

SELENIUM-COPPER INTERACTION IN THE WEIGHT GAIN OF SUCKLE-REARED BEEF CALVES

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White muscle disease and copper responsive ill-thrift had been reported in cattle on a property at Barwon Downs near Colac in south-western Victoria.

In 1979 and 1980, 42 February-April born calves from the property were allocated into 6 groups according to birthdate, sex and age of dam. Treatments were no selenium or selenium injections at three-monthly intervals (20 mg Se as sodium salt) split for 3 rates of copper supplementation; no copper, or copper at monthly or three-monthly intervals (120 mg Cu as glycinate). The dams received the same copper regime as the calves but no selenium.

No responses were recorded in 1979 but in 1980 overall liveweight gain was 27 kg per head more for calves receiving selenium but no copper compared to calves receiving no selenium and no copper (Table 1). There was a consistent trend for this liveweight response in each measurement period, however, only during May to August was this response significant ($P < 0.05$). During this period Glutathione Peroxidase Activity levels were 16.1-19.1, levels at which white muscle disease could be expected to occur (Paynter *et al.* 1981). Serum copper levels during this same period were above those at which a liveweight response might be expected. However, in the period subsequent serum copper fell to 0.31 mg/ml and within that period (September-October 1980) liveweight gain was 3 kg less, ($P < 0.05$) in calves receiving no copper, although overall total liveweight gain was not affected.

Table 1 Overall calf liveweight gain 1980 (kg)

	Selenium injection	No selenium
Monthly copper	209 ab	208 ab
Three-monthly copper	208 ab	205 ab
No copper	216 a	189 b

Means with different subscripts are significantly different.
($P < 0.05$ Duncans Multiple Range Test).

Trace element responsive situation in livestock in south-western Victoria is more complex than has generally been recognised, because neither selenium or copper can be considered separately.

PAYNTER, D.J., HALPIN, C.S., and CAPLE, I.W. (1981) S.C.A. Ani. Hlth. Corn. Aus. Bur. Ani. Hlth., Canberra.

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