1C-103: Optimising the management of group-housed gestating sows

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Aims and Objectives

The overall objective of this Project was to develop strategies to ameliorate aggression amongst sows at mixing. This project examined the effects of space allowance and environmental enrichment in a mixing pen on the behavioural and physiological measures associated with sow aggression. Further studies investigated the use of a synthetic olfactory agonist and dietary supplements of magnesium to reduce aggression in sows at the time of mixing. The effects of various times of mixing during late lactation, at weaning and after insemination were studied in a final experiment.

Key Findings

In many of the studies in this Project, the behavioural and physiological measures associated with sow aggression and stress had generally stabilised within a week of mixing, and often within 1-2 days. These observations support the results of earlier Pork CRC projects that suggest that sows habituate to different housing conditions through behavioural adaptation, which often occurs within 1 week of mixing.

- In the space allowance study, although there was little general impact of the higher space allowances, subtle behavioural effects suggest that sows that are lower in social rank within a pen may benefit from higher space allowances.
- The presence of novel materials in the mixing pen were ineffective at reducing aggression levels in sows, but sows exposed to novel materials performed positive aspects of behaviour through spending more time playing with novel materials, particularly rope, in the 2-3 weeks after mixing.
- The delivery of a synthetic olfactory agonist (that behaves like appeasing pheromones) through a diffuser in the mixing pen was sufficient to increase eating duration and frequency as well as reduce aggressive interactions between sows. This could be important to ensure submissive sows improve their daily feed intake in group feeding systems.
- Providing gestating sows with 1.4g MG/day as either, MgSO4 or as a marine algae extract, after mixing into smaller groups failed to have any consistent positive effects on sow aggression, stress measurements or reproductive performance.
- The fifth experiment showed that mixing sows into multi-suckle groups in late lactation resulted in little aggression and tended to improve subsequent litter size.

Application to Industry

Producers may offer more space allowance to sows upon mixing and for the short period of up to 4-5 days after the establishment of the group, to allow sows to better adapt to the mixing process. The introduction of novel materials such as hanging rope may also have positive effects on sow behaviour. Dietary supplements of Mg failed to provide any beneficial effects, but the delivery of a synthetic olfactory agonist through a diffuser in the mixing pen may have some beneficial effects and should be examined further.

Although this Project failed to observe any differences between sows mixed at weaning and those mixed after insemination, previous Pork CRC projects have shown that sows housed in groups at weaning may experience higher stress and a possible lower sexual receptivity than sows housed in individual stalls at weaning and then housed in groups after insemination. Mixing sows during lactation through a multi-suckle system may offer an alternative production system that provides a mixing strategy that is consistent with minimal sow aggression. But greater piglet mortality and reduced piglet weaning weights associated with lactation group housing systems need to be overcome before this type of system is commercially viable.