CRC for High Integrity Australian Pork

1C-105: *Effects of floor space on the welfare of group housed sows*

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Aims and Objectives:

This experiment examined the effects of floor space in the range of 1.45 to 2.9 m^2/sow on the aggression, stress and reproduction of sows housed in groups after insemination.

Key Findings

There was a consistent linear effect of floor space on aggression at feeding and plasma cortisol concentrations on day 2 post-mixing, with aggression and cortisol concentrations reducing with increasing space from 1.45 to 2.9 m^2/sow. There was no indication of space effects on aggression or plasma cortisol concentrations at day 26 post-mixing, or on subsequent farrowing rate, litter size (total or alive) or sows removed for non-reproductive reasons.

This current research and recent research by the research team show that reducing floor space for recently-inseminated sows within the range of 1.4 to 3.0 m^2/sow in the first week or so after mixing, increases aggression and stress, as assessed by aggressive behaviour at feeding and plasma cortisol concentrations. These results together with previous results on gilts and sows, particularly those on aggression and stress and reproduction, indicate that a space allowance for gilts and sows of 1.4 m^2/animal is likely too small early after mixing. The current recommended minimum floor space allowance for group-housed gestating sows in the *Australian Model Code of Practice for the Welfare of Animals – Pigs* (Primary Industries Ministerial Council, 2007) is 1.4m^2 per sow and clearly this recommended minimum space allowance in the immediate post-mixing *period* needs to be reviewed.

Application to Industry

A space allowance for gilts and sows of 1.4 m^2/animal is likely too small early after mixing. However, there is evidence that sows may adapt to reduced floor space, albeit with risks to reproductive performance. Thus staged-gestation penning to provide increased floor space for recently-inseminated sows immediately after mixing may be a practical solution to reduce aggression and stress.

Providing more floor space at the top end of the range 1.4 to 3.0 m^2/sow should allow the dominance hierarchy in the group to be established quickly with minimum aggression and stress, and thus minimum risk to reproduction. Further modification to the pen by the use of visual barriers, feeding stalls, and straw or bedding may also assist in reducing aggression amongst newly mixed sows. There is then the opportunity in the remainder of gestation to reduce floor space to levels in excess of 1.8 m^2/sow. Indeed, staged-gestation penning to provide increased space for recently-inseminated sows is one of the common features often recommended in a dedicated mixing pen.

The strategy of staged-gestation penning, with more space immediately after insemination and less space later in gestation, may address both animal welfare and economic considerations.