

Nutritional manipulation increases intramuscular fat in finisher gilts

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The Australian pork industry in keeping with consumer demands for leaner meat has used lean pig breeds in Australia. As a consequence, this has reduced intramuscular fat (IMF) levels to 1%, and the perception now is that pork has reduced flavour, is tougher, and less moist (1). The cost of changing a herd's genotype to improve IMF levels can be very cost prohibitive and one that Australian pork producers may not adopt given the present payment schedules. The role of nutrition to improve IMF levels in pork to improve the eating quality of pork remains a strategy that has been largely uninvestigated. Hence the aim of this experiment is to investigate the use of nutritional manipulation to increase IMF levels in pork.

A total of 50 Large White × Landrace × Duroc crossbred female pigs of similar age were used in this experiment. The pigs were individually housed in a naturally ventilated experimental grower/finisher shed. The pigs were stratified on a weight basis and randomly allocated to a dietary treatment. The dietary treatments were (i) commercial grower diet (Control), (ii) 15% reduced protein/energy ratio in the grower phase diet (−15% P:E), (iii) 30% reduced protein/energy ratio in the grower phase diet (−30% P:E), (iv) 8% additional fat in the grower phase diet (+8% Fat), and (v) No added Vitamin A during the grower and finisher phase diet (−Vit A). All pigs had *ad libitum* access to feed, and water via nipple drinkers. After the grower phase all pigs had *ad libitum* access to a commercial finisher ration. All pigs were slaughtered at 23 weeks of age.

	Diet					l.s.d.	P-values
	Control	−15% P:E	−30% P:E	+8% Fat	−Vit. A		
Start liveweight (kg)	23.7	23.9	23.6	24.0	23.7	3.01	0.999
ADG (g/day)	893	891	824	877	924	80.2	0.168
FCR (kg/kg)	2.76	2.88	3.04	2.76	2.73	0.217	0.036
Slaughter weight (kg)	105.0	104.9	98.6	103.8	107.9	8.72	0.306
Carcass weight (kg)	72.0	69.6	64.8	69.1	72.0	5.93	0.114
P2 backfat (mm)	12.4	13.8	12.9	12.4	12.3	1.89	0.460
IMF (%) ¹	1.3	1.9	2.7	1.2	2.0	0.573	<0.001

¹ IMF % in the m. Longissimus thoracis.

The results indicate that pig fed the 30% reduced protein to energy diet during the grower phase had an inferior feed conversion ratio (FCR) compared to pigs in the other diet treatments. There were no significant differences in average daily gain (ADG), carcass weight and backfat dept at the P2 site for pigs in the different diet treatments. Pig fed the 15% and 30% reduced protein to energy diets and the Vitamin A deficient diet had significantly higher IMF levels compared to pigs fed the 8% higher fat and control diets. The results indicate that nutrition can be used to increase IMF in pork without necessarily having a detrimental effect on growth performance and carcass. The use of a 15% reduced protein to energy diet or a diet deficient in Vitamin A are probably the most commercially viable treatments to increase IMF levels in pork to improve the eating quality of pork.

Reference

1. Channon HA, Reynolds J, Baud SR. Identifying pathways to ensure acceptable eating quality of pork. Final Report DV 136/1385. Pig Res and Dev Corp, Canberra, 2001.

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