

OPTIMUM NITROGEN:SULPHUR RATIO IN SUPPLEMENTS FOR CATTLE CONSUMING
TROPICAL PASTURE HAY

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It is well recognised that the low nitrogen content of tropical pastures is a major constraint to cattle production. Further, it is recognised that responses to nitrogen supplementation depend on a concurrent supply of sulphur (Kennedy and Siebert 1973). There is, however, much argument as to the optimum ratio of nitrogen to sulphur in dry season supplements and the present experiment was undertaken to shed some light on this.

Four **rumen** fistulated Brahman cross steers were fed tropical pasture hay (>90% *Heteropogon contortus*) and infused with mixtures of urea and sodium sulphate to supply N:S ratios varying from 30:1 to 5:1. The supplements were infused at rates to maintain **rumen** ammonia levels in excess of 45 mg N/l (Boniface et al. 1986). A mineral mix, complete except for N and S was also fed. Measurements were made of the disappearance of pasture hay dry matter (92.8% OM, 0.55% N, 0.08% S) from nylon bags (250 x 100 mm, 45 μ m pore size) held for 48 hours within the **rumen** of the steers.

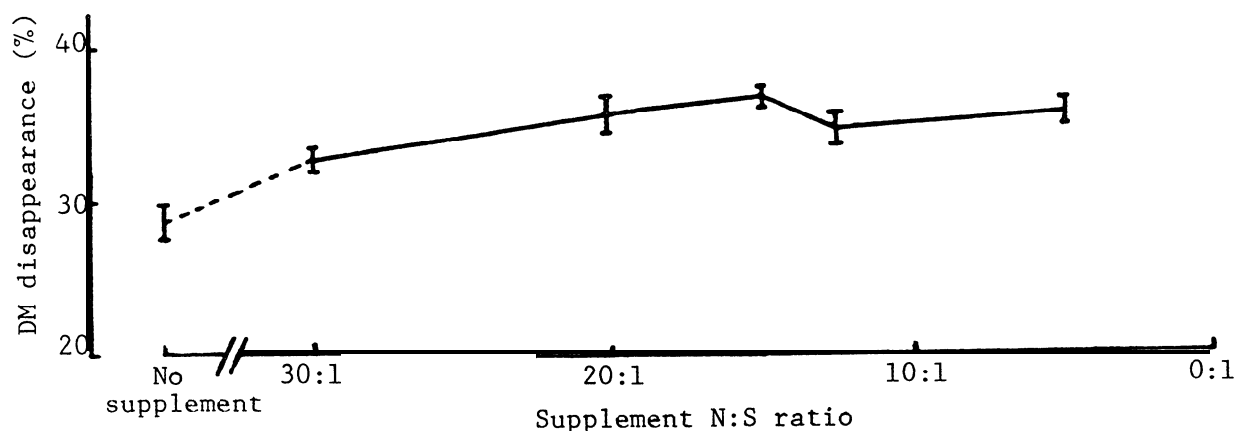


Figure 1. Disappearance of feed dry matter (%) from nylon bags held for 48 hours in the **rumen** of steers infused with urea and sodium sulphate at different N:S ratios.

As shown in Figure 1, nylon bag digestibilities for unsupplemented steers was 28.5% and increased with all levels of supplementation ($P > 0.05$). The highest digestibility (36.8%) was achieved at a supplemental N:S ratio of 15:1 although this was not significant.

These observations, although not conclusive, suggest that an N:S ratio in supplements for cattle grazing dry season tropical pastures of 15:1 would be optimal. Further, they confirm the low protein content of these tropical pastures and the benefit from nitrogen plus sulphur supplementation. The work is continuing.

BONIFACE, A.N., MURRAY, R.M. and HOGAN, J.P. (1986) Proc. Aust- Soc. Anim. Prod. 16: (in press).

KENNEDY, P.M. and SIEBERT, B.D. (1972) Aust. J. Agric. Res. 23: 45.