ABSTRACT

Lying behaviour and activity were measured in healthy grazing dairy cows during the transition from late gestation to early lactation (i.e., the Transition Period). Behaviour data derived from IceTag® or IceQube® (IceRobotics, Edinburgh, Scotland) three-axis accelerometers were collated from 311 mixed-age (aged 2 years and older) and mixed-breed (Holstein-Friesian (HF), Jersey (J) and crossbred (HF x J)) cows from four experiments. The IceTags and IceQubes captured lying and step data at 1 and 15 minute intervals, respectively. Behaviour was recorded during the transition period (-21 days (d) prepartum to 35 d postpartum) to determine daily lying time, number of lying bouts (LB), LB duration, and number of steps. The effect of rainfall and air temperature on lying behaviour and activity during two periods: prepartum (PRE; -21 to -3 d) and postpartum (POST; 3 to 35 d) was evaluated. Regression analysis determined that decreased air temperature and increased rainfall is associated with a decline in daily lying time during both PRE and POST periods. This result was consistent with the decline in the daily number of LB and LB duration associated with lower air temperatures and higher rainfall, indicating that cows spent more time standing during inclement weather. Exposure to both wet and cold conditions exacerbated the behavioural response. The results highlight the importance of considering the effects of air temperature and rainfall and the interaction of these two climate variables in behavioural analysis. Further work is to quantify the trigger points for this activity modulation to help understand the balance of welfare experiences in the life of a grazing cow.