

PRODUCTION RESPONSES IN GRAZING WEANER SHEEP SUPPLEMENTED WITH SELENIUM AND DIFFERENT LEVELS OF LUPINS

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Production responses following selenium (Se) supplementation of weaner sheep in low Se regions of Western Australia (WA) are highly variable. Hunter *et al.* (1982) suggested differences in growth rate during summer-autumn may contribute to this variability. This was investigated by measuring the production of groups of Se-treated (+Se) or untreated (-Se) weaner sheep at pasture (Se < 0.05 ppm DM) supplemented with either nil (A) or the equivalent of 100 (B), 175 (C) or 250 (D) g/hd.day of low Se (0.012 ppm DM) lupins.

Ninety six weaner wethers (31.6 ± 0.1 kg) were randomly allocated during December to 1 of 8 plots located in a Se-responsive region at Bakers Hill, WA; 2 plots/supplement and a stocking rate of 10 sheep/ha. Half the sheep in each plot received a Se pellet (Permasel™) and all the sheep had continuous access to a loose mineral lick without Se. Sheep in groups B, C and D were supplemented twice a week initially with the equivalent of 50 g/hd.day of lupins and from mid-January until late June fed their allotted supplements 3 times a week. After heavy rain in April all the sheep were regularly fed small quantities of oaten hay. Sheep were weighed regularly and at shearing in October greasy wool weight was recorded and a mid-side sample collected for determination of clean wool weight (CWW), fibre diameter (FD), staple length (SL) and staple strength (SS). Data were analysed using a split-plot design.

Although there was a significant effect of level of lupin supplementation on liveweight (P<0.001), which persisted until shearing, Se treatment resulted in increased liveweight in group A alone (P < 0.05). When lupin supplementation ceased the liveweights of the - and +Se subgroups were A: 37.8, 40.9; B: 42.8, 41.8; C: 43.3, 43.2 and D: 44.8, 44.5 kg respectively. During supplementation there was an increase in liveweight of 0.1 kg/kg of lupins fed. Lupin supplementation also resulted in progressive increases in CWW (P < 0.001; Table 1) with an increase of approximately 8 g clean wool/kg of lupins fed. Se had no effect on these responses and the higher production observed in +Se sheep in group A (Table 1) was not significant. Neither Se nor lupin supplements altered FD or SL, although there was a significant effect of Se (P < 0.01) on SS.

Table 1. Effects of Se and lupin supplementation on clean wool weight (CWW), fibre diameter (FD), staple length (SL) and staple strength (SS) of weaners (Mean with s.e.m. in parenthesis)

Lupin supplement (g/hd.day)	CWW (kg)		FD (μm)		SL (mm)		SS (N/ktex)	
	-Se	+Se	-Se	+Se	-Se	+Se	-Se	+Se
0	2.47 (0.05)	2.68 (0.08)	19.9 (0.4)	20.3 (0.3)	92.6 (1.8)	97.9 (2.1)	32.3 (4.3)	42.8 (1.6)
100	2.60 (0.10)	2.64 (0.11)	19.9 (0.9)	20.3 (0.3)	98.8 (1.6)	93.1 (2.1)	42.8 (2.0)	39.7 (1.4)
175	2.87 (0.10)	2.75 (0.07)	20.3 (0.5)	19.7 (0.3)	96.8 (2.6)	94.1 (3.0)	43.2 (1.4)	35.5 (1.0)
250	2.99 (0.10)	2.87 (0.09)	20.2 (0.3)	20.2 (0.3)	98.1 (1.6)	93.6 (2.5)	36.8 (1.7)	40.9 (1.9)

The results suggest that liveweight gain during summer-autumn is not a **major** factor influencing production responses to Se.

This work was supported in part by funds from the WRDC.

HUNTER, R.A., PETER, D.W., QUINN, M.P. and SIEBERT, B.D. (1982). *Aust. J. Agric. Res.* 33: 637-47.