

Smartamine® M Stands Up Against Competitor in On-Farm Demonstrations

This on-farm demonstration evaluated milk components, and blood biomarkers associated with methionine status after feeding cows with two rumen-protected methionine products. Product A was fed and evaluated up to April 20th and Smartamine® M from April 21st to May 5th, 2023.

Cows fed Smartamine® M maintained performance, showed improved methionine status, and showed substantial ration cost savings of \$0.10/hd/day. A Smart way to protect your margins.

Several methods are commonly used to evaluate bioavailability and efficacy of rumen-protected products, but the gold standard is the plasma free AA dose-response technique developed by the University of New Hampshire (UNH method). For the current demonstration, ration parameters were evaluated relative to 1) manufacturer specs and 2) bioavailability data from the UNH method.

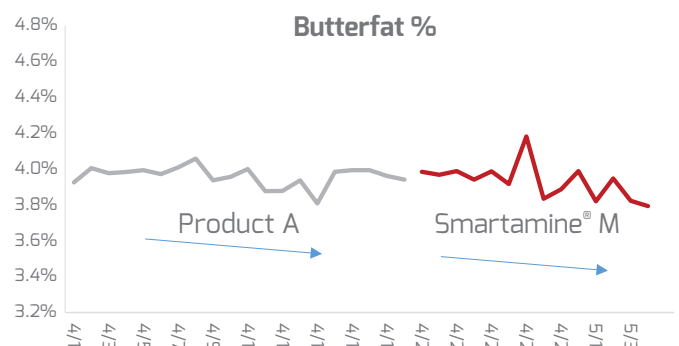
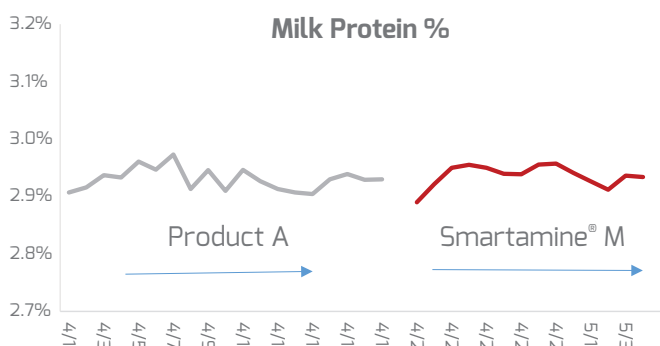
- At current feeding rate, Product A should provide 14.8 g metabolizable methionine (mMET) per cow per day according to manufacturer's specs, but it is likely only supplying 7.2 g mMET per cow per day based on data from the UNH method.
- Smartamine® M, with bioavailability verified by the UNH technique, will supply 10.1 g mMET per cow per day at the proposed feeding rate. Cows fed Smartamine® M will have an additional 2.9 grams of mMET compared to cows fed Product A (see table).

	Current diet	Adjusted specs	Proposed diet
	Basal diet + Product A (Manufacturer Specs)	Basal + Product A (UNH Method)	Basal + Smartamine® M (UNH Method)
Methionine supply	+14.8 g	+7.2 g	+10.1 g
Diet mMET, g/Mcal ME	1.07	0.97	1.01
Diet mLYS, g/Mcal ME	3.04	3.04	3.04
Cost, \$/cow/d	Reference	Reference	-\$0.10

For reference, Cornell University recommends feeding 1.15 grams of mMET per Mcal of ME (CNCPS v.6.5.5); thus, at these feeding rates none of the products were overfed, guaranteeing a fair comparison.

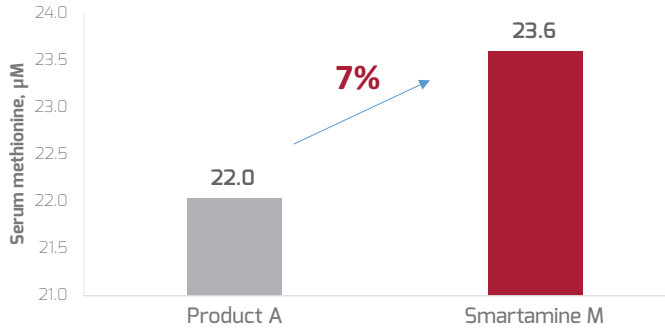
To ensure cows were in steady state and to reduce variation, blood samples were collected after at least 15 days on product and at the same time of the day from the same 20 cows. Days in milk for this subset of cows varied from 60 to 80 days.

RESULTS

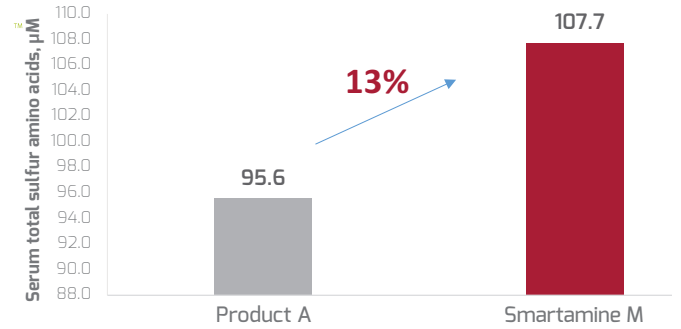


As anticipated, milk components in the tank were maintained for cows supplemented with Smartamine® M. Expected seasonal milk fat percentage decline was seen during both feeding periods.

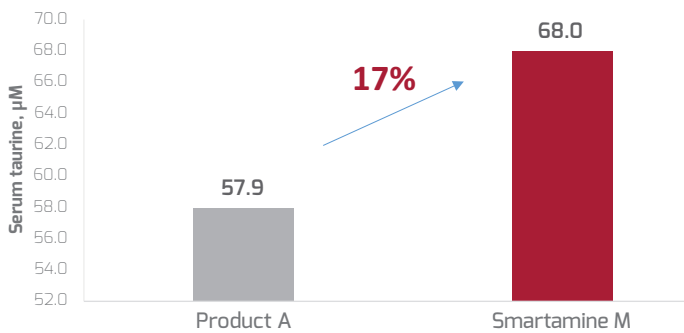
Marker of bioavailability
Blood Methionine



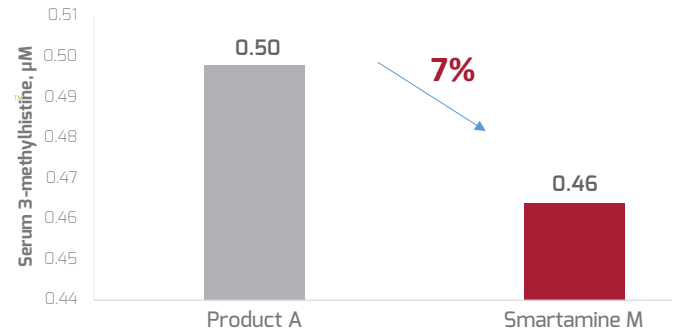
Marker of bioavailability
Total Sulfur Amino Acids



Marker of bioefficacy
Taurine - Antioxidant and anti-inflammatory



Marker of muscle mass breakdown
Lower the better



Relative to product A, results from blood analysis demonstrated that cows supplemented with Smartamine® M had.

- **7% increase** in serum methionine and **13% increase** in serum total sulfur amino acids, indicating higher product bioavailability.
- **17% increase** in serum taurine, an antioxidant and anti-inflammatory agent. Methionine is a direct precursor of taurine in the liver. The resulting greater level of taurine indicates greater bioefficacy.
- **7% decrease** in serum 3-methylhistidine, a marker of muscle mass breakdown.

CONCLUSION

These findings demonstrate Smartamine® M is still the most cost-efficient rumen-protected methionine product in the market, delivering a greater supply of absorbable methionine with a ration cost savings of \$0.10 per cow per day

Amino acid balancing with Smartamine® M can help reduce ration costs and optimize performance.



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