

**Daily activity budget of beef cows under occasional feed restriction periods throughout lactation**

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The behaviour of cows can be affected by environmental conditions, farm management and social structure of the herd. The aim of this study was to evaluate how the daily activity budget of beef cows was affected by feed restriction, energy balance and stage of lactation, by using an activity sensor. Thirty-one lactating Parda de Montaña beef cows were individually fed at a flat rate with a diet that met 100% of the energy requirements of the average cow. On months 2, 3 and 4 post-calving they were under feed restriction (55% of the requirements) during 4 days (d). All cows were equipped with a Medria® Axel collar accelerometer, which logged physical activity continuously at 5 min intervals throughout lactation. On each month data were collected before, during and after restriction (Basal, Restriction and Refeeding periods, 4 d each), selecting only the single most dominant activity among the 5 recorded (ingestion, rumination, rest, other and over-activity). The cows were clustered according to their performance and energy balance (EB) into Balanced (BAL) and Imbalanced (IMBAL) cows. Differences in ingestion, rumination and rest were found among periods, ingestion (142, 115, 138 min/d in Basal, Restriction, Refeeding) and rumination (385, 332, 371 min/d) decreased in Restriction period while rest increased (544, 626, 479 min/d). The magnitude of these changes differed among months ( $P<0.001$ ), the largest differences in ingestion occurred in month 2 and in rumination and rest in months 3 and 4. Ingestion and rest were affected by the interaction between EB cluster and period ( $P<0.001$ ). The IMBAL cows showed differences in ingestion (159, 121, 159 min/d in Basal, Restriction and Refeeding periods) and rest (529, 639, 447 min/d) whereas ingestion did not change among feeding periods in BAL cows (125, 110, 117 min/d) and differences in rest were lower (560, 614, 511 min/d). We can not ascertain whether this was partially the cause or the effect of their different energy balance. In conclusion, under feed restriction the time saved from eating and rumination was reflected in longer resting time, and patterns were affected by cow energy balance and lactation stage.

**Evaluation of the ingestive behaviour of the dairy cow under two systems of rotation with slope**E. Castro Muñoz<sup>1,2</sup>, G.F. Da Silva Neto<sup>1,3</sup>, A.L.H. Andriamandroso<sup>4</sup>, L. Ron<sup>2</sup>, C. Montufar<sup>2</sup>, F. Lebeau<sup>1</sup> and J. Bindelle<sup>1</sup>*<sup>1</sup>Ulíege, Precision Livestock and Nutrition Unit, Digital Energy & Agriculture Lab, Gembloux Agro-Bio Tech, Passage des Déportés 2, 5030 Gembloux, Belgium, <sup>2</sup>UCE, Facultad de Ciencias Agrícolas, J.Leiton s/n, 170521 Quito, Ecuador, <sup>3</sup>UFRGS, Department of Forage Plants and Agrometeorology, Avenida Bento Gonçalves, 7712 Porto Alegre, Brazil, <sup>4</sup>ISA Lille, Agriculture Department, 48 Boulevard Vauban, 59046 Lille, France; ecastro@uce.edu.ec*

The ingestive behaviour of grazing animals is modulated by the vegetation characteristics, topography and the type of stocking method. This research was carried out in 2019, at the Rumipamba CADER-UCE. It aimed to evaluate the impact of two contrasting stocking methods of dairy cows grazing a pasture with an average of slope >8.5%. Four dairy cows were set to graze a 0.4 ha paddock for 5 days for continuous stocking methods, while for the electric fence methods the dairy cows were restricted to 0.2 ha and the fence was moved uphill every 3 hours, repeating this process four times a day. Cow were equipped with activity sensors for 12 h per day. The whole procedure was repeated 2 times after realizing an equalization cuts and both paddocks, a rest time of 30 days and a random reassignment of paddocks to one of the treatments. The cows showed a difference in terms of the percentage of grazing  $P=0.0072$ , being higher with the electric fence (55% of the measurement time). From rising-plate-meter estimates of available biomass along the grazing periods, we calculated despite similar forage allowances (electric fence = 48.06 kg DM/cow/d and continuous = 48.21 DM/cow/d) a higher forage intake was obtained in the electric fence treatment (17.5 kg DM/cow/d) compared the continuous stocking (15.7 kg DM/cow/d) ( $P=0.006$ ). In terms of milk production animals grazing under the differences electrical fence stocking method tended ( $P=0.0985$ ) to produce more milk (17.39 kg/d) than those grazing in the continuous system (15.16 kg/d) due to the influence of the slope ( $P=0.05$ ), while for milk quality the protein content was higher for the electric fence (33.7 g/l) than the continuous method (30.5 g/l) ( $P=0.039$ ). None of the other milk properties differed between methods ( $P>0.05$ ).