

Frequency of feeding lupin or canola meal supplements influences wool growth but not staple strength in weaner sheep

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Variation in the diameter of fibres along the wool staple is the major cause of low staple strength (1). In practical farming systems young sheep often require feed supplements, however, the interval between supplementation may vary from 2 to 10 days depending on available pasture, sheep condition or other farming priorities. This experiment aimed to determine if increasing the period between feeding increases wool growth variability and reduces staple strength.

Sixty-four Merino wethers (5 months old, 31 kg) were housed indoors and allocated to 1 of 4 treatments in a 2x2 factorial design for 2 months. All sheep were fed approximately 450g of basal diet containing 75.4% oaten hay, 22% oaten straw and 2.6% Siromin. Half the weaners were fed a feed supplement daily (130 g/d), the other half were fed the same total amount of supplement on one day (Tuesday) each week. Within each frequency of feeding group, half the sheep received supplements of lupin seed and the other half expeller canola meal. Wool growth during the experiment was measured using midside patches on each sheep (100 cm²). Two weeks after the start of the experiment and prior to feeding, skin samples were collected from the midside on the day of weekly supplementation (day 0) and then again on days 1, 3 and 6 for measurement of mitotic rate (2). A midside wool sample was also collected 5 months after the sheep were returned to the paddock, for the measurement of staple strength.

Diet (D)	Supplement frequency (F)	Wool growth during experiment (g/100 cm ² .d)	Staple strength (N/ktex)
Lupin	Daily	0.059	25.7
	Weekly	0.055	27.0
Canola meal	Daily	0.062	28.4
	Weekly	0.066	29.8
Standard error of all means		0.001	1.76
Significant effects (P<0.05)		D x F	ns

There was no effect of frequency of feeding on staple strength or mitotic rate. Sheep fed lupins weekly, had a lower mitotic rate 3 days after supplementation than the sheep fed canola meal weekly (5.06 vs 3.77, P<0.01). There was a significant wool growth interaction between frequency of feeding and supplement type, feeding lupins weekly decreased wool growth whereas, feeding canola meal weekly increased wool growth relative to daily feeding (P<0.02).

The lack of effect of feeding frequency on staple strength indicates variability in fibre diameter between feeding periods was small. The negative effect of weekly lupin feeding on mitotic rate and wool growth requires further investigation in view of the large amount of lupins fed on farm.

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