

**Nutritional value of corn distiller dried grains with solubles (DDGs): Influence of solubles addition.**

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Batches of corn distiller dried grains were produced with varying levels of solubles (syrup) added back to the wet grains (mash) in cooperation with a Minnesota ethanol plant. The batches produced contained syrup added at approximately 0, 30, 60, and 100% of the maximum possible addition of syrup to mash. Actual rates of syrup addition were 0, 12, 25, and 42 gal/minute. The different combinations of mash and syrup were dried at the plant with a lag of 60 minutes in between the changes for the different rates of syrup addition. Samples of each lot of material were taken and were chemically analyzed. Digestible amino acid content was determined with cecectomized roosters. True metabolizable energy (TMEn) was determined in intact young growing turkeys. Regression analyses and correlation coefficients (Pearson) were conducted to determine the extent of the relationship between the level of solubles added and the resulting nutrient content. Particle size was greatly affected with larger and more variable particle size with the highest level of solubles addition. The larger particles ("syrup balls") were readily apparent in the 100% batch and are of concern for product quality for poultry feeds. Content of fat and ash increased with solubles addition. Fat content increased from 8% in the dried grains to 10.5% (as fed basis) where 100% of the solubles were added back. The TMEn content also increased with solubles addition from 2712 kcal/kg for the dried grains to 3743 kcal/kg where 100% of the solubles were added back. Mineral content, especially for magnesium, sodium, phosphorus, potassium, chloride, and sulfur increased as the level of solubles addition increased. Protein and amino acid content showed very little change in the various products. True amino acid digestibility coefficients of the essential amino acids tended to be negatively correlated with solubles addition. The results indicate that solubles addition has the largest effect on particle size, color, and; content of fat and minerals.

**Key Words:** Distillers Grains, Solubles, Energy