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SESSION A. Room: Theatre Cerise 10.40-12.20 hrs

Effects of dietary crude protein level on energy and nitrogen balance of lactating dairy cows during an immune challenge with lipopolysaccharide

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Reducing dietary Crude Protein (CP) level effectively decreases N excretion in dairy cows. However, it can be hypothesized that the energy and N balance during an acute immune challenge in lactating dairy cows is altered when low CP level is fed, compared with a high CP level. To investigate the effect of dietary CP level with or without an immune response, twelve lactating Holstein Friesian cows (61 ± 14 DIM at the start of the trial; mean ± SD) were used in a completely randomized block design. Cows were fed diets with a high crude protein content (HCP) of 176 or low crude protein content (LCP) of 145 g CP/kg DM. Cows were housed in climate respiration chambers for two four-day periods to measure energy and N balance. The first period served as a baseline measurement and during the second period, cows received continuously an intravenous a LPS solution with a daily incrementing dose from 0.010 to 0.033 µg/kg of BW per hour in order to induce an acute phase immune response. The LCP diet resulted in lower DMI and a lower milk yield, but did not affect the energy and N balance compared to HCP. During the challenge period, the energy and N balance was significantly more negative compared to the baseline period, with no significant difference between cows fed HCP or LCP. In conclusion, reducing dietary CP from 176 to 145 g/kg DM did not affect the energy and N balance in response to the immune challenge.