

ANIMAL WELFARE

Title: Effects of Space Allowance on Group-Housed Dry Sows –
NPB # 02-173

Investigator: Janeen L. Salak-Johnson, PhD

Institution: University of Illinois

Date Received: December 10, 2004

Abstract: These experiments were designed to determine the effect of (1) differential effects of individual—crate and group—pens, and (2) impacts of space allowance for group-kept dry sows while keeping group size constant on dry sow performance, productivity and health. This study focused on the effects of grouping and floor space allowance on numerous physiological and productivity indicators of sow welfare. There were many significant treatment, parity, day, and interactions on the various measures assessed in this study. There were significant differences between sows kept in crates and groups (regardless of floor-space), which included scores for lameness and body lesions ($P < 0.001$). Those kept in groups had higher lameness and lesion scores. Among group-kept sows, floor-space allowance influenced these scores ($P < 0.001$). As floor-space allowance increased, lameness scores increased while lesion scores decreased. Number days on experiment also influenced lesions among group-kept sows ($P < 0.001$) with scores drastically increasing across the first 10 days of the experiment. The highest scores being recorded among those grouped at 15 ft². Gestation days influenced lesion scores among group-kept sows. There were no effects on the majority of sow- and litter-related performance and productivity measures, except for BW, BF depth, and litter size. Sows in groups were heavier than those in crates ($P < 0.05$); with those at 25 and 35 ft²/sow being the heaviest. Sows kept at 25 ft² had the deepest BF. There was a trend ($P < 0.07$) among sows kept at 35 ft² to have larger litters than those kept in crates or at 25 ft²/sow. Lying was higher among group-kept sows than those kept in crates ($P < 0.05$), but sitting was higher among sows in crates. ONF behaviors were higher among sows in crates and those kept at 25 ft². Walking increased with increasing space among sows kept in groups ($P < 0.001$). N:L, phagocytosis, and % neutrophils was higher among sows kept in crates; whereas, sows kept at 15 ft² had highest NK. Floor-space influenced % neutrophils and N:L; as space decreased these measure increased ($P < 0.05$). Also, as space increased B-cell proliferation increased but NK decreased ($P = 0.01$). Other measures were not influenced by treatment or space allowance. In general, sows in crates performed similar to those in groups. Despite the differences in lesion scores, BW, immune and behavior among treatments overall performance and productivity were not influenced. Moreover, despite these statistical differences it is important to note that the magnitude of differences for some of these measures may not be relevant from a “biological” standpoint.

These research results were submitted in fulfillment of checkoff funded research projects. This report is published directly as submitted by the project's principal investigator. This report has not been peer reviewed

For more information contact:

National Pork Board, P.O. Box 9114, Des Moines, Iowa USA

800-456-7675, Fax: 515-223-2646, E-Mail: porkboard@porkboard.org, Web: <http://www.porkboard.org/>