# Slat Width Study Fills Knowledge Gaps

By Geoff Geddes, for Swine Innovation Porc

Walking on a slatted floor all day with cloven hooves might sound easy enough…until you try it. Navigating the gaps in concrete flooring can be treacherous for pigs, while dealing with knowledge gaps on proper slat width is a challenge for producers. Filling that information void is a priority, especially in light of the revised Code of Practice for the Care and Handling of Pigs. And if it matters to industry, it matters to researchers.

*Photos: University of Manitoba*

"Flooring is one of the big topics these days as it's associated with a number of foot and leg problems for sows," said Dr. Laurie Connor, Professor, Department of Animal Science in the Faculty of Agricultural and Food Sciences at the University of Manitoba. "Lameness is the second most common reason for culling, and it's an even greater issue in group housing where animals must move around a lot to get feed, access certain resources and maintain their position in the social hierarchy."

The wrong flooring configuration can cause problems with lying and walking comfort, hoof injuries, and resulting distress and pain. Because that can lead to sub-optimal performance, it's also a pain in the producer's pocketbook, which makes the lack of well-validated guidelines for slat and gap width especially troubling.

**Seeking concrete results**

"We know slatted floors are problematic, but they're needed for manure removal. Given that reality, our objective for this project was to determine the most effective slat and gap widths for concrete flooring in group housing that would balance sow comfort, manure management and general air quality."

Using video and kinematics (the branch of mechanics concerned with the motion of objects), researchers tested the way 12 young, non-lame sows and 12 larger, lame sows walked on three different slat and gap widths.

*Photo: University of Manitoba*

"We found that a slat width of 105 mm (about 4 inches) and a gap width of 19 mm (.75 inches) had the least impact on the animals' normal gait or movement, especially in the smaller sows."

Then it was time to test those results in the barn using two sets of young, pregnant gilts during two gestations. One group was housed on the widths mentioned above, while the control group used slats of 125 mm and gaps of 25 mm, which are common dimensions in the industry.

**Gait keepers**

"We did a lot of detailed observations including gait scores at the beginning, middle and end of pregnancy. We compared the condition of the feet when they went in, and at the end when they came off the flooring, and also looked at weight distribution on each limb at these two points. Combining all of this information gave us a good idea of what was going on."

They also looked at a number of other factors including body weight and back fat changes, reproductive performance, air quality and cleanliness of the pens. In an industry that's always pushing for larger litters and heavier pigs, researchers concluded that when it comes to slats and gaps, "less is more".

"Pigs on the narrower slats and gaps appeared to be more comfortable and had fewer feet sole lesions and wall cracks. There was no difference in air quality or cleanliness between the two groups, and the slightly narrower slats may actually increase the chance of manure going through, so that's a bonus."

Going forward, Dr. Connor said this doesn't offer enough evidence for people to "rip up floors and put in new ones"; however, it does suggest that those doing conversions or new builds would be wise to opt for the narrower slats and gaps.

It means a change in thinking for producers, but it could be a change for the better. And, who knows, they might just be floored by the results.

**For more information….**

For more information about the work described in this article, please contact Dr. Laurie Connor at : Laurie.Connor@umanitoba.ca.

You may find additional resources related to the project *Optimizing flooring and social management of group housed gestating sows* by consulting our website at:

www.swineinnovationporc.ca/research-animal-welfare

Publication of this article has been made possible by Swine Innovation Porc within the Swine Cluster 2: Driving Results Through Innovation research program. Funding is provided by Agriculture and Agri-Food Canada's AgriInnovation Program and by provincial producer organizations.