

Worm control on the stud farm

Control of worm burdens is important in both young and adult horses. The lifecycles of different worms mean that they affect age groups differently and it is the size of the burden that usually will determine the severity of the disease. It is often only 20% of horses that carry 80% of the worm burden and as such it is important to identify and treat these 'high shedders' to reduce the risk to the rest of the group. It should be noted that we are not seeking complete eradication of intestinal parasites, but more allow only a low load to promote immunity without development of clinical syndromes.

LARGE ROUNDWORMS: PARASCARIS EQUOROM

The most important in young animals, large roundworms migrate through the gut wall via the liver (seen at 24 hours) and lung (seen at 11 days) to be re-swallowed and develop in to adults in the small intestine. The migrating phase results in coughing and other respiratory signs with anorexia, ill thrift, a pot-bellied appearance and a rough coat developing as the large numbers of worms build up in the gut using the contents as a food source. As the worm numbers increase, usually by the weanling stage, they can cause a large impaction in the small intestine that may present as colic, but if there are particularly large numbers may progress to rupture the wall. Large impactions are difficult to deal with as creating a large immobile mass of dead worms may be more likely to result in rupture of the intestine.



Fig 1: this ascarid worm has perforated the wall of the intestine; and in turn caused fatal peritonitis in the affected foal.

Ascarid eggs are extremely long-lived, surviving up to 10 years in the environment. Despite best efforts to remove them, they will still be found in contaminated foaling boxes and paddocks. Once swallowed by the foal, it takes 72-80 days for the ingested eggs to become laying adults, producing a high volume of

eggs a day. Solid immunity develops over the foal's first year however so disease is only usually seen in youngstock. Treatment is not recommended in foals prior to 60 days of age, and treatment with larvicidal prior to this stage can promote resistance in the developing larvae, however it is critical to remove adults before they can contaminate the environment. The best way to identify adult worm infection is to perform faecal worm egg counts; any eggs found are significant in youngstock. Monitoring faecal worm eggs is also a useful way to ensure control strategies are working.

STRONGYLES

Cyathostomes (small strongyles)

Cyathostomes are considered the most important parasite threatening youngstock in UK. The cyathostome lifecycle is complex with several larval stages the last in the small intestinal wall before emerging to develop in to laying adults. The encysted larvae can remain dormant from 6 weeks to 2 ½ years, but in the height of summer at correct temperatures, larvae can break through the intestinal wall within 3 weeks. This emergence does massive damage to the gut wall. Clinical signs include weight loss and diarrhoea and are due to the physical damage and inflammation caused by emergence of the larvae.



Fig 2: Look carefully at this magnified image of the caecal wall from a yearling: the small circles are cyathostome larvae in an inhibited stage within the wall.

Larvae will lay dormant encysted in the large intestine wall over winter and can only survive on pasture while it is warm and wet so will build up particularly on heavily grazed paddocks during the spring and summer months. Foals may show mild ill thrift as the numbers of worms build up in Autumn, but the most important clinical syndrome known as larval cyathosomiasis is usually seen in older animals (1-3 years old) where a heavy burden all emerge at once resulting in dramatic weight loss and depression which can prove fatal in up to 30% of cases. It is essential to bear in mind that most damage is done by larvae, which of course are immature and do not produce eggs. Therefore, the faecal worm egg count test may be negative. Researchers based in Edinburgh

are working on a blood test that might help identify larval stages.

It is difficult to kill larvae and, unfortunately, there is now widespread resistance to all three classes of anti-parasitic drugs used in horses. It is essential that worm control policies are not based solely on drugs. There is no substitute for good pasture management, avoiding overstocking and regularly removing droppings. Adult horses can represent a reservoir of worm infection. Interestingly, the majority of worms are found in certain horses, while most adult horses have fairly low burdens. To avoid over-dependence on drugs, faecal worm egg counts can be used to find the horses with the larger burdens and focus drug treatment on these individuals. The horses with low burdens are not treated and this helps to maintain susceptibility to the anti-worm drugs. If resistance to wormers is suspected, a test called the faecal worm egg count reduction test is useful. In essence, faecal worm eggs are counted before, and two weeks after worming to check the effect of the drug.

Large strongyles

Strongylus vulgaris and other large strongyles are now thankfully reduced in prevalence with the widespread use of anthelmintics. The lifecycle involves a migration through major vessels in the abdomen and, occasionally, strongyles would migrate into other parts of the cardiovascular system.



Fig 3: An unusual sight nowadays because they are well controlled by modern wormers, but large strongyles can migrate through the blood vessels. In this horse, they have come to rest in that aorta just next to a heart valve.

STRONGYLOIDES WESTERI

Strongyloides species are unusual as they can cross the milk from the mare directly to the foal and with a short prepatent period, eggs can be seen in the foal faeces within 7 days. Clinical signs are usually rare but high burdens have been associated with diarrhoea in the young foal. There is also a free living stage and the larvae can enter and encyst in the skin causing

irritation. Foals develop immunity over the first few months and it is only during pregnancy that the larvae can reactivate in the mare and cross to the milk. Use of ivermectin in the mare prior to foaling should eradicate migrating adults.

TAPEWORMS: ANOPLOCEPHALA PERFOLIATA

Tapeworms are not normally seen in foals up to 7 months but can be a problem in older animals. Tapeworms live in the intestinal wall around the ileo-caeco-colic junction and cases have been associated with impactions, intussusceptions and colic. There is a blood test that can be used to evaluate tapeworm burden and it is recommended this is performed twice a year in youngstock and once a year in adults. Wormers containing praziquantel and pyrantel should be included in treatments at 6 and 12 months old.



Fig 4: An extremely large tapeworm burden. These worms tend to accumulate near the ileo-caecal valve – the junction between the small and large intestines.

KEY POINTS

- Worm control should not be based on drugs alone: Avoid overstocking and remove droppings regularly.
- Faecal worm eggs counts are a useful way to monitor the effectiveness of worm control policies and to identify specific animals that may need treated.
- A negative faecal worm egg count does not rule out significant burdens of worm larvae.
- There is widespread resistance to wormers
- Targeting drugs at particular parasites and dosing according to body weight are critical in proper management.