

THE EFFECT OF SIRE AND NUTRITION ON LAMB GROWTH

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The food intake of animals on similar diets is considered to be related to liveweight; however if different sire types have different abilities in adapting to available feed, this may need to be considered when selecting sires for lamb production in different environments. This study compared the feed intake of lambs, from different sires, at high and low stocking rates on pasture.

In August and September 1993, sixty 4 month-old second cross ewe and cryptorchid lambs out of Border-Leicester/Merino dams joined to Romney, Hampshire Down, Wiltshire Horn, Corriedale or Coolalee rams were stocked at 2 grazing pressures; high (19 lambs/ha) and low (3.4 lambs/ha) resulting in restricted (500 kg DM/ha, poor nutrition) and unrestricted (2000 kg DM/ha, good nutrition) pasture availability. Dry matter intake (DMI) was estimated in cryptorchid lambs dosed with chromium slow release devices (Parker *et al.* 1991). The 2 nutrition groups were slaughtered at different times; each at an average liveweight of 45 kg.

Table 1. Estimated daily dry matter intake (DMI, kg/day) of cryptorchid lambs

Sire	DMI (kg/day)		DMI
	Poor nutrition	Good nutrition	Average
Coolalee	0.51	0.70	0.66 ^a
Corriedale	0.72	0.90	0.78 ^b
Romney	0.43	0.73	0.59 ^a
Hampshire Down	0.46	0.71	0.57 ^a
Wiltshire Horn	0.59	0.82	0.73 ^b

^a Differences between sires are significantly different ($P < 0.05$).

Lambs at the high grazing pressure had significantly higher DMI of 0.55 kg/day compared to 0.76 kg/day for lambs at low grazing pressure ($P < 0.001$). Lambs from Corriedale and Wiltshire Horn sires consumed 0.2-0.3 kg DM/day more than lambs from other sire types ($P < 0.05$). There was no sire x nutrition interaction on feed intake ($P > 0.05$; Table 1) but there was on carcass weight ($P < 0.05$; Table 2).

Table 2. Effect of nutrition on carcass weight (kg) of lambs from different sires

Sire	Carcass weight (kg)		Difference
	Poor nutrition	Good nutrition	Poor-good
Coolalee	17.7	18.1	-0.4 ^{bcA}
Corriedale	15.8	17.8	-2.0 ^{ab}
Romney	18.0	18.2	-0.2 ^c
Hampshire Down	16.4	19.7	-3.3 ^a
Wiltshire Horn	18.6	18.1	0.5 ^c

^A Differences between poor and good nutrition are significantly different ($P < 0.05$).

Poor nutrition reduced carcass weight of Hampshire Down cross lambs more than Romney cross and Wiltshire Horn cross lambs (Table 2, $P < 0.05$).

This experiment has shown that the relative performance of sires, on the basis of lamb production, will vary according to whether their lambs grow on good or poor pasture. Differences in feed intakes have implications for carrying lambs over through periods of poor nutrition. Further studies on feed intake and growth of different genotypes is required to gain greater understanding of production performance to meet lamb marketing needs under a range of environments.

PARKER, W.J., McCUTCHEON, S.N. and WICKHAM, G.A. (1991). *N.Z. J. Ag. Res.* 34: 193-200.