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Why do you need to use a Rumen Protected Methionine and Lysine for meeting the methionine and lysine animal needs?

Ten reasons why you do need to balance your diets with rumen protected amino acids;

1. Methionine (Met) & Lysine (Lys) are the first two limiting essential amino acids (AA) in EMENA´s dairy diets (Cho *et al*., 2007; Patton, 2010; Socha *et al*., 2005).

2. Focusing on metabolizable amino acid requirements *vs* crude protein (CP) levels can allow producers to reduce the amount of CP in diets and maintain production levels, increasing the benefits for the feed mill and the farmer (Schwab *et al*., 2004)

3. The amino acid content of natural protein sources don´t match well with the actual AA needs of the cow. The methionine and lysine concentration in these sources are low when compared to the methionine and lysine level in milk protein or lean tissue (NRC 2001; INRA 2018; CNCPS 6.5.5).

4. High Lysine and methionine variability due to various protein sources and their processing (e.g. heat treatment) and poor forage fermentation. The amount of damage done can only be identified by laboratory testing. Quality is independent of color or particle size (Craig and Broderick, 1981; Parsons et al., 1992; Chrenkova et al., 2011).

5. Feeding excess CP to meet AA requirement results in the deamination of the surplus protein. The process uses valuable energy that could have been used for growth, production or reproduction, resulting in higher levels of nitrogen being excreted into the environment (Olmos Colmenero and Broderick, 2006; Reed *et al*., 2017).

6. Including rumen protected amino acids (RP AA) in rumen diets can reduce the impact of highly variable protein sources on production levels and modeling accuracy. The quality of commodity protein sources is extremely variable, and you can create more space in diet formulas for other nutrients (KIR, 18-00254).

7. The only way to meet metabolizable Met and Lys requirements is with RP AA and the right technical knowledge for the adequate implementation for achieving maximum production levels. This can be achieved without compromising animal health while helping themcope with heat stress resulting in improved reproductive performance (Lapierre et al., 2011; Gao *et al*., 2009; Groebner *et al*., 2011)

8. Meeting Met and Lys levels with RP AA can increase productive performance and is a key to maintain health and reproductive status. Feeding RP AA products allows metabolizable Met and Lys requirements

to be met without over feeding other amino acids (Cardoso *et al*., 2013; Drackley and Cardoso, 2014; Batistel *et al*., 2017).

9. Feeding lower levels of CP can reduce feed costs for nutritionists, feed mills and farmers. RP AA products provide a known amount of MP Methionine & Lysine at a recognized cost (KIR, 18-00254).

10. Increasing metabolizable Lys and Met levels using RP AA are a cost-effective way to increase production. This reduces the dairy's break-even costs. This combination improves profitability regardless of milk prices (KIR, 18-00254).

The most robust bioavailability research package of any RP AA on the market is provided by Kemin (*in vivo*, *in situ* and *in vitro* studies proven the reliability of our RP AA):

- **KESSENT™ M** is the best source of metabolizable methionine for ruminants delivered by our encapsulation and core technology, scientifically proven, consistently tested under field conditions and supported through Kemin's Lifelong Learning program.
- **KESSENT™ MF** is the best source of metabolizable methionine coupled with easy handling and pellet stability for ruminants, consistently tested under field conditions and supported through Kemin's Lifelong Learning program.
- **LysiGEM™** is the best source of metabolizable lysine for ruminants delivered by our encapsulation and core technology, scientifically proven, consistently tested under field conditions and supported through Kemin's Lifelong Learning program.
- **LysiPEARL™** is a cost-efficient source of metabolizable lysine for ruminants when a high dosage rate is required, consistently tested under field conditions and supported through Kemin's Lifelong Learning program.

Kemin Amino Acid Program support the technical AA implementation (both, methionine and lysine) with the most experienced staff, with the largest number of success stories and farm´ testimonials providing a unique loyalty program for our customers, the **Lifelong Learning Program**.