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# **The Welfare and Productivity of Dry Sows in Different Group Housing Systems in New Zealand**

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## Abstract

This research aimed to take a holistic approach to assessing dry sow welfare in relation to gestation accommodation. Multiple factors that affect the welfare of a sow were considered. In addition, the multitude of systems in New Zealand that are used to accommodate dry sows in groups were captured. Commercial pig farms ( $n=20$  farms, 7,912 sows total) were chosen to represent the spectrum of different layouts and management practices in order to obtain data from a wide range of different systems. During each on-farm visit, data concerning housing, management, sow behaviour, welfare and productivity were collected. A number of criteria were used to describe the farms (group size, stall duration, presence of bedding, feeding method, feeding frequency). Sows kept in stalls for more than 5 weeks ( $n = 3$  farms) had significantly higher injury scores than sows that were in stalls for a shorter length of time or sows that were not kept in stalls for any period during mating or pregnancy. Sows fed twice daily had significantly higher stereotypies ( $P<0.05$ ) than those fed at a different frequency. A welfare index (WI) was calculated for each farm. This index incorporated each farm's total scores for injuries, stereotypies, coat condition, soiling and lameness. A low WI represented a lower presence of indicators that were associated with compromises to welfare. Hence, a low WI represented good welfare. For each farm, the minimum possible WI was 0.33, whilst the maximum possible WI was 5.0. The mean WI was 0.65 ( $\pm 0.14$  SD). Overall, there was not a high prevalence of indicators of compromised welfare. Out of the 20 farms, with an average herd size of 395.60 sows per farm; only 10 sows in total were lame. Only three farms had sows with a coat condition score above 0 (normal). There was no difference between mean piglets born alive per litter (BA) for stalls ( $12.65\pm 0.36$ ) vs. group housed sows for the entire gestation ( $12.27 \pm 0.43$ ), or for the number of piglets weaned per sow per year (stalls:  $23.70\pm 0.59$  W/S/Y, groups:  $24.92\pm 1.23$  W/S/Y). As a result of this study, it is clear that there is no perfect or ideal system for keeping dry sows, because a sow's needs change throughout different stages of the production cycle. Therefore the implication is that in any housing system, both the advantages and disadvantages relating to a sow's welfare will also change over time. In light of this, operators need to understand the variation both between and within systems and how best to manage them.

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