Canola Meal.

It's doing amazing things for dairy rations.

The optimal ratio of canola meal and dried distillers grain proteins in high-producing Holstein cow diets.

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Limited data is available on dairy cow performance when feeding canola meal (CM) and dried distillers grains with solubles (DDGS) as main supplemental crude protein (CP) sources. Our objective was to determine the optimal ratio of CM to DDGS CP in a contemporary California dairy ration by feeding combinations of CM and high-protein (low-oil) DDG (HPDDG) to high-producing dairy cows. The design used 4 pens of 320 high-producing cows/pen in a 4 x 4 Latin square crossover with 28-d periods.

Treatments varied in the amount of CM and HPDDG added on a dry-matter (DM) basis: (1) 0 CM, 200 g/kg HPDDG; (2) 65 CM, 135 g/ kg HPDDG; (3) 135 CM, 65 g/kg HPDDG; and (4) 200 CM, 0 g/kg HPDDG. DM intake was not affected (avg: 24.4 kg/d) by the CM/HPDDG ratio. Milk (44.9, 47.4, 47.9, 47.4 kg/d for 0, 65, 135, 200 g/kg CM respectively; $P < 0.01$) and true protein yield (avg: 1.37 kg/d) increase quadratically with the higher CM/HPDDG ratio, peaking at 135 g/kg CM. Milk fat yield (avg: 1.61 kg/d) and true protein (TP) % (avg: 2.93) responded quadratically ($P < 0.01$), peaking at ~120 g/kg CM. Milk fat % (avg: 3.44) had a linear decrease ($P < 0.01$), with lowest values at 200 g/kg CM. Body condition score (BCS) change responded quadratically (0.001, 0.034, 0.08, 0.029 units/28 d for 0, 65, 135, 200 g/kg CM respectively; $P < 0.01$), with highest BCS gain at ~120 g/kg CM. Results suggest the optimum level was 120 to 135 g/kg of supplemental protein from CM. The urine purine derivative-to-creatinine index increased linearly ($P < 0.01$) with higher CM level, suggesting microbial protein production (MCP) was limited at 0 g/kg CM and progressively stimulated by higher feeding levels of CM. Plasma amino acid (AA) levels suggest a reduction in lysine from dietary protein, with the decreased MCP production, resulted in substantial reduction in lysine available to support milk production, limiting performance in higher HPDDG rations. The only essential plasma AAs to linearly decrease ($P < 0.01$) with higher CM were Phe, Leu and Met. The additional quadratic response ($P < 0.01$) of Met and Phe at the 200 g/kg CM treatment suggests that Phe and/or Met limited production in the highest CM ration.

KEYWORDS

Urine purines
Amino acids

Contact your feed supplier about complementing your herd's ration with a balanced, efficient source of protein: canola meal.

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