

The effects of indoor vs outdoor housing on pig welfare

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Introduction

Outdoor housing of pigs has been proposed and implemented as an alternative to traditional indoor housing. Economically, it allows reduced expenses for housing, heating and equipment (MLC, 1997). Research in the past year investigated the effect on welfare of outdoor housing, looking at behavioural response and health.

Discussion

Hötzel et al. (2004) aimed to uncover differences in the behaviour of and interactions between sows and piglets when housed outdoors compared with standard indoor housing. Sows and litters were observed for seven-hour periods on seven occasions from birth to weaning (in the case of the sows) or to 50 days of age (in the case of the litters.)

It was observed that when compared with indoor pigs, outdoor piglets spent significantly more time exploring and feeding and less time belly-nosing, showing oro-nasal or agonistic behaviour towards their pen mates. Belly-nosing and oro-nasal behaviours generally are considered aggressive rather than natural (Petersen, 1994). Hötzel et al. (2004) proposed that the decrease in unnatural behaviour was not simply due to increased spatial distance between piglets but due to a more interesting, complex environment available to explore, removing frustration and associated behaviours.

Producing pigs without aggressive behaviour is clearly beneficial to their welfare as this behaviour causes injury and stress. Aggressive pigs will be more difficult to handle, possibly resulting in harsh husbandry techniques that would rather be avoided. When compared with indoor pigs, outdoor piglets began feeding on solid food at an earlier age and interacted much less with the sow. The outdoor sows were also more active, spending more time standing and exploring than their indoor counterparts. The time outdoor sows spent inside the hut with their piglets decreased over the observation period, while indoor sows had to spend all their time in close contact with the piglets. Decreased interaction with the sow may seem detrimental to the piglets but the study found that, although indoor piglets spent a greater proportion of their time in nursing behaviour, there was no significant difference in the weight gain of the two piglet groups. This points to the possibility that much of the nursing may be behavioural, associated with frustration or stress, rather than due to nutritional need. The decreased exposure to the sow and earlier solid feeding is thought to allow an easier adaptation to weaning, which can otherwise be stressful, and to future stressful situations, such as transport or mixing with unfamiliar pigs. Stress on sows may also be reduced, as they are able to remove themselves from their litter as they chose. The results of this study would indicate that the more complex, outdoor environment allows the expression of more natural behaviour, decreasing unwanted, aggressive behaviour and may help to alleviate stress on both piglets and sows.

Not only the behaviour but also the health of the pigs needs to be considered. Two studies looked at this aspect of welfare and found differing results. Akos and Bilkei (2004) looked at the reproductive performance of sows with very similar breeding in indoor and outdoor housing. They compared sows' reproductive performance and piglet survival within indoor and outdoor units in Croatia. The outdoor units were very basic, involving large paddocks with non-insulated huts and straw bedding. The study found that indoor sows were culled at an older age, had a higher percentage of productive days (pregnant or lactating) and had a higher mortality rate but a lower culling rate.

The main reasons for culling outdoor sows was anoestrus and locomotory problems, which is surprising as outdoor sows have greater opportunities to exercise and mobilise their joints. Indoor sows were culled primarily due to disease, including periparturient disease, heart

failure and urogenital disease. Outdoor sows also had fewer total pigs born and a lower total number of weaned piglets. It is unclear whether the latter was due to fewer piglets being born or to mortality in the environmental conditions. Piglet losses outdoors were mainly due to perinatal mortality, while mortality due to overlay did not differ between groups. These results are in contrast to the previous paper (Hötzel et al., 2004), which found no difference in piglet numbers or mortality, but conceded their replicate numbers were not large enough to properly study this aspect.

A study of health, growth and meat quality by Lahrmann et al. (2004) found that piglet mortality and morbidity was lower in outdoor litters. They studied a total of 51 litters, given outdoor and indoor housing in four groups. They also found outdoor litters had a higher daily weight gain and greater feed consumption. From the report, I believe climate had a major influence on the results of the Croatian study. Concurring with Lahrmann et al. (2004), Akos and Bilkei (2004) found the peaks in piglet mortality coincided with extremes of weather: mid-winter, mid-summer and periods of high rainfall. The anoestrus of culled sows was also thought to be caused by cold temperatures. In the Croatian study, the sows and their litters had relatively little shelter. If conducted in a more temperate climate or if greater protection were provided, results may have been different. These results may indicate that outdoor housing is more suited to certain climates and the role of climate should be investigated further. It should be noted that disease plays a greater role in the culling of indoor sows, indicating that outdoor sows may have better general health. This may be due to increased physical fitness or decreased exposure to pathogens, which can become concentrated in an indoor environment.

Conclusion

Recent research indicates that outdoor housing of pigs reduces the expression of unnatural and aggressive behaviour and may influence reactions to stress. The effect of outdoor housing on mortality should be further investigated, to reach a more conclusive result. The suitability of certain climates for outdoor housing should also be investigated.

References

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