

## Disinfestation of irrigated sheep pastures by alternating grazing with cattle

0038Southcott & Barger<sup>1</sup> grazed cattle on sheep pastures for 6, 12 and 24 weeks. After only 6 weeks there were significant reductions in the number of *Haemonchus* and *Trichostrongylus* acquired by tracer sheep, when compared with tracers placed on pastures that were continuously grazed by sheep. Tygerhoek Experimental Station (34°10'S, 19°55'E), Riviersonderend, is a paradise for free-living stages of nematode parasites of sheep. Mixed rye-grass, fescue and lucerne pastures are intensively grazed (26-36 sheep per ha) and in dry periods during summer and autumn, are spray-irrigated (8mm per h for 3h, 3 times per week).

In the summer of 1988, 6 sheep were slaughtered every 6 weeks to carry out total and differential worm counts post mortem. *Teladorsagia* (syn. *Ostertagia*) reached a peak in January, *Haemonchus* in March or April and *Trichostrongylus*, the dominant genus, in August. Despite oral treatment with albendazole (ABZ) (Valbazen, Smithkline Beecham) at a dosage of 3,8 mg kg<sup>-1</sup> in January, and radoxanide (RFX) (Ranide, Logos Agvet) at a dosage of 7,5 mg kg<sup>-1</sup> in February, sheep started dying 26-42 d later, in March and April, with massive mixed infections ranging from 26 819 to 132 973 nematodes.

In 1989 (9 January - 18 July) 2 parallel pastures (± 1 ha each), separated by a barbed wire fence and spray-irrigated as mentioned earlier, were subdivided into strips with electric fences and each strip grazed to depletion before animals were moved to an adjacent, ungrazed strip. South African mutton Merino hoggets (n=84) were divided into 2 groups and allocated to Paddocks A and B. Paddock A was strip-grazed throughout by 39 sheep. Paddock B was strip-grazed as follows: 3 heifers strip-grazed half Paddock B from 11 January to 5 March and 45 hoggets strip-grazed the other half. From 6 March to 14 May the surviving hoggets were transferred to the pasture previously grazed by cattle. Two heifers were discharged and the other grazed the area previously grazed by sheep. On 15 May the remaining heifer was discharged and the surviving hoggets strip-grazed the entire Paddock B.

Anthelmintics were dosed to all sheep (excluding 6 per group to be killed within 4 to 16 d of treatment) as follows: 9 January 1989: ivermectin (IVM) (Ivomec, Logos) (0,2 mg kg<sup>-1</sup>) per os; 6 March: ABZ per os plus di-iodonitro-

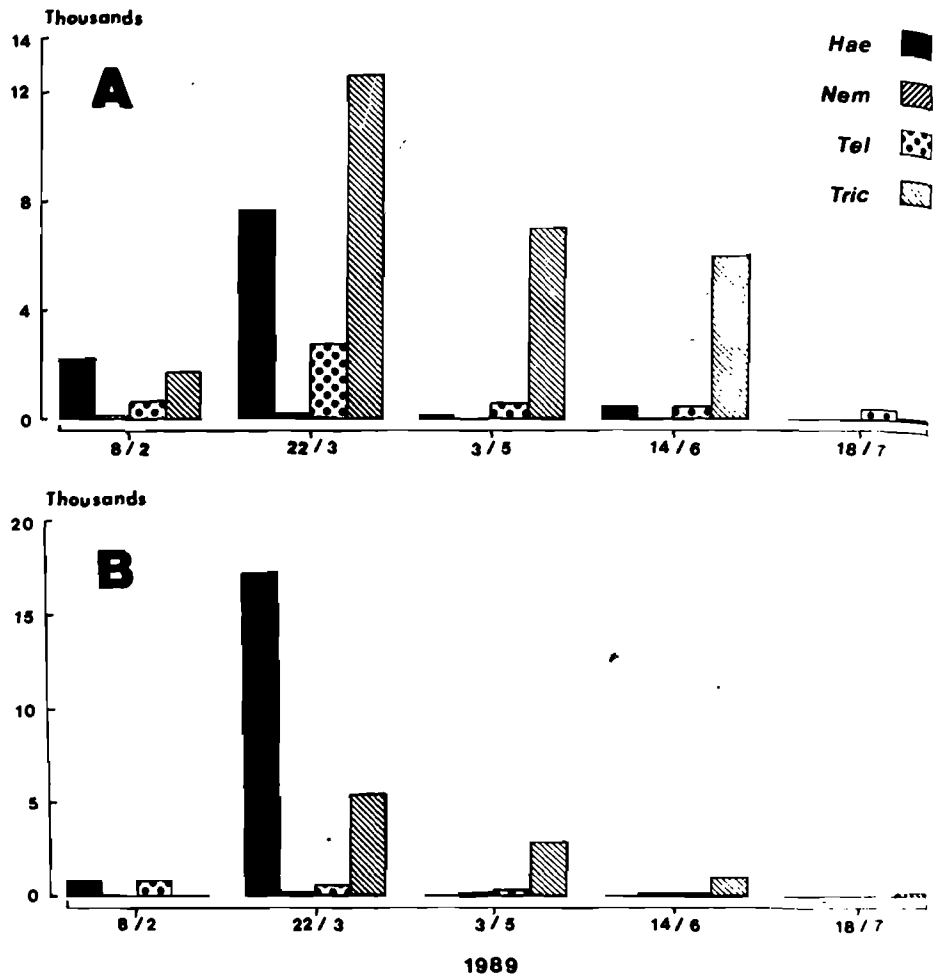


Fig. 1: Variations in the geometric means of *Haemonchus* (*Hae*), *Nematodirus* (*Nem*), *Trichostrongylus* (*Tric*) and *Teladorsagia* (*Tel*) in Group A (Controls) and Group B (cattle before sheep)

phenol (DNP) (Mintic, Fisher) (10 mg kg<sup>-1</sup>) subcutaneously; 1 May: levamisole (LVZ) (Ripercol, Janssen) (7,5 mg kg<sup>-1</sup>) per os; 26 June: IVM per os.

Six sheep per group were killed for worm counts on 8 February, 22 March, 5 May, 14 June and 18 July respectively. The variations in geometric mean worm burdens of 4 genera are illustrated in Fig. 1.

In March the geometric mean and range of the total worm burdens reached a peak for Group A, namely 28 536 (17 100 - 41 169) and Group B, 27 237 (15 637 - 45 134) but the difference was not significant. In May the reduction for *Haemonchus* was significant at 92,0% (P<0,05). By 14 June, however, Group B [1 939 (493 - 10 912)] had 76,4% fewer nematodes than Group A [8 230 (727 - 42 280)] which was significant (P<0,05). This was due to the combined reduction of *Haemonchus* by 93,5% and *Trichostrongylus* by 83,3% (P<0,05). In July the reduction of 88,2% for *Teladorsagia* was also significant (P<0,05).

These preliminary findings suggest that worm control in sheep grazing on irrigated pastures in the winter rainfall region should involve the following:

1. Test the efficacy of the anthelmintics by the first stage larval reduction test. Narrow spectrum chemoprophylactic drugs effective against *Haemonchus* for 3 months DNP, 7 weeks closantel CSL (Flukiver, Janssen) or 2 weeks RFX should be included, as well as broad-spectrum compounds, e.g. IVM, LVZ and morantel (MRL) (Banminth, Pfizer). No compounds should be prescribed before testing their efficacy in the flock grazing on the farm concerned.
2. Strip-graze with cattle for 3 months from December to February for autumn lambing and June to August for spring lambing before placing pregnant ewes on these pastures. Cattle can become infected with *H. contortus* and sheep with *Haemonchus placei*. Faecal samples

must be collected every 3-4 weeks from calves, first stage larvae harvested and examined microscopically to determine the nature and level of infection.

3. Anthelmintics should be dosed as follows: January: DNP or CSL and any effective broad-spectrum drug; March: DNP or CSL and any

effective broad-spectrum drug plus RFX or CSL; May: any effective broad-spectrum drug; September: any effective broad-spectrum drug, plus RFX or CSL.

The inclusion of CSL or RFX in May and September is aimed at the larval stages of *Oestrus ovis* which overwinter in the nasal cavities and sinuses of

sheep.

## REFERENCES

1. Southcott W H, Barger I A 1975. Control of nematode parasites by grazing management - II. Decontamination of sheep and cattle parasites by varying periods of grazing with the alternate host. *International Journal of Parasitology* 5: 45-48