

Hitting the highest peaks: When a high-producing herd plateaus

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I'm often approached by dairy producers and nutritionists who feel like their herds have hit a production wall. They ask what nutrition solutions can help their herds break free from the plateau, resulting in higher peaks with maintained health and fertility.

Turning to amino acid balancing

Lately, we've seen nutritionists turn to amino acid balancing to help high-producing herds reach the next level. Amino acid balancing is an effective tool to reach maximum production because it ensures that the limiting amino acids for milk production are delivered to the ration.

Limiting amino acids are so named because they limit protein synthesis when they are not available. Lysine and methionine are the two most limiting amino acids and cannot be synthesized in the cow's body from other amino acids or precursors.

Cows depend on protein for a variety of bodily functions, such as milk and component production. When lysine or methionine is not available, herd production levels reach a roadblock. Since cows cannot produce these limiting amino acids, they must be supplemented through the diet.

When the diet delivers optimal levels of these two limiting amino acids – 7.5 percent lysine and 2.5 percent methionine as a percentage of metabolizable protein – more protein can be produced by the cow for additional milk and components.

From theory to practice

When nutritionists look at the practical application of amino acid balancing, they

quickly learn that many other factors influence amino acid balancing beyond adding amino acids to the diet. To break free from production plateaus, account for:

◊ **Ruminal changes.** Rumen microbes play a critical role in breaking down feeds, which results in the production of bacterial protein, a highly efficient, cost-effective protein source. The amount of bacterial protein produced by the rumen microbes directly impacts the levels of amino acids that must be supplemented in the diet. Knowing bacterial protein production is the first step toward including proper amino acid levels in the diet.

◊ **Source variability.** One common reason nutritionists stop balancing diets for amino acids is they don't see improved milk or component production in their clients' herds. This can often be caused by the source of amino acids used in the diet. Commodity feeds rich in lysine, like blood meal, can be extremely variable in quality and digestibility, which means variable amounts of rumen- undegradable protein are reaching the small intestine from one day to the next. A consistent source is critical to ensure optimal levels of lysine and methionine are delivered through the diet to improve performance.

◊ **Daily intakes.** To properly deliver amino acids for peak performance, you must know how much your cows are eating. While dry matter intake (DMI) is commonly monitored on the dairy, exact intakes are often hard to measure. However, this is a critical step as the amounts of amino acids will vary based on

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the number of pounds of dry matter consumed.

Strategies for reaching the highest peaks

Amino acid balancing is only one component of a much larger focus on nutrition and management. To reap the greatest benefits of amino acid balancing, the dairy must be well organized and have outstanding nutrition management in place. To reach the highest peaks in your herd:

◊ **Continue to focus on transition management.** To take plateaued production to the next level, the transition period is the first place to start. How well cows transition into the milking herd will directly impact peak production levels and production throughout the lactation. Monitor early lactation and peak milk to assess how well fresh cows are joining the milking string.

◊ **Cow comfort is a must.** No matter how many times it's said, cow comfort is a basic need when it comes to maximizing production levels. Providing clean, dry housing with plenty of space ensures animals can eat, drink and rest on their own schedule.

◊ **Test feeds frequently.** Before amino acids can be balanced, you must know what nutrients are already available in current forages and feed ingredients. Routine testing of forages and commodity ingredients will

deliver this information and ensure a consistent ration reaches the feedbunk every day.

Don't let your herd's production plateau. Now's the time to talk with your nutritionist about delivering a nutrient-dense, high-quality ration with optimal levels of amino acids for peak milking string performance. **PD**

References omitted due to space but are available upon request.

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Reprinted from May 21, 2010



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