

## The effect of level of water intake on some aspects of digestion and nitrogen metabolism of the 'desert sheep' of the Sudan

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### SUMMARY

Five successive trials were conducted using eight adult rams (Sudan desert sheep) to study the effect of restriction of water intake on some aspects of digestion and nitrogen metabolism. The feeds used in this study were berseem hay (*Medicago sativa*), lubia hay (*Dolichos lablab*), maize hay (*Zea mais*), a concentrate mixture, and dry desert grasses (hummra) (a mixture of *Dactyloctenium aegyptium*, *Schoenefeldia gracilis*, *Eragrostis pilosa*, *Aristida funiculata* and *Aristida* spp.). Restriction of water did not affect the digestibility coefficients of organic matter, crude protein and crude fibre significantly. The digestibility coefficient of ether extract was significantly reduced whereas that of nitrogen-free extract was slightly higher when water was restricted.

The concentrations of ammonia and volatile fatty acids in the rumen and of urea in the blood were recorded before and 3 h after feeding. Increases in rumen ammonia and blood urea nitrogen concentration were reduced by water restriction except when hummra was fed.

Restriction of water intake also slightly increased the *in vitro* rate of fermentation of rumen contents which is taken as a measure of microbial activity in the rumen, and the retention of nitrogen. These results are interpreted as indications of more efficient nitrogen utilization under conditions of water restriction.

There were no significant effects of the treatments on changes in the concentration of volatile fatty acids.

The significance of these findings in relation to the management of desert sheep in the arid parts of the Sudan is discussed with special reference to the effect of the level of dry-matter intake on nitrogen balance.

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