

Alternative Grass Variety Trial

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Introduction

In response to questions about the suitability of some relatively new or different forage grass species for northwest Iowa, a variety trial was initiated in 2010 with a few examples of alternative forage grasses. Among the entries tested were two intermediate wheatgrass varieties and two meadow brome grass varieties.

Materials and Methods

Intermediate Wheatgrass (*Thinopyrum intermedium*) is a cool-season, perennial grass that grows 48 to 60 in. tall when headed, is densely tillering, and moderately sod forming. Varieties entered were:

- Rush, a variety of intermediate wheatgrass developed by USDA NFCS Plant Materials Center (Aberdeen, SD) from northern European germplasm for superior seedling emergence and vigor. Rush has equal to or superior forage production compared with other intermediate wheatgrass releases.
- Reliant, an intermediate wheatgrass variety developed from several adapted genetic materials by USDA Agricultural Research Service (Bismarck, ND) and the University of North Dakota Agricultural Experiment Station, Grand Forks, North Dakota. It was selected for improved leaf disease resistance, plant vigor, winterhardiness, yield, forage quality, seed production, and compatibility in mixtures.

Meadow Brome grass (*Bromus riparius*) is a long-lived cool-season, perennial grass with seed stalks 24 to 48 in. tall. It has similar yield and forage quality and more basal leaf growth than smooth brome grass. It has faster recovery and better fall growth than smooth brome grass, but establishes more slowly and may not be as winter-hardy. Varieties entered were:

- Fleet, a meadow brome grass variety developed from Northern European and northern Asian germplasm sources by the Agriculture Canada Research Station, Saskatoon, Saskatchewan, Canada.
- Cache, an improved meadow brome grass variety derived from germplasm of Fleet and other adapted varieties jointly by USDA Agricultural Research Service, Logan, Utah, and Utah Agricultural Experiment Station, Logan, Utah. It was selected for improved yield and persistence.

Two familiar forage grasses also were included for comparison, an orchardgrass variety, Extend, and a smooth Brome grass, a 'generic' seed source (variety not known). Extend orchardgrass is a late-maturing variety with improved rust resistance.

Plots were planted with four replicates in April 2010. The two wheatgrasses and orchardgrass were planted at 12.5 lb/acre, and the smooth brome grass and meadow brome grasses were planted at 22 lb/acre.

Tilled plots were cultipacked, broadcast seeded, and the seeded area was cultipacked again. Weeds were clipped during the seeding year as needed. In 2010, 0-300-240 fertilizer was applied before planting. In 2011, 150 lb/acre of urea was applied April 25 and 111

lb/acre was applied June 3, after first cutting. Similarly, in 2012, 100 lb/acre of urea was applied April 9 and 111 lb/acre was applied May 18, after first cutting.

Three harvests were taken in both 2011 and 2012. Two harvests were taken in 2013. Yields were calculated on an air-dry basis.

Results and Discussion

In 2010, the entries Extend orchardgrass and Reliant Intermediate wheatgrass were found to have leaf rust.

Seasonal yields of grass entries were not statistically different in 2011 (Table 1). Extend orchardgrass was lowest yielding in 2012 and 2013, with the other entries producing similar yields (Table 2). Extend

orchardgrass was lowest yielding in the three-year total yields for 2011-2013 (Table 2).

From this limited trial, it seems some of the newer perennial forage grasses perform similarly to smooth brome grass and orchardgrass. However, observation of their performance in more and different types of growing seasons will give a better assessment of their general suitability for inclusion in forage production systems in the area. Varieties within a species also will perform differently.

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Table 1. Alternative grass variety trial.

Variety	Cut 1	Cut 2	Cut 3	2011 total
	Air-dry yield, T/A			
Fleet Meadow Brome	1.56	0.80	0.54	2.90
Rush Intermediate Wheatgrass	1.33	0.62	0.32	2.27
Cache Meadow Brome	1.61	0.91	0.64	3.15
Extend Orchardgrass	0.86	1.05	0.43	2.33
Reliant Intermediate Wheatgrass	1.73	0.71	0.31	2.75
Smooth Brome grass	1.74	0.79	0.40	2.93

Table 2. Alternative grass variety trial, 3-yr yields 2011-2013.

Variety	2011	2012	2013	3-yr total
	Air-dry yield, T/A			
Fleet Meadow Brome	2.90	0.59	2.94	6.43
Rush Intermediate Wheatgrass	2.27	0.70	3.19	6.16
Cache Meadow Brome	3.15	0.81	3.86	7.82
Extend Orchardgrass	2.33	0.46	1.45	4.24
Reliant Intermediate Wheatgrass	2.75	0.73	3.17	6.65
Smooth Brome grass	2.93	0.69	3.02	6.64
Mean	2.72	0.66	2.94	6.32