Canola Meal

In situ ruminal degradability of soybean meal (SBM), canola meal (CM) and corn or wheat dried distillers grains (DDG).

G. Maxin, D.R. Ouellet and H. Lapierre
Dairy and Swine Research and Development Center,
Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada.

Different protein sources, as CM or by-products of ethanol production, are currently used in dairy cattle diets to replace SBM. Data available on rumen degradation of these protein sources in a single study are scarce. Therefore, the objective of this study was to compare the dry matter (DM) and crude protein (CP) ruminal degradability of SBM, CM, high protein DDG with solubles (HPDDG) and wheat DDG with solubles (WDDG). In situ studies were conducted with 4 rumen-fistulated Hosltein cows fed a diet containing 38% grass hay and 62% corn-based concentrate. Each protein source was incubated in the rumen in nylon bags for 0, 2, 4, 8, 16, 24 and 48h according to NRC (2001) guidelines. DM and CP ruminal degradabilities were calculated from rumen-undegraded residues corrected or not for small particle loss according to Hvelplung and Weisberg (2000). Data were fitted to exponential model to estimate degradation parameters; effective degradability (ED) was calculated with a passage rate of 7%/h. DM and CP content were 88.7, 89.7, 92.2, 89.7% and 53.6, 40.0, 40.3, 37.2% for SBM, CM, HPDDG and WDDG, respectively. WDDG and SBM had higher uncorrected ED ($P<0.05$, 75.0 and 72.6% for DM, 84.8 and 66.0% for CP) than CM and HPDDG (57.2 and 55.5% for DM, 59.3 and 48.2% for CP). It was mainly related to a higher soluble fraction for WDDG and a higher potentially degradable fraction and rate of degradation for SBM (9.0 vs 5.8%/h for the other feeds). Small particle loss contributed to the DM and CP disappearance from the bags, this being higher for WDDG (31.6% of DM and 45.7% of N feed) than for the other feeds (11.2, 14.7, 17.3% of DM and 16.3, 19.7, 19% of N for SBM, CM and HPDDG, respectively). Therefore, corrected ED were lower than the uncorrected ED for all feeds, especially for WDDG for which ED decreased to 53.2% (DM) and 60.8% (CP). The correction did not, however, alter feed ranking, SBM and WDDG being more degradable than CM and HPDDG. These results suggest that small particle loss correction is relevant for this type of feed ingredient and that CM and HPDDG would result in higher RUP supply when substituting SBM, would small intestinal digestibility be similar.

KEYWORDS

Rumen degradation
Protein

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