

## VITAMIN D AND ANTHELMINTIC TREATMENT IMPROVE GROWTH RATES OF YOUNG SHEEP IN THE FALKLAND ISLANDS

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Nutritional deficiencies have previously been detected in Falkland Islands sheep, and supplements of cobalt (Co) and selenium (Se) are beneficial in some regions (Whitley 1979). Fragile bones occur periodically in young sheep and it is thought that poor calcium (Ca) absorption may limit growth and development. In addition, the low altitude of the sun in the Falklands (latitude 51 to 53° south) may restrict vitamin D synthesis in the skin of sheep during the austral winter. In order to examine the effects of improved Ca metabolism on the growth of young sheep, this experiment evaluated vitamin D supplementation and anthelmintic treatments during the period between weaning and first shearing.

Ewe (n=125) and wether lambs (n=125) were randomly allocated to five treatment groups for each sex (n=25) immediately after weaning. Treatments commenced immediately and were: (i) untreated, (ii) oral anthelmintic (Panacur), (iii) anthelmintic containing Se and Co (Panacur SC), (iv) vitamin D<sub>3</sub> injection, and (v) anthelmintic (Panacur) plus vitamin D<sub>3</sub>. The sheep were run together as one mob and grazed native pasture from January until November. Liveweight was recorded in January, April, June, September and November. Anthelmintic and vitamin treatments were administered in January, April, and June. The anthelmintic was also administered in September.

**Table 1. Liveweight changes (LWC) between January and November for weaner ewes and wethers supplemented with vitamin D or treated with an oral anthelmintic with or without selenium, cobalt and vitamin D**

	Control	Vitamin D	Anthelmintic alone	Anthelmintic plus Se and Co	Anthelmintic plus vitamin D	s.e.m.
LWC Ewes (kg)	4.1 <sup>a</sup>	5.1 <sup>ab</sup>	4.9 <sup>ab</sup>	4.9 <sup>ab</sup>	5.5 <sup>b</sup>	0.41
LWC Wethers (kg)	2.6 <sup>a</sup>	5.1 <sup>b</sup>	4.0 <sup>ab</sup>	4.4 <sup>ab</sup>	5.0 <sup>b</sup>	0.77

Values within rows followed by different letters are significantly different at P = 0.05

Administration of vitamin D significantly improved liveweight gain of wethers for the experimental period. Ca concentrations in Falkland Islands' grasses are low (Davies 1988), and blood Ca levels of weaner sheep may fall below the normal range (Miller *et al.* 1998). Supplementing sheep with vitamin D may augment poor *in situ* synthesis of the vitamin, enhance absorption of the Ca consumed, and promote liveweight gains. Anthelmintic treatment alone did not significantly enhance liveweight; however, as the anthelmintic-treated sheep were run with untreated sheep, cyclical re-infection with internal parasites was likely and the benefits of the anthelmintic may have been short-lived. Nevertheless, treatment with anthelmintic in addition to vitamin D supplementation significantly improved liveweight gain for both ewes and wethers. Blood Ca levels for vitamin D supplemented sheep were not significantly different from those of unsupplemented sheep throughout the experimental period (data not shown), thus further research is required to evaluate the extent to which Ca metabolism limits production.

We thank the owners of South Harbour farm for providing facilities and generous assistance during the conduct of this experiment, and the Queens University of Belfast for biometric services.

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MILLER, S.M., LAMB, C.S., REICHEL, M.P., McCABE, P. and BABER, D. (1998). *Anim. Prod. Aust.* 22, 000.

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