NONRUMINANT NUTRITION:
EVALUATION OF FEED INGREDIENTS FOR MONOGASTRIC DIETS

1348 (W166) Different corn hybrids fed to growing pigs. I. Chemical composition, energy concentration, and digestibility of nutrients. Y. Liu*[1], R. C. Sulabo[1], T. E. Sauber[2], and H. H. Stein[1], *[1]University of Illinois at Urbana-Champaign, Urbana, [2]Pioneer Hi-Bred International Inc., Johnston, IA.*

Fifty-two barrows (26.8 ± 3.42 kg) were used in five experiments to determine the variability in the chemical composition, energy concentration, and digestibility of nutrients in 48 different corn hybrids sourced from DuPont Pioneer (Johnston, IA) and fed to growing pigs. In Exp. 1, 12 ileal cannulated barrows were allotted to a 12 × 12 Latin square design with 12 diets and 12 7-d periods. In Exp. 2 to 5, 10 ileal cannulated barrows were allotted to a 10 × 10 Latin square design with 10 diets and 10 7-d periods. In all experiments, corn was 97.0% (as-fed basis) of the diet and the only ingredient contributing energy, starch, ADF, NDF, lipids, and AA to the diets. The only difference in diet composition among diets was that different corn hybrids were used. Descriptive statistics for chemical component, energy concentration, and digestibility of nutrients in corn hybrids were determined using PROC MEANS. Correlation coefficients among chemical components, energy concentration, and digestibility of nutrients in all corn hybrids were determined using PROC CORR. On an as-fed basis, the GE concentration of the corn hybrids ranged from 3736 to 3989 kcal/kg, with an average of 3884 ± 63.6 kcal/kg. The average concentration of acid-hydrolyzed ether extract (AEE), starch, NDF, ADF, and ash was 3.86 ± 0.59%, 62.91 ± 1.79%, 8.13 ± 1.40%, 2.43 ± 0.53%, and 1.02 ± 0.28%, respectively. The average apparent ileal digestibility of GE, CP, AEE, NDF, ADF, and starch of the corn hybrids was 75.44 ± 4.38%, 62.63 ± 7.62%, 57.64 ± 7.62%, 19.02 ± 21.52%, −7.56 ± 19.53%, and 95.35 ± 2.48%, respectively, whereas the average apparent total tract digestibility of GE, CP, AEE, NDF, ADF, and starch was 87.78 ± 1.70%, 77.62 ± 4.36%, 53.53 ± 7.85%, 54.20 ± 13.03%, 38.46 ± 16.36%, and 99.90 ± 0.09%. On a DM basis, DE of the corn hybrids ranged from 3803 and 4217 kcal/kg DM with an average of 4058 ± 93 kcal/kg. The DE of corn hybrids may be predicted using the model: DE, kcal/kg DM = 1.719 × CP– 11.600 × AEE + 2.188 × NDF + 5.198 × ADF + 0.378 × Starch + 2.480 × GE– 7320.52 (R^2 = 0.77, RMSE = 54.3; P < 0.001). In summary, the chemical composition, energy concentration, and digestibility of nutrients varied among corn hybrids.

Key Words: chemical compositions, corn, pigs