

## Intestinally-Absorbable Dietary Protein as a Tool in Evaluating Protein Sources

In ruminants, protein supply to the small intestine consists of microbial protein, undegraded intake protein (UIP), and endogenous protein. Microbial protein makes up a substantial portion of the total. It is difficult to change the amino acid (AA) profile of the protein reaching the small intestine because the AA composition of microbial protein is rather constant. To alter the AA composition then, UIP sources must contribute a large portion of the total dietary protein. Feeding dairy cows protein sources that are high in bypass protein is a practical way to increase the dietary protein reaching the small intestine.

According to Dr. Marshall Stern, of the University of Minnesota, intestinally-absorbable dietary protein (IADP) values can be used as a criterion for selecting sources of UIP for ruminants. IADP is defined as the amount of protein from a specific feed that is available for absorption in the small intestine and is calculated as:  $IADP = UIP \times \text{intestinal protein digestion}$ . The IADP value provides an index of the quality of protein supplements as sources of UIP.

The information in the table below was derived from data generated by Dr. Stern. Results were calculated assuming that individual AA had similar bypass levels and intestinal digestibility as the crude protein of the original feed. Cost per kg of IADP or absorbable AA can be used as a guideline for selecting the appropriate protein supplement. Selection of the best supplement is dependent on the quality of the protein. It should be noted that some ingredients, while high in protein quality, are often very inconsistent or unpalatable. However, SoyPLUS® is one ingredient that combines high protein quality with outstanding consistency and palatability.

COST OF IADP, ABSORBABLE LYSINE (A-LYS) AND ABSORBABLE METHIONINE (A-MET) SUPPLIED BY SELECTED PROTEIN SUPPLEMENTS

Supplement	\$/Ton	\$/kg IADP	\$/kg A-LYS	\$/kg A-MET
Blood Meal	425	97	11 38	85 17

Brewers Grain, Dried	120	1.01	33.61	50.42
Corn Gluten Meal	245	.50	31.56	20.68
Distillers Grains, Dried	135	1.06	42.16	75.30
Feather Meal	200	.48	17.48	78.94
Meat and Bone Meal	220	1.30	26.71	102.64
Soybean Meal	155	1.57	26.64	120.90
<b>SoyPLUS</b>	<b>180</b>	<b>.89</b>	<b>15.06</b>	<b>68.36</b>