

# How to reduce piglet mortality with sows in loose-housed systems

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Swine housing has been a hot topic in recent years, not only in the United States, but in many countries, such as Denmark. Due to genetic advancements in recent years, the average litter size in Denmark is 16.6 total born piglets. With increased number of piglets, determining the optimal housing system for both the piglet and sow is critical.

In Denmark, gestation crates were banned in new buildings in 1999 and from all existing units in 2013. As of January 1, 2015, sows are required to be loose housed from time of weaning until seven days before expected parturition in new buildings. In buildings built before January 1, 2015, sows can be kept in stalls from weaning and until four weeks

post mating until January 1, 2035. Information from novel research being conducted in Denmark can be used by countries who have not yet reached these deadlines.

According to Dr. Christian Hansen, from the University of Copenhagen in Denmark, approximately 15% of the piggeries keep gestating sows loose from weaning. The remaining 85% of sows are kept in stalls for one to four weeks after breeding. Only approximately 1% of the sows are loose housed in the lactation unit.

Because previous research has shown that sow confinement during the first few days of lactation can reduce piglet mortality (Moustsen et al., 2013; Hales et al., 2015), the sow welfare and piglet protection (SWAP) pen has been developed to have a confinement option in a farrowing pen for loose sows.

"With the SWAP pen we hope to be able to secure production levels (low piglet mortality)," Hansen said.



Hansen and his colleagues conducted research in a commercial setting to investigate piglet mortality in pens where sows had the option to be confined. "Temporary confinement of loose-housed hyperprolific sows reduces piglet mortality" is published in the most recent issue of the *Journal of Animal Science*.

Hansen and others obtained data in a newly constructed Danish piggery from 1,125 sows that were allotted to one of three treatments: loose-loose (LL), loose-confined (LC), or confined-confined (CC). Sows in the LL group were loose housed from farrowing entry until four weeks into lactation. In the LC group, sows were loose housed from entry into the farrowing unit until completion of farrowing. Once sows had completed farrowing, they were confined for four days. In CC, sows were loose housed at entry, but from 114 days in gestation until four days after farrowing, sows were confined.

Sows that were confined during late gestation and lactation (CC), had decreased piglet mortality, had a decreased percentage of crushed piglets, and decreased percentage of live-born piglet mortality compared to LC and LL.

Sows in the LC and CC group had a greater number of live born piglets and a decreased number of stillborn piglets compared to sows that were LL. With increasing parity, the number of piglets born, live-born piglets and stillborn [piglets](#) increased, regardless of housing method.

"The current study showed that housing hyperprolific sows loose during farrowing and lactation led to increased piglet mortality compared with confinement," Hansen said. "Our results also suggest that confinement for four days after farrowing can reduce mortality in this specific period, but only confinement from day 114 of gestation to day four after farrowing reduced total piglet mortality.

"Confinement of the sow for four days was enough to reduce piglet mortality," Hansen said. "This has significant implications for reducing the period of time necessary to place behavioral restrictions on lactating sows, and thereby improve their welfare. Our point with the SWAP pen is to try and balance the welfare for BOTH the sow and the piglet. Under commercial conditions, confining the sow during farrowing, therefore, seems necessary to reduce piglet mortality."

Hansen said increased building costs remains a challenge for Danish producers. Investment costs will continue to increase due to the fact that pens for loose, lactating sows are much larger than traditional farrowing crates and can't be fitted in the same "footprint". This means that a new building is necessary.

"If more sows are to be loose housed, consumers/retailers probably need to take responsibility and be willing to pay a premium," Hansen said. It is getting costly for producers to make these transitions.

In the future, Hansen said his lab will "investigate the impact of temporary confinement in SWAP pens on nest building behavior, sow behavior and farrowing duration." They are also determining risk indicators of sows/litters with high piglet mortality.

**More information:** Hales, J., V. A. Moustsen, A. M. Devreese, M. B. F. Nielsen, and C. F. Hansen. 2015. Comparable farrowing progress in confined and loose housed hyper-prolific sows. *Livest. Sci.* 171:64–72. [DOI: 10.1016/j.livsci.2014.11.009](https://doi.org/10.1016/j.livsci.2014.11.009).

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Hansen. 2013. Confinement of lactating sows in crates for 4 days after farrowing reduces piglet mortality. *Animal* 7:648– 654. [DOI: 10.1017/S1751731112002170](https://doi.org/10.1017/S1751731112002170).

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