Effect of gender and slaughter weight on pig performance and carcass quality

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Introduction

The carcass weight of Irish pigs has, for economic reasons, increased steadily in recent years. If this trend continues producers may have to re-introduce castration of male pigs to help prevent the development of boar taint in the meat. The aim was to examine the effect of gender and slaughter weight on performance and carcass quality in pigs of a lean genotype.

Materials 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 8.6kg) to slaughter. Gender was boar, castrate and gilt and the target slaughter weights were 80, 100 and 120kg liveweight. All pigs were fed the same sequence of 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).

Daily feed intake was higher for castrates than either boars or gilts (P<0.01). Daily gain was higher for castrates than gilts, which were both similar to that of boars (P<0.01). Feed conversion ratio (FCR) was better for boars than either castrates or gilts, which were similar (P<0.05). Backfat depth, muscle depth and carcass lean meat content (by Hennessy Grading Probe) were 11.0, 13.3 and 11.2mm (s.e. 0.4; P<0.01); 51.2, 52.3 and 53.6mm (s.e. 1.1; NS) and 563, 544 and 567g/kg (s.e. 0.39, P<0.01) for boars, castrates and gilts respectively.

Daily feed intake increased with each increase in slaughter weight (P<0.05). Daily gain increased with slaughter weight (P<0.05) and FCR deteriorated with each sequential increase in weight at slaughter (P<0.05). Backfat depth, muscle depth and carcass lean meat content were 10.2, 12.2 and 13.1mm (s.e. 0.4; P<0.01); 46.2, 53.2 and 57.7mm (s.e. 1.1; P<0.01) and 568, 557 and 549g/kg (s.e. 4; P<0.01) respectively.

Conclusion

Even using modern genotypes (highly selected for lean tissue growth rate) boars still grow more efficiently and will thus be more profitable than castrates.

Increasing slaughter weight will reduce the lean meat content in the carcass and cause FCR to deteriorate. However, heavier pigs are still more profitable than lighter pigs since non-feed and sow feed costs per pig are spread over a greater carcass weight. Producers will thus continue to increase pig weight at slaughter up to the maximum permissible level. This trend will increase the incidence of boar taint but could be mitigated by the re-introduction of castration at these heavier weights.

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

Gender	Boar	Castrate	Gilt	SE	F-test
Weaning weight (kg)	8.4	8.7	8.7	0.17	NS
Weaning to slaughter (days)	128^{ab}	124^{a}	131^{b}	1.8	*
Daily feed intake (g/day)	1687^{a}	1847^{b}	1744^{a}	21.0	**
Daily gain (g/day)	737^{ab}	753^{b}	710^{a}	9.6	**
Feed conversion ratio (g/g)	2.30^{a}	2.45^{b}	2.47^{b}	0.043	*
Slaughter weight (kg)	102.5	102.1	100.9	0.58	NS
Lean meat (g/kg of carcass)	563^{a}	544^{b}	567^{a}	0.39	**

^{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
Weaning weight (kg)	8.4	8.8	8.6	0.17	NS
Weaning to slaughter (days)	105^{a}	128^{b}	150^{c}	1.8	**
Daily feed intake (g/day)	1541^{a}	1772^{b}	1965^{c}	21.0	**
Daily gain (g/day)	717^{a}	735^{ab}	748^{b}	9.6	*
Feed conversion ratio (g/g)	2.15^{a}	2.43^{b}	2.64^{c}	0.043	**
Slaughter weight (kg)	83.9^{a}	102.0^{b}	119.7^{c}	0.58	**
Lean meat (g/kg of carcass)	568^{a}	557^{ab}	549^{b}	0.39	**

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