

**C-147****Effect of different doses of cracked whole soybean on milk fatty acid composition in buffalo**

Andrea Serra, Eleonora Bulleri, Laura Casarosa, Alice Cappucci, Federica Mannelli, Marcello Mele

*Dipartimento di Scienze Agrarie, Alimentari, Agro-ambientali, Università degli Studi di Pisa, Italy*

*Corresponding author: andrea.serra@unipi.it*

In order to improve the health characteristics of buffalo milk and Mozzarella, the effect of two concentrates differing in linoleic acid (LA) content on milk fatty acid (FA) composition was considered. Dietary LA supplementation, in fact, is the most effective strategy to increase milk content of conjugated linoleic acid (CLA), which has potentially positive effects on human health. Thirty-two buffaloes were randomly allotted in two groups: experimental (EG) and control (CG). During the first period (P1, from 26 to 82 days in milk) EG fed a total mixed ratio (TMR) composed by barley silage, alfalfa and grass hay, maize meal and 3 kg of a concentrate composed by 30% cracked whole soybean (WS) and 70% horse bean (HB), which provided 12.6 g/kg DM of LA. During the second period, (P2, from 97 to 152 days in milk), the experimental concentrate was 70/30 WS/HB that provided 25.4 g/kg DM of LA. During both periods CG fed a diet based on the same forage than EG and a concentrate composed by maize meal, soybean meal, and cotton seeds (7.2 g/kg DM of LA). Individual milk samples were weekly collected and data of milk FA composition were analysed by a repeated measures model. At the end of each period, milk from each group was separately processed and six Mozzarella cheese for group were sampled. During P1, LA content of milk from EG was significantly higher than milk from CG (1.85 vs. 1.52% of TL), whereas CLA and vaccenic acid (VA) content did not differ between groups. During P2, the LA content in EG milk was more than two times higher than that in CG milk (3.91 vs. 1.59% of TL). Also CLA (0.59% of TL vs. 0.38% of TL for EG and GC respectively) and VA (1.67% of TL vs. 1.25% of TL for EG and CG, respectively) milk content significantly differed between groups. Oleic acid (OA) content significantly differed between treatments, being higher in milk from EG (+17%). Interestingly, differences were observed also in the substrate/product ratio related to stearoil-CoA desaturase enzyme (SCD). This enzyme acts either on C18:0, that is converted in OA, and on C14:0, C16:0 and VA, which are converted in cis9 unsaturated FA. Results suggested a higher affinity of SCD for C18:0. The desaturation index of C18:0, in fact, was more than ten times higher than that of other substrates. The FA composition of mozzarella reflected that observed in milk, confirming that cheesemaking did not affect the transfer of FA from milk to cheese.

**C-148****Plasma  $\alpha$ -tocopherol content and its relationship with milk somatic cells count in Italian commercial herds**

Adriano Pilotto<sup>1</sup>, Guido Invernizzi<sup>1</sup>, Antonella Baldi<sup>1</sup>, Carlo De Vecchi<sup>2</sup>, Angelo Castellaneli<sup>2</sup>, Giovanni Savoini<sup>1</sup>

<sup>1</sup>*Dipartimento di Scienze Veterinarie per la Salute, la Produzione Animale e la Sicurezza Alimentare, Università degli Studi di Milano, Italy*

<sup>2</sup>*ASL Milano<sup>2</sup>, Melegnano (MI), Italy*

*Corresponding author: guido.invernizzi@unimi.it*

In the last few years vitamin E supplementation in dairy cattle and its activity on udder health has been often controversially debated. This work was aimed to investigate relationship between plasma vitamin E concentration and milk somatic cell count in healthy cows in commercial herds. 49 multiparous cows from two commercial dairy herds in Milan area were monitored from the day of dry off until 90 DIM. BCS was assessed and blood samples were collected at dry off, day 0, 30, 60 and 90 postpartum. Plasma was analyzed for  $\alpha$ -tocopherol, Zn and Se content. Quantification of NEFA and BOHB was performed in serum samples. Milk production and composition was obtained from routinely test-day of Italian milk producers association. Somatic Cell Score (SCS) was calculated and included in the dataset. Analysis of data was performed using MIXED repeated and CORR procedures of SAS. Vitamin E plasma concentration significantly decreased at day of calving and progressively increased in the first 90 days of lactation. A significant ( $P < 0.01$ ) negative (-20%) correlation was observed between NEFA serum content and  $\alpha$ -tocopherol plasma concentration. Serum selenium content was positively correlated (+31%,  $P < 0.05$ ) to zinc concentration. Grouping cows on the basis of their plasma  $\alpha$ -tocopherol content higher or lower than 3  $\mu\text{g/mL}$  at dry off, SCS at 30 and 60 DIM tended to be higher in lactating animals with lower content of  $\alpha$ -tocopherol (1.12 vs. 1.72,  $P = 0.18$  at 30d; 0.92 vs. 1.72,  $P = 0.07$  at 60d). No significant differences were observed on analyzed parameters when cows were grouped based on their plasma  $\alpha$ -tocopherol content higher or lower than 2  $\mu\text{g/mL}$  at day of calving. Overall low SCS values in investigated animals (mean values at days 30, 60 and 90; 1.42, 1.32, 1.58) could explain the lack of correlation between plasmatic vitamin E and somatic cell score. However, plasma  $\alpha$ -tocopherol content at dry off could be usefully correlated with somatic cell count in fresh cows.

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