

EFFECTS OF SIRE GENOTYPE AND GROWTH RATE ON THE VARIATION IN WEANING AND FEEDLOT ENTRY WEIGHTS OF BEEF FEEDER STEERS

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Meeting feedlot entry specifications is a major issue in supplying feeder steers. Animals falling outside specified weight ranges will not be accepted or incur a price penalty. The mean and variation in weaning weights combine with post weaning growth in affecting the weight distribution of the group approaching feedlot entry. We examined the effects of sire genotype on pre and post weaning growth, and of genotype and growth path, on feedlot entry weights.

The study and experimental design have been described previously (Wilkins *et al.* 2002). Steer progeny of a total of 40 sires, varying in potential for carcass traits (given in the caption in Table 1), were managed identically to weaning. They then had slow or fast growth treatments imposed on them to reach targeted group liveweights for feedlot entry. Pre and post weaning growth rates were measured. Data from the progeny of 4 calving groups were analysed by the Genstat REML procedure, with main effects of carcass type, calving year and growth rate as appropriate, and accounting for variation between sires within carcass type.

There were significant differences ($P < 0.001$) in weaning weights (not shown) due to calving year, with genotype being borderline ($P = 0.066$). However, differences in 200 day corrected weights (from actual weaning weights), and in birth to weaning growth rates were not significant (Table 1). The dam often has a major effect on growth to weaning, but in this study, the uniformity of the maternal and environmental contribution to pre weaning growth was apparent, thus avoiding any confounding with the sire and growth treatment effects on post weaning performance.

Table 1. Least squares means for parameters of pre and post weaning growth in steer progeny of sires differing in carcass type, and given slow or fast growth treatments post weaning. Carcass types AngY, AngM and AngYM are progeny of Angus sires chosen on EBV for high retail beef yield, high marbling or both; Ch (Charolais) and Lim (Limousin) from high yielding European cattle; WBk (Black Wagyu) and WRd (Red Wagyu) from high marbling breeds.

Carcass type	AngY	AngM	AngYM	Ch	Lim	WBk	WRd	lsd
200 day corrected wt (kg)	188	194	189	200	192	183	185	ns
Growth rate to weaning (kg/d)	0.76	0.79	0.78	0.80	0.77	0.74	0.75	ns
Growth treatment (post weaning)								
Slow – number	39	34	41	17	21	24	28	
Final weight pre feedlot (kg)	393	406	392	409	405	382	399	16
Growth rate post wean (kg/d)	0.62	0.63	0.61	0.64	0.63	0.60	0.63	0.04
Fast – number	40	38	40	18	23	26	27	
Final weight pre feedlot (kg)	402	406	409	436	399	387	382	16
Growth rate post wean (kg/d)	0.78	0.79	0.79	0.85	0.78	0.76	0.75	0.04

Each slow and fast growth group was targeted for the same total group average feedlot entry weight (400 kg). There were significant differences ($P < 0.01$) between the genotype means, which were evident in both slow and fast treatments (Table 1). The variation around group means as a consequence of the growth path also affects compliance to entry weight specification. A preliminary analysis suggested less variation within slow groups than fast, but this requires further examination.

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