Forage Digestibility Impacts Protein Needs

A typical dairy ration contains a mixture of forages and concentrates. The concentrate portion contains carbohydrate sources such as corn and a mixture of protein ingredients, along with minerals and vitamins. Nutritionists try to formulate a protein source to maximize milk production. In general, a protein supplement is the most expensive ingredient in a ration. It is important to understand how the forage program and rumen function help meet the protein needs of the dairy cow. There are two types of feed proteins. One type of protein is utilized by rumen microorganisms and is termed degradable intake protein (DIP). The other type of feed protein passes through the rumen without being degraded and is termed undegradable intake protein (UIP). Dairy cows require both DIP and UIP.

Proteins are made up of chains of amino acids. Research has found that cows have requirements for amino acids that include Methionine (MET) and Lysine (LYS), which are thought to be the two most limiting. Nutritionists formulate protein sources to meet the DIP and UIP needs of the dairy cow. Research shows when MET and LYS are provided in UIP sources in approximately the same proportion as what is found in milk, then milk production and milk components are maximized. A goal is to balance a ration using a variety of protein sources with differing amino acid contents to try and mimic the needs of the cow.

Within the rumen, DIP is broken down into amino acids by the rumen microbes. The rumen microbes further break down the amino acids into more basic nitrogen components. The nitrogen is used by the rumen microbes to help them grow in numbers. Once the rumen microbes die, they pass from the rumen and are digested by the cow. Rumen microbes are about 50% protein and contain a near-perfect balance of amino acids needed by the cow. Essentially, rumen microbes are the perfect UIP protein.

One of the best ways to maximize rumen function economically is to feed highly digestible forage. Digestibility also improves the rumen function of the cow, resulting in an increased population of rumen microbes. It is estimated that up to six pounds of crude protein are supplied daily to the dairy cow by rumen microbial protein production. A rule of thumb suggests each 0.45 kg of crude protein will support 4.5 lters of milk. If 2.7 kg of microbial protein are produced, rumen function itself can support 27 liters of milk.

Nutritionists strive to maximize rumen function while also meeting the nutritional needs of the cow. Feeding highly digestible forages will feed the rumen microbes and allow for maximum growth. Not only do the highly digestible hybrids impact overall performance of the cow, they also indirectly improve the protein status of the nitrogen program. It is critical in a dairy ration to maximize rumen function. Forages can impact the amount of microbial protein produced by the cow. However, forages that are not digestible will actually increase the ration cost because more UIP protein will need to be supplemented. It is critical to the performance of the cow and the economics of the feeding program to build the nutritional program around *highly digestible forages*. For additional information on forage digestibility and the impact of specific hybrids, contact us. We can help you review your entire forage and ration program with the goal of improved results in productivity and bottom line profitability. Furthermore, we can help you in determining forage and corn hybrids/ varieties to plant this spring - helping to improve the digestibility of your entire ration program.

(Edited from an article by Dr. Karl Nestor)

BRRRR… It's Cold Out There!

Winter is still very much with us and cold temperatures can make things difficult around the farm… frozen equipment refusing to budge; a dangerous obstacle course in the alleyways and loafing areas where cows have to walk; frozen pipes, watering cups and tanks in (and out of) the barn. It is critical that cows receive sufficient water in cold weather, just like during the hot and humid summer months. Water is important to digestion and feed utilization, as well as aiding a cow's ability to make milk, which is comprised of 87% water. Make sure your cows have access to fresh clean water all the time, including calves, heifers, dry and transition cows. Waterers need to be free from ice and easily accessible any time. It is also important to keep waterers free of manure and mud. Check them regularly to ensure sufficient water is available and that the equipment is functioning properly. Cows depend on water for many things… and they depend on us to ensure they get what they need when they need it. It makes a difference!

Interested in discussing topics in this newsletter, or want to do a better job feeding and managing your cows? Call us!
Our goal is to help you. That's the W-S Feed commitment!

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W-S… THE TEAM FOR SUCCESS!

What are your plans for 2017? Do you operate your farm with a sense of determination and direction… goals and targets, areas of necessary change, challenges to meet, addressing priorities to better meet your needs and those of your livestock? You are a valuable member of the local and national economy, which makes it important to define your anticipations for this year. I'd be happy to work with you in setting short-term and long-range goals, and helping to figure ways that these can be accomplished in a timely fashion.

I'd also like to take this opportunity to thank you for your business and the privilege of working hand-in-hand with you… a member of your team! I am committed to *"movin' forward in 2017"…* making things better on your farm!

TAKING SERVICE TO ANOTHER LEVEL!!

IT MAY BE WINTER NOW, BUT …

Yes, it is still winter according to the calendar! But we know that spring and then summer will follow. While you may be more concerned at this time with shoveling snow or thawing pipes, it is really a good time to start thinking (and rethinking) about the consequences of summer heat and humidity, along with the immediate and long-term impact it can have on your livestock.

Looking ahead, there is no way we can accurately predict the weather. Last summer saw record high temperatures and severe drought conditions in many locations. Of course… time will tell. Regardless, it helps to be prepared, whether or not we experience record-breaking heat or cooler than normal temperatures. Hot and humid weather will inevitably take a toll on the health and productivity of your livestock. What about fans or a sprinkler system(s) you've considered in the past and have not yet installed? Is there sufficient water in your barn and travel lanes to accommodate the number of cows you have? What about heat abatement strategies for calves, heifers and dry cows? Be proactive and develop plans to help deal with heat and humidity before it happens ~ and to safeguard your livestock from the negative impact these can have on their productivity and your profitability.

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