

Ethanol industry co-products: milling process, nutrient content, and variation. P. H. Robinson*, *University of California at Davis.*

Distillers dried grains with solubles (DDGS) from corn grain is produced during ethanol distillation in a process which removes virtually all of the starch. Thus DDGS has approximately 3 times the nutrient levels of corn grain. The sharp increase in ethanol production in the Midwestern USA has dramatically increased production of DDGS, to as much as 4 million tonnes annually, most of which is being targeted at the dairy industry. DDGS has historically been recognized as a valuable feed for beef and dairy cattle, due to relatively high levels of fat and crude protein (CP) as well as its relatively low levels of neutral detergent fiber (NDF). It is also a source of several macro- and micro-minerals that are required by dairy cows. Due to variation in methods of production among and within distilling facilities, particularly relative to handling of distillers solubles and dehydration, DDGS has been known as a by-product feedstuff with wide variability in both its nutrient content and the digestibility of both its CP and NDF components. This has been considered to be detrimental to its economic value, since nutrient consistency among batches, in addition to high nutrient digestibility, increase the economic value of any animal feed. However many new distillation facilities have made efforts to make production of DDGS more consistent among and within facilities by introducing new equipment, standardizing production processes and treating DDGS as a co-product (rather than a by-product) of ethanol production. In a comparison of conventionally produced DDGS with a branded DDGS, the branded DDGS had lower variation in all measured organic and inorganic components, including estimated net energy for lactation (NEI), and levels of NDP, P and acid detergent soluble CP were lower in the branded product. Calculated NEI was 13% higher in the branded product. Based upon limited data, some new DDGS appear to have a higher overall nutritive value vs. old generation DDGS and, perhaps more importantly, the variability in the nutrient levels can be reduced. The combination of higher nutrient value and lower nutrient variability results in a higher economic value.

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