

Phosphorus availability of distiller's dried grains with solubles: Variation in color
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A slope-ratio assay was used to estimate the P availability of two samples of distiller's dried grains with solubles (DDGS) that differed in color (brown vs. light golden); both samples were from a commercial ethanol plant. Experiment 1 (EXP 1) evaluated the P availability of brown DDGS and Experiment 2 (EXP 2) evaluated light golden DDGS. In each EXP, dicalcium phosphate dibasic dihydrate (DP) was used as the standard. Diets were formulated on a total P (TP) basis and calcium was kept constant at 1.2%. In each study, 340 day-old male turkey poults were randomly sorted into 42 battery pens (~8 poults/pen) and fed a marginal P starter diet for 5 days (0.5% non-phytate P), respectively. On day 6, poults were sorted, so that average pen starting weight was similar, and fed 1 of 7 dietary treatments (TRT) from 6 to 14 days of age. Growth performance, tibia ash, and rickets incidence and severity were measured. EXP 1 dietary treatments were: 1) Corn-soybean meal basal (0.58% TP), 2) Basal + 0.05% P from DP, 3) Basal + 0.10% P from DP, 4) Basal + 0.15% P from DP, 5) Basal + 13% DDGS (0.63% TP), 6) Basal + 26% DDGS (0.68% TP), and 7) Basal + 40% DDGS (0.73% TP). DDGS diets had greater percent tibia ash compared to the DP diets ($P < 0.0001$). Based on supplemental P intake, regression analysis showed P availability from brown DDGS was greater than DP. EXP 2 dietary treatments were: 1) Corn-soybean meal basal (0.58% TP), 2) Basal + 0.04% P from DP, 3) Basal + 0.08% P from DP, 4) Basal + 0.12% P from DP, 5) Basal + 10% DDGS (0.62% TP), 6) Basal + 20% DDGS (0.66% TP), and 7) Basal + 30% DDGS (0.70% TP). TRT 3 and 4 had greater feed intake and gain compared to TRT 6 and 7 ($P < 0.01$). However, percent tibia ash was greater for TRT 7 than TRT 4 ($P < 0.0001$). P availability of golden DDGS, estimated by the slope-ratio assay, was 90%. Reduction of rickets incidence and severity was similar between P sources in both trials.

DDGS, P availability, turkeys