

Canola Meal.

It's doing amazing things for dairy rations.



Effect of inclusion of canola meal or wheat dried distillers grains with solubles on ruminal fermentation, omasal nutrient flow, and production performance in lactating Holstein dairy cows fed two levels of forage: concentrate.

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Canola meal (CM) and wheat distillers grains with solubles (W-DDGS) are high quality protein sources for lactating dairy cows, which are readily available for use in western Canada and parts of the U.S.A. When comparing the amino acid profile of CM and W-DDGS, CM generally has higher levels of lysine; however, ruminal degradability of CM is lower than that of W-DDGS. It is generally accepted that increasing ruminally-available N while increasing dietary ruminally fermentable energy (e.g., by altering the forage:concentrate [F:C] ratio) can improve the rate of microbial protein synthesis in the rumen. Therefore, the objective of the current study was to examine the effects of differing F:C levels (45:55 vs. 55:45) when the main source of dietary protein was either CM or W-DDGS on milk production and composition, ruminal pH, and omasal nutrient flow. Eight lactating dairy cows (100 ± 58 DIM) were used in a replicated 4 x 4 Latin square design with 28-d periods (20 d adaptation + 8 d measurements) and a 2 x 2 factorial arrangement of dietary treatments. Four cows in one Latin square were ruminally-cannulated for measurements of ruminal fermentation and omasal nutrient flow. Diets were isonitrogenous (15.5% CP). Interactions between dietary source of protein x F:C ratio were not significant. Dietary

treatment had no effect on DM intake ($P > 0.05$). Source of protein had no effect on milk yield and composition ($P > 0.05$); however, cows fed diets with the low F:C ratio tended to have higher milk ($P = 0.06$) and milk protein yields ($P = 0.07$), but had a lower milk fat content ($P = 0.04$) and milk urea nitrogen ($P = 0.02$) compared to those fed the high F:C ratio. Milk fat yield was unaffected by dietary F:C ratio ($P > 0.05$). Ruminal ammonia and mean pH were unaffected by dietary treatment ($P > 0.05$). Omasal DM flow was not affected by dietary treatment ($P > 0.05$). Apparent ruminal DM digestibility was numerically greater in cows fed the diet with the low F:C ratio when compared to those fed the high F:C ratio ($P = 0.11$). Total N intake, and omasal N flow were unaffected by dietary treatment ($P > 0.05$). In conclusion, both CM and W-DDGS are suitable protein sources when lactating dairy cows are fed diets varying in F:C ratio.

KEYWORDS

Canola meal
Milk production
Wheat dried distillers grains with solubles

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