

## Performance of the bull progeny of five beef cow breed types

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### Introduction

The progeny are the main saleable product of a beef cow enterprise. Highest prices are obtained for carcasses (or animals) that are lean and of good conformation. High progeny weight gains and the production of carcasses (or animals) suitable for the highest priced markets are therefore two important aims of such enterprises. The objectives of this study were to determine the effect of cow breed type on (a) growth and (b) carcass traits of bull progeny.

### Materials and Methods

The Grange spring calving beef cow herd, all of which were first parity animals, was used in this study. Five cow breed types were examined: LF (Limousin x Friesian), LLF (Limousin x (Limousin x Friesian)), L (Limousin), C (Charolais) and SLF (Simmental x (Limousin x Friesian)). An easy calving Limousin sire was used on all animals and they were bred (A.I.) to calve at two years of age. The progeny used were born in spring 2001 and spent from April until November at pasture with their dams. They were housed on 16<sup>th</sup> November in a slatted floor shed and offered grass silage plus an average of 4 kg/head/day concentrates (total 860kg) until slaughtered on 20<sup>th</sup> June 2002 at approximately 450 days of age. Data recorded included liveweights, carcass weights, standard EU carcass classification (conformation and fat) and kidney and channel fat weights. Meat, fat and bone weights were recorded following complete carcass dissection using a commercial procedure operated at the abattoir. One way analysis of variance was carried out using SAS General Linear Model Procedure (Proc GLM). The significance

of difference between least squares means was determined using the PDIFF option.

### Results and Discussion

There was no significant difference for daily gain from birth to weaning (DGBW) between the bull progeny of LF and SLF cows, both of which were significantly higher than the progeny of the other breed types (LLF, L and C), which in turn did not differ significantly from one another. Daily gain from birth to slaughter (DGBS) was similar for the progeny of LF, SLF and C cows, and was significantly higher than that of the LLF and L cows' progeny. There was no significant difference between the progeny of the latter cow breed types in DGBS. Progeny of L cows had a significantly higher killing-out rate than the progeny of all other cow types, between which there were no significant differences. There was no significant effect of cow breed type on carcass weight produced per day of age by the progeny. Carcass conformation score was best for progeny of L and C cows, being significantly higher than that of LF and LLF cows' progeny. Progeny of L cows had significantly lower total carcass fat than all the other progeny. The trend was similar for the other fat measurements. There was no significant difference between the progeny in carcass hindquarter proportion. Carcass meat proportion and meat to bone ratio was significantly higher for progeny of L cows than for any of the other four breed types, which were not significantly different from one another.

### Conclusions

There were significant cow breed type effects for growth rates and the majority of carcass traits for the bull progeny. Awareness of breed type differences is important for selection of beef dams capable of producing progeny of high growth rates and carcasses that are suitable for the highest priced markets.

**Table 1.** Mean values for liveweight, carcass weight, killing-out rate, weight gains and carcass traits of bull progeny of five beef cow breed types

Dam breed	LF	LLF	L	C	SLF	s.e.		Sig.
No. of animals	10	8	11	6	5	n = 11	n = 5	
Age at slaughter (days)	458	440	453	471	457	5.4	8.1	NS
Slaughter weight (kg)	543 <sup>a</sup>	474 <sup>b</sup>	488 <sup>b</sup>	550 <sup>a</sup>	560 <sup>a</sup>	14.8	21.9	**
Cold carcass(kg)	317.1 <sup>a</sup>	282.5 <sup>b</sup>	303.2 <sup>ab</sup>	327.2 <sup>a</sup>	329.9 <sup>a</sup>	9.4	14.0	*
Killing-out rate (g/kg)	584 <sup>b</sup>	597 <sup>b</sup>	621 <sup>a</sup>	594 <sup>b</sup>	590 <sup>b</sup>	4.6	6.8	***
Daily gain to weaning (g)	1029 <sup>a</sup>	918 <sup>b</sup>	868 <sup>b</sup>	941 <sup>b</sup>	1055 <sup>a</sup>	22.0	32.7	***
Daily gain to slaughter (g)	1094 <sup>a</sup>	995 <sup>b</sup>	986 <sup>b</sup>	1086 <sup>a</sup>	1146 <sup>a</sup>	24.2	35.9	**
Carcass weight/day of age (g)	691	641	669	694	722	16.1	23.9	NS
Carcass conformation score <sup>1</sup>	3.53 <sup>b</sup>	3.66 <sup>b</sup>	4.23 <sup>a</sup>	4.00 <sup>a</sup>	3.86 <sup>ab</sup>	0.125	0.186	**
Carcass fat score <sup>2</sup>	2.13	2.1	1.75	1.95	2.54	0.153	0.227	NS
Kidney + channel fat (kg)	8.5 <sup>a</sup>	5.1 <sup>bc</sup>	4.3 <sup>c</sup>	6.2 <sup>b</sup>	6.2 <sup>b</sup>	0.51 <sup>a</sup>	0.76	***
Carcass hind quarter (g/kg)	457	467	464	462	453	4.0	5.9	NS
Carcass meat (g/kg)	725 <sup>b</sup>	726 <sup>b</sup>	769 <sup>a</sup>	735 <sup>b</sup>	726 <sup>b</sup>	7.1 <sup>a</sup>	10.5	***
Carcass fat (g/kg)	95 <sup>a</sup>	96 <sup>a</sup>	68 <sup>b</sup>	86 <sup>a</sup>	104 <sup>a</sup>	6.8	10.1	*
Carcass bone (g/kg)	180 <sup>a</sup>	178 <sup>a</sup>	163 <sup>b</sup>	180 <sup>a</sup>	170 <sup>ab</sup>	2.9	4.3	**
Meat to bone ratio	4.0 <sup>b</sup>	4.1 <sup>b</sup>	4.7 <sup>a</sup>	4.1 <sup>b</sup>	4.3 <sup>b</sup>	0.09	0.13	***

<sup>1</sup> Scale 1 to 5 (best conformation) <sup>2</sup>Scale 1 to 5 (fattest);

<sup>abc</sup>Within rows means with different superscripts differ from one another (P<0.05)

\*P<0.05; \*\*P<0.01; \*\*\*P<0.001; NS = Not significant