MILK BETA-HYDROXYBUTYRATE AND UREA AS A TOOL FOR FAST DIAGNOSIS OF BOVINE FEEDING STRATEGIES AND WELFARE

Cristina Conceição Pinheiro, Ana Mira Geraldo, Flávio Silva, Pedro Vaz, Rui Moreira, Samuel Pinto, Alfredo Pereira

Third DairyCare Conference, Zadar, Croatia, October 5-6, 2015

Third Dairy Care Conference will take place in Zadar, Croatia, October 5th and 6th 2015

ABSTRACT

Milk beta-hydroxybutyrate and urea as a tool for fast diagnosis of bovine feeding strategies and welfare

Cristina Conceição Pinheiro[1,2], Ana Mira Geraldo[1], Pedro Vaz[3], Rui Moreira[3], Samuel Pinto[4], Alfredo Pereira[1,2]

(1) Instituto de Ciências Agrárias e Ambientais Mediterrânicas (ICAAM) , Instituto de Investigação e Formação Avançada, Universidade de Évora, Núcleo da Mitra, 7000 Évora, Portugal

(2) Departamento de Zootecnia, Escola de Ciência e Tecnologia, Núcleo da Mitra, Apartado 94, 7002-554 Évora, Portugal

(3) Estação de Apoio à Bovinicultura Leiteira (EABL), Quinta da Medela, Verdemilho, 3810-455 Aveiro, Portugal

(4) Associação Nacional para o Melhoramento dos Bovinos Leiteiros (ANABLE), Quinta da Medela, Verdemilho, 3810-455 Aveiro, Portugal

Dairy cows in early lactation and mainly animals with high-yielding production have a lower dry matter intake, have weight loss and lower body condition, and consequently negative energy balance. The equilibrium between protein and energy, precisely rumen degradable protein and highly fermentable carbohydrate, enhances the optimization of dietary protein in dairy cows. This leads to a suitable reproductive performance, higher milk production, low costs in food and lower environmental impact owing less loss of nitrogen by feces and urine. *Beta*-hydroxybutyrate (BHB) and urea are metabolites that can be evaluated in blood, urine and milk in dairy cows, which are related to sub-clinic and clinical ketosis and energy –protein balance.
Based on milk samples collected by the Portuguese Official Milk Control (ANABLE and EABL), the records of milk beta-hydroxybutyrate and urea from dairy farms of Southern Portugal, are analysed, with the purpose to show that this metabolites evaluated in a non-invasive fluid, are an easy and efficient tool for the dairy farmers to monitoring the eating patterns and cows' welfare, what may help in decision making.

Key words: beta-hydroxybutyrate (BHB), biomarkers, cow, feeding, milk, urea, welfare