



Dairy heifer growth while grazing meadow fescue or orchardgrass

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BACKGROUND

Grazing operations in the Midwest are interested in grasses that will promote dairy heifer performance and thrive under a management intensive grazing system. 'Hidden Valley' meadow fescue was derived from meadow fescue plants that had become naturalized to pastures in the Driftless region of the upper Mississippi river area. While growing in this region it had become adapted to the growing conditions of managed pastures in the Midwest. Advances in orchardgrass varieties have led to later heading varieties that allow for increased grazing prior to heading. Also, grazing of heifers has been of interest to control rearing costs (mainly feed, bedding, and labor).

OBJECTIVES

Evaluate pasture productivity and dairy heifer growth when grazing either meadow fescue (MF; variety Hidden Valley) or orchardgrass (OG; variety Haymaster) at the University of Wisconsin Marshfield Agricultural Research Station.

MATERIALS & METHODS

- Six pastures (1 ha each) were used with 3 blocks (2 pastures/block) and grass treatment randomized within each block
- Pre-pubescent heifers (n=24) were blocked by weight (8 heifers per weight block; low, medium, high) and randomly assigned to graze MF or OG in each block with 4 heifers per pasture
- Three years of study were completed with different heifers used each year (2016, 2017, and 2018)
- No supplemental concentrates were provided.
 - Mineral was provided daily to meet mineral and vitamin needs
- Body measurements were taken at the start and end of the grazing season
- Grazing commenced in late May
- Forage height measures were taken with a rising plate meter
- Heifers were moved twice a week with forage height measurements taken on the pre- and post-grazed paddocks
- Calibration of height measures to estimate forage availability was done by clipping 3 locations in each pasture
- Forage quality was measured using near-infrared spectroscopy

RESULTS

Table 1. Forage availability and nutrient quality data

	Meadow Fescue				Orchardgrass				P-values	
	Mean	2016	2017	2018	Mean	2016	2017	2018	Specie	Specie x Year
Forage Availability, kg/ha	1045	849	865	1423	1128	1022	891	1471	0.056	0.095
NDF%	53.3	51.6	54.8	53.7	56.0	55.2	57.9	54.9	0.008	0.037
NDFD%	66.9	69.4	61.3	70.0	64.0	64.7	58.8	68.9	0.016	0.015
IVDMD%	71.0	79.4	68.5	64.1	68.2	74.9	67.3	61.4	0.006	0.007
CP%	14.8	16.4	12.8	15.1	14.1	15.4	12.2	14.7	0.096	0.633

Table 2. Heifer growth data

	Meadow Fescue				Orchardgrass				P-values	
	Mean	2016	2017	2018	Mean	2016	2017	2018	Specie	Specie x Year
Daily gain (kg/d)	0.78	0.82	0.81	0.72	0.73	0.77	0.68	0.74	0.271	0.442
Hip height change (cm)	12.4	13.5	12.9	10.9	11.6	11.3	12.6	11.1	0.294	0.271
BCS change (units)	0.4	0.8	0.1	0.2	0.3	0.7	-0.1	0.1	0.287	0.867



Picture 1. Heifers grazing orchardgrass



Picture 2. Pasture layout & grazing rotation

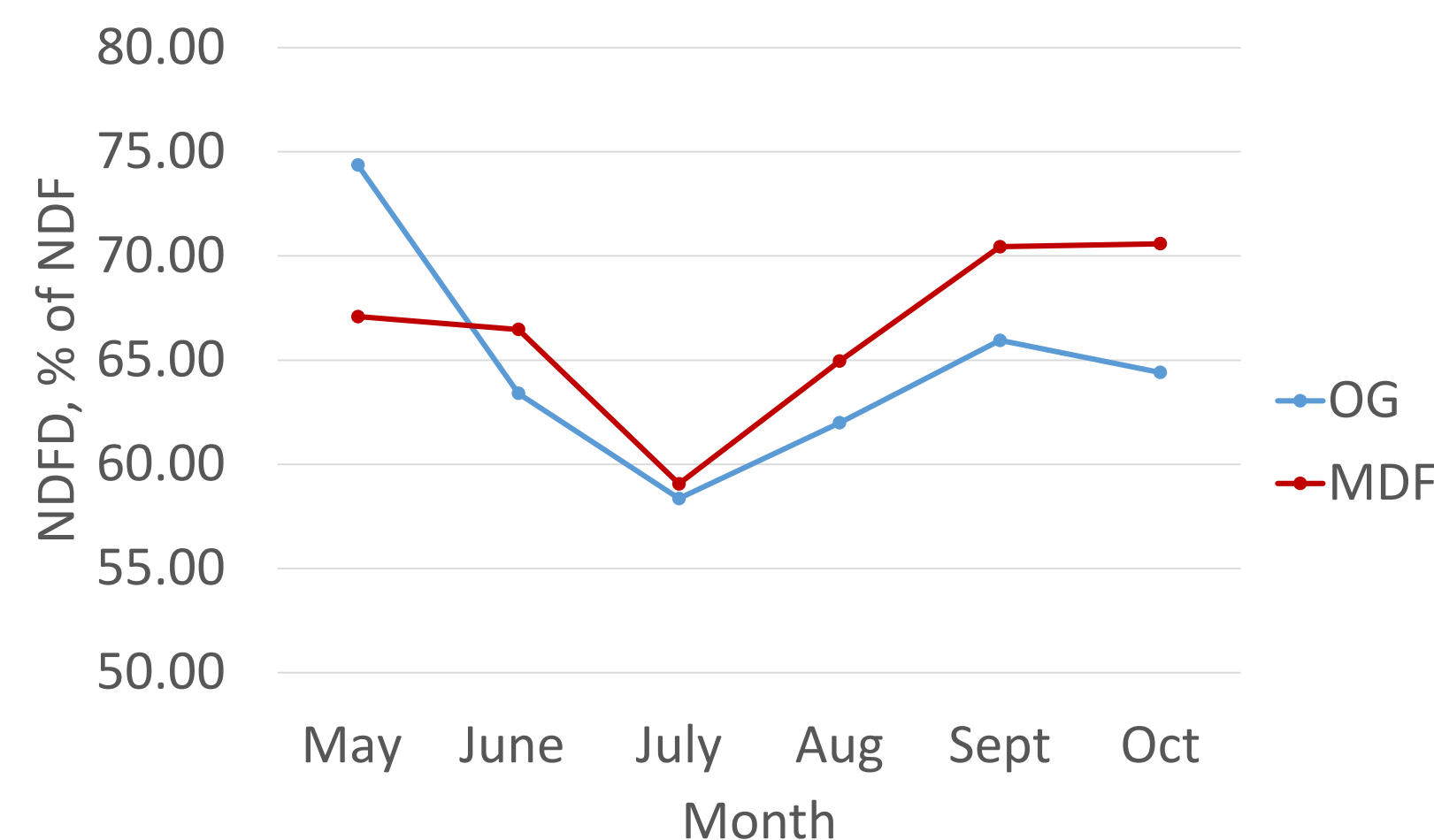


Figure 1. Monthly NDF digestibility over the three year study

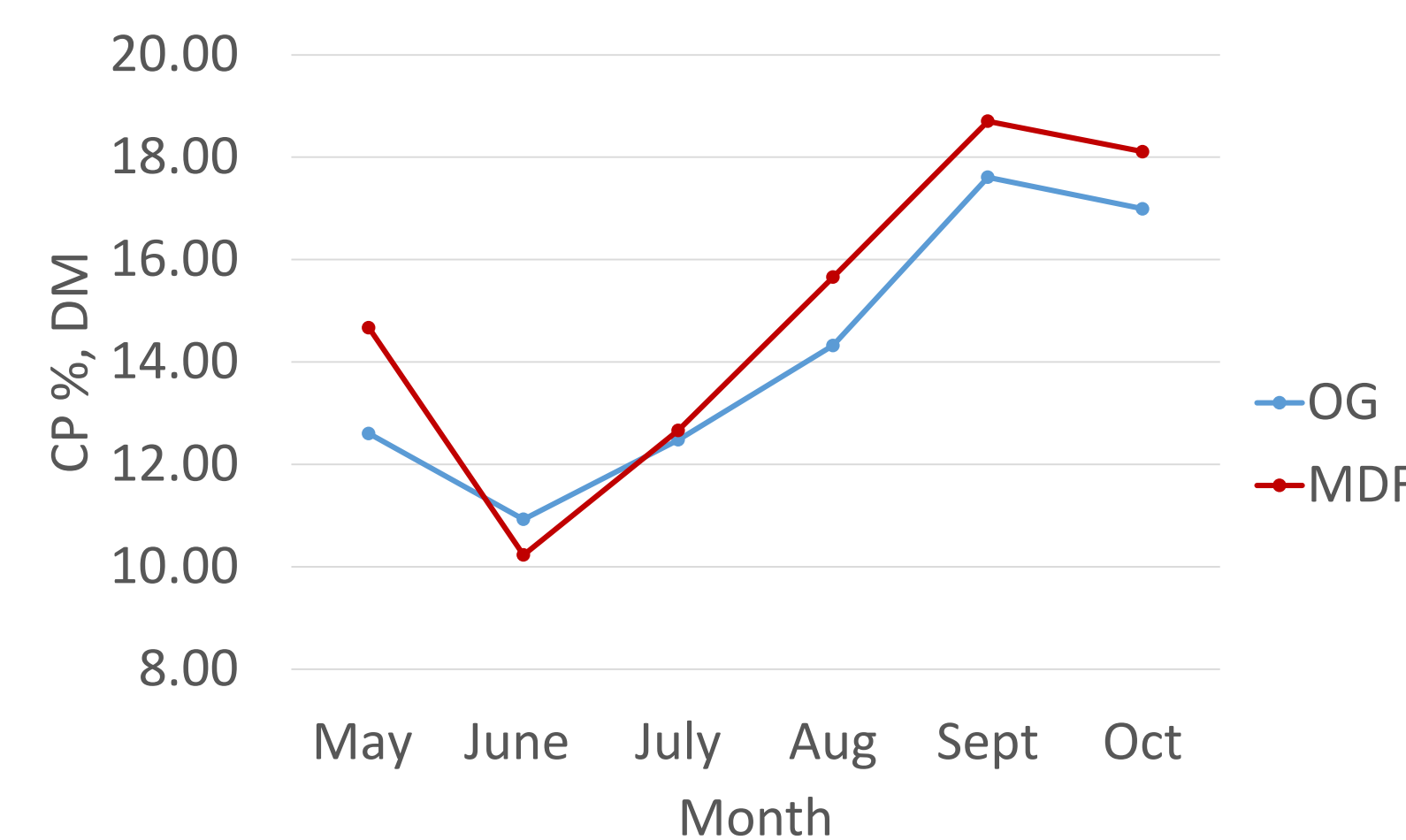


Figure 2. Monthly forage protein content over the three year study

SUMMARY

Grasses

- Meadow Fescue had slightly lower forage availability each year than Orchardgrass
- Meadow Fescue had higher forage quality than Orchardgrass with lower NDF as well as higher NDFD, CP, and IVDMD
- Managed clipping of the pastures to remove stems was delayed in 2017 due to wet conditions resulting in high availability early but less vegetative growth later. Quality was also reduced in 2017 with higher fiber and lower protein values.

Heifer Growth

- Average daily gains were similar for heifers grazing MF and OG across all three years.
- Hip height gains and body condition change were similar for heifers grazing both grasses across the three years

CONCLUSIONS

- Level of pasture management plays an important role in forage productivity and performance of animals grazing on pasture
- Both MF and OG are suitable sources of forage for grazing young heifers

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REFERENCES

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