THE INFLUENCE OF FLUCTUATION IN LIVE WEIGHT AND SUPPLEMENTATION WITH RUMEN STABLE METHIONINE DURING LIVEWEIGHT LOSS ON THE PRODUCTION, FIBRE DIAMETER AND STAPLB STRENGTH OF WOOL

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In the Mediterranean regions of southern Australia, sheep grazing dry summer pastures continue to lose weight until the occurrence of the 'autumn break'. White *et al.* (1980) found that the live weight (LW) of sheep ranged, according to stocking rate and sex, from 55-68 kg in December to 38-43 kg in May. While it is well known that abomasal supplements of methionine stimulate wool growth during maintenance of LW (Reis 1967), the effect of methionine supplementation during loss in LW -on the production and staple strength of wool is not well documented.

Thirty six Peppin Merino wethers (mean LW = 47.1, s.d. = 3.7 kg), were shorn in October 1986 and allocated to 3 treatment groups in a randomised block design using greasy fleece weight blocks. Group 1 was lot fed a maintenance ration of lucerne chaff for 12 months. Groups 2 and 3 grazed together on pasture until mid January 1987 when they were lot fed sub-maintenance rations of pasture hay until June 1987. During this period, sheep in Group 3 were supplemented daily in individual cages with 2.5 g of'rumen stable methionine (RSM) mixed with 100 g of gristed barley. Group 2 sheep were fed 100 g barley without RSM. In June, 1987 sheep in groups 2 and 3 were transferred to pasture until shearing in October 1987. Staple strength was determined on mid side samples of all sheep and diameter profiles recorded on 3 sheep from each group.

The mean LW change of sheep in group 1 over spring, summer-autumn and winter-spring was +0.7, +5.6 and +4.1 kg; the corresponding LW changes of groups 2 and 3 were +8.5, -15.1, +23.3 and +8.0, -14.7 and +22.9 kg respectively. Mean plasma methionine levels 6 hours after supplementing with RSM were 1.4 and 7.8 mg/l (s.e.d. = 0.63) for groups 2 and 3 respectively.

Table 1 Weight, yield, fibre diameter and staple strength of the wool

Attribute		Group 1	2	3	s.e.d.
Greasy fleece (kg)		6.91	5.82	6.75	0.28
Yield (%)		65.9	66.8	65.9	1.12
Fibre diameter (u)	Min.	22.2	17.3	19.3	-
	Max.	24.6	27.4	26.1	-
Staple strength (N/ktex)		54.7	12.0	21.5	3.46

Maintenance of LW over 12 months greatly reduced variation in fibre diameter and promoted high staple strength of wool compared to that produced by animals gaining and losing LW (Table 1). Supplementation with RSM during LW loss (Group 3) increased wool growth and staple strength compared to controls (Group 2) but staple strength remained well below the Australian flock average.

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