# Updating the nutrient composition of canola meal

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The large expansion of the canola crushing industry that occurred in North America since 2010 has increased the supply of canola meal for the animal feed industry. According to the Canadian Oilseed Processors Association, 4.7 million tons of canola were produced in Canada in 2015 (2.7 times greater than 20 years ago). Similarly, the USDA Economic Research Service reported canola meal production in 2015/16 in the USA was 1.067 million short tons, increasing around four times during the last two decades.

A study published recently by University of Manitoba researchers (2016) evaluated the nutritive characteristics of canola meal from Canadian processing facilities (Table 1). The authors analysed samples of canola meal collected from eleven canola processing plants over four successive years (2011-2014). The mean protein and fat contents were 41.7 and 3.5% of DM, 3.9 percentage units greater and 1.9 percentage units lower, respectively, than numbers published in the Dairy NRC (2001) tables. There were variations among plants and years in the contents of protein, fibre, fat, and lysine of canola meal samples. While variations in the protein content of the canola meal in this study was reported to be mainly due to variations in the protein content of the canola seed feedstock, variations between processing facilities and years in the content of fat could be a consequence of different processing practices among the processing facilities in terms of adding back any by-products of seed cleaning.

The Dairy NRC (2001) estimates canola meal protein to be 35.7% rumen undegradable (RUP) with an intestinal digestibility of 75% (dRUP). Using cannulated cows, researchers from South Dakota State University (2014) evaluated the variability in ruminal degradability and intestinal digestibility of protein in seven canola meal samples obtained from different processing plants. The average RUP was 42.7% protein (ranged from 32.3-53.8%), while the average dRUP was 74.6% (range: 71.6-77.4%). As result, the total digestible protein (TDP) averaged 89.0% (range: 85.1%-90.8%). The mean intestinal digestibility of RUP was in agreement with NRC tables; however mean RUP was 7 percentage units greater. In addition, considerable variation exists between processing plants.

Similarly, researchers from University of Wisconsin (2016) estimated in vitro ruminal protein degradability of canola meal samples collected from 12 canola plants in Canada over four years (2011-2014). Overall mean RUP concentration was 45%, 9.3 percentage units greater then NRC values. The authors reported a range of 8 percentage units from lowest to highest RUP, suggesting that substantial differences exist in metabolisable protein content of canola meal produced by different processing plants.

**Table 1. Nutrient composition of canola meal from 11 processing facilities.**

| Nutrient (Dry Matter %) | Mean | Lowest | Greatest |
|---|---|---|---|
| Crude protein | 41.7 | 40.2 | 42.9 |
| Fat | 3.5 | 2.6 | 4.3 |
| Neutral Detergent Fibre | 29.4 | 26.9 | 36.9 |
| Non-Starch Polysaccharides | 21.9 | 20.7 | 22.8 |
| Ash | 7.5 | 7.1 | 7.9 |
| Lysine | 2.11 | 2 | 2.29 |
| Methionine | 0.69 | 0.64 | 0.72 |