

200 Effect of corn germ meal inclusion level on the growth performance and carcass characteristics of wean-to-finish pigs.

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The effect of corn germ meal (CGM) inclusion level on the growth performance and carcass characteristics of pigs reared under commercial conditions was evaluated with 2 studies. Both studies used RCBD with 2 CGM inclusion levels: 0 and 20%, and 0 and 25% for Study 1 and 2, respectively. A total of 952 (14 replicates) and 680 (10 replicates) barrows and gilts were used in Study 1 and 2, respectively, housed in mixed-sex groups of 34 pigs in Study 1, and single-sex groups of 34 pigs in Study 2. The studies were performed from weaning (6.4 ± 0.57 and 6.6 ± 0.53 kg BW for Study 1 and 2, respectively) to a final BW of 133.3 ± 1.62 and 127.1 ± 1.71 kg, respectively. An 8-phase dietary program was used with diets formulated to the same SID-lysine to calorie (ME) ratio within each phase and to meet or exceed nutrient requirements proposed by NRC (2012). Calculated NDF levels, averaged across all phases, were 6.91 and 12.47% for 0% and 20% CGM diets, respectively, in Study 1 and 7.98 and 13.48% for 0 and 25% CGM diets, respectively, in Study 2. Pigs had ad libitum access to feed and water. At the end of each study, pigs were harvested at a commercial facility and standard carcass grading measurements were collected. The pen of pigs was the experimental unit for all measurements; data were analyzed using PROC MIXED of SAS with the model accounting for the effects of CGM level, block, and replicate. For both studies, there was no effect ($P > 0.05$) of CGM inclusion level in the diet on overall ADG and ADFI. There was no effect of CGM on G:F in Study 1; however, in Study 2 G:F was decreased ($P < 0.05$) for pigs fed diets with 25% compared to 0% CGM (0.414 vs. 0.428 kg:kg, respectively). Carcass yield was reduced ($P < 0.05$) by feeding CGM (0.7 and 1.6% units in Study 1 and 2, respectively), which resulted in reductions in overall average daily carcass weight gain (2.4 and 4.7% lower in Study 1 and 2, respectively), and overall carcass weight G:F (2.3 and 6.2% for Study 1 and 2, respectively). The results of these studies suggest that inclusion levels of CGM of 20 and 25% in diets for wean-to-finish pigs reduces carcass yield and has a negative effect on growth rate and feed efficiency when measured on a carcass weight basis.

Key Words: Corn Germ Meal, Pigs, Carcass

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201 Lysine requirement titration for barrows and gilts from 25- to 75-kg.

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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 \times 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 (BL), 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 BL 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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