

## PROTECTION OF CANOLA MEAL INCREASES WOOL GROWTH IN GENETICALLY RESPONSIVE SHEEP

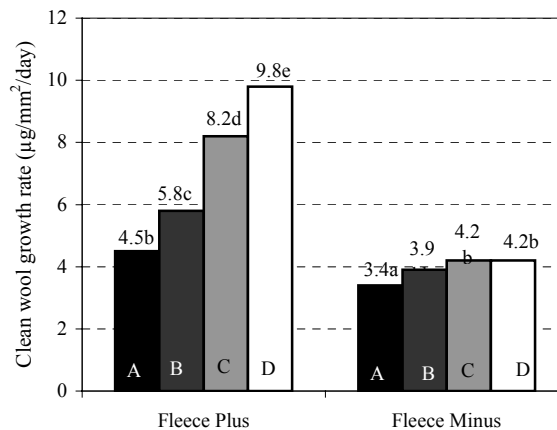
J.M.A. DEMPSEY<sup>A</sup> and G.E. ROBARDS<sup>B</sup>

<sup>A</sup> CSIRO Livestock Industries, F.D. McMaster Laboratory, Chiswick, Armidale, NSW 2350

<sup>B</sup> 10 Clarence St, Glenbrook, NSW 2773

Changes in rate of wool growth can occur when different levels of protein are ingested by sheep. Further increases in wool growth have been reported when proteins have been treated to protect them from microbial fermentation in the rumen, thus increasing absorbable amino acids and promoting greater wool growth (Reis 1969).

Nine wethers of a high-producing genetic strain (Fleece Plus) and 9 from a low-producing strain (Fleece Minus) were used in this study (NSW Department of Agriculture, Trangie). The sheep were fed 1 of 4 diets: A – 100% lucerne chaff; B – 15% casein (14% natural protection of protein), 85% lucerne chaff; C – 40% unprotected canola meal (53% natural protection of protein), 60% lucerne chaff; D – 40% protected canola meal (increased from 53 to 95% protection by spraying with 1.5% formalin), 60% lucerne chaff. All sheep were offered diet A at maintenance for 7 weeks, followed by similar offers of diets B, C and D in turn for the same lengths of time to allow adjustment to the diet and wool growth to stabilise. Clean wool growth rate was calculated by dividing the scoured, conditioned weight of wool grown on an 11 x 11cm mid-side patch by the number of days in the growth period.



**Figure 1: Clean wool growth rate for diets A, B, C and D (see text for details). Values with different letters are significantly different ( $P < 0.05$ ).**

The overall clean wool growth rate of the Fleece Plus sheep was 82% greater than that of the Fleece Minus sheep, which is higher than the difference reported by Ahmed *et al.* (1963). This suggests that the magnitude of the difference between the flocks was due to the large response of Fleece Plus sheep to the protected dietary protein (Figure 1). Thus, whereas Fleece Minus sheep produced almost the same rate of wool growth on all diets, Fleece Plus sheep produced significantly more wool as the level of protein and its degree of protection increased. These responses to protected dietary protein in sheep genetically selected for clean wool production confirm results obtained earlier with infused amino acids (Williams *et al.* 1972). The results emphasise that the benefits of feeding costly protein supplements may only be realised in superior wool-producing genotypes.

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Email: joy.dempsey@csiro.au