

Evaluation of various sources of corn distillers dried grains plus solubles (DDGS) for lactating dairy cattle. D. H. Kleinschmit*, D. J. Schingoethe, K. F. Kalscheur, and A. R. Hippen, *South Dakota State University*.

Manufacturing practices differ among ethanol plants, resulting in variations in the nutrient content of DDGS among plants. The objective of this study was to evaluate the effects of feeding DDGS from different sources on intake and milk production and composition in lactating dairy cows. Eight multiparous and four primiparous Holstein cows were used in a replicated 4 × 4 Latin square design with 28-d periods. Dietary treatments consisted of total mixed diets containing soybean meal as the primary protein supplement (C), or 20% DDGS from source 1 (DDGS-1), source 2 (DDGS-2), or source 3 (DDGS-3). Dried distillers grains replaced a portion of the ground corn and soybean meal in DDGS diets to allow diets to be isonitrogenous at 16% CP. All diets had forage to concentrate ratio of 55:45. Dry matter intake (21.4 kg/d) did not differ among treatments but cows fed diets containing DDGS had greater yields of milk (34.6 vs. 31.2 kg/d; $P < 0.01$), 4% fat-corrected milk (32.7 vs. 29.6 kg/d; $P < 0.01$), and energy-corrected milk (35.4 vs. 32.3; $P = 0.01$) compared to cows fed the C diet. As a result, feed efficiency was greater ($P = 0.03$) in cows fed DDGS compared to C (1.78 vs. 1.63). Even though there was a tendency ($P = 0.10$) for milk fat percentage to be greater in cows fed DDGS-3 compared to DDGS-2, differences were not observed among treatments. Milk fat yield was greater ($P = 0.02$) in cows fed DDGS compared to those fed C (1.26 vs. 1.14 kg/d). Milk protein percentages (3.28, 3.13, 3.19, and 3.17 % for C, DDGS-1, 2, and 3, respectively) were greater ($P < 0.01$) for C vs. DDGS and tended ($P = 0.10$) to be lower for DDGS-1 than for DDGS-2 and 3. Milk protein yields tended ($P = 0.10$) to be greater for cows fed DDGS than for those fed C (1.09 vs. 1.02 kg/d). Concentrations of milk urea nitrogen were lower ($P < 0.01$) in cows fed DDGS compared to C (9.36 vs. 10.6 mg/dl). Overall, the source of DDGS used in this study did not affect lactation performance.

Key Words: Distiller's dried grains, Dairy cattle, Ethanol co-products

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