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

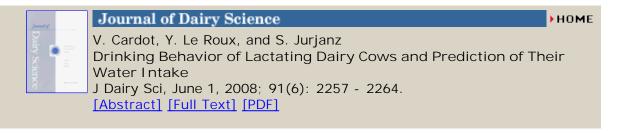
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Twelve Holstein cows (63 DIM; 6 primiparous) were offered a common diet and monitored for 21 d (11 d of adaptation, 10 d of collection) with a data acquisition system to measure continuously feed and water intakes and chewing behavior. Objectives were 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.

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