GCIRCBUL09*42

Protein Value of Rapeseed Oil Meal for Ruminants

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The proteins of rapeseed oil meal contain a good distribution of essential amino acids. But these proteins are too much diluted with cell walls high in lignin and they are degraded too rapidly in the rumen. This high degradation rate may cause an inefficient utilization of the proteins, since a major proportion might be lost through excretion in the urine.

The oil extraction processes may influence the degradability of rapeseed oil meal proteins. In order to define more precisely the degradability and its variation, 5 samples of rapeseed oil meal, issued from important Swiss feed companies, were analysed. The degradability was determined by measuring the N-disappearance from nylon bags incubated in the rumen of fistulated cows (in sacco method).

The main nutrient contents are similar to standard values (table 1). The variation of crude protein contents is smaller than that for crude fibre.

Table 1: nutrient contents and digestibility of rapeseed oil meal (g/kg dry matter, respectively %).

	mean value	standard deviation	minimum value	maximum value
Crude protein	367	14	351	382
Crude fat	44	6	36	50
Crude fibre	131	19	111	157
N-degradability, %	79	4	74	84

The N-degradability of rapeseed oil meal is high (79 %). This value may be compared with the mean of 11 soybean meal samples which was determined to be 61 %. The difference is explained by a faster N-degradation of rapeseed oil meal in the rumen (figure 1).

In many countries, rapeseed is an important oil source. For an efficient use of its protein by ruminants, the meal must not only be low in glucosinolates but also have a low N-degradability. It is, therefore, important to develop safe and economical processes which lead to a lower N-degradability.

Figure 1: N-disappearance from nylon bags as a function of time for rapeseed oil meal and soybean meal.