

Evaluation of Camelina Meal as a Protein Source for Lactating Dairy Cattle

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Camelina (*camelina sativa*) is a dry land winter oil crop and its meal is similar in nutrient content to canola meal. In order to identify the optimum feeding rate of camelina meal, lactating primiparous cattle ($n=18$) were randomly assigned to a treatment sequence in a 4x4 Latin square design. The four diets were designed for inclusion of camelina meal in place of canola at 0 (control), 3, 6, and 9% diet DM. Animals were fed individually using Calan gates with intakes recorded daily. Each period lasted 16 d with milk production measured during the final two days of each period and composition determined. Data were analyzed using the MIXED procedure in SAS. Milk yield was unaffected by inclusion of camelina meal [(27.8, 28.5, 27.7, and 27.1 ± 1.7 kg/d for the control, 3, 6, and 9% camelina diets, respectively)]. Dry matter intake (19.7, 18.9, 19.2, and 17.9 ± 0.8 kg/d for the control, 3, 6, and 9% camelina diets, respectively) was reduced in cows fed 9% camelina meal compared with cows fed diets containing 0 and 6%. There was a linear effect on milk fat concentration between from 0 to 9%; however, reduction in milk fat concentration was only detected when cows were fed a diet containing 9% camelina meal (3.01% milk fat) as compared with cows fed the control diet (3.51% milk fat). Neither milk protein concentration (2.92, 2.91, 2.94, and $2.95 \pm 0.08\%$ for the control, 3, 6, and 9% camelina diets, respectively) nor protein yield (0.81, 0.83, 0.81, and 0.79 ± 0.52 kg/d for the control, 3, 6, and 9% camelina diets, respectively) was affected by feeding camelina meal. No effect on other measures of milk composition was observed. Overall, inclusion of camelina meal up to 6% of diet DM supported production of milk and milk true protein concentration similar to canola meal.

Keywords: milk production, camelina, milk fat, dairy cattle