**Title: The Effects of High Grain Induced Sub-acute Rumen Acidosis on Urine pH in Dairy Cattle**

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This summer preliminary/subsidiary study investigated the normal pH fluctuation found in dairy cows fed a total mixed ration (TMR) formulated according to National Research Council (NRC) requirements (NRC, 2001). For this trial 6 rumen-cannulated lactating Holstein cows were used.Cows were fed a TMR including 18% crude protein and 26% starch which the guidelines for a normal diet according to the NRC. Cows were fed daily and had access to feed during all hours of the trial. Ruminal pH was monitored one hour before feeding and was measured in one-hour intervals post-feeding. A total of 18 samples were taken in a 24-h interval. During the three 2-hour milking periods, samples were not taken. Rumen fluid samples were taken from the cranial, medial, and caudal portions of the ventral area of the rumen and mixed to obtain a consensus sample of rumen fluid. The sampling protocol was repeated on each cow 3 times at weekly internals. Overall the highest pH (6.6 ± 0.4) was found at 2h before feeding and the lowest pH (5.9 ± 0.4) found at 3h after feeding. Results showed that the ruminal pH of cows varies greatly among individuals. All cows showed a drop in pH by the third hour post-feeding. This remained fairly steady for cows with some spikes above and below normal until hour 15 post-feeding. Results from this study will be used in future research to help determine a relationship between subacute rumen acidosis and urine pH.