

## THE RELATIONSHIP BETWEEN FEED INTAKE AND THE METHOD OF SUPPLEMENTATION, BODY COMPOSITION AND STAGE OF PREGNANCY/LACTATION

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In a cycle of production, animal performance depends on the timing of periods of low and high levels of intake. One important feature of the strategic feeding systems (Egan 1984) is achieving high voluntary food intake when this would elicit beneficial response. Food intake is affected by the physiological status of the ewe (e.g. reproduction, fatness). Often supplementation with a concentrated feed can lead to a substitution in intake (Doyle 1987). The objective of this experiment was to determine the degree to which roughage intake (RI) is affected by method of supplementation in ewes during late pregnancy and early lactation.

A flock of 30 four-year-old Corriedale/Comeback ewes were run as one flock until d 75 of pregnancy when they were separated into two groups and fed on either a high (C) or low (R) plane of nutrition. At d 100 the ewes were housed in individual pens, and allotted to one of three feeding strategies (n=5/group); chaffed pasture hay (8.6 MJ ME/kg DM, 1.4% N) *ad libitum* (Group U) or supplemented with either 250 g lupin grain/day (Group A) or 875 g lupin grain twice (Mon. and Thu.) per week (Group B), which continued to d 160. Feed was dried (100°C, 24 h) and roughage intake (RI) converted to a DM basis.

Table 1 Roughage intake (g DM/day) of ewes during late pregnancy and lactation

Day post coitus Treatment group	119-121		140-142		157-160	
	C	R	C	R	C	R
Feeding strategy A	971ab (15)	1057b (15)	1032b (15)	1096b (15)	1622b (15)	1457ab (15)
B	947ab (15)	843a (15)	929ab (15)	656a (15)	1321a (15)	1362a (9)
U	1098b (12)	1175b (15)	1125b (12)	1400c (15)	1411a (12)	1725c (15)
s.e.d.	92.1		96.8		97.8	

Different letters within each time period indicate significant differences. No. observations in parenthesis.

Group R ewes had higher ( $P<0.001$ ) RI than group C ewes at all three periods. There was an interaction ( $P<0.001$ ) between diet and C/R at d 140-142 (ca. 8 days pre-lambing) and d 157-160 (ca. 10 days post-lambing). The RI by group B ewes at d 119-121 (day 1), d 140-142 (day 1, 2 and 3) and d 157-159 (day 1) were lower ( $P<0.05$ ) than for group A and U ewes.

The weight of the reticulo-rumen at d 96 of group R ewes was lower ( $P<0.05$ ) than for group C ewes, indicating that maximum potential rumen load was lower for group R ewes. It is thought that the reduction in RI of group R ewes at d 140-142 was due to both the substitution effect of the supplement and competition for abdominal space (Forbes 1970). To avoid the adverse effects of substitution during late pregnancy it is recommended that lean ewes should be fed supplement in lower amounts at more frequent intervals.

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