GROWTH AND CARCASS SPECIFICATIONS OF HEAVYWEIGHT FIRST- AND SECOND-CROSS FEEDLOT-FINISHED LAMBS

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The average weight of Australian lamb carcasses has increased 3 kg since 1990 (Meat and Livestock Australia 2001) and there is a continuous challenge to achieve higher carcass weights without excess sub-cutaneous fat accumulating on the carcass. As demand for heavier carcasses continues, management systems to provide and then finish pasture-reared lambs to carcass weights of over 26 kg will be required. In association with the Central Progeny Test, a study was conducted to compare the ability of pasture-reared lambs from a range of sires and dams, to produce carcasses suited to the food service market when finished in a feedlot on a high-energy diet.

Merino and first-cross (Border Leicester x Merino) ewes were inseminated with Texel, Poll Dorset or Coolalee sires having LAMBPLAN terminal sire indices of 97-106 as part of the Central Progeny Test. Their progeny were reared on pasture to approximately 40 kg LW prior to feedlot entry, with male progeny being made cryptorchids. One hundred and twenty lambs were housed in group pens and offered ad-libitum access to a single mixed ration (11.8 MJ ME/kg DM; 19.9% CP) for 60 days. At completion of this feeding period, all 53 lambs were slaughtered in a commercial abattoir, their carcasses weighed and assessed for fat cover at the 12th rib, and a subset (n= 44) taken for assessment of commercial cuts (Shands *et al.* 2002).

Average growth rate of lambs in the feedlot was 275 g/d with a feed conversion ratio of 4.55:1. Of the 120 lambs in the study, 49% met the food-service specifications of 8-20 mm of fat at the 12th rib (average = 16 mm) and a minimum carcass weight of 22 kg (average = 27.9 kg). Eye-muscle area was not significantly affected by either sire-type or dam-type. Cryptorchid lambs had significantly higher liveweights (59.7 v 54.4 kg; P<0.001) and carcass weight (28.4 v 25.7 kg; P<0.001) and less tissue at the GR site (15.0 v 18.0 mm; P<0.001) than did ewes. The difference between the sexes was greater when they were compared at the same carcass weight (14.9 v 19.0 mm GR tissue depth; 28 kg carcass). First-cross lambs were leaner at any given LW, with longer carcass and leg lengths than 2nd cross lambs (Table 1). While only a single sire from each breed was used, significant between-sire differences in carcass and leg length were observed (Table 1).

Table 1. Least squares means ± s.e. for cryptorchid lambs (n = 44) at 28 kg carcass weight

	Dressing %	GR tissue depth (mm)	EM area[A] (cm^2)	Carcass length (cm)	Leg length (cm)	Leg circum. (cm)
2nd X	47.0 ± 0.4	15.6 ± 0.6	18.6 ± 0.5	114.6 ± 0.5	38.2 ± 0.2	29.3 ± 0.3
1st X	47.2 ± 0.6	13.1 ± 0.8	19.1 ± 1.0	117.1 ± 0.7	39.7 ± 0.3	30.2 ± 0.4
	ns	*	ns	**	**	(p = 0.06)
Texel	46.7 ± 0.6	15.4 ± 0.9	19.9 ± 0.8	112.6 ± 0.8	38.3 ± 0.3	30.2 ± 0.4
Dorset	47.8 ± 0.4	14.1 ± 0.6	18.1 ± 0.5	116.8 ± 0.5	38.8 ± 0.2	29.6 ± 0.3
Coolalee	46.8 ± 0.7	13.5 ± 1.0	18.7 ± 1.5	118.1 ± 0.9	39.7 ± 0.3	29.3 ± 0.5
	ns	ns	ns	**	*	ns
24 kg	-	12.2 ± 0.9	17.6 ± 0.9	111.9 ± 0.8	37.6 ± 0.3	28.5 ± 0.4
28 kg	47.1 ± 0.3	14.3 ± 0.5	18.9 ± 0.6	115.9 ± 0.4	38.9 ± 0.2	29.7 ± 0.2
32 kg	-	16.5 ± 0.9	20.1 ± 0.9	119.8 ± 0.8	40.3 ± 0.3	30.9 ± 0.4

[A]EM area is least square mean for ewes and cryptorchids, * P<0.05, **P<0.01

The above results indicate that production of extra-heavy lambs with carcass weights over 26 kg and acceptable fatness will be possible with existing genetic and nutritional management strategies. Feedlot finishing did not result in lambs becoming too fat for market specifications, as anticipated and the importance of ewe genotype was highlighted.

MEAT AND LIVESTOCK AUSTRALIA (2001). Lamb Survey Report. Sept. 2001.

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