The effect of corn germ meal (CGM) inclusion level on the growth performance and carcass characteristics of wean-to-finish pigs. J. E. Estrada1, M. Ellis2, A. M. Gaines3, B. A. Peterson4, O. F. Mendoza5, 1University of Illinois, Urbana-Champaign, 2University of Illinois, Champaign-Urbana, 3The Maschhoffs, LLC, Carlyle, IL.

Lysine is the first limiting amino acid in practical swine diets, so it is important to optimize the dietary digestible lysine to maximize growth and profitability. Two experiments were conducted to estimate the standardized ileal digestible (SID) Lys requirement for pigs from 25- to 50-kg BW (Exp. 1) and 50- to 75-kg BW (Exp. 2) using ADG and G:F as criteria responses. A total of 1050 barrows and gilts (FAST F1 female × PIC380 boar line) were used in each experiment, blocked by gender, with 10 pens per treatment and 21 pigs per pen. Experimental diets were formulated to contain 2.3 Mcal NE/kg and to meet or exceed all nutrient requirements except Lys, according to NRC (2012). Minimum ratios of 30% Met:Lys, 60% Met+Cys:Lys, 21% Trp:Lys, 70% Val:Lys, 55% Ile:Lys, and 102% Leu:Lys on a SID basis were used for all diets. The SID Thr:Lys ratio was 65 and 66% for Exp. 1 and 2, respectively. In Exp. 1, pigs were fed diets formulated to contain 0.72, 0.80, 0.88, 0.96 or 1.04% SID Lys whereas in Exp. 2 diets were formulated to contain 0.68, 0.75, 0.82, 0.89 or 0.96% SID Lys. Responses measured at the pen level were analyzed using general linear and nonlinear heteroskedastic mixed models. Dose response curves were evaluated using linear (LM), quadratic polynomial (QP), broken-line linear (BLL), and broken-line quadratic (BLQ) models. For each response variable, the best-fitting model was selected using Bayesian information criterion. Gender was used as covariate when significant. Increasing SID Lys content in the diet quadratically (P < 0.01) increased ADG and G:F in Exp. 1 and linearly (P < 0.001) increased ADG and G:F in Exp. 2. From 25- to 50-kg, the best-fitting models for ADG and G:F were the LM and QP, respectively, with the maximum response estimated at > 1.04% SID Lys. From 50- to 75-kg BW, the best-fitting model for ADG was the BLQ estimating the requirement at 0.83% (95% confidence interval [CI]: [0.80%, 0.86%]) SID Lys, with 99% of maximum achieved with 0.82%. For G:F, the BLL was the best-fitting model and the SID Lys requirement estimated at 0.85% (95% CI: [0.75%, 0.94%]) with 99% of maximum achieved with 0.80%. In conclusion, the SID Lys requirement for 25- to 75-kg pigs may be higher than the recommendation from NRC (2012).

Key Words: lysine, requirement, grower pig

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