

## NONRUMINANT NUTRITION

### PSII-13 Effect of Body Weight, Body Temperature, and Blood Glucose on the Survivability of Pull Pigs After Removal.

Madie R. Wensley<sup>1</sup>, Mike D. Tokach<sup>1</sup>, Robert D. Goodband<sup>1</sup>, Jordan T. Gebhardt<sup>1</sup>, Jason C. Woodworth<sup>1</sup>, Joel M. DeRouchey<sup>1</sup>, Ethan Stephenson<sup>2</sup>, <sup>1</sup>Kansas State University, <sup>2</sup>Pillen Family Farms

**Abstract:** A total of 988 nursery pigs were used to determine the effect of body weight, body temperature, and blood glucose on the survivability of pull pigs after removal. At weaning, pigs were transported to a 24,000 head hotel-style nursery and placed in rooms based on sow source. Over a 4-week period post-placement, every other pig removed from the general population for welfare considerations (lameness, sick, or fallback) were tagged, weighed, and their body temperature and blood glucose measured. Mortality was tracked through the end of the nursery or approximately 38 d post-placement. Data were analyzed as a completely randomized design with room as a random effect. The predictor variables of body weight, body temperature, and blood glucose were categorized into biologically significant categories and LSM means were determined using a binary model with mortality as the outcome. Pigs with a body weight under 4.5 kg at removal had increased mortality rate (32.4%;  $P < 0.001$ ) compared with pigs with a body weight between 4.5 and 5.4 kg (20.8%) or greater than 5.4 kg (14.6%) at removal. Pigs with a body temperature below 38.6°C or above 39.7°C at removal had increased mortality rate (33.4 or 26.8%, respectively;  $P < 0.001$ ) compared with pigs with a body temperature between 38.6 and 39.7°C (17.7%) at removal. Pigs with a blood glucose greater than 120 mg/dL at removal had increased mortality rate (43.5%;  $P < 0.001$ ) compared with pigs with a blood glucose less than 70 mg/dL (23.0%) or between 70 and 120 (17.9%) at removal. In summary, pull pigs with low bodyweight, high or low body temperature, or high blood glucose had decreased survivability. The results of this study indicate that there are metabolic differences between nursery pigs at the time of removal and that these differences may influence survivability.

**Keywords:** pig, survivability, weaning

### PSII-16 Enterid Reduced *E. Coli* Colonization in the Gastro-Intestinal Tract of Young

Pigs. Aileen Joy L. Mercado<sup>1</sup>, Huyen Tran<sup>1</sup>, Peter Karnezos<sup>1</sup>, Brenda de Rodas<sup>1</sup>, Stacie Crowder<sup>2</sup>, <sup>1</sup>Purina Animal Nutrition, <sup>2</sup>PMI Additives

**Abstract:** The aim of the present study is to assess the impact of Enterid feed additive (PMI Additives) on the health status of newly-weaned pigs challenged with Enterotoxigenic *E. coli* (F4/K88). Seventy-two newly-weaned piglets of mixed sex were weighed and sorted into groups of 12 pens (3 gilts and 3 barrows each pen). Each pen was then randomly assigned into 1 of 3 treatments, consisting of a non-challenged group (NC), *E. coli*-challenged group (ETEC), and ETEC supplemented with 0.10% Enterid. Pigs were treated with Baytril upon arrival and were provided their respective diets and water ad libitum. All pigs except NC were challenged with F4/K88 strain 181016 *E. coli* on d 10 and d 11. Clinical observations (fecal scores, respiration rate, appetite, attitude, edema), rectal temperature and *E. coli* shedding were measured daily beginning on d9 until the end of the study (d 20). Clinical outcomes were analyzed using Mixed procedure in SAS following a completely randomized design with initial weight as covariate and day post challenge as a repeated measure parameter. Clinical measurements, except fecal scores, were all rated normal and so were not analyzed statistically. There were no differences among treatments in *E. coli* shedding prior to the challenge (2.3 log cfu/ml,  $P > 0.20$ ). Immediately post challenge, however, *E. coli* shedding for the ETEC increased by 12 log (14.4 log cfu/ml,  $P < 0.05$ ) and remained elevated for 4-5 d. Supplementation with Enterid resulted in a 2-log reduction in *E. coli* shedding during the first 3 d post-challenge ( $P < 0.10$ ) and returned to pre-challenge level after 5 d. No clear differences in rectal temperature were observed among treatments. *E. coli* challenge resulted in poorer fecal quality (d3-5,  $P < 0.05$ ), with Enterid not influencing the response ( $P > 0.20$ ). The current results support the ability of Enterid to reduce *E. coli* colonization in the gut of pigs challenged with *E. coli*.

**Keywords:** *E. coli*, Enterid, pigs