



PhD activities: 2nd year

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PhD Cycle: 32nd



► Change in feeding strategy affects intake, rumination behavior, and ruminal pH pattern in dairy cows

Objective:

investigate feeding behavior of dairy cows fed restricted or ad-libitum total mixed rations (TMR) with abrupt changes between.

Materials and Methods:

Eight multiparous Holstein cows were assigned to a double crossover design, with treatment 1 (T1) corresponding to ad-libitum feeding and treatment 2 (T2) to restricted feeding with TMR available for 19 h/d. After 4 wk of adaptation, data were collected for 2 d before (d -2 and -1), on d 0, and for 2 d after (d 1 and 2) the switch of feeding strategy. Rumination time, ruminal pH, and dry matter intake (DMI) were recorded continuously.

Statistical analysis:

Performed with a factorial arrangement of treatments using the MIXED procedure of JMPpro (v13.1.0, 2016, SAS).

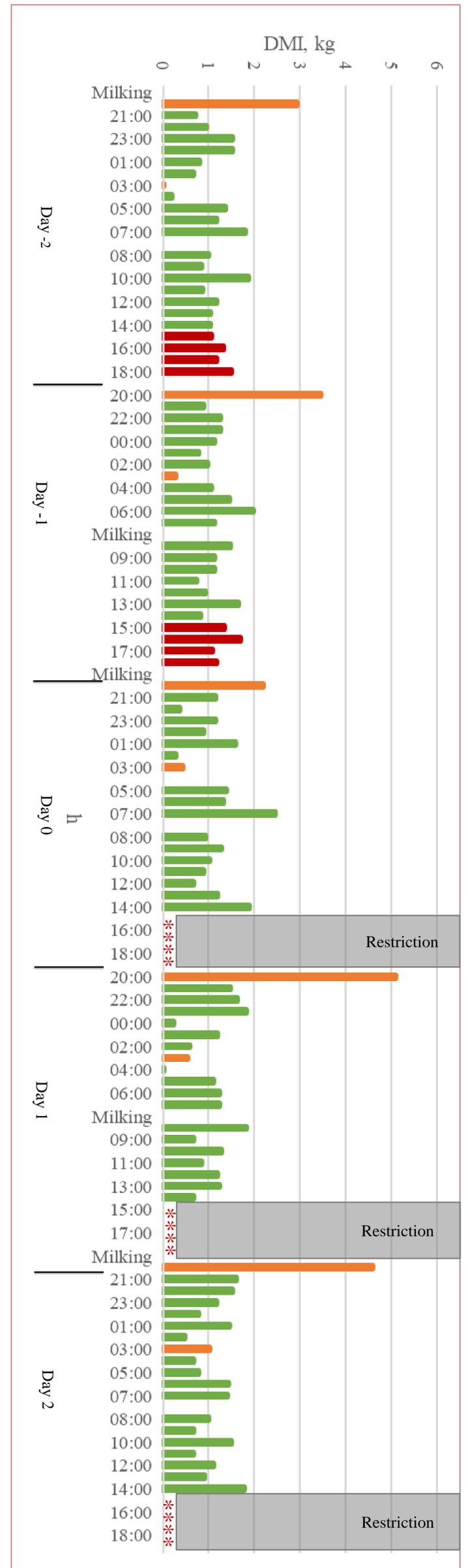
Results:

The change from T1 to T2 decreased DMI dramatically on d 0 (-8 kg; $P < 0.01$). The DMI of the first meal after feed delivery was higher on d 1 after switching from T1 to T2 (5.11 vs 2.19 kg; $P < 0.05$). On d 2, animals showed the same feeding pattern. In T2 during feed restriction time (1500 to 2000 h), rumination time and pH increased (+19 min in d 0 vs 1; $P < 0.05$, and +0.24 pH in d 0 vs 1; $P < 0.01$). When animals were moved from T1 to T2, the daily rumination pattern changed from 1 peak observed early in the morning (0200 to 0400 h) to a bimodal pattern with a second peak of rumination during the hours of restriction (1500 to 2000 h). Similar changes occurred in the ruminal pH, which shifted its maximum from 0500 to 0600 h to 1800 h during the restriction. When animals were moved from T2 to T1, pH, rumination, and DMI quickly changed to the usual pattern.

Conclusions:

Our results confirm that an abrupt change in availability of TMR affects feeding and rumination behavior and ruminal pH pattern; however, cows adapt within 1 d after the change.

Table 1. Daily DMI during the change from ad libitum to restriction.



Future proposal:

Fecal Samples time-points to estimate uNDF₂₄₀ excretion in dairy cows

The aim is to identify an easy way to estimate the uNDF_{240h} excretion with an unique time-point sampling (commercial dairy farm application).

