

Milk composition as technique to evaluate the relative bioavailability of a liquid rumen protected methionine source

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Abstract

Rumen protected amino acids are increasingly being used in dairy cattle diet formulation to obtain the required concentrations of Lysine and Methionine in metabolisable protein for optimal milk and milk protein production. The objective of this study was to evaluate the relative bioavailability of a liquid rumen protected lysine prototype using the milk composition technique. Forty mid lactation Holstein cows were used in a complete randomised block design experiment and allocated to one of 4 experimental treatments. The treatments were (1) Methionine deficient (Met-) diet, (2) Met- diet supplemented with Smartamine M (SmartM), (3) Met- diet supplemented with liquid rumen protected prototype (LRPMet) and (4) Met- diet supplemented with DL Met (DLMet). After an adaptation phase all 4 groups received the Met- diet and thereafter switched over to the four treatments. Cows supplemented with SmartM had higher milk protein and milk fat % compared to the other treatments and increased milk casein % ($P < 0.05$) compared to the control treatment. SmartM again proved to be a RPAA with a high relative bioavailability while the LRPMet failed to elicit any response. The milk composition technique proved to be a simple but effective technique to evaluate the bioavailability of rumen protected products or prototypes.