

Protein supplementation for severely undernourished ewes

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Eight non-pregnant non-lactating Limousin x Romanov mature ewes initially weighing 56 kg were used to investigate the effects of protein supplementation on the digestibility of a medium-quality forage and on body weight loss when energy supply was severely restricted.

During the first 26 d of the trial, all ewes were fed on a meadow hay (organic matter (OM): 937 g; crude protein (CP): 107 g; crude fiber (CF): 328 g per kg dry matter) to cover 50% of their daily energy and protein maintenance requirements (INRA, 1989), *ie* \approx 200 kJ metabolizable energy (ME) and 1.36 g PDI/kg LW^{0.75}/d. They were then allotted to 2 groups of 4 animals each. Control ewes continued to receive the initial diet for another 74 d, while the others were supplemented with 60 g/d fish meal (FM group) in order to receive 200 kJ ME and 2.72 PDI/kg initial LW^{0.75}/d. Diet digestibility was measured in all ewes during the last 3 wk of the trial.

The FM ewes lost less body weight than the controls (96 vs 134 g/d; $P < 0.03$) probably because of their higher ME intake

(218 vs 199 kJ/kg initial LW^{0.75}/d for FM and control ewes respectively; $P < 0.03$). This was principally due to the higher digestibility of the hay in the FM (+ 7–9% for crude fiber and energy). Such an improvement in digestibility has often been observed but only with forages of lower N content (like straw) than the hay in the present study (*eg* Ortigues *et al*, 1989). In the control diet, the estimated degraded N in the rumen (INRA, 1989) was 21 g N/kg digestible OM, and approximately covered the ammonia need of the micro-organisms (INRA, 1989) suggesting that fish meal provided additional specific nutrients (such as amino acids) which promoted microbial activity and fiber digestion.

Ortigues I, Smith T, Oldham JD, McAllan AB, Siviter JW (1989) *Br J Nutr* 62, 601-619

INRA (1989) *Ruminant Nutrition* (Jarrige R, ed) INRA, Paris

Table 1. Average intake and digestibility of chemical components of the diets.

Group	Intake (g/d)				Digestibility (%)			
	OM	CP	CF	GE ¹	OM	CP	CF	Energy
Control	464	53	160	9.29	57	52	57	54
SE	25	3	9	0.50	2	2	2	2
FM	438	84	133	9.02	64**	72**	61*	62**
SE	24	6	7	0.50	2	1	2	2

¹ GE gross energy (MJ/d); ** $P < 0.03$; * $P < 0.06$.