



**Effect of management interventions on helminth levels and body condition of
working donkeys in South Africa**

by

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ABSTRACT

Twenty-three southern African working donkeys (*Equus asinus*) were allocated to eight experimental groups. The aim of the study was to determine what effect alternative helminth control methods have on the internal parasite burdens and the condition of working donkeys. Three

control methods [monthly removal of faeces from grazing camps (paddocks), pre-winter treatment with the anthelmintic, moxidectin, and a combination of these two methods] and a replicate of each were compared with a set of two control methods. Monthly live weights, body condition scores and certain blood chemistry values differentially improved in those animals receiving the chemical treatment. The eggs and larvae of the cyathostomes represented the largest portion of the helminth species composition in both the faecal egg counts (FEC) and larval cultures. Although both the FEC and pasture larval counts showed seasonal increases during the warm wet summer months, reduced average pasture larval burdens were recorded in the camps from which the faeces were removed monthly, and a 20 % reduction in the average FEC was noted in the donkeys in these camps towards the end of the study. Pre-winter moxidectin treatment resulted in an initial 100 % reduction in FEC, an average egg reappearance period of 42 to 55 days, and a reduced average FEC for up to eight months after deworming in all the donkeys that received this treatment. To obtain total helminth counts, post-mortem examinations were performed on nine of the donkeys at the end of the study. Estimated worm burdens ranged from 3 831 to 29 501 and 38 helminth species were recorded. The latter include a previously unknown cyathostome species, *Cyllicoicyclus asinus* sp. n. *Cyathostomum montgomeryi* was the most abundant cyathostome and *Triodontophorus hartmannae* the most abundant large strongyle. The large strongyles were less abundant compared to the cyathostomes, and both groups were more prevalent in the ventral colon. Although both the monthly removal of faeces from the camps and pre-winter treatment resulted in a reduction in the total number of luminal and encysted cyathostome worms, the combination of these two interventions was the most effective. The latter management system had the largest impact on the strongyle parasite burden in the donkeys. The general health and working capacity of donkeys in southern Africa can be significantly improved by implementation of practical and effective disease prevention recommendations, such as those emanating from this study.

Key words: *Equus asinus*, donkeys, helminth parasites, Strongylinae, Cyathostominae, *Cylicocycclus asinus*, helminth control, alternative interventions, pasture larval counts, faecal egg counts, live weight.

Dedicated To My Parents

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Candidate


S. Mathee

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