

Canola Meal



Feeding canola meal to dairy cows: a meta-analysis on lactational responses suggests underestimation of metabolizable protein supply by NRC (2001)

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The objective of this meta-analysis was to determine the effects of the substitution of a protein source by canola meal (CM) on lactational responses (Δ = CM minus control) in dairy cows. The study included 83 comparisons of isoproteic (\pm 1.5% CP) treatments published since 1975 (42 experiments). The CM intake ranged from 0.9 to 4.0 kg/d (SD 0.75). The level of inclusion of CM (Δ CM) was expressed as 100 g/kg of diet (DM basis); therefore, the coefficient associated with Δ CM represents the response observed with a 10% increment in the dietary proportion of CM (e.g., 2 kg of CM for 20 kg DMI = Δ CM of 10%). Dietary composition was estimated using NRC (2001). Regressions were forced through the origin, weighted by sample size and controlled for differences in DMI and diet concentrations of NDF, CP and ether extract. Milk yield (MY, kg/d) and milk protein yield (MPY, g/d) responded linearly to increasing Δ CM: Δ MY = 0.4*** (3 0.08) Δ Δ CM, R^2_{adj} = 0.54, n = 80; and Δ MPY = 25*** (3 3.0) Δ Δ CM, R^2_{adj} = 0.60, n = 80. The MPY response was different (P = 0.04) depending on the type of

protein source that was substituted. The Δ CM coefficients were 14*** (3 3.8) and 26*** (3 3.5) with substitutions involving only soybean meal (R^2_{adj} = 0.44; n = 37) or other protein sources (R^2_{adj} = 0.61; n = 35), respectively. The greater effect with other protein sources was due to an additional positive effect of Δ CM on milk protein percentage. The efficiency of N utilization (milk N yield/N intake; mg/g) also responded linearly to increasing Δ CM: 7*** (3 0.9) Δ Δ CM, R^2_{adj} = 0.66, n = 82. The estimated supply of metabolizable protein (MP) was examined to explain the responses to Δ CM. Surprisingly, there was a negative effect of CM inclusion on Δ MP: - 97*** (3 9.9) Δ Δ CM, R^2_{adj} = 0.59, n = 80, contrarily to the usual positive relationship between MP supply and MY or MPY. In conclusion, current results suggest that a protein supplement can be substituted by CM with positive effects on lactational performances. It also appears that there is a systematic underestimation of MP supply associated with CM inclusion in dairy rations using the NRC (2001) model.

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