

Variation in and Relationships Among Feeding, Chewing, and Drinking Variables for Lactating Dairy Cows

R. G. Dado and M. S. Allen

Department of Animal Science, Michigan State University, East Lansing 48824

Twelve Holstein cows (63 DIM; 6 primiparous) were offered a common diet and monitored for 21 d (11 d of adaptation, 10 d of collection) with a data acquisition system to measure continuously feed and water intakes and chewing behavior. Objectives were to examine relationships among feeding behavior variables for noncompeting cows producing various quantities of milk and to determine experimental designs with adequate power to detect reasonable treatment differences in future experiments. Coefficients of variation across cows ranged from 5 to 41% for the variables studied. Milk production was correlated positively with DMI and water intake within and across parities. For multiparous cows, production was related positively to meal size ($r = .78$) and length of eating bouts ($r = .75$) and unrelated to meal number and eating rate. For primiparous cows, production tended to be related positively to meal number ($r = .55$) and eating rate ($r = .87$) and unrelated to meal size. Rumination and total time spent chewing per unit of DMI were correlated negatively ($r = -.58$) with milk production within and across parities. These correlations suggest that differences exist among cows for chewing efficiency. Reasons why high producing cows consume and chew more effectively deserve further study. Contrast differences of 10% of means for variables examined had an 80% probability of detection with a Latin square design utilizing 12 cows monitored for 5 d.

This Article

- ▶ [Full Text \(PDF\)](#)
- ▶ [Alert me when this article is cited](#)
- ▶ [Alert me if a correction is posted](#)

Services

- ▶ [Similar articles in this journal](#)
- ▶ [Similar articles in PubMed](#)
- ▶ [Alert me to new issues of the journal](#)
- ▶ [Download to citation manager](#)
- ▶ [Get Permissions](#)

Citing Articles

- ▶ [Citing Articles via HighWire](#)
- ▶ [Citing Articles via Google Scholar](#)

Google Scholar

- ▶ [Articles by Dado, R. G.](#)
- ▶ [Articles by Allen, M. S.](#)
- ▶ [Search for Related Content](#)

PubMed

- ▶ [PubMed Citation](#)
- ▶ [Articles by Dado, R. G.](#)
- ▶ [Articles by Allen, M. S.](#)

This article has been cited by other articles:



Journal of Dairy Science ▶ HOME

V. Cardot, Y. Le Roux, and S. Jurjanz
 Drinking Behavior of Lactating Dairy Cows and Prediction of Their Water Intake
 J Dairy Sci, June 1, 2008; 91(6): 2257 - 2264.

[\[Abstract\]](#) [\[Full Text\]](#) [\[PDF\]](#)



Journal of Dairy Science

▶ HOME

S. K. Bhandari, S. Li, K. H. Ominski, K. M. Wittenberg, and J. C. Plaizier
Effects of the Chop Lengths of Alfalfa Silage and Oat Silage on Feed Intake, Milk Production, Feeding Behavior, and Rumen Fermentation of Dairy Cows

J Dairy Sci, May 1, 2008; 91(5): 1942 - 1958.

[\[Abstract\]](#) [\[Full Text\]](#) [\[PDF\]](#)



Journal of Dairy Science

▶ HOME

C. S. Mooney and M. S. Allen
Effect of Dietary Strong Ions on Chewing Activity and Milk Production in Lactating Dairy Cows

J Dairy Sci, December 1, 2007; 90(12): 5610 - 5618.

[\[Abstract\]](#) [\[Full Text\]](#) [\[PDF\]](#)



Journal of Animal Science

▶ HOME

V. Robles, L. A. Gonzalez, A. Ferret, X. Manteca, and S. Calsamiglia
Effects of feeding frequency on intake, ruminal fermentation, and feeding behavior in heifers fed high-concentrate diets

J Anim Sci, October 1, 2007; 85(10): 2538 - 2547.

[\[Abstract\]](#) [\[Full Text\]](#) [\[PDF\]](#)



Journal of Dairy Science

▶ HOME

P. Mantysaari, H. Khalili, and J. Sariola
Effect of feeding frequency of a total mixed ration on the performance of high-yielding dairy cows.

J Dairy Sci, November 1, 2006; 89(11): 4312 - 4320.

[\[Abstract\]](#) [\[Full Text\]](#) [\[PDF\]](#)



Journal of Dairy Science

▶ HOME

T. J. DeVries, M. A. G. von Keyserlingk, and K. A. Beauchemin
Frequency of Feed Delivery Affects the Behavior of Lactating Dairy Cows

J Dairy Sci, October 1, 2005; 88(10): 3553 - 3562.

[\[Abstract\]](#) [\[Full Text\]](#) [\[PDF\]](#)



Journal of Dairy Science

▶ HOME

J. M. Huzzey, M. A. G. von Keyserlingk, and D. M. Weary
Changes in Feeding, Drinking, and Standing Behavior of Dairy Cows During the Transition Period

J Dairy Sci, July 1, 2005; 88(7): 2454 - 2461.

[\[Abstract\]](#) [\[Full Text\]](#) [\[PDF\]](#)



Journal of Dairy Science

▶ HOME

E. Sporndly and E. Wredle
Automatic Milking and Grazing--Effects of Location of Drinking Water on Water Intake, Milk Yield, and Cow Behavior

J Dairy Sci, May 1, 2005; 88(5): 1711 - 1722.

[\[Abstract\]](#) [\[Full Text\]](#) [\[PDF\]](#)



Journal of Dairy Science

[▶ HOME](#)

Z. Shabi, M. R. Murphy, and U. Moallem
Within-Day Feeding Behavior of Lactating Dairy Cows Measured
Using a Real-Time Control System

J Dairy Sci, May 1, 2005; 88(5): 1848 - 1854.

[\[Abstract\]](#) [\[Full Text\]](#) [\[PDF\]](#)



Journal of Dairy Science

[▶ HOME](#)

C. B. Tucker, D. M. Weary, and D. Fraser
Free-Stall Dimensions: Effects on Preference and Stall Usage

J Dairy Sci, May 1, 2004; 87(5): 1208 - 1216.

[\[Abstract\]](#) [\[Full Text\]](#) [\[PDF\]](#)



Journal of Dairy Science

[▶ HOME](#)

T. J. DeVries, M. A. G. von Keyserlingk, D. M. Weary, and K. A.
Beauchemin
Measuring the Feeding Behavior of Lactating Dairy Cows in Early to
Peak Lactation

J Dairy Sci, October 1, 2003; 86(10): 3354 - 3361.

[\[Abstract\]](#) [\[Full Text\]](#) [\[PDF\]](#)



Journal of Dairy Science

[▶ HOME](#)

G. R. Bowman, K. A. Beauchemin, and J. A. Shelford
Fibrolytic Enzymes and Parity Effects on Feeding Behavior,
Salivation, and Ruminal pH of Lactating Dairy Cows

J Dairy Sci, February 1, 2003; 86(2): 565 - 575.

[\[Abstract\]](#) [\[Full Text\]](#) [\[PDF\]](#)

[HOME](#) [HELP](#) [FEEDBACK](#) [SUBSCRIPTIONS](#) [ARCHIVE](#) [SEARCH](#) [TABLE OF CONTENTS](#)

Copyright © 1994 by the American Dairy Science Association ®.