

Sow Sociology Study

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In response to increasing public concern about the welfare of sows housed in gestation stalls, Australia's pork industry intends to be stall-free by 2017.

However, the welfare of group-housed sows is also limited, mainly due to increased aggression and its effects on injury and lameness, plus social stress. Consequently, sow productivity can be compromised, as severe injuries necessitate culling and stress can reduce reproduction in terms of oestrus expression, conception rate and litter size.

As stalls are phased out we can anticipate increasing consumer pressure to better protect sows from aggression, injury and stress. However, individual variations in the behavioural and physiological responses of sows mean the welfare of some sows in a group may be more compromised than others. Analysing and considering sow welfare at a group level fails to account for those sows which, for example, receive more injuries, or are culled as a result of significant injuries, as much as it fails to account for those who remain minimally injured.

I'm working on a Pork CRC supported project on the aggressiveness of individual sows that is investigating the relationship between individual sow aggressiveness, welfare and productivity.

Further, while group dynamics remains little explored in the sow, it could play an integral role in stabilising the social structure of the group. As such, I will also examine the effects of group composition, in terms of the distribution of sows of varying aggressive characteristics, on the welfare and productivity of individuals and the group.

Experiment 1: Changes in individual and group aggression at feeding

While increasing feeding frequency can reduce the number of injuries sustained by sows in groups, it has not yet been determined whether this is associated with a corresponding reduction in the frequency of aggressive interactions over time. My first experiment investigated changes in aggression in 1560 gestating sows housed in 48 pens, of varying floor space and group size, over four feed drops on the day after mixing (day two), and day eight post-mixing. Initial results are presented in Table 1.

Table 1 - Mean number of aggressive interactions per sow recorded for 30 minutes after each of four feed drops on the day after mixing (day 2) and for 30 minutes after the first feed drop on day 8 post-mixing.

Days post-mixing	Drop Number			
	1	2	3	4
2	8.4	7.8	7.3	6.3
8	4.8	NA	NA	NA

NA - not assessed

Reduced aggression by the fourth feed drop on day two indicates that aggressive sows have become satiated and left the feeding area, allowing submissive sows to feed, or that a developing dominance hierarchy is ameliorating aggression through subordinate sows withdrawing, while dominant sows continue to monopolise the feeding area. While there is

24% less aggressive interactions from the fourth drop on day two to the first on day eight, the continued aggression could mean sow welfare remains compromised.

These results emphasise the importance of examining individual sow behaviour and welfare. Individual sow agonistic and feeding behaviour will subsequently be observed within each pen, to ensure subordinate sows aren't sacrificing the opportunity to feed for safety and to compare performance of the group as an average.

Experiments 2, 3 and 4: The effect of group composition on individual and group welfare

While controlling variables such as space, group size, time of mixing and provision of feeding stalls may reliably reduce aggression and stress in group-housed sows, social dynamics may also determine the intensity and frequency of aggression. Ongoing and future experiments will investigate the relationship between individual sow aggressive behaviour and individual welfare and performance, within and between two gestations. The predictability of these characteristics, using observations of sow responses to novelty, will also be explored. Finally, using predictive tests of aggression, group composition will be manipulated based on individual aggressiveness, so that the most harmonious group composition can be identified.