

TBA VETERINARY RESEARCH FUND

A novel approach to worm control: parasite-bacteria interactions in thoroughbred horses.

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Problem identified: The growing threat of resistance to wormers amongst horses. Increased resistance to wormers can lead to increased frequency of treatment, thereby increasing costs. Resistance can also have a negative effect on growth rates and performance in youngstock. Resistance can also lead to outbreaks of severe clinical disease of youngstock.

How is the problem solved? Ideally slow the development of resistance through targeted treatment in parallel with the development of new drugs. Or an alternative solution would require a deeper understanding of the biology of horse parasite relationships.

Project aims: To compare gut bacteria between broodmares and yearlings with high and low burdens. To identify gut bacteria and host responses which are linked to high worm burdens at the site of infection in the large intestine.

Results of research: Bacterial composition between high and low burden samples is significantly different. Changes to gut bacteria were recorded following treatment with ivermectin. Bacterial diversity is increased in horses with high worm burdens. Bacterial diversity is reduced 14 days post-treatment. Horses with high worm burdens have increased levels of bacterial group TM7.

Conclusions: Cyathostomin infection is associated with global changes in equine gut bacteria and increased bacterial diversity. TM7 is associated with high worm burdens. Methanobacteria and Dehalobacterium are associated with low worm burdens.

Further work: Suggested further work would include the same study but with youngstock and also a post moterm study with sampling at the site of infection and assessment of the host response to infection/bacteria.