Crate flooring can affect a sow's comf

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An OMAFRA study found that triangular bar flooring, with narrower slats and wider openings causes more pressure on a sow's shoulder and thus is more likely to produce shoulder lesions

by MIKE MULHERN

Choosing the right slatted flooring in farrowing crates could increase sow comfort and reduce shoulder pressure lesions. That's one of the observations coming out of a study by Kathy Zurbrigg, a surveillance analyst with the Ontario Ministry of Agriculture, Food and Rural Affairs.

The study set out to determine if a human pressure measurement system could be effectively used to measure the pressure exerted on a sow's shoulder when it lays down to farrow and nurse. Tests were conducted using two types of farrowing crate flooring – cast iron and triangular bar.

The measurements, done with sows wearing shoulder vests fitted with sensors, were taken on a farm with a high incidence of shoulder sores. Data included sow ID, farrowing date, breed, estimated weight, body condition, sow length, presence of shoulder lesions, dimensions of the farrowing crate and flooring type.

Once the sow was lying on its side, pressure readings were taken every second for 30 seconds, producing a map of the contact area. After the readings were taken, the vest was removed and a rubber mat was secured to the crate floor over the area of the slats where the sow's shoulder would normally make contact with the crate floor. The mat remained in the crate for two to five days, or until the sow became accustomed to it. Once that happened, a vest was fitted and new measurements taken with the rubber mat in place.

Thirteen sows were selected for initial tests, of which three developed shoulder lesions. The study found that pressure was higher when measured on triangular bar flooring than on cast iron, the latter having more surface for the sow to contact for better weight distribution.

"The triangular bar flooring has narrower slats and wider slots (the openings between slats) than the cast iron slatted floor," the study's author observed. "The resulting decreased surface area for contact with the shoulder increases the pressure exerted on those areas that contact the slats, particularly the bony prominence of the scapula, because there is less surface area over which to distribute the sow's weight."

The study was funded by Ontario Pork.

Kathy Zurbrigg

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The most common method used to prevent and treat pressure ulcers in humans is to increase padding under the patient's sitting or lying surface. Pressures ranging from 40-300 mmHg (millimetres of mercury) have resulted in "bedsores" on paraplegic and quadriplegic humans.

In this study, "the addition of a rubber mat over part of the farrowing crate floor significantly reduced the contact areas of the sow's shoulder that registered pressures over 150 mmHg." In a previous study, the report's author noted that "it is at least in part the reduction in shoulder pressure by a rubber mat that resulted in the faster shoulder lesion healing time."

In a second part of the study, the number of sows lying completely on their sides was recorded weekly both in gestation and farrowing barns at a set time for a one-hour period from March to May. Data indicate that sows prefer not to lie on their sides.

"In the farrowing crate, sows lay on their sides for lengthy periods of time, both to farrow and to nurse. This position appears to be uncomfortable for sows, based on the low percentage of gestating sows that choose to lie this way and by the high pressures recorded over the shoulder region of sows lying on their sides.