

Straight to the Bottom Line
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And the survey says... CP is out and MP is in!

For as long as any of us have been in the business of feeding cows, crude protein (CP) has been the most important nutrient measure when an ingredient is considered. For at least 50 years, if a farmer or a dairyman knew only one thing about a feed or forage, it was the crude protein level. There may be absolutely no information retained in memory from a forage analysis on a cutting of hay, except the protein level. With little or no attention or regard to the carbohydrate side of the equation, crude protein has been king when it comes to evaluating the quality of any feed. In many cases it is the first thing on the tag of a purchased feed and often even finds its way into the name of a commercial feed. For instance, a feed called "Sweet Dairy 16" or "Pasture Balance 16" is universally understood to be 16% crude protein. As well, I suppose every state feed control official is first interested in being sure the protein level on the tag is true to what is in the feed.

So, crude protein has had a long run as the king of nutrient measures and is well known by its nickname of CP. But, what is this new thing called MP that you have been hearing about the last several years. Is it the same?

Why can't I find it on my forage analysis report? Questions like these have become more common as MP is surpassing CP as the protein value of preference for dairy nutritionists.

MP is the new kid on the block and it stands for metabolizable protein. The goal of MP is to try to estimate how much actual protein is delivered to the animal, not just the rumen. So, just like the feed company nutritionist blended ingredients together and reported a resulting CP level for a feed tag, the rumen "blends" feeds together with the help of the rumen microbes.

These bugs act as feed mill workers on a time clock that we would call rumen kinetics. Considering the time factors involved and the ingredients delivered, these tiny bugs get to work. The resulting delivery of protein is ready for shipment out of the rumen and down to the small intestines. It is here that the protein products of the rumen will be actually used by the cow's own tissue to begin the process of making milk.

In other words, the feed mill mixes ingredients together and using the simple math of weighted averages, reports a CP level for the tag. In much the same way, a feeder at a dairy mixes various ingredients together and this TMR has a CP level as well. In the rumen however, the microbes take all of the feeds that are being delivered to the rumen, work within the timing issues involved and report their result as grams of MP ready to ship to the small intestine. It is this MP that is then used by the cow as building blocks for milk solids.

The logical question then is what factors are involved in estimating the MP in a particular diet. Is CP still involved? What other nutrients play a part? These are all questions that should surface for producers as we move away from our focus on feeding for a certain CP level in a diet. And, with all of the focus on CP levels in forage production practices, are any of those different as we focus more on MP? In a short answer to these questions, yes CP is still a player on the feed and forage side. It is but one of many factors needed to estimate the resulting MP of a diet.

Modern nutrition models have been detailed in previous editions of this column. These newer models have replaced the older feed blending software that formulated simply on the weighted averages for all nutrients. To estimate the MP of a diet, a dynamic prediction model is needed to predict the result of a blended TMR. This level of detail is needed to correctly use the principles of MP when mixing dairy diets.

In next month's column, we will detail what factors impact the resulting MP of a diet. You might be surprised what nutrients and factors are big players. And, how does \$5/bushel corn versus \$8/bushel corn impact the way we meet MP goals in diets. Wait, corn? Corn isn't a protein ingredient! Why does it seem that so many discussion eventually drift back to corn? Maybe carbs are really the king! Stay tuned for more details...