

INTERRELATIONS BETWEEN GENDER, RACTOPAMINE AND ENERGY
INTAKE IN FINISHING PIGS

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Ractopamine (RAC) is a β -agonist which increased average daily gain (ADG) and feed efficiency in ad libitum fed gilts but not boars (Dunshea et al. 1990). However, improvements in performance were not as great in restrictively-fed (ca. 30 MJ DE/d) gilts (Dunshea et al. 1991). Therefore this study investigated the interactions between gender and dietary RAC across a wide range of energy intakes.

Ninety-six pigs were allocated in a 2 x 2 x 6 factorial experiment with the respective factors being gender (boar and gilt), dietary RAC (0 and 20 ppm RAC) and digestible energy (DE) intake (21.2, 24.7, 28.2, 32.7, 36.7 MJ DE/d and ad libitum). Pigs commenced the study at 60 kg live weight and were housed in individual pens. The different levels of energy intake and dietary RAC were achieved by feeding graded levels of a wheat-based diet (14.4 MJ DE/kg, 0.70 g available lysine/MJ DE) containing 0 or 20 ppm RAC until pigs reached 90 kg live weight. Ad libitum intakes were 44.9, 45.8, 45.9 and 47.2 MJ DE/d for boars and gilts fed 0 and 20 ppm RAC, respectively.

	RAC ppm	Energy intake (MJ DE/d)					Ad lib	sed	Significance ^{1,2}
		21.2	24.7	28.2	32.7	36.7			
ADG (g/d)									
Boar	0	389	588	714	847	842	1259	83	R***,E***,G***
	20	450	660	785	902	1103	1346		
Gilt	0	354	516	656	714	856	1070		
	20	425	509	723	771	1003	1212		
Feed/gain									
Boar	0	3.86	2.92	2.75	2.69	3.03	2.64	0.27	R***,E***,G***
	20	3.32	2.67	2.50	2.53	2.32	2.38		
Gilt	0	4.18	3.36	2.98	3.22	2.99	3.02		
	20	3.49	3.46	2.73	2.98	2.56	2.61		

¹R, RAC treatment; E, energy level; G, gender ²*** P<0.001

As expected ADG was greater and feed/gain lower in boars than in gilts. ADG increased linearly with increasing energy intake whereas feed/gain decreased over the lower levels of energy intake until reaching a minimum plateau. RAC increased ADG in both boars and gilts across the wide range of energy intakes investigated in this study. RAC also decreased feed/gain in both genders independent of energy intake. Therefore, supplementation of diets with 20 ppm RAC improves growth performance in both boars and gilts at all levels of energy intake between 21 and 46 MJ DE/d.

DUNSHEA, F.R., KING, R.H., CAMPBELL, R.G. and SAINZ, R.D. (1990). *Proc. Nutr. Soc. Aust.* 15: 42.

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