

Effect of gender and slaughter weight in pigs on carcass measurements

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Introduction

The economic advantages of producing heavy pigs are widely recognised by producers and processors alike (Lawlor, 2003). Castration would allow male pigs to be brought to heavier weights at slaughter without the risk of boar taint. The aim was to examine the effect of gender and slaughter weight on carcass measurements in pigs of a lean genotype.

Material and methods

Forty five same gender pairs of pigs (Meatline Landrace sire on Landrace x Large White sows) were used in a 3 (gender) x 3 (slaughter weight) factorial design with 5 pairs per treatment. The experimental period was from weaning (mean = 26 days and 8.5 kg) to slaughter. Gender was boar (B), castrate (C) and gilt (G) and the target slaughter weights were 80, 100 and 120kg liveweight. All pigs were fed the same diets based on wheat, barley and soybean meal ad libitum as dry pellets. Data were analysed by PROC GLM for a 3 x 3 factorial design. The Duncan's multiple range test was used for means separation.

Results and Discussion

Gender x slaughter weight interaction effects were not significant ($P>0.05$). Carcass length was greater ($P<0.05$) for boars than castrates and gilts, which were similar. Leg length, ham circumference, weight of cold carcass, weight of hind leg and shoulder weight was not different for boars, castrates or gilts ($P>0.05$). Castrates had heavier loins ($P<0.01$) and bellies ($P<0.05$) than either boars or gilts, which were similar. There was a tendency for the 4 primal cuts as a percentage of side weight to be higher for castrates than boars ($P<0.11$). The loin as a percentage of the side weight was 16.5, 18.2 and 17.1 (s.e. 0.35 %; $P<0.01$) for boars, castrates and gilts, respectively.

Carcass length, leg length, ham circumference, weight of cold carcass, weight of hind leg, shoulder weight, loin weight and weight of belly all increased with each sequential increase in slaughter weight ($P<0.01$). The weight of the 4 primal cuts, as a percentage of the side weight, was not affected by weight at slaughter ($P>0.05$).

Conclusion

This work indicates that the processing value of carcasses from castrates is higher than that for boars. Heavier carcasses yield more product for approximately the same slaughtering cost and the associated larger muscles will make it easier to use seam butchery techniques that result in lean, well-trimmed, attractive cuts and joints.

Table 1. The effect of gender on pig performance and carcass quality

Gender	Boar	Castrate	Gilt	SE	F-test
Carcass length (mm)	845 ^a	832 ^b	836 ^b	3.3	*
Leg length (mm)	388	383	383	2.5	NS
Ham circumference (mm)	712	720	719	3.4	NS
Cold carcass weight (kg)	77.7	78.6	77.4	0.74	NS
Weight of primal cuts (kg)					
Hind leg	9.30	9.73	9.59	0.153	NS
Shoulder	5.48	5.56	5.40	0.096	NS
Loin	6.39 ^a	7.71 ^b	6.59 ^a	0.159	**
Belly	3.46 ^a	3.67 ^b	3.47 ^a	0.061	*
Four primal cuts as % of side weight	63.7	66.6	65.1	0.91	NS

^{abc} Means with different subscripts within rows are significantly different ($P<0.05$).

Table 2. The effect of slaughter weight on pig performance and carcass quality

Slaughter weight (kg)	80	100	120	SE	F-test
Carcass length (mm)	793 ^a	837 ^b	884 ^c	3.3	**
Leg length (mm)	364 ^a	385 ^b	405 ^c	2.5	**
Ham circumference (mm)	672 ^a	720 ^b	760 ^c	3.4	**
Cold carcass weight (kg)	63.1 ^a	78.6 ^b	91.8 ^c	0.74	**
Weight of primal cuts (kg)					
Hind leg	7.88 ^a	9.54 ^b	11.2 ^c	0.153	**
Shoulder	4.56 ^a	5.45 ^b	6.41 ^c	0.096	**
Loin	5.40 ^a	6.64 ^b	8.10 ^c	0.159	**
Belly	2.84 ^a	3.56 ^b	4.19 ^c	0.061	**
Four primal cuts as % of side weight	65.9	64.2	65.4	0.91	NS

^{abc} Means with different subscripts within rows are significantly different ($P<0.05$).