A total of 120 finishing pigs (avg initial BW of 111 kg) was used in a 19-d experiment to determine the DE content of corn- vs sorghum-based distillers dried grains with solubles (DDGS). The reference diet was 97.5% corn with vitamins, minerals, and amino acids added to meet or exceed all NRC recommended nutrient concentrations. Treatments were corn-based (Sioux River Ethanol, Hudson, SD and MGP Ingredients, Atchison, KS) and sorghum-based (US Energy Partners, Russell, KS and Western Plains Energy, Oakley, KS) DDGS substituted at 50% of the reference diet in place of corn. The pigs were sorted by sex and ancestry and blocked by BW with 12 pigs/pen and two pens/treatment. Feed and water were consumed on an ad libitum basis. The pigs were allowed to adjust to the experimental diets for 4 d. Each morning for the next 2 d, grab samples of feces were collected from at least six of the pigs in each pen via rectal massage. The pigs were fed a common diet for 7 d and the treatments were reassigned with the only restriction to randomization being that a pen could not receive the same treatment twice. The end result was four observations per treatment for determination of DE. For the reference diet, digestibility of DM, N, and GE were 87.4, 74.5, and 85.4%, respectively, and DE of the corn itself was determined to be 3,322 kcal/kg. Comparisons among the treatments indicated that DDGS from corn had greater DE (223 kcal/kg) than DDGS from sorghum (P < 0.04). Additionally, DE was different among the sources of corn-based DDGS (3,628 vs 2,940 kcal/kg for Hudson vs Atchison, P < 0.001) and sorghum-based DDGS (3,205 vs 2,918 kcal/kg for Russell vs Oakley, P < 0.05). In conclusion, our results indicate that both substrate used in the fermentation process and plant of origin affect the energy value of DDGS when fed to finishing pigs.

Key Words: distillers dried grains, DE, pigs

A total of 176 finishing pigs (avg BW of 64 kg) was used in a 72-d experiment to compare the effects of corn- and sorghum-based distillers dried grains with solubles (DDGS) on growth performance and carcass characteristics in finishing pigs. C. Feoli*1, J. D. Hancock1, C. Monge1, T. L. Gugle1, S. D. Carter2, and N. A. Cole3, 1Kansas State University, Manhattan, 2Oklahoma State University, Stillwater, 3USDA/ARS, Bushland, TX.

Three experiments were conducted to determine the effects of increasing distillers dried grains with solubles (DDGS) sourced from the same ethanol manufacturing facility on growth performance of grow-finish pigs. All experiments were conducted in the same commercial research facility using 7 (Exp. 1), 10 (Exp. 2), and 9 (Exp. 3) replications per treatment with 24 to 26 pigs/pen in Exp. 1 and 2, and 25 to 28 pigs/pen in Exp. 3. Diets were formulated on a total amino acid basis in Exp. 1 and a TID basis in Exp. 2 and 3. In Exp. 1, 1,050 pigs (50.1 kg) were used in a 28-d study in a 2 × 3 factorial with either 0 or 15% DDGS with 0.3, or 6% added fat. Overall, there were no DDGS × fat level interactions (P > 0.14). Adding DDGS to the diet did not affect (P > 0.74) ADG (942 vs 942 g/d), ADFI (2.140 vs 2.148 g/d) or G:F (0.44 vs 0.44). Adding fat to the diet increased (linear, P < 0.01) ADG (908, 943, 976 g/d) and G:F (0.422, 0.440, 0.457). In Exp. 2, 1,038 pigs (46.3 kg) were used in a 56-d study and fed diets with 0, 10, 20, or 30% DDGS. Increasing DDGS level in the diet decreased ADG (849, 858, 834, 835 g/d; linear, P < 0.09) and ADFI (1,946, 1,975, 1,913, 1,900 g/d; linear, P < 0.05). Although responses were linear, the negative response only occurred with greater than 10% DDGS. There were no differences in G:F (0.437, 0.435, 0.437, 0.440; P > 0.38). In Exp. 3, 1,112 pigs (50.1 kg) were used in a 56-d study and fed diets with 0, 5, 10, 15, or 20% DDGS. Pigs fed the control diets had increased (P < 0.05) ADG (934, 925, 939, 921, 894 g/d) compared to pigs fed diets containing 20% DDGS with others being intermediate. Increasing DDGS level in the diet tended to decrease ADFI (2.27, 2.20, 2.24, 2.18, 2.16 kg/d; linear P < 0.09). There was a quadratic (P < 0.04) improvement in G:F with increasing DDGS (0.41, 0.42, 0.42, 0.42, 0.41). In conclusion, approximately 15.0% DDGS sourced from this manufacturing facility can be added to diets before growth rate is reduced.

Key Words: distillers dried grains with solubles, pigs, growth