

**NET ENERGY VALUE OF THE GRASS *DIGITARIA PENTZII*  
GROWN WITH OR WITHOUT SULPHUR FERTILIZER**

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Sulphur (S) deficiency in *Digitaria decumbens* (Pangola grass) has been shown to reduce the contribution of the rumen to overall digestion (Rees, Minson and Smith 1974) and alter the proportions of volatile fatty acids in rumen fluid (Rees and Minson 1978). In the present work, *Digitaria pentzii* was grown on S deficient soil with (S+) or without (S-) the application of 60 kg S/ha. A seven week regrowth of each was harvested, chopped and dried at <100°C. The S- feed contained 0.11% S and the S+ feed 0.17% S but both feeds were similar in N (1.2%), P, K, Ca, Mg, Na, Cu, Zn, cellulose, hemicellulose and lignin content.

Four adult wethers were fed in successive fortnights and then fasted for four days as follows: S- *ad lib.*; the same amount of S+; S- and then S+ at 60% of the first level of intake. The table gives dry matter intakes (DMI). Complete balances of nitrogen and energy were measured over the last four days of each fortnight and during the third and fourth days of starvation using closed-circuit respiration chambers in which methane was measured by infrared gas analysis.

Digestibility of energy (DE) was much lower with S- than with S+ at both levels of feeding (see Table). Methane production was variable between sheep but was always lower with S- than with S+ so that metabolizable energy (ME) was less affected by S deficiency than was DE. Mean daily balances for the two levels of feeding were -1.3 gN and -0.72 MJ with S- and +0.56gN and +0.18 MJ with S+. Net availability of ME for maintenance ( $k_m$ ) was 24% lower with S- than with S+; a value could not be obtained for production because of the low energy balance. The quantity of nitrogen apparently digested (ADN) by sheep was lower on the S- diet despite similar nitrogen intakes.

Diet	DMI (g/d)	DE(%)	ME(MJ/kg DMI)	$k_m$ (%)	ADN (g/d)
S-	540	48	7.5	49	1.1
S+	539	60	9.0	64	2.3
S-	894	41	6.7	42	2.3
S+	866	51	7.8	55	3.1
Standard Error		2	0.3	4	0.2

It was concluded that S deficiency reduced the efficiency of energy and protein use.

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