

Comparison of the cyathostomin egg reappearance times for ivermectin, moxidectin and abamectin in horses in consecutive egg count reduction tests in winter and summer over two years

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Introduction

Shortened cyathostomin egg reappearance periods (ERP) serve as a warning of developing anthelmintic resistance (Scott *et al.*, 2015). Efficacy is thought to have declined more rapidly for the later larval stages (L4) than for the egg laying adults, so that animals still show zero or near zero counts for a period after treatment, but with L4 now surviving treatment the ERP has shortened.

Methods

Four faecal egg count reduction tests (FECRT) were conducted in consecutive winters (June/July) and summers (January/February), 2019–2021. The same horses were used in all tests and were divided into two groups based on initial egg counts. In all four tests, Group 1 received ivermectin, whilst Group 2 received moxidectin (FECRT1 and 2) and then abamectin (FECRT 3), followed by fenbendazole (FECRT 4). Egg counts were monitored weekly for up to seven weeks post treatment. ERP were calculated as the time for the average counts to increase to 10% of what they had been pre-treatment.

Results

All treatments, except fenbendazole, saw counts reduce by more than 99% for the first four weeks after treatment. Thereafter counts rose at variable rates. The ERP for ivermectin were 5.2, 4.5, 4.6 and 4.4 weeks in FECRT 1 to 4, respectively. The ERP for moxidectin were 6.1 and 4.6 weeks, and for abamectin 4.9 weeks. An ERP for fenbendazole could not be calculated since its efficacy seven days after treatment was only 52%.

Conclusions

The ERP for ivermectin and moxidectin were effectively little different and shorter than those originally reported for these anthelmintics,

especially moxidectin. Summer ERP were somewhat shorter than those in winter, but any differences were small, and were most likely due to differences in the number of L4 left behind after treatment, likely reflecting higher parasite challenge in summer, but the data may also indicate a decline in efficacy against L4 over time.

References

Scott I, Bishop RM, Pomroy WE. Anthelmintic resistance in equine helminth parasites – a growing issue for horse owners and veterinarians in New Zealand. *New Zealand Veterinary Journal* 63, 188-98, 2015

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