

Recycled nitrogen in dairy cows fed different amounts of concentrate. A. Al-Dehneh\*, R. Wanderley, C.B. Theurer and J.T. Huber, University of Arizona, Tucson.

Recycled-N utilized by rumen bacteria was studied in 2 duodenally cannulated cows receiving a diet of 2:1 forage:concentrate (F) or 1:2 (C). Urea  $^{15}\text{N}$  solution was continually infused into the jugular vein for 3 d. Cows were fed diets 28 d prior to infusion. Samples of duodenal digesta were taken every 3 h for 5 d. Blood and milk were sampled twice daily. Urine was collected for 5 d starting 1 d before infusion and feces for 3 d during infusion. Fecal spot samples were taken twice daily during the 5 d of collection. Recycled nitrogen incorporated into rumen microbes was greater for the C than F diet. Also, it was higher in the lactating than dry cow (23 vs 14% of microbial N passing into the duodenum). The C diet resulted in more recycled N in duodenal digesta than F (14 vs 10% of total N). Also, recycled N was greater for the lactating than dry cow (13 vs 11%). Based on  $^{15}\text{N}$  enrichment, percent of duodenal-N of microbial origin averaged about 72% in the dry cow on both diets and in the milking cow on diet F, but 54% for the milking cow fed diet C. Within 12 h after starting  $^{15}\text{N}$  infusion, label appeared in milk and feces with peaks at 50-80 h. About 15% of the milk-N and fecal-N originated from blood urea. Urine enrichment of  $^{15}\text{N}$  was 10 times that of bacteria, feces or milk. Most of the  $^{15}\text{N}$  excretion was in urine.