

PSIX-10 Effects of SID Lysine:Calorie NE ratio on the Growth Performance and Carcass Characteristics of DNA 600 Sired Pigs. Brittany Carrender¹, Hayden E. Williams², Mandy Gerhart³, Kyle Coble¹, Joel M. DeRouchey², Mike D. Tokach², Steve S. Dritz⁴, Jason C. Woodworth⁵, Robert D. Goodband², ¹*JBS Live Pork*, ²*Kansas State University*, ³*JBS*, ⁴*Department of Diagnostic Medicine & Pathobiology, College of Veterinary Medicine, Manhattan, KS 66506*, ⁵*Department of Animal Sciences & Industry, College of Agriculture, Manhattan, KS 66506*

A total of 2,673 mixed sex pigs (DNA 600 × PIC 1050; initially 21.4 kg BW) were used in a 117-d study to evaluate the effects of increasing SID Lysine:Calorie NE ratio on the growth performance and carcass characteristics of DNA sired pigs. Pens of pigs (30 pigs/pen) were blocked by BW and location and allotted to 1 of 4 dietary treatments with 18 pens per treatment. Treatments were 90%, 95%, 100%, or 105% of the 2016 PIC recommended SID Lysine:Calorie NE ratio for finishing gilts. Data were analyzed as a randomized complete-block design with pen as the experimental unit. Overall (d 0-117), increasing Lysine:Calorie NE tended to improve ADG (Linear; $P = 0.077$) and G:F (Linear; $P = 0.053$). Although there was an increase in ADG with increasing SID Lysine:Calorie NE, there was no evidence for a difference ($P > 0.100$) in final BW. The lack of BW response is most likely due to the lower (Quadratic; $P < 0.008$) removal rate as SID Lysine:Calorie NE increased. Carcass ADG (Linear; $P < 0.064$) tended to improve as SID Lysine: Calorie NE increased. An improvement in carcass G:F (Quadratic; $P < 0.004$) was observed as SID Lysine:Calorie NE increased to 100% PIC (2016) recommendations, with little improvement observed thereafter. No significant differences were observed in carcass yield, loin depth, back fat, or % lean. These results suggests that DNA sired pigs fed increasing SID Lysine:Calorie NE ratios tended to have improved growth performance with no impact on carcass quality.

Table 1. Effects of SID Lysine:Calorie NE ratio on the Growth Performance and Carcass Characteristics of DNA 600 Sired Pigs (d 0-117)

Item	Percent of PIC SID Lys:Calorie NE ¹				SEM	Probability, $P \leq$	
	90%	95%	100%	105%		Linear	Quadratic
ADG, g	988	993	998	998	6.1	0.077	0.570
ADFI, g	2,667	2,689	2,695	2,681	24.2	0.789	0.387
G:F	0.369	0.370	0.371	0.373	0.0019	0.053	0.431
Final BW, kg	129.7	131.4	131.3	131.0	0.90	0.204	0.134
Removals, %	3.0	4.9	3.2	1.1	0.93	0.023	0.008
Carcass characteristics ²							
HCV, kg	93.7	94.3	94.3	94.2	0.60	0.425	0.382
Carcass ADG ³ , g	863	854	867	874	7.1	0.064	0.138
Carcass G:F ⁴	0.322	0.318	0.322	0.327	0.0020	0.016	0.004
Yield, %	73.3	73.2	73.2	73.4	0.14	0.803	0.146

¹ 2016 PIC Nutrient Specifications for Finishing Gilts

² Adjusted for HCV

Keywords: Lysine, calorie, pig

PSIX-16 Growth performance and blood immune parameters of nursery pigs fed canola meal-based diets. Jinsu Hong¹, Joy Scaria¹, Tofuko A. Woyengo¹, ¹*South Dakota State University*

Effects of dietary solvent-extracted canola meal (SECM) on growth performance, blood thyroid hormones, and immune parameters of nursery pigs were investigated. A total of 200 weaned pigs (initial body weight = 7.00 kg) were obtained in 2 batches of 100 pigs each. Pigs in each batch were housed in 25 pens (4 pigs/pen) and fed 5 diets in a randomized complete block design. The 5 diets were corn-soybean meal-based diet with 0, 10, 20, 30, or 40% SECM. The diets were fed in 3 phases; Phase 1: d 0 to 7, Phase 2: d 7 to 21, and Phase 3: d 21 to 42. Growth performance was determined by phase. Blood parameters were determined at the end of Phases 1 and 2. Increasing dietary SECM from 0 to 40% resulted in a quadratic increase ($P=0.007$) in overall (d 0-42) average daily gain (ADG) such that an increase in dietary level of SECM from 0 to 20% resulted in an increase ($P < 0.05$) in ADG by 14.1%, but an increase in level of SECM from 20 to 40% resulted in a decrease ($P < 0.05$) in ADG by 11.4%. Dietary SECM tended to linearly reduce ($P=0.05$) Phase 2 serum tetraiodothyronine level. An increase in dietary level of SECM from 0 to 20% did not affect the serum IgA level, but an increase in level of dietary level of SECM from 20 to 40% resulted in a decrease ($P < 0.05$) in the serum IgA level. Serum IgG and TNF- α levels were unaffected by diet. In conclusion, increasing dietary SECM level from 0 to 20% increased growth performance of weaned pigs. However, increasing dietary SECM level from 20 to 40% reduced growth performance and increased immune response. Thus, SECM can be included in diets for nursery pigs at 20% to improve performance.

Keywords: growth performance, immune parameters, canola meal