

**A nutrient database for distiller's dried grains with solubles produced from new ethanol plants in Minnesota and South Dakota.** M.H. Whitney\*, M.J. Spiels, and G.C. Shurson, University of Minnesota, St. Paul, MN.

A study was conducted to evaluate the nutrient content and variability of distiller's dried grains with solubles (DDGS) originating from new (less than 5 yr. old) ethanol plants in MN and SD. Ten plants (8-MN, 2-SD) participated in the study, submitting a total of 88 samples. Samples of DDGS were collected every two months during 1997 (n=38) and 1998 (n=50) and were sent to the University of Missouri for amino acid analysis and Iowa Testing Laboratories, Inc. for DM, CP, crude fiber, crude fat, ash, ADF, NDF, Ca, P, K, Mg, S, Na, Zn, Mn, Cu, and Fe analysis. Digestible energy (DE), ME, and NFE levels were also calculated. Means and coefficients of variation for each nutrient among all plants during 1997-1998 were: DM (89.3%, 1.6%), CP (30.5%, 5.6%), crude fat (10.7%, 11.2%), crude fiber (8.8%, 7.9%), ash (5.7%, 14.8%), NFE (44.3%, 6.0%), ADF (16.0%, 15.3%), NDF (43.2%, 7.8%), DE (1796 kcal/kg, 2.1%), ME (1627 kcal/kg, 2.2%), Thr (1.13%, 5.8%), Val (1.51%, 6.7%), Met (0.54%, 13.3%), Ile (1.14%, 8.0%), Leu (3.58%, 5.9%), Phe (1.48%, 6.3%), His (0.76%, 7.8%), Lys (0.82%, 18.2%), Arg (1.18%, 9.3%), Trp (0.24%, 9.8%), Ca (0.06%, 57.3%), and P (0.89%, 12.2%), respectively. Among the amino acids analyzed, Lys was the most variable (CV=18.2%), followed by Met (CV=13.3%) and Trp (CV=9.8%). Nutrient levels of MNSD DDGS were higher in crude fat, NDF, DE, ME, Lys, Met, Thr and Trp lower for DM, ADF, Ash, and P than NRC (1998) values. Values differed between years sampled (1997 vs 1998) for Val (1.48 vs 1.52%) (P < .10); DM (89.63 vs 89.00%), crude fiber (9.02 vs 8.65%), His (0.74 vs 0.77%), and Arg (1.15 vs 1.20%) (P < .05); and Lys (0.77 vs 0.85%) (P < .01). These results suggest that gross energy and total lysine, methionine, threonine and tryptophan levels are higher in DDGS from MN and SD ethanol plants compared to published NRC (1998) values.

Key Words: Distiller's Dried Grains with Solubles, Nutrients

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