

Tail Chalk Improves Estrous Detection when using Automated Activity Monitors

Jéssica C. S. Marques*, Tracy A. Burnett, Augusto M. L. Madureira, Ronaldo L.A. Cerri

University of British Columbia, Canada; *Email: jessicacdsmarques@gmail.com

A decrease in displaying estrous behavior has been noted and associated with high-producing animals. The aim of this study was to determine the association between physical activity, mounting behaviour and milk production in spontaneous estrus. A total of 1,127 estrus events from 376 Holstein cows were recorded. Activity was monitored continuously by an automated activity monitor (AAM) and mounting behaviour was monitored twice daily using tail chalk (TC) scores (1 to 3 scale, 3 was considered an alert). Ovarian ultrasonography was performed on the event day and 7d post-AI to determine true estrus alerts. Pregnancy was diagnosed at 30±3 d post artificial insemination (AI). Milk production was recorded and cows were classified as low (L) or high (H) using the median (39.5 kg/day). Activity was classified as High and Low by the median (230 heat indicator; AfiActII, Afimilk). The proportion of animals that showed mounting behaviour, increase in activity, or both were not different between H or L producers ($P = 0.27$) nor parity ($P = 0.75$). A higher proportion of cows were in true estrus when both tools alerted (AAM=65.3; TC=32.3; AAM+TC=88.6%; $P < 0.001$). Cows classified as High activity showed a greater proportion of TC alerts (1=30.2; 2=12.6; 3=57.2%; $P = 0.04$) than cows classified as Low activity (1=61.9; 2=15.0; 3=23.1%; $P = 0.04$). Cows with TC alerts tended to have a greater pregnancy/AI compared with cows that were only alerted on the AAM (AAM+TC=44.0±2.9; TC=41.0±7.3; AAM=37.0±2.9%; $P = 0.06$). In conclusion, estrous behaviour detected by TC or AAM was not impacted by milk production. The use of TC along with AAM increased true alerts and cows with TC alerts had higher pregnancy/AI than those that did not display standing to be mounting behaviour.

Take home messages: Tail chalk in companion with AAM can improve the efficiency of reproductive programs. Milk production did not affect estrous behaviour detected either by tail chalk or activity monitors.

Impact of Steam Pressure Processing Times on Nutrient Digestibility, True Protein Supply to the Small Intestine, and Predicted Milk Production of Faba Bean Seeds for Dairy Cattle

María E. Rodríguez Espinosa, David Christensen, Rex Newkirk, Yongfeng Ai, Victor H. Guevara Oquendo, and Peiqiang Yu *

University of Saskatchewan, Canada; *Email: peiqiang.yu@usask.ca

Currently, the use of faba bean plant as alternative feed ingredient in cattle rations has gained more attention since high nutritional value varieties have been developed over the years. Thus, the purpose of this study was to provide supporting research on the effects of steam pressure processing (autoclaving) on nutrient digestibility, true protein supply to the small intestine, and predicted milk production of faba bean dairy diets. Seeds from CDC Snowbird variety were either kept raw or heated at 121 °C for 30, 60, 90, and 120 min. The experimental design was RCBD and the data were analyzed using the mixed model procedure with SAS software 9.4 (SAS Institute, Inc., Cary, NC, US) with significance declared at $P < 0.05$. The intestinal digestible crude protein increased sharply from 62 g/kg DM in raw seeds to 220 g/kg DM at 120 min of heating ($P < 0.01$). Whereas the total tract digestible starch gradually decreased from 322 g/kg DM in raw seeds to 182 g/kg DM at 120 min of heating ($P = 0.04$). The metabolizable protein based on NRC 2001 increased from 130 g/kg DM in raw seeds to 282 g/kg DM at 120 min of heating ($P < 0.01$). Lastly, the predicted milk production showed a gradual increase from 2.63 kg milk/kg DM feed in raw seeds to 5.73 kg milk/kg DM feed at 120 min of heating ($P < 0.01$). Different steam pressure times showed potential positive effects on the nutrient digestive behavior of faba bean seeds analyzed by prediction models. The present results will serve as the basis for complementary studies of alternative ingredients for dairy rations and for future application in the feed industry.