

Blood metabolites profiles of dairy cows fed wet corn distillers grains during early lactation.

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Multiparous Brown Swiss (n=16), and Holstein (n=18) cows were used in a randomized complete block design to evaluate glucose, cholesterol, and blood urea nitrogen (BUN) concentrations for cows fed wet distillers grains (WDG) at 15% of diet dry matter during early lactation. Cows were paired during the close up period by breed and anticipated calving date and randomly assigned to 1) Control (CON): containing 0% WDG and 2) WDG included at 15% of diet dry matter. Energy density and crude protein content of diets were 1.44 and 1.58 Mcal NEI/kg and 14.5 and 17.2 % for pre- and postpartum diets, respectively, and were similar for CON and WDG. Prepartum diets were fed from 28 d until calving whereas postpartum diets were fed from calving to 70 days in milk (DIM). Diets were offered for ad-libitum intake. Blood was sampled approximately 4 h after feeding at 4, 7, 14, 21, 28, 35, 42, 49 and 56 DIM. Blood samples were analyzed for glucose, cholesterol, and BUN. Dry matter intake (DMI) and energy corrected milk (ECM) for cows fed WDG and CON were unaffected by dietary treatments during the first 70 DIM (23.2 vs 22.5 kg/d; $P = 0.46$ and 40.1 vs 41.6 kg/d; $P = 0.41$), respectively. Cows fed WDG had greater glucose concentration ($P < 0.05$) than those fed CON (64.4 and 60.0 mg/dL). Glucose concentrations in the blood were greater in Holstein than Brown Swiss cows (64.7 and 59.7 mg/dL; $P = 0.04$). Glucose also varied by DIM with lowest concentrations at 21 DIM (57.6 mg/dL) and greatest at 49 DIM (71.2 mg/dL). Plasma cholesterol was not affected by treatment (114.9 and 118.7 mg/dL; $P = 0.74$) for both the WDG and CON, respectively. Cholesterol varied by DIM with lowest concentrations at 4 DIM (104.2 mg/dL) and greatest at 56 DIM (137.9 mg/dL). BUN was affected by diet (13.8 and 12.1 mg/dL; $P = 0.04$), for WDG and CON. No interactions of diet and other main effects were observed for glucose, cholesterol and BUN. Relative to CON, feeding WDG at 15% of ration DM led to a more favorable metabolic profile postpartum as evidenced by increased concentrations of plasma glucose in early lactation.

Key Words: Distillers Grains, Glucose, Cholesterol