

# Is Rectal Temperature an Effective Tool to Decide When to Treat Early Lactation Dairy Cows?

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Previous studies have used a rectal temperature (RT) of 39.5 and 39.7 or greater to diagnose fever in cows. Our objective was to determine an ideal temperature threshold to justify treatment with antibiotics and evaluate the association between RT and movement of cows into new groups. Rectal temperature was taken daily after morning milking from 72 cows (57 % primiparous) for 12 days, starting with the day after calving, on a commercial dairy farm in Alberta between November 2016 and July 2017. Health examinations were conducted daily, and blood ketone levels were measured (FreeStyle Precision Neo™) on days 6 and 9 after calving to diagnose early postpartum disorders (retained placenta, metritis, milk fever and ketosis). Cows diagnosed with any disorder received treatment, as well as cows with a RT of 40 °C or higher, as per the farms common practice. Cows remained in the maternity pen for at least 3 d following calving and were then moved into the larger milking group at the producers' discretion. Twenty-six percent of cows (n = 19) were diagnosed with a health disorder and 32 % (n = 17) of the healthy cows were treated for a high temperature with no disorder diagnosis. There was an association ( $P = 0.001$ ) between day of move to the milking group and RT, in which the average RT was higher on the day of the move ( $39.5 \pm 0.04$  °C) and for 3 days following the move ( $39.4 \pm 0.04$  °C), compared to 3 days before the move ( $39.3 \pm 0.04$  °C). There was no difference between average RT of healthy primiparous and multiparous cows, with an average of  $39.3 \pm 0.32$  °C. The sensitivity to detect truly sick cows (diagnosed with at least 1 disorder) and the specificity to detect truly healthy cows (no diagnosed disorder) for an RT threshold of 39.5, 39.7 and 40 °C was 89 and 15%, 89 and 42% and 68 and 68%. The majority of disorders not detected by the RT thresholds were metabolic.

Take home message: Using daily RT is an important tool for producers to identify illness in early postpartum cows. The movement of cows between groups may increase RT on the day of the move and for at least 3 days later and should be considered before treating. Increasing the RT threshold for detection of sick cows increases the risk of missing sick cows but decreases the risk of treating healthy cows. In order to reduce over-use of antibiotics, RT should be used with other measures of health (i.e. milk yield and physical examinations). This study was limited by our ability to physically diagnose health disorders. Analysis of blood samples taken on days 3, 6, 9 and 12 for markers of disease is on-going and may provide better information on which animals were truly healthy and a more accurate RT threshold for treatment.

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