

CORRELATION BETWEEN RUMINATION TIME, PRODUCTIVITY, LACTATION AND HEALTH INDICES OF DAIRY COWS

SAKARĪBAS STARP SLAUCAMO GOVJU RUMINĀCIJAS LAIKU, LAKTĀCIJU, PRODUKTIVITĀTES UN VESELĪBAS RĀDĪTĀJIEM

Jurijs Brente, Laima Liepa

Faculty of Veterinary Medicine, LLU, Latvia; LLU, Veterinārmedicīnas fakultāte, Latvija
jurijs.brente@gmail.com

ANOTĀCIJA. Pēdējos gados lopkopībā aizvien biežāk izmanto precīzās lopkopības tehnoloģijas. Pētījuma mērķis ir analizēt govju aktivitātes un ruminācijas sensora “HeaTime Pro System” reģistrētos govju individuālos datus ganāmpulkā “X”, noteikt korelācijas starp govju ruminācijas laiku dienā un dzīvnieku izslaukumu, laktāciju, piena ķīmisko sastāvu, kā arī saslimstību ar ketozi, mastītu, mikoplazmozi. Galvenie rezultāti un secinājumi. Vidējie ruminācijas laiki, kas mērīti ar “HeaTime Pro System” iekārtu, būtiski ($p < 0,05$) atšķiras dažādas produktivitātes, kā arī veselības problēmu skartajām govīm. Vidējais ruminācijas laiks govīm ar piena taukiem zem 3.1% ir būtiski ($p < 0,05$) augstāks nekā govīm ar piena taukiem virs 5%. Analizējot augstāzīgo govju individuālos ruminācijas laikus 15 dienu garumā, trešās un ceturtās laktācijas govīm ruminācijas laiks ir būtiski ($p < 0,05$) augstāks nekā pirmās un otrās laktācijas govīm. Viszemākos ruminācijas laika rādītājus ir uzrādījušas slimās govīs ar mastītu, mikoplazmozi un ketozi – vidēji zem 500 min./dienā.

KEY WORDS: cow, rumination time, milk fat, SCC, ketosis

INTRODUCTION. Rumination is quintessential activity of dairy cows, and observing this behavior provides useful information regarding the cows' health. The aim of the current research was to analyze correlation between “HeaTime Pro System” registered daily rumination times and cows' average milk yield, number of lactations, milk fat, somatic cell count (SCC) and incidence of mycoplasmosis in the herd "X" with 362 lactating cows.

MATERIAL AND METHODS. The experiment was conducted within the State Research Project (AgroBioRes) VP29 subproject Nr.3. The individual rumination time for each cow was collected daily at 24:00 seven days before and after milk sampling day (MSD) which was held on 26/12/2016. The obtained rumination data were divided into groups by following criteria: milk yield above 40 litres a day (30 cows) and below 20 litres a day (41); milk fat below 3.1% (27) and above 5% during the first 40 days of lactation (12); SCC higher than 1 million (10).

RESULTS. The average rumination time on milk sampling day (RM) and average rumination time seven days before, during and after milk sampling day (R15) did not differ significantly ($p > 0,05$). In high yield group, milk yield on MSD 43.3 ± 3.0 kg was significantly ($p < 0,05$) higher than in the low yield group 17.9 ± 1.6 kg, but RM 616.1 ± 70.5 min and 556.4 ± 174.4 min ($p > 0,05$), respectively – because of high fluctuation in daily rumination times of low yield group. In low yield group, R15 was below 600 min/a day, but in the high yield group it was below 600 min/a day only for 2 cows. In the high yield group, R15 in the third and fourth lactation (L3, L4) was higher than in L1 and L2. The lowest R15 was found in the group with mycoplasmosis. On MSD, all high yield cows showed significant decrease of RM, but the low yield cows showed an increase of RM due to changes in herd management. Cows within the first 40 days of lactation with milk fat above 5% showed a negative correlation with R15 ($r = -$

0.75), but L2 cows' R15 was significantly ($p<0.05$) higher than L1 and L4 cows. In cows with milk fat below 3.1%, R15 was significantly ($p<0.05$) higher than in low yield cows. Eight out of 10 cows with high SCC R15 were registered below 500 min/a day.

CONCLUSION. Cows with different milk yield, milk composition and lactation number, during illness with ketosis, mastitis, mycoplasmosis have significant difference ($p<0.05$) in average rumination time.