

Project Number & Title

1A-116 Increased light intensity and mat temperature attract piglets to creep areas in farrowing pens

Project Leader

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Project Participants

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Aims and Objectives

Evaluate the effects of two light intensities (300 Lx vs. 4 Lx) in creep areas with two mat temperature set points (30 °C vs. 35 °C), without any source of radiant heat, on piglet behaviour and survivability in farrowing pens.

Key Findings

1. Lighting in the creep:

Piglets with access to Bright (i.e. illuminated) creeps spent in average 7.2 % more time in the creeps than piglets in pens with Dark creeps. Piglets in pens with Bright creeps spent less time in the pen areas immediately in front of the creep and the least time farthest from the creep. Piglets of Bright creeps tended to take longer to enter the creep for the first time after birth, but the latency for the litter to remain clustered for 10 min in the creep area was shorter in Bright compared to Dark creeps.

2. Mat surface temperature, and room temperature:

For each degree increase in mat temperature, piglets spent in average 2.1 % more time in the creep. Ambient temperature strongly affected the piglet's use of the creep and remaining pen areas. Generally, for each 1 °C increase in ambient temperature, there was an approximate 4.8 % reduction in piglet use of the creep.

3. Other factors influencing use of the creep:

The number of piglets in the pen had a small, but significant effect on piglet use of pen areas, as the increase of one piglet in the litter led to a 1.2 % decrease in time piglets spent in the creep. The provision of light in the creep or mat temperature did not affect sow use of pen areas or piglet weight gain.

Application to Industry

Illuminating creeps with cool white Light Emitting Diodes (LED's, 300 Lx) led to increased use of the creep area by the piglets.

Increased mat temperatures led to increased piglet use of creeps, independently of light levels.

Noteworthy most (bulb) heating lamps on farm emit both heat and light.

Sow use of pen areas immediately in front and farthest from the creep did not change among treatment combinations. Thus, increasing mat temperature and illuminating the creep seemed not to be attracting or driving sows away from the area closest to the creep.

Sow location was still the main factor contributing to piglet location in the pen.

Research on a larger sample size is needed to evaluate the implications of creep light and mat treatments on piglet survivability in farrowing pens, through increasing the time piglets spend in the creep in an effort to reduce dangerous situations leading to piglet crushing by the sow.

These research findings were obtained in SWAP farrowing pens and in environmentally controlled rooms. Results may vary in other types of farrowing pens, farrowing crates or naturally ventilated environments. Of importance, high ambient (room) temperature significantly reduced use of the creep by the piglet, suggesting that ensuring a gradient in temperature in the creep relative to the rest of the environment (creep warmer than the room) is important to encourage piglets to use the creep, hence attracting them to a safe location.