

# The Welfare Benefits of Loose-farrowing Systems

By Liisa Poyzer

## Introduction

The use of farrowing crates has sparked much controversy because although it may minimise piglet mortality by crushing, it appears to sacrifice the welfare of the sow (Wechsler & Weber, 2007). Loose-farrowing systems have been designed as a way of striking a balance between the issues of welfare and production. Following experiments that established overall piglet mortality was not higher in such systems, more farms began introducing them (Weber *et al.*, 2007). Several recent studies have attempted to assess the welfare benefits of loose-farrowing systems by demonstrating that greater space allows better expression of normal behaviours and thus has positive implications for the health and welfare of the sow. Piglet welfare has also been examined in the context of environmental enrichment, behaviour and mortality.

## Discussion

Conventional farrowing crates, which limit sow movement, cause both health problems and restriction of normal periparturient behaviours, including nest-building and other maternal activities (Wechsler & Weber, 2007). Verhovsek *et al.* (2007) aimed to assess the welfare benefits that loose-housing systems offered sows by comparing the number of skin lesions at days 5 and 23 post-partum and the differences in periparturient behaviours that resulted from the two systems. They found that, compared with crated sows, fewer loose-housed sows had skin lesions on the teats (20% vs. 40%) and limbs (16% vs. 40%). The piglet-to-piglet interval was reduced by approximately 6 minutes, suggesting that sows are better able to adapt to loose-housing systems. Additionally, loose-housed sows expressed a more natural balance of periparturient behaviours, including increased “head-on-the-floor” activity, shorter periods of inactivity and less frequent changes in posture. Consequently, it was concluded that a large pen improved sow welfare by minimising restlessness, reducing the incidence of skin lesions and encouraging expression of normal periparturient behaviours, such as nesting.

The paper also analysed differences in piglet mortality and found that loose-housed systems caused greater losses from crushing but lower losses from starvation. Loose-housed systems had higher overall piglet mortalities, but this result was qualified by the fact that it conflicted with other studies and 11% of sows were responsible for 48% of the crushings. The study revealed new research opportunities by suggesting that genetic selection, providing an unobstructed area for the sow to turn and lie in, and appropriate feeding could minimise crushings.

A similar study by Weber *et al.* (2007) collected data from 830 farms and compared piglet mortality from loose and crated systems with the objective of assessing differences in production losses. The results were similar to those of Verhovsek *et al.* (2007), demonstrating that loose-housing systems resulted in more crushing losses (0.62 vs. 0.52 piglets/litter) but fewer deaths from other causes (0.78 vs. 0.89 piglets/litter). Total piglet mortality was influenced mainly by the litter size at birth but also by the age of the sow and the season. However, the farrowing system did not affect overall piglet mortality. This result was reconciled with previous, apparently contradictory studies by noting that loose-housed systems with higher total piglet losses chiefly occurred in pens with a surface area less than 5m<sup>2</sup>. Therefore, Weber *et al.* (2007) concluded that loose-housed systems should provide equal levels of production and thus welfare for piglets, provided that pens are large enough.

The literature review by Wechsler and Weber (2007) aimed to assess the welfare of sows by analysing normal periparturient behaviour, stress physiology and the health of sows. They highlighted that loose-housed sows are less restricted in many behaviours that they normally perform in the periparturient period, such as increased activity, initiation of contact with piglets, and defaecation and urination away from the nest-site. Sows also have the opportunity to perform selection and construction of a nest-site, which prevents redirection of

these behaviours to fixtures in the housing system. Thus, they have lower incidences of abnormal oro-nasal stereotypies. It was also found that loose-housed sows have decreased pre-parturient stress levels, indicated by lower heart rates and plasma cortisol concentrations. In line with the results of the study by Verhovsek *et al.* (2007), the report also concluded that loose-housed sows had fewer skin lesions since they were less likely to bump into the pen walls. From these findings, it is clear that loose-housing systems offer significant improvements to sow welfare.

The paper also reviewed the welfare impacts of loose and crated systems on mortality and behaviour of piglets. Loose-housed systems produced higher crushing rates but allowed a greater percentage of runts to survive. These findings corresponded with results of similar studies by Verhovsek *et al.* (2007) and Weber *et al.* (2007). However, overall piglet mortality varied significantly between the two systems in different experiments. This discrepancy was attributed to other factors, including pen design, vitality of piglets at birth and the quality of maternal behaviour. In particular, a pen size greater than 5m<sup>2</sup>, provision of straw, a leaner sow, smaller litter size and protective mothering style all correlated with fewer losses in loose-systems. It was concluded that loose-housed systems need not cause higher total piglet mortality if sows are selected to minimise crushing and are fed and managed appropriately.

In terms of behaviour, the report emphasised that farrowing crates usually lack bedding and that a sparse, barren setting can lead to increased aggression later in life. On the other hand, loose-housed systems, commonly enriched with straw, decrease aggression and improve the speed with which both operant and maze tasks are learned. These findings are backed up in the recent paper by Chaloupková *et al.* (2007), which determined that pre-weaning play and locomotion were more frequent and post-weaning aggression during food competition was diminished in an enriched loose-housed system.

## Conclusion

It is evident that loose-housed systems offer a more suitable environment for the health and behavioural well-being of the sow. While this system has little effect on total piglet mortality, the behavioural welfare of piglets is also much improved. Therefore, to make this system more economically viable and attractive to farmers, piglet death by crushing must be further minimised by selection of environments and genes that are conducive to positive maternal behaviours (Johnson *et al.*, 2007).

## References

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