

## THE EFFECTS OF DIFFERENT SUPPLEMENTS ON THE DIGESTIBILITY OF LOW QUALITY ROUGHAGE

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Xinjiang Uygur Autonomous Region, one of five main pastoral areas in China is characterised by an average rainfall of 200 mm and sub zero winter temperatures. A major limitation to the production of grazing animals in this environment is low quality roughage during winter/early spring. Gaskins (1990) reported that when lucerne hay or cottonseed meal were provided as protein supplements to low quality roughage the digestibility of DM, NDF and CP was increased.

An experiment was designed to determine the effect of lucerne chaff and oats as supplements on the digestibility and N balance of low quality roughage fed to sheep. Six sheep were used in a reversal trial and fed the following diets-

- Diet 1: 1 000g oaten chaff +100g lucerne chaff  
Diet 2: 1 000g oaten chaff + 50g lucerne chaff + 50g oats

The trial began with a 10 day preliminary period followed by a 7 day total collection of faeces and urine to determine in vivo digestibility and N balance. Results are shown in the following table for diet composition, digestibility of two diets, DM intake and N balance.

Diet composition and DM intake	Oaten chaff + Lucerne chaff		Oaten Chaff + Lucerne chaff + Oats	
N g/kg DM	11.0		10.6	
ADF g/kg DM	294.8		287.7	
DMI g/kg DM	922.1		924.6	
Digestibility	Mean	SE	Mean	SE
In vivo dig. %	59.30	5.78	59.71	5.43
ADF g/g	0.47	0.09	0.46	0.06
En. MJ/kg	9.37	0.90	9.47	0.71
N. g/g	0.59	0.04	0.59	0.05
N balance g/day	1.28	0.97	1.20	1.28

There were no significant differences of digestibility and N balance between the two diets. The results indicated that lucerne chaff and lucerne chaff + oats performed equally on digestibility and N balance fed at this level of supplement to low quality roughage. The positive nitrogen balance (1.20 and 1.28 g/day) observed when these supplements were used contrasts with the negative nitrogen balance (-0.34g/day) when Mulholland et al (1976) supplemented oaten straw with urea over a four week period.

Gaskins, H.R., Croom, W.J.Jr., Eys, J.E., Johnson, W.L., Hagler, W.M.Jr. (1991). *Small Ruminant Research* 3:6, 561-573

Mulholland, J.G., Coombe, J.B. and McManus, W.R. (1976). *Aust.J.Agric.Res.*, 27, 139-153

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