

## A COMPARISON OF DIGESTION IN GOATS AND SHEEP OF SIMILAR LIVE WEIGHTS

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Comparative studies of digestion and utilization of forages in sheep and goats have often shown differences between the species (Devendra 1978; Doyle and Egan 1980) but few used animals of comparable live weight and feed intake. In this experiment the digestive capacities of three Merino wethers and three castrate male Angora x feral first cross goats of similar live weight were compared when fed a diet of 50:50 lucerne hay, oaten chaff (2.1% N).

The animals were fed the diet two hourly for two weeks before a digestibility and nitrogen balance trial which lasted 10 days. At the end of this period rumen fluid volumes and flow rates were estimated using the soluble marker Cr-EDTA. A maintenance feed requirement was calculated from metabolic body size ( $W^{0.75}$ ) but the goats systematically refused a small amount of food so they were offered slightly more than the requirement

	Goats		Sheep	
	Mean	SE	Mean	SE
Live weight (kg)	30.4	3.6	30.5	0.1
DM intake (g/d)	488.9	69.5	498.9	8.6
DM digestibility (%)	64.6	0.7	63.5	0.3
N intake (g/d)	9.64	2.00	10.30	0.18
N digestibility (%)	73.0	1.2	72.0	1.8
N retention (g/d)	0.78	1.55	1.30	0.19
Ruminal fluid volume (l)	3.70	0.32	4.49	0.43
Ruminal fluid flow (l/d)	7.30	0.46	11.36	1.06
Rumen VFA concentration (mM/l)	88.9	11.7	69.3	9.3

Live weights and intakes of dry matter and nitrogen did not differ between species. The digestibility of dry matter was marginally higher in the goats but nitrogen digestibility and retention were similar. Higher ruminal fluid volumes (21%) and flow rates (56%) in the sheep than in the goats were associated with a two-fold difference in water intakes. Total rumen VFA pools were similar although the mean concentration of rumen VFA was 28% higher in the goats.

It seems that with feeds of medium digestibility physiological differences such as rumen fluid volumes and flow rates have little or no effect on digestion or utilization of forage. However, the large difference in water intakes found in this experiment may be important where sheep and goats are run in arid environments.

DEVENDRA, C. (1978). Wld. Rev. Anim. Prod. 14:9.

DOYLE, P.T. and EGAN, J.K. (1980). Proc. Aust. Soc. Anim. Prod. 13:521.

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