

INFLUENCE OF *PRE-PARTUM* FEEDING ON PERIPARTURIENT METABOLIC STATUS IN ESTONIAN HOLSTEIN COWS

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Summary. Increasing cows' dry matter intake, or using more energy-dense diets prior to parturition, may prevent excessive lipid mobilization around parturition. On the other hand, feeding energy-dense diets for a prolonged time may lead to overconditioning at parturition followed by depressed appetite, reduced intake and more extensive lipid mobilization. The aim of the present study was to examine effects of *pre-partum* feeding on periparturient metabolic status in Estonian Holstein cows. Two weeks *pre-partum* (w-2, w-1) differing amounts of a one concentrate were fed to a Low (L) and a High (H) group while the same amount of another concentrate was fed during the first four weeks *post-partum* (w1, w2, w3, w4). Silage was available *ad-libitum* during the whole experimental period. Blood samples, obtained from the coccygeal vein on w-2, w-1, w1, w2, w3 and w4 were analyzed for aspartate aminotransferase (AST) activity and urea, glucose, ketone bodies, triglycerides, non-esterified fatty acids (NEFA), total cholesterol, insulin and glucagon concentrations. The repeated measures general linear model analyses with the SAS system MIXED procedure were performed to discover the influence of *pre-partum* feeding on blood metabolites. Blood urea concentration tended to be higher in group H on w-1 (P=0.06) and w2 (P=0.06); NEFA concentration was higher in group L on w-2 (P=0.01) and w3 (P=0.02), and tended to be higher on w-1 (P=0.08) and w2 (P=0.08); ketone bodies concentration was higher in group L on w1 (P=0.0001) and glucagon concentration was higher in group L on w1 (P=0.03) and w2 (P=0.02), and tended to be higher on w-1 (P=0.08) and w4 (P=0.06). There were no significant differences between the groups' blood AST activity and glucose, triglycerides and insulin concentration. The present study suggests that increasing the proportion of concentrates in the *pre-partum* diet may improve cows' energy status and reduce lipid mobilization around parturition.

Key words: metabolic status, periparturient, aspartate aminotransferase, non-esterified fatty acids, insulin, glucagons.