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Social interactions among finishing pigs divergently selected for Indirect Genetic Effects on growth in barren and straw housing

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HYPOTHESIS

Pigs selected for positive Indirect Genetic Effects (IGEs) on growth of their pen mates show different social behaviours.

CONCLUSION

Both selection for positive IGEs and housing in straw had positive effects on behaviour of pigs. IGEs did not affect realized growth in this experiment.

Introduction

Indirect Genetic Effect for growth (IGE) = genetic effect of an individual on the growth of pen mates during the finishing period.

Effects of selection for IGE on behaviour unknown.

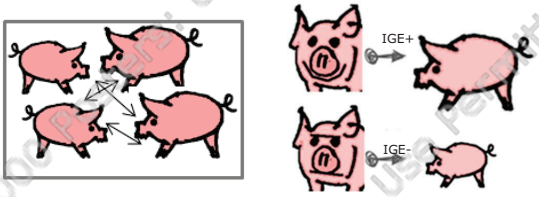

Figure 1. IGEs for growth. Pigs with positive IGEs for growth (IGE+) have a positive effect on growth of pen mates while pigs with a negative IGE for growth (IGE-) have a negative effect on growth of pen mates.

Materials & Methods

One generation selection of pigs with positive IGE for growth (IGE+) and pigs with negative IGE for growth (IGE-).

- 480 finishing pigs in barren or straw pens
- Groups of 6 pigs (80 pens)
- Behaviours at 12, 16 and 21 weeks of age
- Weight at 10, 17 and 23 weeks of age

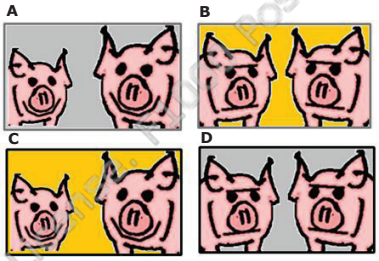

Figure 2. Design. Treatment groups A: IGE+ pigs in barren pens; B: IGE+ pigs in straw; C: IGE- pigs in barren pens; and D: IGE- pigs in straw.

Results

- Less aggressive biting in IGE+ pigs
- Less ear biting and chewing toy in IGE+ pigs
- Less aggressive biting, tail and ear biting and chewing toy on straw. Exploration instead.
- No interaction between genetic line (IGE) and housing type

IGEs did not significantly affect growth during the finishing period.

Table 1. Behaviours. Behaviours of IGE+ and IGE- in barren or straw pens. P gives significance of difference between IGE groups (Genetics, G) and housing (Environment, E).

	IGE+		IGE-		P	
Behaviours (% of time)	Barren	Straw	Barren	Straw	G	E
Aggressive biting	0.04	0.01	0.05	0.04	*	*
Tail biting	0.17	0.05	0.17	0.07	ns	***
Ear biting	0.14	0.08	0.19	0.12	*	***
Chewing toy	1.06	0.82	1.84	1.06	**	*
Exploration	6.05	8.06	6.82	7.52	ns	***

ns= non significant; *p<0.05; **p<0.01; ***p<0.001

Acknowledgements

We would like to acknowledge all collegues and students that contributed to the collection of data.

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