

Relation of Automated Body Condition Scoring System and Inline Biomarkers with Cow's Pregnancy Success

Mingaudas Urbutis, Ramūnas Antanaitis, Vida Juozaitienė, Dovilė Malašauskienė, Mindaugas Televičius and Walter Baumgartner

Large Animal Clinic, Veterinary Academy, Lithuanian University of Health Sciences, Tilžės str 18, LT-47181 Kaunas, Lithuania

The aim of the study was to evaluate the relation of automatically determined body condition score (BCS) and inline biomarkers such as β -hydroxybutyrate (BHB), milk yield (MY), lactate dehydrogenase (LDH), and progesterone (mP4) with the pregnancy success of cows. The cows ($n = 281$) had 2.1 ± 0.1 lactations on average, were 151.6 ± 0.06 days postpartum, and were once evaluated with "Easy scan" ultrasound (IMV imaging, Scotland) at 30–35 d post-insemination. According to their reproductive status, cows were grouped into two groups: non-pregnant ($n = 194$ or 69.0% of cows) and pregnant ($n = 87$ or 31.0% of cows). The data were analyzed according to the daily averages of the indicators of the 7 days after oestrus, as their variation by days was small - 1.6-5.0%. The BCS was collected with body condition score camera (DeLaval Inc., Tumba, Sweden); mP4, MY, BHB, and LDH were collected with the automated Herd Navigator™ (Lattec I/S, Hillerød, Denmark) analyzer in combination with a DeLaval milking robot (DeLaval Inc., Tumba, Sweden). Of all the biomarkers, three differences between groups were significant. BCS of the pregnant cows was higher (+0.49 score), the MY was lower (-4.36 kg), and mP4 in pregnant cows was (+6.11 ng/mL) higher compared to the group of non-pregnant cows ($p < 0.001$). Pregnancy status of the cows was associated with their BCS assessment ($p < 0.001$). We estimated that cows with $BCS > 3.2$ were 22 times more likely to have reproductive success than cows with $BCS \leq 3.2$.

Biography

Mingaudas Urbutis has earned his Master's degree at the Veterinary Academy of Lithuania university of health sciences in 2018. Finished a two-year Ruminant therapy and treatment residency programme in the same university. After finishing the residency programme in 2020, he joined the PhD programme at the Veterinary academy of Lithuania university of health sciences. Together with his team Mingaudas Urbutis has published 9 papers in reputed journals.