



## The *ADDED* Benefits of Using MetaSmart® to Balance for Amino Acids

In the past, Adisseo concentrated its efforts to highlight the importance of feeding an amino acid-balanced diet to improve milk composition, particularly milk protein content. AA formulation guidelines were based on results from extensive University research. However it is now clear that these advantages are only the tip of the iceberg. One *ADDED* benefit often overlooked is the improvement of the efficiency of nitrogen (N) utilization by the cow. When the ration is properly balanced, the 'N load' of the ration can be reduced without sacrificing milk output, and by doing so, we improve the efficiency of N utilization. This may not seem important at first sight; however, when less N is fed, less is wasted and cost savings can be substantial.

Monitoring responses to formulation change on a farm is often a big challenge. For example; when a ration is AA balanced and as a consequence more grams of metabolizable methionine are provided in the diet, the cow can respond through a combination of milk volume, milk protein and milk fat percent. Therefore, to capture the full impact of the response, Energy Corrected Milk (ECM) is an excellent way to monitor the response with one number.

In a recent publication (Chen, 2011) the researchers fed one group of cows a 16.8% Crude Protein (CP) diet that provided an estimated 2590 grams of metabolizable protein with a Lys:Met ratio of 3.33. Another group of cows were fed a 15.7% CP diet that delivered 2450 grams of metabolizable protein with a Lys:Met ratio of 2.98. In other words, the higher CP ration delivered 140 extra grams of metabolizable protein but the AA profile was unbalanced. The researchers designed the diets in a way that both rations delivered similar grams of metabolizable lysine, but the low CP ration provided six extra grams of metabolizable methionine by including 40 grams of Dry MetaSmart.

Item	16.8% CP w/o MetaSmart	15.7 % CP with MetaSmart
Metabolizable protein, g/d	2590	2450
Metabolizable Lysine, g/d	160	161
Metabolizable Methionine, g/d	48	54
Lys:Met	3.33	2.98
Milk, lb/d	90.8	92.8
Fat, %	3.85	3.93
True Protein, %	3.05 <sup>d</sup>	3.19 <sup>a</sup>
Lactose, %	4.81	4.83
ECM, lb/d	86.9 <sup>d</sup>	90.4 <sup>a</sup>
MUN, mg/dl	13.2 <sup>a</sup>	10.2 <sup>b</sup>
PUN	15.7 <sup>a</sup>	12.2 <sup>b</sup>

Milk N/N intake (N efficiency, %)	30.2 <sup>b</sup>	32.3 <sup>a</sup>
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The cows fed the diet with the lower 'N load' produced two extra pounds of milk with better fat and protein percent, such that the cows fed the lower N diet responded with a significant 3.5 lbs of extra Energy Corrected Milk (ECM). These cows also had lower plasma urea N and milk urea N, confirming the better efficiency of N utilization.

## Have Questions?

Please [contact me](#) if you have any questions or would like more information. I will personally respond to all emails.



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