

New Mexico (NM; $n = 767$) and Wisconsin (WI; $n = 140$) and beef feedlot populations from Colorado (CO; $n = 999$) and Washington (WA; $n = 1,005$). The subclinical BRD phenotypes were established for the CO population post-harvest. All genes proximal to QTL identified ($p < 1 \times 10^{-5}$) in the clinical BRD analyses for dairy (CA - 126 QTL, NM - 138 QTL, WI - 78 QTL) and beef (CO - 5 QTL, WA - 5 QTL, 2 gene sets) were functionally related to innate and adaptive immunity, but varied according to the pathogen prevalence distribution detected for each population. A robust innate immune response to infection is critical for host defense prior to the activation of the adaptive immune response. The analysis of subclinical BRD in the CO population identified 7 additional QTL, near genes that have functional roles related to the maintenance of lung health. The identification and validation of QTL associated with susceptibility to both clinical and subclinical BRD will provide producers the ability to select cattle that are less susceptible to the disease, ultimately reducing the prevalence of the disease and diminishing its economic impact.

Key Words: bovine respiratory disease, QTL, genome-wide association analysis

POSTER SESSION I: NONRUMINANT NUTRITION I: AMINO ACID REQUIREMENTS

205 Evaluation of High Standardized Ileal Digestible Tryptophan:Lysine Ratios with Ractopamine HCl on Growth and Carcass Performance of Pigs from 110 to 135 Kg. J. A. Soto^{*1}, M. D. Tokach¹, K. J. Touchette², S. S. Dritz¹, J. C. Woodworth¹, J. M. DeRouchey¹, B. D. Goodband¹, ¹Kansas State University, Manhattan, KS, ²Ajinomoto Heartland, Inc., Chicago, IL

Tryptophan is considered the second or third limiting amino acid in corn soybean-meal-based diets fed to growing and finishing swine. The NRC (2012) SID Trp:Lys ratio requirement for pigs above 165 lb is 17.7% of lysine. However, recent research has reported that increasing standardized ileal digestible (SID) Trp:Lys ratio above 20% in finishing pigs fed Ractopamine HCl (RAC) resulted in improved growth and carcass performance. To further evaluate this response, the objective of this experiment was to confirm the effects of feeding high SID Trp:Lys ratios in diets containing RAC on growth and carcass performance

of finishing pigs from 110 to 135 kg. A total of 935 pigs (PIC 1050 \times 337, initially 107.6 kg BW) were used in a 22-d trial. Pens of 23 or 24 pigs were allotted by BW and randomly assigned to 1 of 5 dietary treatments in a RCBD with 8 replications per treatment. The dietary treatments included 5 SID Trp:Lys ratios (20, 22, 24, 26, and 28% of Lys). Corn-soybean meal based diets were formulated to 0.90% SID Lys and contained 10 ppm ractopamine. Analyzed nutrients and total amino acids contents of experimental diets were consistent with formulated estimates. At d 22, pigs were transported to a packing plant for processing and carcass data collection. For overall growth performance, increasing SID Trp:Lys increased (linear, $P = 0.007$) ADFI (2.86, 2.91, 2.89, 2.96, and 3.00 kg) and SID Trp g/kg gain (5.2, 5.6, 6.4, 6.7, and 7.4) linear ($P < 0.001$). However, there was no evidence for treatment differences for ADG (1.10, 1.14, 1.10, 1.15, and 1.13 kg) or G:F (0.384, 0.390, 0.378, 0.390 and 0.376). Similarly, for carcass characteristics, there was no evidence for treatment differences for HCW, carcass yield, backfat loin depth, lean, carcass ADG or carcass feed efficiency. In summary, increasing SID Trp:Lys increased ADFI and SID Trp g/kg gain, however, there was no evidence for treatment differences for other growth or carcass parameters measured. Further research is necessary to determine why inconsistencies are observed when feeding high SID Trp:Lys ratios to finishing pigs.

Key Words: tryptophan, finishing pigs, amino acid

206 Effects of Soybean Meal Concentration at a Fixed 12% Dietary CP on Growth and Carcass Performance of Finishing Pigs from 115 to 136 Kg. J. A. Soto^{*}, M. D. Tokach, S. S. Dritz, J. C. Woodworth, J. M. DeRouchey, B. D. Goodband, Kansas State University, Manhattan, KS

Research has reported performance reduction when finishing pigs are fed corn-soybean meal diets formulated below 12% CP even when diets are fortified with all AA at or above minimum NRC (2012) requirements relative to Lys. A total of 280 pigs (DNA 600 \times 241, initially 114.2 kg) were used in a 23-d trial to determine the effects of SBM concentration with CP fixed at 12% on finishing pig performance. Pens of 7 or 8 pigs (balanced number of pigs per treatment) were randomly assigned to 1 of 6 dietary treatments with 6 replications. Treatments consisted of 5 levels of SBM (10.6, 7.7, 4.9, 2.7, and 0%) with 12% CP and a negative control (NC) treatment with 4.0% SBM and 10% CP. All diets were formulated to 0.55% SID Lys with