

Updating the nutrient composition of canola meal – part 2



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Results from a self-administered survey carried out by South Dakota State University dairy researchers among 49 dairy producers showed soybean meal was the protein source most frequently used in their rations (64% of producers), and canola meal was fed by 22% of the producers. These findings agreed with a previous survey carried out by the University of Missouri that showed soybean meal was the source of protein most commonly used in dairy cattle diets (except in the Southwest) with 90% of the lactating cows in the Midwest being fed soybean meal. On the other hand, 17% of the cows were fed canola meal. A study published recently by University of Manitoba researchers (2016) evaluated the amino acid (AA) content of canola meal from Canadian processing facilities. The authors analysed samples collected from 11 canola plants over four successive years (2011-2014). The contents of essential AA are shown in Table 1. Among essential AA, leucine (6.22% of protein), arginine

variations in the content of AA among years of production than among plants. While the concentration of lysine was the only one different among processing facilities, the contents of all AA were different among year of production, being lower in samples from 2011 than those from the other three years. Methionine and lysine are usually the first and second, respectively, limiting AA in lactating dairy cow diets. Fig. 1 shows the concentration of these two essential AA in three common protein supplements (canola meal, soybean meal and DDGS) obtained from the CNCPS library. Compared with DDGS, canola meal is similar in methionine content (2.0% of protein) and two times greater in lysine content (2.8 vs. 5.5%). Likewise, comparing with soybean meal, methionine concentration is slightly lower (6.1 vs. 5.5%) and 54% greater in methionine (1.3 vs. 2.0%) in canola

Amino acid	Arg	His	Ile	Leu	Lys	Met	Phe	Tre	Cys	Val
Protein (%)	5.45	2.81	3.00	6.22	5.06	1.66	3.48	3.72	2.02	4.18

Table 1. Amino acid profile of canola meal.

(5.45%) and lysine (5.06%) were the most abundant. These results agree with another work from the University of Nebraska (2014) in which the concentration of leucine, arginine, and lysine were 7.07, 5.93, and 5.36% of protein, respectively. The values of the essential AA leucine and lysine found on these two studies were similar to the values reported in the National Research Council 2001 (6.77 and 5.62% of protein, respectively); however, arginine concentration was lower (7.01%). Moreover, the Canadian researchers found more

meal. The latest recommendations suggest a relationship of 2.7:1 metabolisable lysine/metabolisable methionine in the diet is optimal for improving milk performance of dairy cows. The ratio lysine/methionine is higher and lower than recommended on soybean meal (4.7) and DDGS (1.4), respectively but close to the recommendation in canola meal (2.8; Fig. 1).

In summary, canola meal is rich in essential AA but its AA profile may change depending on the crop or processing plant.

Fig. 1. Lysine and methionine content in canola meal

