

# **Milk yield relative to supplement intake and rumination time differs by health status for fresh cows in robotic herds**

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Robotic milking systems provide the ability to adjust the amount of supplemental concentrate offered to cows based on parity, DIM, and milk yield. However, the settings used to control supplement allowance do not typically take milk yield into account until 20 to 70 DIM, past the peak risk period for developing subclinical ketosis (SCK).

To determine associations of health status with milk yield, robot supplement intake, rumination time, and the ratios of milk yield:supplement intake and milk yield:rumination time, we monitored 605 cows from 9 AMS herds, testing blood beta-hydroxybutyrate (BHB) concentrations 1 x/wk for the first 3 wk of lactation. Milk yield, supplement intake, and rumination data were collected from the robot computer on each farm. For analyses, only multiparous cows from 8 herds were included (n = 172 total) and were matched, within farm, to include an equal number of cows in each of 4 health status groups (n = 43 per group): SCK- (BHB  $\geq 1.2$  mmol/L at  $\geq 1$  of 3 tests, with no other disorder in the first 30 DIM), SCK+ (BHB  $\geq 1.2$  mmol/L at  $\geq 1$  of 3 tests, with another health disorder), HLT- (BHB always  $< 1.2$  mmol/L, with no other disorder), or HLT+ (BHB always  $< 1.2$  mmol/L, with a health disorder).

Milk yield and rumination time varied by health status, but there was no difference in supplement intake by health status group. As a result, milk yield relative to supplement intake and rumination time differed by health status. Cows in SCK- had the highest milk yield and ratio of milk yield:supplement intake, but SCK+ cows had the lowest rumination time and the highest milk yield:rumination ratio.

Implications: These results highlight the differences in milk production (per day and relative to supplement consumption or rumination time) associated with health status. Therefore, there is potential to modify supplementation in AMS to reduce negative energy balance by accounting for milk production of fresh cows.