

Energy, nitrogen, and phosphorus digestibility of growing and finishing swine diets containing distiller's dried grains with solubles. M.J. Spiehs*, G.C. Shurson, and M.H. Whitney, University of Minnesota, St. Paul, MN.

Two nutrient balance trials were conducted to determine the digestibility of energy, nitrogen, and phosphorus of Minnesota-South Dakota (MNSD) produced distiller's dried grains with solubles (DDGS) in grower and finisher diets. Sixteen pigs weighing 28.6 ± 2.2 kg in Exp. 1 and 16 pigs weighing 84.4 ± 6.2 kg in Exp. 2, were randomly assigned to one of four corn-soybean meal based dietary treatments: control (0% DDGS), 10% DDGS, 20% DDGS, and 30% DDGS. Total Lys and P levels were constant across dietary treatments within each experiment. Pigs were housed in individual metabolism crates for 10 d and limit fed an average of 1031 g/d and 1767 g/d of their respective diets in Exp. 1 and Exp. 2, respectively. Urine and feces were collected on d 8 to 10. Feed, feces, and urine were analyzed for N, P, and GE content. Increasing DDGS level in the diet tended to increase GE and N intake in both experiments. Dietary DE and ME were lower ($P < .10$) for the control diet (3638 and 3611 kcal/kg, respectively), compared to the 10, 20, and 30% DDGS diets (3862 and 3841, 3824 and 3796, 3787 and 3757 kcal/kg, respectively) in Exp. 1. In Exp. 2, DE and ME were greater ($P < .10$) in the 10% DDGS diet (3876 and 3831) compared to 30% DDGS (3628 and 3579). Nitrogen retention (%) did not differ between treatments ($P > .10$) in both experiments, but N excretion tended to increase with increasing amount of DDGS in the diet. Feeding 20% DDGS increased % P retention compared to the control and 30% DDGS diets ($P < .10$) in Exp. 1, and feeding the 10% DDGS diet increased ($P < .10$) % P retention compared to the control diet in Exp. 2. Adding increasing amounts of DDGS to the diet tended to decrease P excretion in both experiments. These results suggest that feeding 10 to 20% MNSD DDGS will increase dietary DE and ME, improve P retention and reduce P excretion, and maintain N retention while tended to increase N excretion when fed to grow-finish pigs.

Key Words: Pigs, Distiller's dried grains with solubles, Digestibility

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