

ANIMAL WELFARE

Title: Establishing Bedding and Boarding Requirements for Finisher Pigs Through Scientific Validation – Macro Study. – **NPB #11-181**

Investigator: John McGlone; Co-Investigator Anna Butters-Johnson

Institution: Texas Tech University

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Scientific Abstract

1. Establishing Bedding Requirements during transport and monitoring skin temperature over seasons after transport for finishing pigs.

The broad aim of this study was to determine whether bedding level in the transport trailer influenced pig performance and welfare. Specifically, the objective was to define the bedding requirements of pigs during transportation in commercial settings during cold, mild, and warm weather. Animals (n = 112,078 pigs on 572 trailers) used were raised in commercial finishing sites and transported in trailers to commercial processing plants. Dead on arrival (DOA), non-ambulatory (NA), and total dead and down (D&D) data were collected and skin surface temperatures of the pigs were measured by infrared thermography. Data were collected during winter (experiment 1), fall/spring (experiment 2), and summer (experiment 3). Total D&D percent showed no interaction between bedding level and outside air temperature in any experiments. Average skin surface temperature during unloading increased with outside air temperature linearly in all three experiments ($P < 0.01$). When air temperature exceeded 32 °C, a sharp increase in D&D was observed. In conclusion, over-use of bedding may be economically inefficient and, in warm weather, it might increase the rate of D&D pigs. Pig skin surface temperature could be a useful measure of pig welfare during or after transport.

2. Establishing boarding requirements for finishing pigs during transport

Specifically, this study aimed to establish boarding level requirements, or amount of ventilation, for finishing pigs in mild weather (8.80 ± 0.30 °C, 71.70 ± 1.12 % humidity). Pigs from commercial finishing sites were transported in 302 pot-bellied trailers to commercial processing plants. Measures collected at the processing plant were rates of dead on arrival (DOA), non-ambulatory (NA), and total dead and down (D&D). Boarding levels were divided into 3 bins: low (0 – 30 %), medium (31–60 %) and high (> 61 %) and outside temperature was divided into 4 bins < 5°C, 5.10 - 10 °C, and 10.10 - 15 °C and > 15 °C. Average rates of DOA, NANI, NAI, and D&D were approximately 0.30, 0.12, 0.04, and 0.46 %, respectively. The D&D was highest when boarding percentage was low with temperatures < 5 °C ($P < 0.05$). When air temperature was less than 5 °C, low boarding level increased rate of D&D. However, variations in boarding level (medium and high boarding) in temperature range 5.10 to 23.30 °C did not affect pig losses.

These research results were submitted in fulfillment of checkoff-funded research projects. This report is published directly as submitted by the project's principal investigator. This report has not been peer-reviewed.

For more information contact:

National Pork Board • PO Box 9114 • Des Moines, IA 50306 USA • 800-456-7675 • Fax: 515-223-2646 • pork.org
