

**Title:** Influence of Gestation Housing on Sow Welfare and Productivity – NPB #03-055

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### Abstract

In four experiments, the effect of the group housing of gestating sows and concurrent boar contact on sow aggression, salivary cortisol concentrations, body condition, and fertility were examined. In experiment 1, 96 sows at 65-70 days of gestation were assigned by parity to be housed individually or as groups. Group-housed sows were involved in more aggressive encounters (AGG) than stall-housed animals ( $P < 0.05$ ) and in grouped sows, AGG were more numerous during feeding than during the day of grouping ( $P < 0.001$ ). Salivary cortisol concentrations were higher in grouped sows but differences between pre-and post-mixing concentrations were not correlated with levels of aggression.

In experiment 2, 937 mixed parity sows in 10 weekly breeding groups were either grouped ( $n=462$ ) or housed in gestation stalls ( $n=475$ ). Sow management was as for experiment 1. For 140 individually-housed and 330 group-housed sows ('observed sows'), backfat depths at the P2 position were determined at 55-60 d of gestation, at farrowing, and at weaning using A-mode ultrasonography. There was no effect of housing on backfat depth at farrowing and weaning or on farrowing rate but grouping of sows was associated with smaller litters ( $P=0.04$ ).

In experiment 3, 1,584 sows were relocated to outdoor paddocks after breeding as groups of approximately 50 with or without the inclusion of 3 mature boars. Farrowing rates were not affected by boar exposure. Litter sizes were increased in boar exposed sows ( $P=0.035$ ).

In experiment 4, 309 mixed parity sows were housed individually or as groups of 12, with grouping being done at 2, 7, 14, 21, or 28 days of gestation. For 7 days after grouping, sows had either direct or fenceline boar contact or no boar contact. No significant effect of boar exposure or day of gestation was noted for farrowing rate or litter size.

Taken together, these data indicate that if sows are to be grouped during gestation, particular attention should be directed toward feeding management to avoid excessive aggression. Adverse effects of grouping (or aggression) on litter size may be ameliorated by direct boar contact in the immediate post-mixing period.

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