

Phosphorus Bioavailability, TME, and Amino Acid Digestibilities of High Protein Corn Distillers Dried Grains with Solubles and Dehydrated Corn Germ. E. J. Kim, P.L. Utterback, C.M. Parsons. Department of Animal Sciences, University of Illinois, Urbana, IL.

There is currently much ongoing research and interest for developing new processing technologies to produce corn distillers dried grains with solubles (DDGS). The current study evaluated a high protein (HP) DDGS and a dehydrated corn germ meal which are the products that can be produced by a modified dry milling process. To evaluate the nutritional characteristics of these products, a chick experiment was conducted to determine the phosphorus (P) bioavailability based on tibia ash. In addition, precision-fed rooster assays were conducted to determine TME_n and amino acid digestibility. For the chick assay, a P -deficient cornstarch-dextrose-soybean meal basal diet containing 0.10% non-phytate P was supplemented with 0.0, 0.05 and 0.10% P from KH₂PO₄ or 7 and 14% conventional DDGS, HP DDGS, and corn germ meal. New Hampshire x Columbian female chicks were fed the experimental diets from day 9-23 days post hatch and bioavailability of P was estimated using the slope-ratio method where tibia ash was regressed on P intake. The total P content (90% DM basis) of the conventional DDGS, HP DDGS, and corn germ meal were 0.76, 0.33, and 1.22%, respectively. Bioavailability of the P in conventional DDGS, HP DDGS, and corn germ were found to be 60%, 58%, and 25%, respectively. The TME_n in conventional roosters was found to be significantly increased for the corn germ meal when compared to the HP DDGS. The protein content (90% DM basis) of

the HP DDGS and corn germ meal was 33% and 14%, respectively, and the total lysine as a % of CP was approximately two times greater for the corn germ meal than for the HP DDGS. Amino acid digestibilities in cecectomized roosters were consistently higher for the corn germ meal than in the HP DDGS.

Keywords: distillers dried grains with solubles, corn germ, phosphorus, chicks

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