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

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BACKGROUND & OBJECTIVES

Previously, a rectal temperature (RT) of 39.5 and 39.7 °C or greater has been used to diagnose fever and justify treatment in cows.

Our objectives were to:

- **Determine an ideal RT threshold to justify treatment with antibiotics in early lactation dairy cows.**
- **Evaluate the association between RT and movement of cows into different groups.**

MATERIALS & METHODS

- A total of 72 fresh cows (41 primiparous) on a commercial dairy calving between November 2016 and July 2017 were evaluated.
- RT was taken and health examinations were performed daily after the morning milking for 12 days, starting with the day after calving.
- Blood samples were taken on day 3, 6, 9 and 12 and samples from day 6 and 9 were measured for blood ketone levels using the FreeStyle Precision Neo ™.
- Cows diagnosed with a health disorder were given appropriate treatment and those with a temperature > 39.9°C, regardless of disorder diagnosis, were given antibiotics.
- Cows remained in the maternity pen for at least 3 days following calving and were then moved into the milking group at the producers' discretion.

RESULTS

- Overall, 26% of cows (n = 19) were diagnosed with a health disorder and 32% of the healthy cows (n = 17) were treated for a RT > 39.9 °C with no diagnosis of a health disorder (Figure 1).
- 79 % of cows with an infectious disorder (retained placenta and metritis) and 50 % of cows with a metabolic disorder (ketosis and milk fever) had a RT > 39.9 °C, respectively.
- The average RT of healthy cows was 39.2 ± 0.32 °C with no difference between primiparous and multiparous cows.

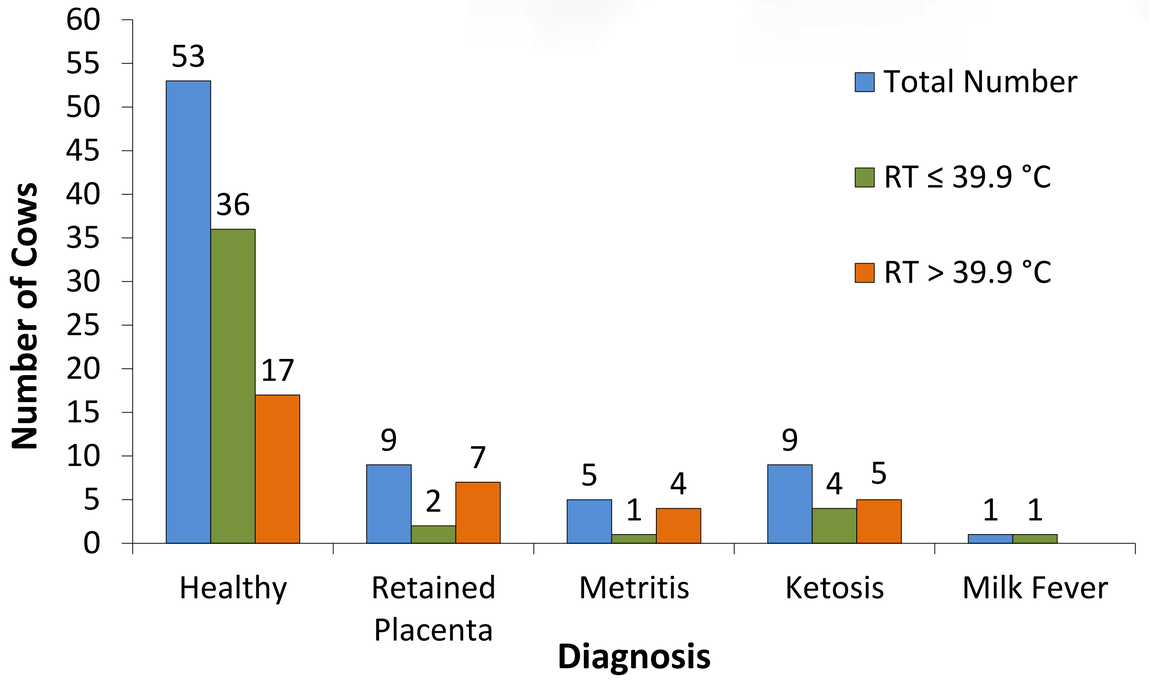

Figure 1. Number of cows diagnosed as healthy or with a disorder and distribution of cows with or without a rectal temperature (RT) greater than 39.9 °C.

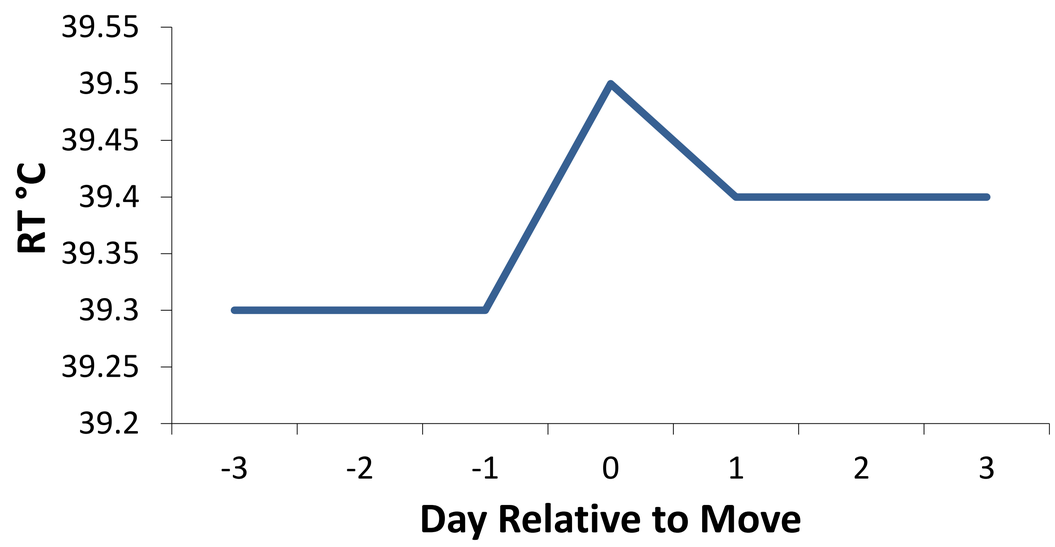

Figure 2. Change in rectal temperature (RT) relative to day of move (d 0) into the milking group.

Table 2. Ability of rectal temperature (RT) threshold to identify truly sick (sensitivity) and truly healthy (specificity) cows.

RT Threshold	Sensitivity % (True Positive Rate)	Specificity % (True Negative Rate)
39.5 °C	89	15
39.7 °C	89	42
40 °C	68	68

TAKE HOME MESSAGE

- **The movement of cows between groups may increase RT and should be considered before treating.**
- **Using a threshold of 40 °C would reduce the treatment of healthy cows but should be used with other measures of health to diagnose sick cows.**
- **Analysis of all blood samples for markers of disease is on-going and will provide better information on which animals were truly sick and a more accurate RT threshold for treatment.**

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The authors would also like to thank Breevliet Ltd