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Effect of diet supplementation with grass-meal on pig performance and carcass composition

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Introduction

A high growth rate in the period immediately before slaughter may improve eating quality of pork. Feeding a low density diet in the early stages may slow growth rate and allow the use of cheaper feeds while the bulkiness may contribute to pig welfare. The objectives of this study were to assess (1) the effect of supplementation with grass-meal in order to slow growth rate on subsequent pig performance when the control nutrient-dense diet was fed, and (2) the effect of supplemental antioxidant.

Materials and Methods

Pigs (n = 1080 from two sirelines (Duroc or HiLean Landrace) mated to crossbred sows were weaned at 26 to 28 days of age (wt. 8.2kg), into same-breed, single-sex groups (n = 72) of 15 and allocated at random to the treatments. Commercial starter and link feed were fed to day 21 (c 15kg). Then the following diets were fed:

(**A**) High density (HD) diets to slaughter (Diets 1 and 2). (**B**) Diets with grass-meal (GM) to slaughter (Diet 3 and 4). (**C**) Diets with GM (Diet 3 and 4) to 50kg followed by HD Diet 2. (**D**) Diets with GM (Diet 3 and 4) to 80kg followed by HD Diet 2. (**E**) Diets with GM (Diet 3 and 4) to 80kg followed by a vitamin E enriched (200 mg a-tocopherol/kg) diet with 50g/kg of 00-rapeseed oil (Diet 5). (**F**) As E with tea extract instead of a-tocopherol. Diets 1 and 3 were fed from 15 to 30kg. Diets 3, 4 and 5 were finisher diets fed according to treatment.

Diets contained barley, wheat, maize (diets 1 and 3), soyabean meal, synthetic amino acids, vitamins and minerals. GM was included in diet 3 at 100g/kg and in diet 4 at 200g/kg. The digestible energy concentrations were (MJ/kg) 14.8, 13.5, 13.3, 10.8

and 14.4 and total lysine (g/kg) 13.1, 11.0. 12.5, 10.2 and 10.5 for Diets 1 to 5 respectively. Pigs were slaughtered at c. 105kg liveweight.

Results

The effect of diet is shown in Table 1. GM in the diet increased feed intake but not significantly so. Pigs from Landrace boars grow marginally faster (707 v. 694g/d; NS) and more efficiently (2.55 v. 2.65; P<0.01) from weaning to slaughter and had leaner carcasses than pigs from Duroc sires (596 v. 592 g/kg; P<0.01).

Effect of diet on pig performance from day 21 post-weaning to slaughter (Two breeds combined)

Treatment no.	*A*	*B*	*C*	*D*	*E*	*F*	*Sem*	*P %*
Weaner stage 2 (15 to 33kg)								
Daily gain, g	539	544	519	524	546	542	14.3	68
FCR	1.74	1.77	1.79	1.82	1.77	1.79	0.031	53
Finisher stage 1(33 to 50kg)								
Daily gain, g	660 ^{a}	539 ^{b}	538 ^{b}	565 ^{b}	554 ^{b}	571 ^{b}	19.0	**
FCR	2.31 ^{a}	2.94 ^{b}	2.86 ^{b}	2.82 ^{b}	2.88 ^{b}	2.79 ^{b}	0.074	**
Finisher stage 2 (50 to 80kg)								
Daily gain, g	844 ^{a}	762 ^{b}	853 ^{a}	730 ^{b}	770 ^{b}	793 ^{ab}	23.8	**
FCR	2.53 ^{a}	2.78 ^{b}	2.52 ^{a}	2.97 ^{c}	2.83 ^{b}	2.80 ^{b}	0.038	**
Finisher stage 3 (80 kg to slaughter)								
Daily gain, g	829 ^{ab}	784 ^{b}	847 ^{ab}	884 ^{a}	875 ^{a}	862 ^{a}	22.5	3 *
FCR	3.18 ^{a}	3.45 ^{b}	3.08 ^{a}	3.15 ^{a}	3.09 ^{a}	3.09 ^{a}	0.061	**
Overall weaning to slaughter								
Daily gain, g	730 ^{a}	675 ^{b}	710 ^{ab}	686 ^{b}	698 ^{ab}	704 ^{ab}	11.3	3 *
FCR	2.43 ^{d}	2.74 ^{a}	2.50 ^{c}	2.70 ^{a}	2.62 ^{b}	2.59 ^{b}	0.019	**
Carcass								
Kill out, g/kg	779 ^{a}	763 ^{c}	775 ^{ab}	772 ^{b}	771 ^{b}	771 ^{b}	2.3	**
Backfat, mm	12.2 ^{a}	10.6 ^{c}	11.9 ^{a}	11.2 ^{b}	11.7 ^{ab}	11.7 ^{ab}	0.19	**
Muscle depth, mm	59.0 ^{a}	55.1 ^{d}	58.3 ^{ab}	56.5 ^{cd}	56.7 ^{bcd}	57.5 ^{abc}	0.56	**

Conclusions

Feeding GM for all or part of the growth stage results in depressed pig performance (growth rate and FCR). Supplementation of the diet in the final stages of finishing with vitamin E or tea extract had little effect on pig performance.