

# WORMING PROGRAMME CHALLENGES

AWARENESS of parasite control continues to increase, although there is still confusion among the equine-owning population. Many owners do not fully understand the significance of each parasite or control options.

Helping to set up a worm control programme at my parents' small livery yard made me consider each of the stages involved, both the veterinary side and the difficulties yard owners face when imposing new policies. Despite differing levels of education, financial constraints and viewpoints, the short-term and long-term welfare of the horse is paramount.

A yard that approaches a veterinary practice for advice must be commended because many yards do not have an en bloc approach. The introduction of Suitably Qualified Persons (SQP) provides owners with more appropriate advice; however, this often omits the importance of a synchronous approach on each yard.

Recommending use of a routine or strategic worm control programme must be after careful consideration of the individual yard's circumstances. The number and age of the horses is important. Yards with heavy stocking density and frequent changes in population will have an increased risk of significant parasitism. Paddock management is also very important, with factors such as dung removal, presence of other grazing species and paddock rotation influencing the approach. It is also important to identify previous or potential cases of drug resistance.

A yard meeting can be useful to discover plans and discuss the implications of a new, combined approach. This can also improve relationships between yards and vets, increase client loyalty and potential revenue streams. It is also a great time to educate owners about parasitic disease, its importance to equine welfare and to illustrate control methods.

Educating owners is vital and also allows some veterinary revision. Knowledge of the significant endoparasites and their life cycles helps owners understand control methods and time interventions appropriately. The main equine endoparasites usually discussed are small redworm (cyathostomins), large redworm (*Strongylus* species), tapeworm (*Anoplocephala perfoliata*) and pinworm (*Oxyuris* equi).

Cyathostomins (small redworm) are the most significant equine endoparasite, with cases of larval cyathostomiasis commonly diagnosed in February or March. Many different cyathostome species have

**VICKY ROWLANDS**

BVM&S, CertEP, MRCVS

Practice Notes



been identified. The stage-three larvae are the infective form and are ingested during grazing. Significant problems usually only occur after the winter months when the development of large numbers of stage-four larvae can become arrested or inhibited within the intestinal mucosa<sup>1</sup>. If these excyst synchronously, usually in late winter or early spring, extensive inflammation will occur. Clinically, this can present as diarrhoea, weight loss, protein-losing enteropathy and colic. Mortality rates are commonly quoted as approximately 50 per cent<sup>2</sup>.

Most worming drugs are licensed to treat adult cyathostomes, but will not remove encysted larvae. Removing the adult population from the intestinal lumen results in encysted larvae developing and returning to the intestinal lumen. This can cause some irritation after treatment, but this can also be desirable.

A five-day course of fenbendazole has a specific licence for treatment of inhibited small redworm larval stages, although there is commonly resistance to this drug. Moxidectin is also licensed for elimination of inhibited small redworm larvae eight weeks after treatment. After moxidectin use, the larvae are resorbed, so severe mucosal inflammation should not occur<sup>2</sup>. Once larval emergence happens, the mainstay of treatment is worming and symptomatic management of clinical signs.

*S. vulgaris* is an important equine parasite, although disease caused by these larvae is now less common due to efficacy of modern wormers. This may become a re-emergent problem as drug-resistant strains develop. Stage-three larvae are ingested during grazing and then moult to become stage-four larvae within the intestinal mucosa. These larvae then migrate for about six months within the endothelium of the mesenteric vasculature. During migration they develop into immature adults before returning to the large intestine via the arterial lumen and become egg-laying adults<sup>1</sup>. The most common lesions identified are thromboembolism of the mesenteric arteries, which can result in surgical colic. Very heavy infestations can cause

diarrhoea and some degree of anaemia. There are two other species of large strongyles – *Strongylus edentatus* and *S. equinus*. These species develop during migration through the liver. Large redworms are controlled by most anthelmintics, although there are some cases of resistance identified, especially to fenbendazole.

Tapeworm usually colonise the ileo-caecal junction. The adults shed gravid proglottids, which then release eggs to the pasture. These eggs are ingested by oribatid (forage) mites, which are present on the pasture and also hay and straw. Within this mite, eggs develop into the infective stage or cysticercoid and the horse then ingests the mite while grazing. After ingestion, the cysticercoid develops into the adult worm. It is now understood tapeworm can cause spasmodic colic, ill thrift, enteritis, ileal impaction or ileo-caecal intussusception.

## Serological testing

Many owners are unaware accurate assessment of tapeworm levels requires serological testing every one to two years. Due to the financial implications of testing, many owners choose to treat for tapeworm biannually using praziquantel or a double dose of pyrantel in the spring and autumn. It has been suggested this treatment may be given annually after the ground frosts occur because the cold weather eliminates most of the forage mites and reduces reinfestation, therefore tapeworm levels are found to be lowest in the spring<sup>3</sup>. If choosing to advise this, careful consideration should be given to individual circumstances.

*O. equi* is not viewed as a life-threatening endoparasite, yet it can cause significant perianal irritation where the adults lay their eggs. The eggs are knocked on to the pasture as faeces are passed and can then be reingested. Diagnosis is made by microscopic examination of sticky tape impressions taken from the perianal area. In very severe infestations, colitis or rectal prolapses have been described. Most conventional wormers should treat this parasite; however, there have been some extremely stubborn cases, so it is very important to also reduce



Dung collection is vital, but mechanical options remain controversial.

environmental contamination.

If there are youngstock present then *Parascaris equorum* should also be addressed, as heavy burdens can accumulate rapidly resulting in coughing, poor growth and, potentially, total obstruction of the intestinal lumen.

Once educated, owners will, hopefully, comply with any new plans instigated. Strategic worm control programmes are suitable for most equines, including youngstock, although this subpopulation needs careful management as high burdens can easily develop and then contaminate pasture. The most important criterion for strategic control is testing samples from individual horses as the majority of worms are hosted within the minority of horses. A pooled sample will not provide adequate representation of parasitism or indicate which horses require treatment.

It is usually recommended faecal worm egg counts (FWEC) are completed every three months. As owners often liaise before asking for veterinary advice, we find it easier to recommend standard intervals and test in February, May, August and November. Often, it is easiest for yard owners to coordinate the collection and delivery of samples. If left to their own devices, individual owners often forget or have the faecal testing done weeks after the rest of the yard. Some horses routinely show levels of parasitism so the testing interval can be safely increased, although this often confuses owners and the en bloc approach is lost.

Cyathostomiasis is an increasing problem and there is no definitive testing available for it, so whichever control programme is chosen, we always recommend a treatment for encysted larvae over the winter months, between November and February. To simplify this as much as possible, we often suggest this is combined with routine treatment for tapeworm using a combined wormer, given once the weather has been sufficiently cold

enough to kill the forage mites.

FWEC reduction tests can highlight cases of resistance and once this occurs, it is not seen as reversible. Strategic worming programmes are, hopefully, slowing development of resistant strains of parasites. Resistance may develop due to poor management of routine worming programmes; contributory factors include prolonged use of one worming drug and inadequate dosing. It is also important to maintain a worm population in refugia, thereby preserving the population of drug-sensitive parasites. This idea can be difficult to convey to owners, so advising dung removal twice weekly should maintain some worms in refugia. For this reason, it is also now generally accepted dosing horses and moving them to clean pasture is inadvisable as new pasture then becomes contaminated with drug-resistant strains.

It must be highlighted to owners that appropriate parasite control is not only vital for the welfare of individual horses, but will also reduce pasture contamination for future grazing. Most owners are aware of good pasture management and very few still believe harrowing is appropriate in our wet climate. Some premises can use cross-species grazing or rest pastures for prolonged time, but this is often not possible.

After discussion with my parents, we felt a strategic approach was suitable for their yard of 10 horses. All the horses are mature and kept in groups of two or three, the grazing is fairly extensive and most owners remove dung every two to three days. Discussion with the owners highlighted concerns; some felt their plan was adequate, although FWECs had never been done, some felt picking

up dung alone was acceptable, one preferred to use herbal remedies and another was concerned moxidectin caused colic. So many viewpoints require careful management to result in compliance. The concerns were discussed and fears allayed. Owners are often surprised faecal testing is inexpensive and that very few horses carry significant parasite burdens. Anecdotally, moxidectin has been associated with colic and the data sheet for this describes a mild, transient colic postdosing in cases of severe parasitic burdens. For the owners who were determined to use herbal methods, a FWEC revealed a very high worm burden despite regular treatments in accordance with the package instructions – enough to dissuade most owners from the herbal approach.

Despite the industry's best efforts, horse worming is still poorly understood by owners and we must continue promoting it to preserve the action of the available drugs. It is part of the job description to work with livery yard owners, yet it has been enlightening to see how difficult it can be for these individuals, who may not fully understand the advice themselves, to then promote these ideas to individual horse owners. As they say, "every day's a school day", and that applies to vets, professionals and individual owners.

## References

1. Urquhart G M, Armour J, Duncan J L, Dunn A M and Jennings F W (1996), *Veterinary Parasitology* (2nd edn), Blackwell Science, Oxford: 42-47.
2. *Equine Parasite Reference Manual* (2008), Fort Dodge Professional Development, Ch 1.
3. Urquhart G M, Armour J, Duncan J L, Dunn A M and Jennings F W (1996), *Veterinary Parasitology* (2nd edn), Blackwell Science, Oxford: 130-131. ■

**VICKY ROWLANDS** graduated from the University of Edinburgh in 2003. After starting work in a mixed practice in Fife, she specialised in equine work and now works at Ashbrook Equine Hospital. She gained her Certificate in Equine Practice in 2009 and has special interests in orthopaedics and performance-related problems.

