

How does rubber flooring in farrowing pens for loose housed sows affect their lying behavior and time spent lying down?

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Introduction

Solid concrete floors in the lying area are most often used in Swedish farrowing pens for loose housed sows. The amount of bedding and the concrete floor quality greatly influence the occurrence of injuries and the comfort and behavior of the sow and her offspring (1,2). The use of bedding material has been decreasing with the development of intensive pig production systems (3). The objective of the present study was to assess whether the use of rubber flooring in the farrowing pen would benefit piglet and sow welfare. The occurrence of leg and claw injuries on the piglets was recorded and is reported elsewhere (4). In the present study, sow lying behavior was studied, and the influence of environmental temperature was determined. In addition, the durability of the rubber floorings was evaluated.

Materials and Methods

The study was made in a commercial sow herd. The farrowing pens (2.2 x 3.0 m) for loose housed sows had a solid concrete lying area (4 m²) and a plastic slatted dunging area (2.6 m²). For each of 5 farrowing batches, the sows in 2 pens with concrete flooring (due to video problems, a total of 9 pens with concrete only were studied) and 2 pens with rubber flooring (total of 10 pens, where 3 had a rubber coating [Procoat], 4 had a rubber mat [KraiburgA] and 3 a second type of rubber matting [KraiburgB]) were studied. - Sow behavioral observations were made using continuous, 24 h, video recordings (MSH-video client) at 1 and 3 weeks after farrowing, respectively. The following was recorded: sow location in the pen and the time spent lying on the side, on the abdomen, for sitting, standing/walking, and for lying down. Pen temperature (Tiny tag data logger) was measured twice per hour. Statistics using software in SAS version 9.3 (PROC GLM) were applied.

Results

The rubber coating was spackled on the floor; it did not last in spite of several efforts. The 2 types of mats were durable and lasted well during the trial period. In all, at 1 week after farrowing the total lying time for the sows was on average 87% of the 24 h period while at 3 weeks the time was 82%. When lying there was a trend, that the "rubber pen" sows more often chose to lie on the solid rubber area, as compared to the sows in "concrete pens" (Table 1). There were large individual variations between sows as to lying position, lying location, lying down time and as to how the environmental temperature affected lying time on the slatted floor area. The assumption that sows could be more sensitive to higher temperatures when on the

rubber floor, due to less thermal conductivity, could not be disregarded. However, the temperature during the observation period did not vary enough to confirm this.

Table 1. Sow lying location (%) in pens with rubber flooring and concrete flooring, respectively

	1 week			3 weeks		
	Concrete	Rubber	p-value	Concrete	Rubber	p-value
Lying- solid area	65.6	75.7	0.35	63.0	74.7	0.14
Lying- transition area	11.1	9.5	0.67	15.2	6.4	0.02*
Lying- slatted area	23.3	14.8	0.38	21.8	18.9	0.71

Conclusions and Discussion

We consider that the large individual variations in sow behavior in this study are a sign that sows, when housed loose in farrowing pens, could determine their comfort and use this option. This could not have been expressed by a crated sow. There was a trend that the sows preferred the solid rubber area compared to the solid concrete area when lying. If, for welfare reasons, a softer, non-abrasive floor is required, or if the existing concrete floor is of poor quality and increases the risk of injuries, then rubber flooring is an option. There are now rubber mats on the market which can sustain the weight and behavioral activity of sows.

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References

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