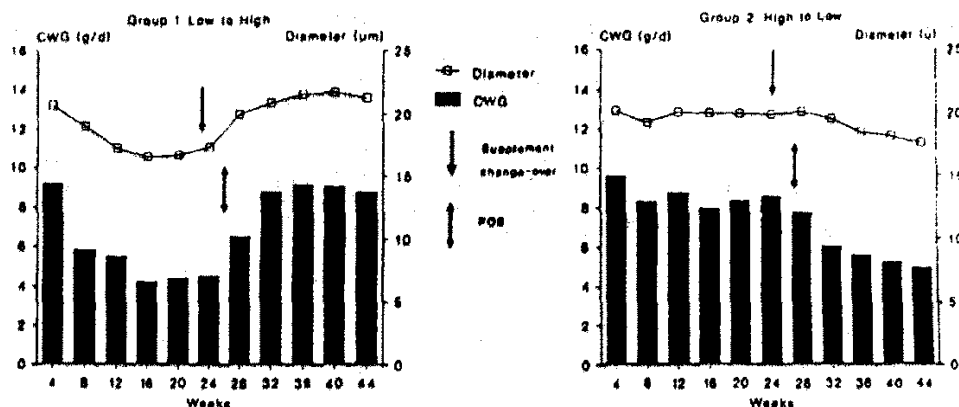


## DIETARY CHANGES, STAPLE STRENGTH AND POINT OF BREAK

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Staple strength (SSt) and the point of break (POB) along the staple have generally been associated with the point at which the fibre diameter (FD) is narrowest (Ralph 1984). More recently, debate has increased as to whether it is the minimum FD, the rate of change in FD or the variability in FD that determines the SSt and POB (Hansford et al. 1988; Ritchie et al. 1990). We investigated the effect of abrupt changes in protein and methionine availability at the small intestine on clean wool growth (CWG), FD, SSt and POB.

Two groups of Merino wethers cannulated at the abomasum were housed indoors and offered for 12 months a maintenance ration plus or minus supplements of formaldehyde-treated casein (60 g/d) mixed in the ration and DL-Methionine (3 g/d) per abomasum as follows: Group one (n=4) no supplements for six months then ration plus supplements for six months (Low - High). Group two (n=5) ration plus supplement for six months, maintenance ration only thereafter (High - Low). The ration contained wheaten hay (42%), oaten hay (42%), lupin grain (9%), oaten grain (5%) and minerals (2%). CWG was measured every four weeks using dyebands. SSt, FD and POB on dyeband sections were determined using an ATLAS and an FDA200.



Means ( $\pm$  SD) for Group one and Group two were for CWG  $2.95 \pm 0.08$  kg and  $3.16 \pm 0.08$  kg (ns.), for FD  $19.7 \pm 1.2$   $\mu$ m and  $19.5 \pm 0.7$   $\mu$ m (ns.) and for SSt  $34.6 \pm 4.1$  N/Ktex and  $49.4 \pm 5.2$  N/Ktex ( $P < 0.05$ ). Changes in the nitrogen status of both groups by the addition or removal of supplements, led to fibre changes which resulted in the point of break occurring shortly after the dietary change. Following the dietary change, Group one took 12 weeks and Group two 16 weeks to reach a new equilibrium level of production.

Points of break resulting from dietary changes were not associated with the lowest FD measured monthly or the fastest rate of change in FD. More detailed fibre studies are being conducted.

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