

DIGESTIBILITY OF FOOD, GROWTH AND WOOL PRODUCTION IN CROSSBRED LAMBS FED TO SUPPORT MODERATE AND HIGH GROWTH RATES AND IMMUNISED WITH SOMATOSTATIN

Y.X. SUN, G.L. DRANE, S.D. CURREY, N.D. LEHNER, J.M. GOODEN, G.H. McDOWELL and P.C. WYNN*

Variable responses to immunisation of lambs with somatostatin (SRIF) have been attributed to factors such as breed, nutritional status, age, liveweight (LW) and level of immunity (see O'Hagan and Carnegie 1987). The present study was performed to assess effects of feed intake, and thus basal growth rate, on production responses following immunisation against SRIF.

Crossbred [Dorset Horn x (Border Leicester x Merino)] lambs (n=24) were fed lucerne chaff:rolled barley (2:1, 9.3 MJ/kg ME and 144 g/kg CP, air dry) for 75d then some of the barley was replaced with fish meal (10% of diet) and the modified diet (8.8 MJ/kg ME and 150 g/kg CP, air dry) was fed until day 120 after being changed gradually from days 75 to 85. Lambs were fed either 36 g feed/kg LW (moderate, n=12) or 40 g feed/kg LW (high, n=12). Half the lambs at each level were immunised with SRIF antigen (Webb et al. 1986) and the remainder (controls) were given placebo injections on days 0,25,50 and 90.

All lambs on the moderate ration and four on the high ration had measurable antibodies by day 49. Results for control and immunised lambs with measurable antibody are summarised in the Table.

	Moderate		High	
	Control	Immune	Control	Immune
Initial liveweight (kg)	36.0	35.1	36.3	36.0
Liveweight gain, days 0 to 120 (kg)	15.4	18.7*	22.1	23.1
Growth rate, days 0 to 120	- absolute (g/d)	129	156*	160
	- relative (g/kg)	428	534*	611
Dry matter digestibility, days	45 to 49	712	720	673
	(g/kg) days 70 to 74	679	707*	684
	days 115 to 119	675	708*	668
Nitrogen retention rate, days	45 to 49	0.39	0.38	0.34
	(N retained/N consumed) days 70 to 74	0.31	0.37*	0.40
	days 115 to 119	0.30	0.35*	0.31
Conditioned clean wool, days	50 to 75	4.6	6.1**	5.3
	(g/200cm) days 95 to 120	5.0	6.0**	4.6
Wool fibre diameter, days	50 to 75	31.2	34.1**	32.7
	(µm) days 95 to 120	33.3	37.6**	36.4

at each feed intake differences significant: * P<0.10, ** P<0.05, *** P<0.01

Productivity was improved by immunisation and responses were greater for lambs on moderate than high intakes. Improved digestibility of dry matter and increased nitrogen retention in moderately-fed lambs would account for improved productivity. The relatively smaller responses of the better-fed lambs may have been due to supply of adequate nutrients prior to immunisation. Inclusion of fish meal in the diet increased wool fibre diameter in all lambs.

O'HAGAN, R.J. and CARNEGIE, P.R. (1987). *Proc.Nutr.Soc.Aust.* 12: 37.

WEBB, M.M.S., McDOWELL, G.H., GOODEN, J.M., HOSKINSON, R.M. and WYNN, P.C. (1986). *Proc.Nutr.Soc.Aust.* 11: 142.