

Degradable Intake Protein

Degradable Intake Protein (DIP) is defined by the US NRC as the fraction of crude protein (CP) consumed which is degraded by rumen microbes. The magnitude of DIP for any particular diet or feed ingredient is dependent upon both the feed itself and the animal to which it is fed. In particular, when feed intake is low (e.g. dry cow), passage of feed through the rumen is slower and DIP may be higher because time of exposure to microbial degradation is increased. Conversely, high intakes (e.g. peak lactation cow) reflect high rumen turnover rates, resulting in lower DIP values.

DIP is estimated by measuring the disappearance of CP from feed samples incubated in porous nylon bags in the rumen of a fistulated animal. The procedure is labourious and expensive, limiting its use to research facilities. Results obtained with this method have been quite variable both within and between laboratories.

A much simpler benchtop method has been proposed, in which feed samples are incubated with a mixture of protein-degrading enzymes extracted from the rumen. Although several commercial labs offer UIP analysis using this method, lack of standardization of both protocols and enzymes makes it difficult to place confidence in results.

Soluble protein and non-protein nitrogen (NPN) are crude protein fractions considered to be rapidly and completely degradable. Since these 2 fractions can be readily measured in the feed lab, they have been used as indicators of feed protein degradability.

for more information:

[Alfalfa Protein](#), *Alberta Dairy Management*

Nutrient Requirements of Dairy Cattle, NRC 1989