

# **Book of Abstracts of the 62<sup>nd</sup> Annual Meeting of the European Federation of Animal Science**



**Book of abstracts No. 17 (2011)  
Stavanger, Norway  
29 August - 2 September 2011**

### Immediate and residual effects on milk yield and composition of decreasing levels of udder emptying during milking in dairy cows

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The quantity of milk accumulated in the udder, under extended milking intervals, could reduce milk yield, with residual effects on following milking intervals. Aim of the trial was to modify the quantity of milk stored in the udder over one milking interval, by decreasing udder emptying (100, 70, 40, and 0%), in order to describe the short-term effects on milk yield and composition. 16 dairy cows averaging 41 kg/d of milk were assigned to treatments 100, 70, 40, and 0% according to a Latin square design with four 7-d periods. Cows were milked twice daily at 0700 and 1730. Treatments were applied at the morning milking called M0. Changes in milk yield and composition were assessed on the 7 following milking (M1 to M7), using the mixed procedure of SAS with milking as repeated measures. The quantity of milk collected at M1 milking linearly increased as udder emptying decreased at M0. Nevertheless, because of milk accumulation in the udder, M0+M1 milk yield was quadratically depressed by -1.5, -5.3, -12.9 kg with 70, 40 and 0% treatments, respectively. Residual effects on milk yield were only observed for 40 and 0% treatments on M2 and M3 milking and did not differ between 40 and 0% treatments. Milk fat content increased only for treatment 0% at M1 and for treatments 40 and 0% at M2. Milk lactose content was lower for treatments 40 and 0% at M1 and only for treatment 0% till M4. Lower milk protein contents were observed from M2 till M5 milking for either treatment 40 or 0% or both. Till M5 milking, somatic cell score linearly increased as udder emptying decreased at M0. In conclusion, a 70%-emptying milking at one milking did not alter milk yield and composition in dairy cows. Residual effects on milk yield and composition were only observed for higher amounts of milk accumulated in the udder.

### Effects of feeding whole or physically broken flaxseed on milk fatty acid profiles of Holstein lactating dairy cows

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Nine primiparous Holstein cows 495±34.5 kg of average body weight (BW) and 70±5 days in milk were assigned to a 3×3 Latin square design to determine the effects of whole (WFS) or physically broken flaxseed (GFS), used instead of extruded soybeans (ESS), on milk fatty acid composition. Three iso-nitrogenous and iso-energetic diets (crude protein: 180 g/kg DM and metabolizable energy: 12.6 MJ/kg DM) containing ESS, WFS or GFS used as 110, 90 and 90 g per kg DM, respectively, were provided. The diets were offered *ad libitum* as total mixed rations (forage to concentrate as 45:55) twice a day. Each experimental period consisted of 21 d of adaptation to the diets and 7 d for daily milk collection to determine milk fatty acid profiles. Data were statistically analyzed using GLM procedure of SAS. Milk fat concentration did not alter among the animals evaluated in this study (GFS = 32, WFS = 33 and ESS = 32 g/kg milk). There was a significant difference (P<0.05) in both mono- and poly-unsaturated fatty acid concentrations (GFS = 11.9 and 2.8, WFS = 10.9 and 2.2, ESS = 9.9 and 2.1 g/kg milk, respectively) among the cows fed the experimental diets. Inclusion of physically broken flaxseed in the diet caused a significant (P<0.05) increase in milk C18:2trans and decrease in C18:2cis concentrations (GFS = 1.3 and 1.1 vs. WFS = 0.9 and 1.0 and ESS = 0.5 and 1.3 g/kg milk, respectively). One of the finding of the study was a significant increase (P<0.05) of C18:3 fatty acid proportion in the milk fat of cows fed GFS compared with those fed WFS or ESS (C18:3trans: 0.13 vs. 0.11 and 0.09, C18:3cis: 0.63 vs. 0.37 and 0.27 g/kg milk, respectively). It was concluded that increasing the availability of healthy fatty acids by feeding broken flaxseed in the lactating dairy cow diets would result in milk with higher nutritive value.