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Alternative Grass Variety Trial 2010–2012

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Abstract
In response to questions about the suitability of some relatively new or different forage grass species for northern 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 bromegrass varieties.

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Introduction

In response to questions about the suitability of some relatively new or different forage grass species for northern 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 bromegrass 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 that was 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 Univ. of North Dakota Agricultural Experiment Station. It was selected for improved leaf disease resistance, plant vigor, winterhardiness, yield, forage quality, seed production, and compatibility in mixtures.

Meadow Bromegrass (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 bromegrass. It has faster recovery and better fall growth than smooth bromegrass, but establishes more slowly and may not be as winter hardy. Varieties entered were:

- Fleet, a meadow bromegrass variety that was developed from northern European and northern Asian germplasm sources by the Agriculture Canada Research Station, Saskatoon, Saskatchewan, Canada.

- Cache, an improved meadow bromegrass 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 were also included for comparison—Extend, an orchardgrass variety, and smooth bromegrass, 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 bromegrass and meadow bromegrasses were planted at 22 lb/acre.

Tilled plots were cultipacked, the seed was broadcast, 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 of urea was applied June 3,

after first cutting. Similarly, in 2012, 100 lb/acre of urea was applied April 9, and 111 lb/acre of urea was applied May 18, after first cutting. Three harvests were taken in both 2011 and 2012. 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, with the other entries producing more similar yields (Table 2). The two-year total yields for 2011 and 2012 were similar among entries (Table 3).

From this limited trail, it seems that some of the newer perennial forage grasses perform similarly to smooth bromegrass 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.

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Table 1. Alternative grass variety trial. Kanawha, 2011.

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 Bromegrass	1.74	0.79	0.40	2.93

Table 2. Alternative grass variety trial. Kanawha, 2012.

Variety	Cut 1	Cut 2	Cut 3	2012 total
	Air dry yield, T/A			
Fleet Meadow Brome	0.90	0.68	0.19	1.77bc
Rush Intermediate Wheatgrass	0.68	1.33	0.09	2.11ab
Cache Meadow Brome	1.41	0.81	0.21	2.43a
Extend Orchardgrass	0.72	0.59	0.07	1.38bc
Reliant Intermediate Wheatgrass	1.05	1.09	0.06	2.20ab
Smooth Bromegrass	0.77	1.09	0.21	2.06ab

Yields in a column followed by the same letter are not statistically different.

Table 3. Alternative grass variety trial. Kanawha, 2-yr yields 2011-2012.

Variety	2011	2012	2 yr total
	Air dry yield, T/A		
Fleet Meadow Brome	2.90	1.77	4.67
Rush Intermediate Wheatgrass	2.27	2.11	4.71
Cache Meadow Brome	3.15	2.43	4.79
Extend Orchardgrass	2.33	1.38	4.60
Reliant Intermediate Wheatgrass	2.75	2.20	4.70
Smooth Bromegrass	2.93	2.06	4.97