EVALUATION OF A POTENTIAL VACCINE FOR HAEMONCHUS CONTORTUS IN GRAZING GOATS

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Trials with housed sheep have indicated that low doses of native antigen prepared from the intestinal cell membranes of Haemonchus contortus are highly protective against artificial challenge infections with this parasite. The efficacy of the same vaccine for goats grazing Haemonchus infested pasture is reported here.

Thirty nine 8 month old intact male Boer goats were randomly allocated to 3 equal groups immunised either with 5 or 50ug per shot of Haemonchus gut membrane antigen and 1mg of QuilA or with this adjuvant alone. The goats were immunised twice 4 weeks apart and immediately after the second inoculation were turned out from concrete onto a 0.7ha paddock contaminated with Haemonchus larvae. Faecal egg counts (FECs) and packed cell volumes (PCVs) were assayed weekly. It was decided at the outset that any animal with a PCV < =15 would be treated with levamisole and that if 6 or more in a group were this anaemic then the whole of that group would be treated.

Worm eggs were first detected 21 days post turnout and these rose steadily to means of about 2,600 epg by day 42 in the 5ug and control groups, although at 830 epg, the mean counts of the 50ug group were significantly lower. Meanwhile the PCVs of all three groups steadily declined reaching means of about 22-23% from a starting baseline of about 27%.

A third vaccination was given 7 weeks post turnout. Two weeks later the mean egg outputs of both vaccinated groups had dropped to about 250 epg, but the control counts rose sharply reaching a mean of 10,777, a highly significant difference. The effect was mirrored by the PCVs which rose in the vaccinates but remained steady in the control group, triggering salvage anthelmintic treatment for that group.

It was concluded that repeated immunisation with a vaccine containing as little as 5ug of this gut membrane antigen could offer substantial protection to goats exposed to potentially fatal Haemonchus infections. We speculate that if the third immunisation had been given two weeks earlier the protective effect would have been even more impressive.