Changes in the real-time registration of milk β-hydroxybutyrate according to stage and lactation number, milk yield, and status of reproduction in dairy cows

R. Antanaitis¹, V. Juozaitienė², M. Televičius¹, D. Malašauskienė¹

¹ Large Animal Clinic, Veterinary Academy, Lithuanian University of Health Sciences, Tilžės 18, Kaunas, Lithuania
² Department of Animal Breeding and Nutrition, Veterinary Academy, Lithuanian University of Health Sciences, Tilžės 18, Kaunas, Lithuania

Abstract

This study investigated changes in the real-time measured levels of milk β-hydroxybutyrate according to milk yield, lactation number and status of reproduction in dairy cows.

A total of 378 cows were selected. According to their reproductive status the cows were classified as belonging to the following groups: Fresh (1 – 44 days after calving, n=43). Open (45 – 65 days after calving, n=78), Inseminated (1 – 35 days after insemination, n=133), Pregnant (35 – 60 days after insemination and pregnant (relatively pregnant) (n=124). The cows were milked with DeLaval milking robot (DeLaval Inc., Tumba, Sweden) in combination with a Herd Navigator (Lattec I/S. Hillerød, Denmark) analyser.

We observed that milk β-hydroxybutyrate (BHB) had a tendency of increasing with an increase of lactation number. The average BHB in multiparous cows was 11.111% higher in comparison with primiparous cows (p<0.001). We found higher BHB concentration in the multiparous cows in all reproduction status groups (p<0.001). A strong positive statistically significant (p<0.001) relationship has been found between BHB and the average milk yield within all groups of primiparous cows although we found a statistically unreliable coefficient of correlation (from -0.202 to 0.057) between highest milk yield and BHB in primiparous and multiparous cows.

Key words: cow, BHB, production, reproduction, herd navigator