

SELENIUM DEFICIENCY IN S.E. QUEENSLAND

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Selenium deficiency has not been previously recognised in Queensland due to a lack of pathological evidence. After finding low blood selenium levels ($<10\mu\text{g}/\text{l}$) in two dairy herds on the Darling Downs, a survey, using sera collected in the National Bruceflosis Eradication Scheme and blood from diagnostic submissions to the Animal Research Institute, was undertaken. This survey identified several herds in S.E. Queensland and the Darling Downs as having marginal to deficient selenium intakes. Other areas appeared to be adequate although samples were collected only over autumn and winter. In an abattoir survey covering the whole of Queensland, liver and kidney selenium levels were lowest in the south-east (Kramer et al 1983). Low selenium in wheat from some parts of the Darling Downs had also been found (Noble & Barry 1982).

In further samples from the properties identified in the survey, blood selenium concentrations were compared with glutathione peroxidase activity (GSH-Px). Subsequently only GSH-Px has been used to assess selenium status.

Selenate drench given to replacement dairy heifers at six weekly intervals over the summer of 1982/3 on a Canungra property produced a 0.15 kg/d ($P<0.05$) growth rate advantage over controls paired on initial weight. In November GSH-Px levels were ($\bar{x} \pm \text{sem}$) 53 ± 5 IU/g Hb and 49 ± 6 IU/gHb in the control and treated groups respectively. In February the control level was 31 ± 5 IU/gHb while the treated group had risen to 68 ± 5 IU/gHb. These GSH-Px levels were higher than any measured during the previous 9 months.

Investigations into ill-thrift in cattle in the Crows Nest region on the eastern escarpment of the Dividing Range have concentrated on one property where superphosphate treatment has induced a good clover growth in the native pasture. Here grade Hereford calves grow well to approximately 6 weeks but then stop, often developing long, shaggy, faded coats. Yearling cattle had similar coats and ranged in weight from 81 to 215 kg. There was a low parasite burden and all nutritional parameters measured (albumin, Cu, ceruloplasmin, Zn, Mo, VIT-B-12, thyroid hormones) were in the normal range. GSH-Px activity was low and remained below 20 IU/gHb from July to December in untreated animals. Clover samples contained less than 0.01 mg Se/kg DM. Drenching with selenate (40 mg Se) at 6 weekly intervals gave no advantage over 5 months. Supplementing across control and Se-treated groups with salt, limestone, dicalcium phosphate, Cu and vitamin B12 had no effect. As the problem appears to involve bone growth, a radiological examination of yearlings is currently being undertaken in an attempt to gain some insight as to what factors may be involved.

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NOBLE, R. and BARRY, G. (1982) Qld. J. Agric. Anim. Sci. 39, 1-8.

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