

RESPONSES OF SHEEP SUPPLEMENTED WITH
N-HYDROXYMETHYL-DL-METHIONINE-Ca (MEPRON)

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Sulphur-containing amino acids are essential for the production of wool and may be the primary nutritional factor limiting wool growth (Reis 1979). When provided as dietary supplements they are degraded by rumen microbes and are ineffective for increasing wool growth. However, post-ruminal (Reis 1979) or 'protected' (Wuliji & McManus 1988) supplements can be effective.

In the present experiment we tested Mepron (Degussa), commercially available 'protected' methionine, as a feed supplement for increasing wool growth. Sixteen individually penned Merino ewes were fed an oaten hay diet with 25% lupin grain for 10 weeks. After the first 4 weeks, half of the ewes received a daily supplement of 3.64g Mepron (67.7% methionine). Wool growth was measured on all sheep using dyebands 3 weeks prior to supplementation and for two 3 week treatment periods. Blood samples were collected from 5 sheep/group at the beginning of each of the three wool growth periods and the plasma was analysed for amino acid and sulphate concentration.

	Pre- Treatment	0-3 Weeks Treatment	3-6 Weeks Treatment
<u>Clean Wool Growth (g hd⁻¹d⁻¹)</u>			
-Mepron	10.9 ±0.36 ^b	11.9 ±0.55	12.7 ±0.71
+Mepron	10.7 ±0.49	11.8 ±0.62	14.0 ±0.73
<u>Plasma Methionine (µg ml⁻¹)</u>			
-Mepron	2.9 ±0.27	4.5 ±0.49	3.1 ±0.34
+Mepron	2.6 ±0.22	3.5 ±0.23	3.5 ±0.72
<u>Plasma Sulphate (µg ml⁻¹)</u>			
-Mepron	27.7 ±3.54	22.0 ±3.64	21.8 ±1.57
+Mepron	28.9 ±3.48	37.1 ±2.17 ^a	28.9 ±2.21 ^a

^a +Mepron significantly greater than -Mepron (P<0.05) using 1-way anova

^b Mean ±sem

Mepron did not significantly increase wool growth (P=0.23, weeks 3-6) or change the concentration of methionine in plasma. However, plasma sulphate concentrations were significantly 25 to 40% higher in sheep supplemented with Mepron. Mean liveweight gain for both groups was approximately 60 g/d.

Unlike previous studies (eg Wuliji & McManus 1988) we found Mepron to be ineffective for increasing wool growth. Mepron may have been degraded in the rumen, producing sulphate and preventing the absorption of sufficient additional methionine to increase wool growth. Alternatively, methionine was in excess of requirements prior to Mepron supplementation and the additional methionine was metabolized after intestinal absorption to produce sulphate. There was no increase in plasma methionine to support this argument.

REIS, P.J. (1979). In 'Physiological & Environmental Limitations To Wool Growth', p. 223, eds J.L. Black and P.J. Reis. (University of New England Publishing Unit: NSW).

WULIJI, T and MCMANUS, W.R. (1988). *Proc. Aust. Soc. Anim. Prod.* 17: 487.