



# How Does Grazing Management Affect Pasture Productivity, Plant Morphology, and Persistence?

## Part 2 - Timing of Grazing



WISCONSIN GRAZING LANDS CONSERVATION INITIATIVE GRANT PROGRAM

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### Research Brief

### #5

How does grazing using the “take half-leave half” rule actually affect both annual pasture productivity? How does productivity change when mature grasses are “mob-grazed”, a management alternative to grazing at a vegetative stage? What are the potential impacts on future grass growth (both above- and below-ground) and persistence?

A range of grazing management systems at the U.S. Dairy Forage Research Center (USDFRC) was implemented on existing 1.0 acre paddocks of orchardgrass, meadow fescue, reed canarygrass, and quackgrass that had been rotationally grazed for two years. Within each paddock, two experiments were conducted in 2009 and 2010. One investigated how time of grazing (spring, summer, and fall) effects grass growth and a second investigated how the extent of grazing effects grass growth. This paper will report on the timing experiment.

For the timing experiment, grass was grazed in the spring (early to late May), summer (early to late July), or fall (late August to late September) at 6-, 12- (control), and 18 inch heights to a 3 inch residue. Any time grasses were not grazed according to these treatments, grasses were grazed at a 12 inch height to a 3 inch residue. Yield was measured prior to each grazing event.

The maximum mean annual yield (5060 lb. /acre) was obtained when grasses were grazed at 18 inches (mature) in the spring, although yield during the remainder of the season was reduced 500 lb. /acre, and tiller density was reduced 10- to 30%. Grazing at 6 inches in early May reduced productivity by 30% during the remainder of the season in one year, compared to grazing at 12 inches. Grazing at 6 inches in late July, during drought, reduced productivity 20% during the remainder of the year. Herbage nutritive value was negatively impacted only by grazing at 18 inches.

Persistence of all grasses except orchardgrass was reduced 20 to 40% by grazing at 6 inch during the summer. Grazing at 6 inch height during the summer had the greatest negative impact on grass productivity and persistence.

The results suggest that grazing short, vegetative grass will have the most detrimental effect on pasture productivity when followed by moisture stress. While forage quality is reduced, allowing grass to reach maturity in the spring, before grazing, benefits annual production.

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](mailto:laura.paine@wi.gov); or Rhonda Gildersleeve, Extension Grazing Specialist, University of Wisconsin-Extension, (608) 723-6243, [rhonda.gildersleeve@ces.uwex.edu](mailto:rhonda.gildersleeve@ces.uwex.edu). This summary was written by Ken Barnett with University of Wisconsin-Extension.