USA LYSINE® PROTECTED AMINO ACID

USA Lysine® is a highly concentrated source of metabolizable lysine (mLys) that when fed to high producing dairy cows helps balance the cows’ mLys requirement. Lysine is one of the two first limiting amino acids in a lactating dairy cow’s diet.

USA Lysine® is protected so that it escapes the rumen at a high rate but is very available in the intestines where it is absorbed by the cow. One-hundred grams of USA Lysine® is equivalent to 44 grams of mLys, the highest mLys concentration of any protected lysine product currently on the market.

The amount fed per cow per day is determined by using a ration balancer and balancing for metabolizable protein and mLys at the producer’s target goals for milk production and component production.

POTENTIAL FEEDING RATES PER COW PER DAY

<table>
<thead>
<tr>
<th>USA Lysine®</th>
<th>mLys Supplied</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.05 lbs</td>
<td>10 g</td>
</tr>
<tr>
<td>0.10 lbs</td>
<td>20 g</td>
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</tbody>
</table>

FEEDING RECOMMENDATIONS

- Feed as part of a MetaPro® Nutrition balanced ration. To meet the metabolizable protein and mLys requirement maintain a mLys to metabolizable methionine (mMet) ratio of 3.1:1 to 3.5:1 in the total diet.
- In early lactation increase the mLys delivered by 10-15 grams per day and maintain an mLys to mMet ratio of 3.1:1 to 3.5:1 in the total diet.
- Include in the ration as a substitute or partial substitute for lysine sources such as blood meal in order to free up ration space and optimize the economics when ingredient prices permit.

Note: Do not aggressively mix USA Lysine® in abrasive mixes to avoid damaging the product’s protective coating.
Research Summary

- USA Lysine® provides a consistent, economical source of mLys that can be utilized to replace blood meal (44% bioavailability).
- During peak days in milk, USA Lysine® fed cows showed improved lactation performance for energy-corrected milk, fat-corrected milk and lbs of protein produced in a MetaPro® balanced ration.
- Cows had greater energy-corrected milk (ECM) yield (6 lbs) when supplied additional mLys with USA Lysine® compared to blood meal.
- Utilizing additional blood meal to increase mLys caused a decline in dry matter intake (DMI) and subsequently lower ECM (3 lbs) compared with control diet.
- Bottom-line: Cows respond to higher amounts of mLys (g/d) when USA Lysine® was the protected source of mLys.

Rations were balanced for metabolizable protein, metabolizable lysine and metabolizable methionine in addition to energy and other nutrients required in early and peak lactation by high producing dairy cows. Results may vary. Because of factors outside of Purina Animal Nutrition’s control, results obtained, including but not limited to animal performance, financial performance, profits, losses or otherwise, cannot be predicted or guaranteed by Purina Animal Nutrition. Trials were conducted at Purina Animal Nutrition Center in 2009 and 2010. Based on DNS simulation and Purina Animal Nutrition Center studies DCM 64,68,76,77 and DOE 2005-1.

Talk to your Purina Animal Nutrition representative today about how your herd can benefit from MetaPro® Nutrition.

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