Influence of regrouping regime on lying behaviour parameters in weaned pigs

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Introduction It is evident that increasing the number of unfamiliar pigs per group has an adverse effect on welfare and productivity during the post regrouping period (Arey and Franklin 1995, Stooky and Gonyou 1998, Samarakone and Gonyou 2009). The aim of the present study was to assess the effect of number of litters per group on lying behaviour parameters in weaned pigs. This was to investigate the usefulness of these parameters as potential welfare indicators, and also to determine the effect of regrouping strategy at weaning on subsequent littermate contact.

Materials and methods One hundred and sixty Large White x Landrace pigs were allocated to one of four treatments at weaning at 4 weeks of age (9.05 ± 0.96 kg). Treatments were as follows: (1) group formed from 1 litter, (2) group formed from 2 litters, (3) group formed from 3 litters and (4) group formed from 4 litters. All pigs were housed in groups of eight animals that were balanced for gender (within litter where possible) and body weight. The pigs were housed on slatted floors with access to an enrichment device, and were fed on an *ad-libitum* basis. Pigs were individually marked on their backs and were video recorded (in 72 hour time-lapse mode) during 2 x 24 hour periods during the first week of the study, and then during 1 x 24 hour period each week until the pigs were 10 weeks of age. Each 24 hour recording was scanned at 15 minute intervals between 12.30 and 18.30 hours and the following factors were recorded for each pig: (1) whether a pig was lying or standing/sitting, (2) whether the pig was lying in contact with one or more other pigs, and (3) whether the animal was lying in contact with one or more littermates. A pig was defined as lying in contact with another pig if their bodies were in physical contact, but not if the only source of contact was the head, rear or limbs. The effect of treatment on the parameters measured was analysed by REML Variance Components Analysis. Treatment 1 was excluded from analysis of the parameter "lying in contact with littermates" as all animals in this treatment were littermates. The proportion of observations where pigs would be expected to lie in contact with littermates if these lying partners were chosen randomly was calculated for each treatment ('random proportion'). This value was then subtracted from the actual proportion of observations where pigs were observed to be lying in contact with littermates ("actual-random"). This parameter was included in analysis to determine if treatment influenced the motivation of pigs to lie next to littermates.

Results Treatment effects are presented in Table 1. Treatment did not have a significant effect on the average proportion of scans where pigs were observed lying (P>0.05). Increasing the number of littermates per group tended to increase lying in contact with other pigs but this did not reach statistical significance (P<0.09). As expected, as the number of littermates per group increased, the proportion of scans where pigs were lying in contact with littermates increased (P<0.001). However, when adjusted for group litter composition, there was still a trend for pigs to spend more time lying in contact with littermates when there were increased littermates in the group (P<0.06).

Table 1 Effect of number of litters per group on the average proportion of scans where pigs showed different lying parameters

	Treatment					
	1 litter	2 litters	3 litters	4 litters	S.E.D.	P
Lying	0.62	0.57	0.60	0.57	0.041	NS
Lying in contact with another pig	0.38	0.32	0.27	0.24	0.060	<0.09
Lying in contact with littermate/s (actual proportion)	-	0.59^{c}	0.34^{b}	0.21^{a}	0.036	<0.001
Lying in contact with littermate/s (actual-random proportion)	-	0.16	0.10	0.07	0.036	<0.06

Conclusions Earlier data from this trial showed increased levels of aggression-related injury and reduced productivity as number of litters per group increased (O'Connell, 2008). The fact that pigs also showed reduced time lying in contact with other pigs as number of litters per group increased is further evidence of reduced welfare. The time spent lying did not differ significantly between treatments, which may suggest this parameter is not a good welfare indicator, or that it was not recorded over a sufficient timeframe. As expected, pigs housed with more of their littermates spent more time lying in contact with them. However, when lying behaviour was corrected for proportion of littermates in the group, animals with more littermates in the group still appeared to spend more time in contact with them. This suggests that pigs housed in groups formed from fewer litters maintain better sibling relationships.

References

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