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W. H. Schacht
University of Nebraska-Lincoln

J. D. Volesky
University of Nebraska-Lincoln

P. R. Schroeder
University of Nebraska-Lincoln

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Timing of grazing affects sandhills grassland productivity and diet quality

W .H .Schacht¹ ,J .D .Volesky² ,and P .R .Schroeder¹

¹Department of Agronomy and Horticulture ,University of Nebraska-Lincoln ,Lincoln ,Nebraska 68583-0915 ,USA , E-mail : wschacht@unl .edu ,²WCREC ,University of Nebraska-Lincoln ,North Platte ,Nebraska ,USA .

Key words : short duration grazing ,deferred rotation grazing ,elongation stage of development

Introduction Timing and frequency of grazing are tools used by managers to manipulate plant and animal response .Timing and sequence of grazing periods in grazing systems ,such as short duration grazing (SDG) and deferred rotation (DR) ,may affect herbage production and diet quality over years .

Materials and methods The study was conducted on upland range at the University of Nebraska Barta Brothers Ranch in the northeastern Nebraska Sandhills near Ainsworth .The study was initiated in 1999 with establishment of 2 replications of an 8-pasture SDG system and a 4-pasture DR system .Each system has been grazed annually by cow-calf pairs from 15 May to 15 October with two 6 to 14 day occupations for SDG pastures and a single 30 to 45 day occupation for DR pastures .Herbage production was estimated by clipping in mid August of each year .Diets of esophageally-fistulated cows were collected from SDG and DR pastures in the grazing seasons of 2005 and 2006 .

Results Timing of the grazing period in the DR pastures generally did not affect herbage production in the succeeding year . Grazing in mid-June to mid-July in the SDG pastures consistently resulted in lower August yields of warm-season grasses and total current-year biomass in the succeeding year (Figure 1) .Crude protein content of diets declined through the growing season of both years but did not differ between SDG and DR .The IVOMD of diets declined at similar rates for the 2 systems in 2005 but rate of decline was greater for SDG in 2006 (Figure 2) .

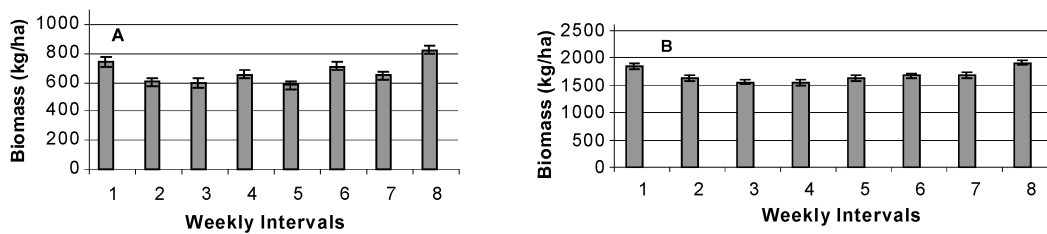


Figure 1 Warm-season grass (A) and total (B) August biomass (mean ± SE) in year following 8 successive week-long grazing periods starting June 1 .

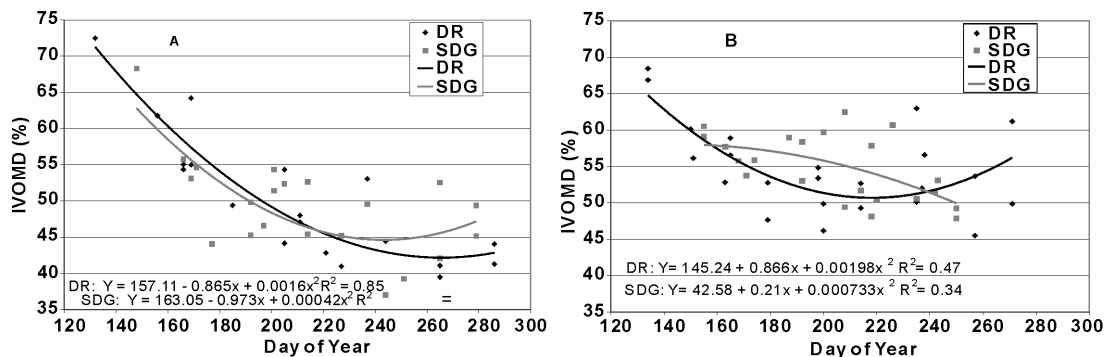


Figure 2 IVOMD of diet samples from DR and SDG pastures in 2005 (A) and 2006 (B) .

Conclusions Grazing in mid-June to mid-July at the elongation stage of the dominant perennial warm-season grasses in the central Great Plains appears to negatively impact succeeding-year production .Grazing during this time period in consecutive years should be avoided (Mousel *et al.* , 2003) .Repeated pasture occupations within year in SDG do not slow the rate of decline in diet quality compared to DR on Nebraska Sandhills grassland .

Reference

Mousel ,E .M . ,W .H .Schacht ,and L .E .Moser .2003 .Summer grazing strategies following early-season grazing of big bluestem .*Agronomy Journal* , 95 :1240-1245 .