



How Do Prior Grazing Experiences Effect Adaptation to Pasture and Performance of Dairy Heifers as Lactating Cows?



WISCONSIN GRAZING LANDS CONSERVATION INITIATIVE GRANT PROGRAM

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Research Brief

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Do grazing experiences early in life impact the grazing behavior and performance of lactating dairy cows? Many dairy graziers believe that grazing behavior has both a learned and a genetic component. The capacity of dairy cattle to learn to graze effectively has been a subject of debate within the grazing community. This 3-year study helped answer these questions.

Forty one Holstein and 23 Holstein-Jersey crossbred, weaned calves born between January and April 2008 were randomly assigned to one of four treatments with 16 calves per treatment. Treatments were combinations of managing heifers in confinement or on pasture: T1 - grazed 2008 and 2009; T2 - grazed 2008 and confined in 2009; T3 - confined in 2008 and grazed in 2009; and T4 - confined in 2008 and 2009. All heifers grazed as lactating cows in 2010.

In 2008, T1 and T2 heifers were grazed on Italian ryegrass pasture from August through October, while T3 and T4 heifers were housed in bedded pack pens and fed TMR. In 2009, T1 and T3 heifers grazed Italian ryegrass pasture for 65 days from June to September, 2009, while T2 and T4 heifers were fed in confinement. All four treatment groups calved between January and April, 2010, and grazed mixed pasture as early lactation cows for 61 days from May through July.

In 2009 and 2010 grazing activities were assessed by visual observation. The activity of each heifer was recorded every 15 minutes during 9 hours (0700 hours to 1600 hours) in 2009 and 8 hours (0700 hours to 1500 hours) in 2010, on selected days of the study. These activities were categorized as: walking, drinking water, grazing, lying down or standing but not grazing. To assess how previous grazing experience affects heifer movement on pasture, portable GPS units were attached to neck collars on each heifer during the same days and hours that visual observations were made. The GPS units recorded the location and distance walked of each heifer. Besides the visual observation and GPS recorded, daily milk was also recorded in 2010.

In 2009 on day 1, heifers that had grazed in 2008 (T1 and T2) spent significantly more time grazing than heifers with no grazing experience (78 vs. 35 % of the time). As lactating cows in 2010 on day 1, time spent grazing was 62, 59, 76, and 13% for T1, T2, T3 and T4, respectively, with T4 (the heifers with no grazing experience) ranking significantly lowest. In 2009 and 2010 on days 1-3, experienced heifers walked a greater distance in the pasture than inexperienced heifers. Milk production was significantly lowest initially for cows with no previous grazing experience (T4). Cows that had not grazed in 2009 (T2 and T4) produced less milk than those that had grazed in 2009 (T1 and T3) on days 1-3. However, average daily milk over the entire experiment was not significantly different between treatments.

Results indicate that previous grazing experience can impact behavior and milk production during the first days on pasture. After this time, experienced and inexperienced dairy cattle presented similar grazing behaviors and performance. This study showed that experienced and inexperienced cattle adapt to a new grazing environment within a few days, and that adaptation to environment is essential for development of grazing skills for heifers on high quality pastures.

The Grazing Lands Conservation Initiative Grant Program is a partnership between the private sector GLCI Steering Committee, the USDA Natural Resources Conservation Service and the WI Department of Agriculture, Trade, and Consumer Protection. This series of research briefs summarizes projects funded by this program. Our mission is to expand the use of profitable, grazing-based livestock production systems that foster environmental stewardship. This is accomplished through high quality technical assistance to owners and operators of private land, university and producer coordinated research, and educational programs. For more information on the program or on the research in this Brief, contact: Laura Paine, Grazing and Organic Agriculture Specialist, WI Department of Agriculture, Trade, and Consumer Protection, (608) 224-5120, laura.paine@wi.gov; or Rhonda Gildersleeve, Extension Grazing Specialist, University of Wisconsin-Extension, (608) 723-6243, rhonda.gildersleeve@ces.uwex.edu. This summary was written by Ken Barnett with University of Wisconsin-Extension.