

GROWTH RATE 'RESPONSE TO SUPPLEMENTAL SELENIUM
IN GROWING DAIRY HEIFERS

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Interest in selenium as a supplement was revived in 1980, as a result of a biochemical profile investigation using BTEC blood samples. Sub-clinical deficiency of selenium is often diagnosed, but the demonstration of a response to supplementation in the field is often difficult. Preliminary blood samples from a cross section of animals in a herd in coastal south-east Queensland, 30km south of **Gympie**, suggested that though milking cows were selenium adequate, the growing heifers were largely deficient as measured by blood GSH-Px activity (<40 IU/g Hb).

Preliminary examination of the initial blood GSH-Px and liveweight data (December 1986), of 110 heifers from weaning to mating, suggested that those heifers with a GSH-Px level considered adequate (>40IU/g Hb), had a higher growth rate than those with an inadequate level (0.75 v 0.65 kg/day, P<0.05).

Animals were paired on liveweight and GSH-Px level, and one animal from each pair treated with two selenium bullets (Permasel, **Pitman-Moore**) in January 1987. The animals were bled and weighed at 90 day intervals until after calving. Treated animals maintained adequate GSH-Px levels for over 600 days post-treatment. The growth rate of heifers with more than 5 sequential weighings (450 days) was calculated as a function of age and stage of pregnancy. The growth rate of selenium supplemented animals was 0.63 kg/day, and higher (P<0.05) than the unsupplemented heifers (0.46 kg/day).

In south western Victoria Sully et al (1982) observed at the end of the suckling period a 27 kg liveweight advantage in beef calves given selenium. At calving these supplemented heifers were 38 kg heavier than those unsupplemented. This is expected to relate to a production response of from 266 l (Cowan et al 1974) to 372 l (Brown et al 1982).

Increases in the GSH-Px levels of unsupplemented heifers post calving validated the assumption that indirect supplementation with selenium was occurring with the grain ration. This source of supplement can be significantly influenced by the selenium status of the soil at the grain growing site (Noble and Barry 1982).

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