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Liveweight gain and parasite resistance of lambs treated with controlled-release albendazole capsules

J.H. NIEZEN AND H.A. ROBERTSON

AgResearch, Flock House Agricultural Centre, Private Bag 1900, Bulls, New Zealand.

INTRODUCTION

It has been reported that non-parasitised lambs treated with an oral oxfendazole drench had higher liveweight gain and a reduced immune response to gastrointestinal parasites than untreated controls (Stankiewicz *et al.*, 1994). The aim of this trial was to determine whether treating lambs with controlled-release albendazole capsules had any effect on the performance of non-parasitised lambs fed a low or high protein diet and on subsequent resistance to larval challenge.

MATERIALS AND METHODS

Forty eight parasite-free ewe lambs were randomised on the basis of liveweight (mean=14.4 kg; SD=2.6 kg) into four different treatment groups (n=12). Half the lambs were treated with a controlled-release albendazole capsule (Extender ® Jnr from Nufarm Ltd) (C) while the others remained capsule-free (NC) Lambs were offered *ad libitum* either a low protein diet of maize silage/lucerne pellets (LP) or a high protein diet of lucerne pellets (HP). Lambs were run indoors in a parasite-free environment in a 2x2 factorial design. The trial lasted 100 days.

Thirty days (Period 1) and 75 days (Period 2) after the capsules had stopped releasing albendazole, lambs were released onto swards of grass contaminated with gastrointestinal nematode larvae. In each period, one lamb from each treatment was released onto each of five swards which had varying levels of larval contamination. Lambs grazed the swards for 21 days, were housed for a further 21 days, slaughtered and adult nematode burdens counted. Worm burdens were compared as a ratio of the NCHP treatment.

RESULTS

The HP diet significantly increased ($P < 0.0001$) liveweight gain and wool growth. There was no overall capsule effect on liveweight gain or wool growth (Fig. 1). Despite not being significant ($P < 0.18$), on the LP diet capsules increased average liveweight gain by 19g/day. This equated to 1.9 kg over the life of the capsule. On the LP diet, there was also a lower dry matter intake in the C than NC lambs resulting in a 23% lower feed conversion ratio (data not shown). Such a difference was not observed on the HP diet.

In Period 1, C lambs had significantly ($P < 0.05$) lower worm burdens than NC lambs (Fig. 2). Previous protein

levels in the diet had no effect on subsequent worm burdens. This was consistent for all species of worms. In Period 2, there was no capsule or protein effect on lamb worm burdens (Fig. 2).

FIGURE 1: Average daily liveweight gain (g/day) and wool growth (mg/cm²/day x 100) of lambs with (C) or without capsules (NC) and fed a high (HP) or low (LP) protein diet.

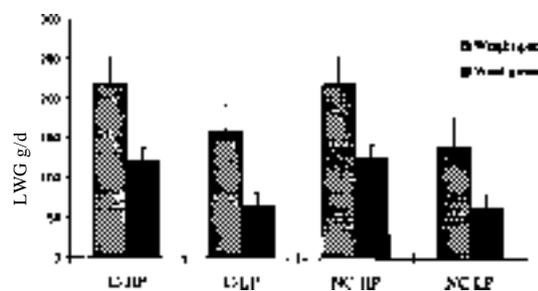
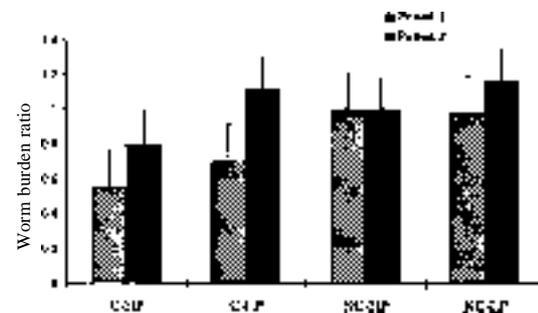


FIGURE 2: Ratio of worm burdens of lambs with (C) or without (NC) capsules and fed a high (HP) or low (LP) protein diet before release onto grass swards.



CONCLUSIONS

In lambs fed a low protein diet, controlled-release albendazole capsules slightly increased lamb liveweight gain, but had no effect on wool growth. Capsules had no effect on liveweight gain or wool growth in lambs fed a high protein diet. Capsules increased lamb resistance to ingested larvae 30 days after the capsule had expired, but had no effect 75 days after the capsule expired.

REFERENCES

Stankiewicz *et al.* (1994) Veterinary Res Comm. 18: 7-18.