SUPERPHOSPHATE WITH SELENIUM FOR THE TREATMENT OF SELENIUM DEFICIENCY IN SHEEP AND CATTLE

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Selenium deficiency in sheep and cattle is known to occur in areas of Victoria (Caple et al. 1980). An encapsulated selenium fertilizer product, Selcote® (Mintech, N.Z.), has recently been developed as a simple means of supplementing grazing livestock in low selenium areas (Watkinson 1983). Selcote has been registered for use in Victoria as a mixture with superphosphate, to supply a standard rate of 10g Se/ha. Experimental trials monitored the effect of this product on pasture selenium uptake and blood selenium concentrations in grazing livestock on 5 properties in Victoria between 1983 and 1985. On low selenium pastures (less than 0.03 of Se/kg DM) Selcote significantly increased pasture selenium concentrations for between 6 and 12 months. Peak pasture selenium concentrations ranged between 1.22 and 2.23 mg Se/kg DM and there was a wide variation both between sites and between years. Approximately 19% of the applied selenium was recovered in increased pasture selenium concentrations at one site. Blood selenium concentrations and blood glutathione peroxidase activities in grazing animals responded quickly to the increased pasture selenium uptake, and protected cattle for up to 12 months and sheep for up to 18 months. On adequate selenium pastures, Selcote had a minimal effect on the natural levels of selenium in both pasture and sheep. It was concluded that Selcote is a safe effective method of selenium supplementation of livestock.


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RESPONSES TO HAEMONCHUS INFECTIONS IN LAMBS SELECTED FOR AND AGAINST WEANING WEIGHT

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Selection for increased growth rate is known to have correlated effects on characters such as mature size, reproductive performance and lactation. This study examines whether the effects of long term selection for and against weaning weight in Merinos has altered their response to infection with an internal parasite, Haemonchus contortus (Barber's Pole worm). Parasite free, male weaners (69) from selection lines for (W+) and against (W-) weaning weight and a random bred (R) line were infected with 7000 larvae and blood PCVs, live weight and faecal egg output were recorded before and 35 days after infection. A group of 33 housed weaners from the three lines also had PCV values recorded.

Initial live weights differed (P<0.001) for W+, R, W- lines respectively (24.8, 22.0, 20.5), as did initial PCV values (P<0.001; 35.9, 37.3, 32.7). These values were slightly lower than those of housed animals (P<0.05; 37.7, 38.1, 35.0). PCV levels after infection dropped by an average of 13.6% (P<0.001) the change being similar for all lines. Faecal egg counts were also similar for all lines (6075, 7009, 6429). Live weight change (g/d) over the period of infection differed (P<0.001) between the lines, W+(46) being greater than R (16.5) or W- (-13.4) although it cannot be determined from these results that live weight gain was affected by Haemonchus infection.

The data suggest that long term selection for and against weaning weight has had little effect on the animal's ability to resist Haemonchus infection in terms of faecal egg output and PCV decline. Further work is required to investigate the effects on production in each line.

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