

PROJECT SUMMARY

Project Number and Title: 5A-116 Heating up the house: Evaluating the effect of novel monitoring and heating systems on the productivity, welfare and economics of farrowing houses

Project Leader: Dr Jessica Craig (Rivalea Australia, JBS Pork Division)

Project Participants: Dr Maria Jorquera-Chavez (CSL Seqirus, formerly Rivalea), Mr Steve Smith (Rivalea), Dr Rebecca Morrison (Australian Pork Limited, formerly Rivalea), Mr Eugene Ip (Rivalea)

Aims and Objectives: The main objective of the project was to investigate the impact of different heat sources (Aniheater[®] and Hog Hearth[®] Heat Mats) used in the creep area in comparison to conventional heat lamps on the thermal comfort, welfare and productivity of sows and piglets. It was hypothesised that these new heating methods would provide better thermal conditions for piglets and sows and have a lower cost of maintenance than the conventional heat lamps.

Key Findings:

- Thermal Comfort and Piglet Mortality: The study found that the type of heating source significantly impacted piglet mortality, especially during summer. Heat mats resulted in the lowest piglet mortality rates compared to conventional heat lamps and Aniheater[®] devices.
- Cost-Effectiveness: Heat mats were found to be the most cost-effective heating source, with the lowest electricity usage and maintenance costs. The payback period for heat mats was 2.3 years, while it was 1.2 years for the Aniheater[®] device.
- Sow Welfare: The ear-base temperature of sows was significantly higher in pens equipped with conventional heat lamps compared to those with heat mats or Aniheater[®] devices, which may indicate that heat lamps may negatively impact sow thermal comfort during hot periods.
- Energy Efficiency: Heat mats consumed significantly less electricity (34.3 kWh per crate per lactation) compared to heat lamps (81.3 kWh) and Aniheater[®] devices (84.2 kWh), making them the most energy-efficient option.

Applications to Industry:

- The use of thermal imagery technology has proven valuable for monitoring pigs' welfare, offering real-time data for informed management decisions. This technology can reduce heat stress in sows and improve piglet survival rates.
- The comparison of conventional heat lamps with Aniheater[®] and Hog Hearth[®] Heat Mats highlights the potential for these novel heating solutions to replace traditional methods. These new systems offer improved thermal comfort for piglets and enhanced energy efficiency, reducing operational costs and improving the sustainability of pig farming operations
- Adopting Hog Hearth[®] Heat Mats can lead to significant reductions in energy costs and maintenance requirements. These mats consume less energy than conventional heat lamps and require less maintenance, lowering utility bills and labour costs for producers.