

INTAKE AND DIGESTIBILITY OF WHEAT STRAW BY SHEEP
AS AFFECTED BY UREA AND/OR LUCERNE INTAKE

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There is an optimal level of rumen ammonia in the rumen of sheep or cattle on fibrous based diet necessary for maximum microbial growth and fermentation activity. However, suggested levels have varied from 50mg/l (Satter and Slyter 1974) to as high as 340mg/l (Kellaway and Leibholz 1980) but more recently 200mg/l NH₃-N/l has been suggested to optimize intake (Boniface et al. 1986; Perdok and Leng 1988). It is now recognize a small quantity of high quality forage can affect digestibility of a basal poor quality fibrous diet; thus there maybe interaction between forage type and ammonia levels (Silva and Orskov 1988).

The results of the experiment are shown in the Table.

Table. Rumen ammonia levels, straw intake, straw organic matter digestibility (DOM) and wool growth of sheep given a basal diet of wheat straw (BD), or +15g urea (BD+15U), or +30g urea (BD+30U), or +150g lucerne (BD+L), or +15g urea+150g lucerne (BD+15U+L) or +30g urea+150g lucerne (BD+30U+L).

Parameters	Diets						SEM	Significance
	BD	BD+15U	BD+30U	BD+L	BD+15U+L	BD+30U+L		
Rumen ammonia (mg/l)	67 ^a	223 ^b	292 ^{bc}	115 ^a	246 ^b	334 ^c	16.1	***
Straw intake (g/a/d)	520 ^a	711 ^b	786 ^b	929 ^c	836 ^{bc}	702 ^b	34.9	**
(% BW)	1.6 ^a	2.4 ^b	2.6 ^b	2.7 ^b	2.5 ^b	2.4 ^b	0.09	**
Straw DOM (%)	42.0 ^a	48.0 ^c	44.8 ^b	47.0 ^{bc}	48.2 ^c	48.3 ^c	0.45	**
Wool growth prop. (%)	46 ^a	45 ^a	49 ^a	64 ^b	65 ^b	50 ^b	2.07	*

* Values with different superscripts differ significantly (P<0.05).

The results of the experiment tend to suggest that factors other than rumen ammonia alone are involved in the responses in improving straw intake and its digestion. The protein and other nutrients in lucerne and its highly fermentable nature appeared to have improved the rumen environment and increased microbial growth (as indicated by wool growth), improved digestibility and enhanced straw intake.

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