EFFECT OF A POLYETHYLENE GLYCOL ON FEED INTAKE AND WOOL PRODUCTION OF SHEEP CONSUMING MULGA (*ACACIA ANEURA*)

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The feeding of a tannin binding agent, polyethylene glycol (PEG MW 4000), at levels of 6 to 24 g/d has produced significant responses in feed intake, liveweight change and wool growth of sheep consuming mulga (Pritchard *et al*. 1985, 1988). The addition of phosphorus (P) and sulphur (S) to the PEG supplement enhanced the response (D.A. Pritchard unpublished data). This study examined the effect of a lower level of PEG, with P and S, on performance in an endeavour to develop a more cost-effective supplement.

Twelve mature Merino wethers, fed mulga *ad lib*., were stratified on wool growth measured over 29 days and randomly allocated to three treatments - minerals (1 g/d P and S), minerals plus 3 g/d PEG and minerals plus 6 g/d PEG. Sheep were fed daily and drenched with the supplement within 1 hour after feeding. Feed intake, live weight and wool growth were measured over a period of 50 days, commencing 16 days after differential treatments commenced.

TABLE 1 Feed intake, liveweight change and wool growth of sheep fed mulga and supplemented with minerals and PEG.

	Feed intake (g/d)	Liveweight change (g/d)	Wool growth ($mg/cm^2/d$)
Minerals	905[a]	-30.6	0.477[a]
Minerals + 3 g PEG	1148[ab]	0	0.616[b]
Minerals + 6 g PEG	1371[b]	33.2	0.627[b]
SE	96.0	14.80	0.0311

[a] Means within columns with different superscripts differ significantly ($P<0.05$).

The addition of 3 and 6 g/d PEG to the mineral supplement increased feed intake (27% and 51%) and wool growth (29% and 31%) (Table 1). Responses in liveweight change were similar to feed intake responses but differences failed to reach significance ($P=0.06$).

The results suggest a linear response in feed intake and liveweight change to increasing level of PEG inclusion in the diet. This supports the results obtained in earlier experimentation with higher levels of PEG (Pritchard *et al*. 1988). The similar improvement in wool growth seen for both PEG treatments suggests that a low ratio of PEG:condensed tannin, 1:7, may provide wool production benefits. It would appear necessary to use the higher (6 g/d) PEG dose to avoid liveweight loss. This has significant implications for feeding of sheep on mulga under commercial conditions.

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