

THE EFFECT OF SUPPLEMENTATION OF EWES BY SELENIUM
PELLET ON SELENIUM STATUS OF LAMBS

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The use of the intraruminal selenium (Se) pellet to supplement adult sheep in Se deficient areas is widespread. Lambs in such areas are often not supplemented until weaning when they are given a pellet. Although it has been established that Se supplementation increases the Se content of milk (Godwin *et al.* 1975), there is scant information on the effect of supplementation of the ewe on the Se status of the lamb during the period of lactation.

Thirty Corriedale ewes and their lambs grazed together near Mt. Barker in the south-west of Western Australia. Half the ewes received a Se pellet 1 month prior to lambing. Samples of blood and milk from the ewes and blood from lambs were obtained monthly. The Se content of the diet selected was determined by use of 6 oesophageally fistulated wethers grazing with the ewes.

Supplementation of ewes caused increased Se concentrations in both ewe plasma and milk (Table 1). The lambs of supplemented ewes initially had elevated plasma Se concentrations. However, the concentration declined rapidly after July to the extent that it was similar to that of control lambs for at least a month prior to weaning in October. There was a highly significant linear regression between ewe plasma Se concentration and milk Se concentration in July ($r = 0.94$), August ($r = 0.77$) and September ($r = 0.97$). In June immediately following parturition the relationship was not significant and at lamb weaning in October just significant ($r = 0.49$).

Table 1. Selenium concentration (mean \pm SEM) of diet, plasma and milk.

	June	July	Aug.	Sept.	Oct.
Dietary Se ($\mu\text{g}/\text{kg DM}$)	41 \pm 0.3	44 \pm 0.2	51 \pm 5.8	33 \pm 0.6	45 \pm 6.1
		Unsupplemented ewes			
Ewe plasma Se ($\mu\text{g}/\text{l}$)	17 \pm 0.3	17 \pm 0.2	20 \pm 3.3	9 \pm 0.1	8 \pm 0.6
Milk Se ($\mu\text{g}/\text{l}$)	5 \pm 0.4	6 \pm 0.5	7 \pm 3.8	7 \pm 3.0	9 \pm 0.8
Lamb plasma Se ($\mu\text{g}/\text{l}$)	14 \pm 0.6	8 \pm 0.4	9 \pm 0.5	5 \pm 0.3	3 \pm 0.7
		Supplemented ewes			
Ewe plasma Se ($\mu\text{g}/\text{l}$)	72 \pm 7.0	52 \pm 6.1	71 \pm 10.0	57 \pm 5.0	54 \pm 4.5
Milk Se ($\mu\text{g}/\text{l}$)	13 \pm 0.7	11 \pm 0.4	11 \pm 0.8	15 \pm 0.3	25 \pm 4.7
Lamb plasma Se ($\mu\text{g}/\text{l}$)	39 \pm 5.0	44 \pm 10.9	27 \pm 3.9	8 \pm 0.6	7 \pm 3.0

Se supplementation of ewes resulted in elevated Se concentrations in milk and in the plasma of their lambs up to 2 months of age. The effect on lambs declined after 2 months as pasture replaced milk as the lambs' major source of nutrients. By 3 months of age plasma Se concentrations of the lambs were lower than those in animals reported to have pathological symptoms of white muscle disease (Godwin *et al.* 1975). Lambs in Se deficient areas may require supplemental Se after 2 to 3 months of age to insure against the possibility of white muscle disease.

GODWIN, K.O., FUSS, C.N. & KUCHEL, R.E. (1975). *Aust. J. biol. Sci.* 28: 251.

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