

# Variations in chewing behavior and rumino-reticular pH in dairy cows during gradual adaptation to a high-grain diet

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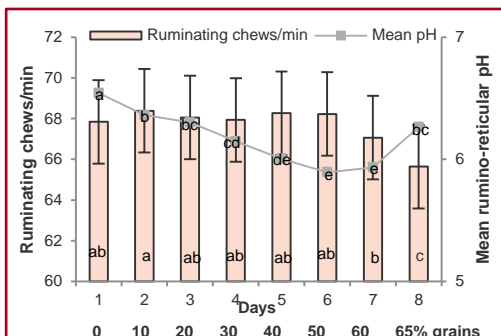
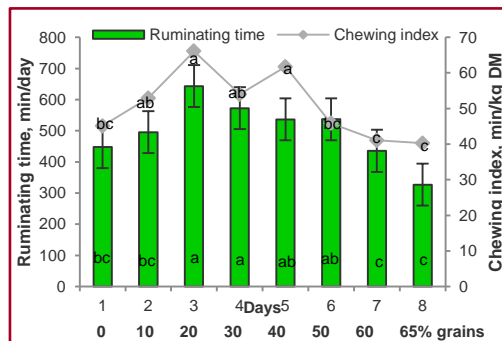
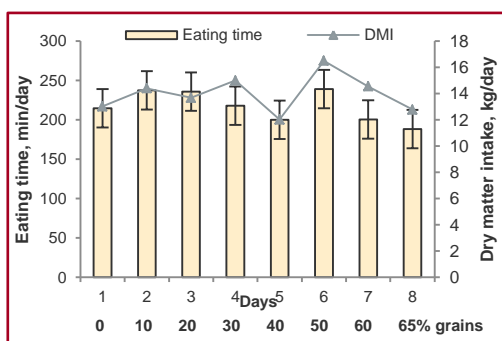
## Introduction

Diet physically effective fiber has a positive effect on rumen pH by promoting chewing (1). However, milking cows require high energy rations to comply with the dairy industry. Therefore, rations include sources of rapidly fermentable carbohydrates, which increase the risk for subacute ruminal acidosis (2, 3). The **objective** of this experiment was to evaluate rumination behavior and rumino-reticular pH variations during an 8-day adaptation to a high grain diet. Our hypothesis is that gradual grain increment in cows ration will **reduce chewing activity** and **rumen pH**.

## Methods

The experiment was conducted at the Vet Farm of the Vet Med Uni Vienna in Pottenstein-Lower Austria, with 9 cannulated non-lactating Holstein cows. Ruminal pH was measured every 15 minutes using in-dwelling data loggers (*e-Cow*), and chewing behavior was monitored with noseband (*RumiWatch*) sensors from the day 1 (only forage diet) to day 8 (65% grain diet), daily increment of 10% grains. Data were analyzed using the Mixed procedure of SAS, the statistical model included day as fixed effect and cow was considered as random effect.

## Results



- Eating time and DMI did not change during the adaptation.
- Rumination time decreased from 496 min to 327±63 min from day 2 to day 8 ( $P < 0.05$ ) with a maximum value on day 3.
- Mean rumino-reticular pH decreased reaching the lowest value on day 6 and 7 when cows consumed the 50 and 60% concentrate diets.
- Ruminating chews/min were not affected by changes in the fiber proportion of the ration.

## Conclusions

- The reduction in dietary physically effective fiber may have contributed to decrease ruminating time after cows were adapted to a TMR containing 65% of grain.
- The reduction in chewing activity during adaptation may have contributed to decrease rumino-reticular pH.
- Dietary adaptation did not affect eating time, feed intake and ruminating chews/min.

## Acknowledgements and References

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