

**EFFECT OF MOLASSES AND POLYETHYLENE GLYCOL (PEG) ON DRY MATTER INTAKE (DMI), ORGANIC MATTER DIGESTIBILITY (OMD), NITROGEN RETENTION AND DIGESTIBILITY OF MULGA LEAF BY STEERS.**

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Mulga (*Acacia aneura*) contains 10 to 15% crude protein, however because of the presence of condensed tannins (CT), the protein is not readily available to the animal (Gartner and Hurwood, 1976). As a result, responses have been achieved in sheep to protein supplements (McMeniman et al, 1981), and to PEG (Pritchard et al, 1985) which appears to bind tannins increasing protein absorption (Jones and Mangan, 1977).

This paper reports the results of an experiment which examined the effects of molasses and PEG supplements (replicated Latin Square design) in conjunction with nitrogen, phosphorus and sulphur (NPS) in 8 steers fed mulga *ad libitum*. The quantity of PEG given was in the ratio of 1g PEG : 2.5g CT based on the previous days DMI. It demonstrated that the inclusion of PEG as a supplement for cattle consuming mulga will greatly enhance DMI and protein utilisation without affecting OMD.

	<u>DMI (kg/d)</u>	<u>OMD(%)</u>	<u>N Retention(g/d)</u>	<u>N Digestibility(%)</u>
Control (7.5g N, 5.5g P, 5.0g S/d)	4.19 a#	48.8 a	9.7 a	37.3 a
Control + Molasses (350g DM/d)	4.78 a	48.8 a	16.1 a	34.5 a
Control + Molasses + PEG	5.99 b	49.9 a	30.2 b	54.7 b
LSD (5 P.C.)	0.605	2.27	11.77	5.50

# means within columns with different subscripts differ (P<0.05)

DMI increase due to molasses approached significance (P<0.057). Hoey et al (1976) reported that responses when molasses was added to mulga diets could be explained by its ash content, though Ca, Co, Cu, Fe, K, Mg, Mn, Na and Zn have had no effect (Hoey et al, 1976; McMeniman et al, 1981; Gardner & Niven, 1978), and McMeniman et al (1981) suggested that only 33% of the response was attributable to sulphur. The mechanisms associated with the responses to molasses in this experiment are unknown, however molasses may contain a tannin combining substance. Since PEG is not digested by ruminants (Sperber et al, 1953), the responses to PEG are considered to be due to the CT being bound in a PEG/CT complex, resulting in increased protein utilisation. However the site/s at which this occurs is not known.

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