Summary

This review examines the role of trace elements in the nutrition of pastures and grazing animals in Victoria. The place of vitamins associated with trace element problems in livestock is also reviewed.

The extent, severity and importance of trace element problems—deficiencies and toxicities—in pastures and livestock are described. The problem areas of Victoria for livestock are broadly defined on the basis of occurrence of disease, specific plant and animal tissue tests, and improved animal productivity after supplementation. Similarly, for pastures, areas where trace element deficiencies or toxicities can occur have been defined on the basis of responses in field trials, plant tissue and soil tests, and observation of specific plant symptoms. Appropriate treatment of pastures or animals affected by trace element imbalance is discussed.

Molybdenum deficiency in pastures is the most widespread and important trace element problem in Victoria. Correcting the molybdenum deficiency greatly improves pasture growth and subsequent animal production. Molybdenum deficiency does not affect animal health but occasionally toxicity, through the effect of excess of molybdenum on copper nutrition, occurs either naturally or following application of molybdenum fertiliser.

Severe deficiencies of copper, selenium, cobalt and iodine occur seasonally in livestock in localised areas. More commonly, marginal deficiencies occur, affecting animal productivity or health in some seasons and years and not in others.

Relatively small areas of pastures in Victoria have responded to application of copper and zinc fertilisers. Boron deficiency occurs occasionally in lucerne and turnip crops in dry summer weather.

Excessive soil levels of manganese, and especially of aluminium, severely reduce pasture production on many of the more acidic soils. Lucerne is particularly sensitive.

Copper toxicity affects sheep grazing on heliotrope and sometimes on clover-dominant pasture.