and develop into adults in the gut within a few weeks, but the majority become dormant. These are known as 'inhibited encysted larvae' and they can emerge en masse, typically in late winter or early spring. This mass emergence is known as 'larval cyathostomiasis' and can be fatal.

The large redworm larvae burrow through the gut wall and migrate through

the internal organs for 6-10 months, causing irritation and damage. They then return to the gut where they mature. The adult strongyle worms live in the gut, where the females can produce thousands of eggs per day.

### Large roundworms

Horses develop immunity to this worm at around 18 months of age. Eggs are passed in the faeces, and attach to the grass, hay or stable walls. The eggs are very sticky and have a thick shell, inside which the infective larvae develop. The larvae in the eggs can remain alive for a year or more. When eaten, the larvae hatch from the eggs and burrow through the gut wall, migrating through the internal organs before returning to the gut. The adults are very large and live on the digested food of the horse.

### Tapeworms

Worm segments containing eggs are passed in faeces. These are then eaten by mites that lives in the soil or on grass, hay

or straw – the larvae then develop inside the mite.

The mites are eaten by the horse as it feeds, and the larvae develop into adults in the horse's large intestine. They live in a part of the gut called the ileo-caecal junction.

### Bots

Bots are insect larvae. Adult botflies lay yellow eggs around the horse's head, throat, chest and forelegs. When the horse grooms itself, the larvae hatch, attach themselves to the tongue and lips and are swallowed.

The eggs stick firmly to the horse's hair and can stay on the coat for several months, waiting for this stimulus to hatch. But eggs laid around the head seem to be different, as they hatch spontaneously and the larvae make their own way towards the mouth.

The larvae migrate to the stomach and duodenum then, after around eight-10 months, they are passed in the faeces and burrow into the earth, where they pupate. Botflies then emerge from the ground to lay more eggs in the summer.



## 2. Does he have worms?

Even a horse that appears to be in good health may have worms, causing internal damage. Loss of condition, lethargy, weight loss, diarrhoea, colic, poor appetite and a dull coat may all indicate a worm infestation. These are obviously non-specific signs, so further tests need to be carried out to determine if a worm burden is the source of your horse's problem.

The first test is a faecal worm egg count. A fresh sample of dung, placed in a clean plastic bag, should be taken to your vet for analysis. If there is any delay in delivering the sample, then place the sample in the fridge to keep it cold – this will prevent the eggs from hatching.

Laboratory examination of the sample will determine the type and number of worm eggs present. The result is presented as “eggs per gram” of faeces. This technique gives a rough estimate of the number of adult worms present, so you can not only get an idea of your horse's worm burden, but also the number of eggs being shed per day on the pasture. For example, if the analysis gives a result of 250 eggs/gram of faeces and a horse produces approximately 4.5kg of faeces per day, then there are about 1.25 million eggs per day being shed onto the pasture!

Blood tests can be used in two ways. A blood test can reveal the level of exposure a horse has had to tapeworm, and thus give

an indication of the severity of any such infestation. Although there is no laboratory test for the presence of worm larvae, analysis of certain chemicals in the blood can be used to assess whether a horse is showing any signs of a larval infestation.

It is possible for a horse to have a heavy larval infestation all the while having a very low faecal worm egg count. This is because the larvae can remain in the tissues of the body and gut for several months without producing eggs.

## 3. The dangers

**So, what kind of damage can a worm infestation cause in equines?**

- Small redworm larvae in the horse's gut wall cause inflammation and damage. This can lead to loss of condition, particularly in young horses. Affected horses may produce softer faeces and occasionally get colic. If large numbers of larvae emerge (larval cyathostomiasis) the horse may suffer from profuse diarrhoea, colic, weight loss, limb and ventral abdominal swelling, and even death. Disease is more commonly associated with young horses, but some adult horses do not show resistance, and can carry heavy burdens.
- Large redworms cause irritation and damage to the internal organs as they migrate through the gut, which can cause attacks of colic.

- Large roundworms cause a loss of condition as they utilise the horse's food, and if present in large numbers can occasionally block the gut.

- Tapeworms are implicated as the cause of a particular type of colic known as an ileo-caecal intussusception, where the area of the gut to which they attach telescopes in on itself. This is a severe form of colic that requires surgical correction.

- Although bots look very aggressive when visualised on the stomach wall, they are not a common cause of ill health or disease.

## 4. Worm control

There is much debate about the best way to control worms. There is no “one size fits all” answer. A tailored worm control program for your horse, taking into account your particular management circumstances as well as the individual horse, is what is needed. Your vet is the best person to advise you on this.

### The use of wormers

There is well-documented evidence of resistance in the worm population to some of the chemicals available to us.

However, in the past few years, evidence of resistance to Ivermectin has also emerged. Previously, this class of chemical had been the one remaining group to which resistance in the UK horse worm population was not evident.

## Meet the enemy – some common worms



Roundworms: a large parasite with resilient eggs. However, most horses develop immunity to it at 18 months.



The small red worm is common and dangerous.



Bot larvae react to the stimulus of a horse grooming.



Tapeworm larvae develop in the horse's large intestine and can cause a serious form of colic.



Cross grazing with ruminants helps to reduce the worm burden.

There are no new classes of wormers under development at present, so we must preserve the efficacy of those we have. There is an argument that the regular use of wormers may be the reason behind the emergence of resistant worms. This is because killing the susceptible worms with a wormer makes it even easier for the resistant worms to survive and reproduce, thus increasing their prevalence.

Choosing another product is not the answer, as multiple-resistance can result. This is the reason why rapid rotation of different classes of wormers should not be used, as it does in fact promote multiple resistance. The best way to approach worm control may be to worm horses only when a significant worm burden is present, rather than using a routine repetitive worm program. Random use of wormers in an untargeted fashion is even worse!

### Testing for resistance

To find out if your horse is resistant to a wormer, a faecal worm egg reduction test should be carried out. A worm-egg count is carried out before worming treatment, and again seven-14 days after treatment. In a horse with no resistant worms, the worm burden should be reduced in the region of 90-95% post treatment.

### Targeted use of wormers

Faecal worm egg counts should be carried out in order to assess your horse's worm burden. Some horses consistently shed a low number of eggs, while others are more susceptible and carry heavy worm burdens. If faecal worm egg counts can be carried out initially every two to three weeks, then the consistent low egg shedders can be identified and examined less frequently (every three to six months, particularly in spring and autumn.) The high egg shedders



should be wormed and tested again at the end of the egg reappearance period. When this is will depend on the wormer used as all wormers have different dosing intervals. This interval relates to the time after dosing that the eggs will reappear in the faeces of susceptible horses.

The subsequent requirement for treatment of each horse with a wormer will depend on the worm-egg count result. The definition of high and low egg shedding depends on the age of the horse. In general, in an adult horse, any count over 200 eggs/gram should be regarded as a high level of shedding, requiring treatment.

This targeted approach requires more input from the owner, especially if managing a number of horses. There will not necessarily be much of a cost saving either, but if adopting the system means we have effective wormers when needed, that is a priceless benefit for our horses.

Due to the fact that it is impossible to test for larval levels as previously described, and worm egg counts do not necessarily tell us about tapeworm infection, worming all horses at least once a year with a larvicidal wormer and tapewormer should be considered. The tapeworm blood test can be used before deciding to worm for tapeworm, but this will add to costs.

#### Pasture management

This provides the most effective means of controlling worms. Faeces should be removed from the pasture – ideally daily, but at least twice weekly. Even in cold climates, it can take less than a week for larvae to have reached the grass.

“Poo-picking” isn’t anybody’s favourite job, and is undoubtedly time consuming, but has a huge impact on reducing pasture contamination. This reduces the need for wormers, and therefore slows the increase

in resistance to worming preparations. Bots will not be controlled by poo-picking, so the eggs should be removed from the coat while grooming. Alternatively, select a wormer that will control bots when giving the larvicidal dose of wormer in the early winter as described earlier in this piece.

Remember, all horses in the same grazing group should have their worm control managed in the same way, and new horses should be tested and treated as required before joining the herd. Also consider testing new horses for resistance with the faecal worm egg reduction test as you do not want to introduce resistant worms onto pasture.

Cross grazing with ruminants also helps reduce the pasture worm burden, as does resting the pasture.

Bear in mind that harrowing spreads the faeces across the grazing area. In hot, dry climates, this will allow the eggs and larvae to dry out and die, but in warm, wet conditions, harrowing only serves to spread the larvae, increasing the chance of the horses ingesting them.

## 5. Correct dosing

When worming your horse, try and make an estimate of your horse’s weight with a weigh tape and dose accordingly. There is a wide margin of safety with most wormers, but do be careful of overdosing a thin horse.

Overdosing does not kill the worms more effectively. However, you must avoid under dosing. If wormers are used at a sub-therapeutic dose, not only will they be ineffective, but the worms are more likely to become resistant.

### Expert file

Linda Belton BVSc MRCVS is a partner at the George Veterinary Group Equine Clinic in Malmesbury, Wiltshire, where she worked since 1992.



Using a weigh tape is a quick and easy way to work out the correct dose of wormer for your horse.