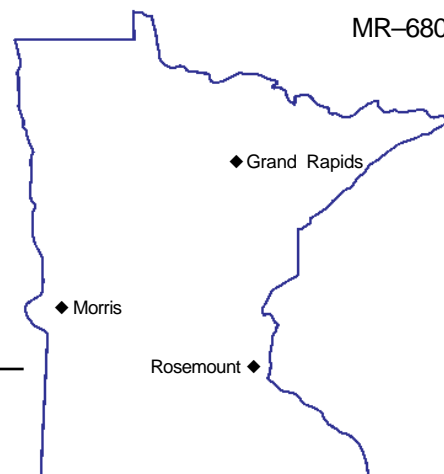


Minnesota Agricultural Experiment Station

VARIETY TRIALS

Tall Fescue, Wheatgrass



Locations of tall fescue trials.

Successful production of tall fescue or wheatgrass depends to a considerable extent on selecting the best varieties for a particular farm. For that reason, varieties are compared in trial plots on Minnesota Agricultural Experiment Station fields at Grand Rapids and Rosemount. Varieties are grown in replicated plots at each location. These plots are handled so that the factors affecting yield and other characteristics are as nearly the same for all varieties at each location as is possible.

Variety Classifications

Because of the limited number of varieties being tested, tall fescue and wheatgrass varieties are not classed into any subgroups. Variety descriptions are arranged alphabetically.

Seed of tested varieties may be eligible for certification, and the use of certified seed is suggested. However, certification does not imply recommendation. Registered and certified seed of varieties described in this report can be purchased from seed dealers or from growers listed in the *Minnesota Registered and Certified Seed Directory for 1997 Planting*. This annual publication can be obtained without charge from the Minnesota Crop Improvement Association, 1900 Hendon Avenue, St. Paul, MN 55108, or from county extension agents'

offices. The information is also available on-line at:

<<http://www.rtrade.org/mcia/>>.

Interpreting the Tables

The LSD (Least Significant Difference) figures listed for forage yield are statistical measures of variability within the trials. This statistic is used to determine whether the differences between two quality tests are due primarily to genetic difference in the varieties.

If the quality difference between two varieties equals or exceeds the LSD value listed at the bottom of each quality test column, you can conclude that the higher quality variety was superior in quality. If the difference is less, greater attention should be given to other traits which are also important in making your variety choices.

These tall fescue and wheatgrass trials are not designed for crop (species) comparisons, because the various crops are grown on different fields or with different management. The data should only be used to compare varieties within a table.

Authors/Researchers

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was supervised by Gregory Cuomo and Russell Mathison.

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For Crop Production 1997 _____

TALL FESCUE, WHEATGRASS VARIETY TRIALS

Minnesota Agricultural Experiment Station — University of Minnesota
December 1996

Results of Tall Fescue Variety Tests Conducted by the Minnesota Agricultural Experiment Station. This report was prepared by Nancy J. Ehlke, agronomist, Department of Agronomy and Plant Genetics, University of Minnesota, St. Paul, MN 55108. [phone: 612/625-1791; e-mail: <ehlke001@maroon.tc.umn.edu>].

Crop Background

Tall fescue is a bunchgrass and may be planted in mixtures with other grasses and legumes. It establishes rapidly, withstands trampling, tolerates summer drought and produces fall season pasture when other grasses become dormant. Tall fescue is subject to winter injury, but it may remain productive in areas with reliable snow cover.

Animal performance is better when the variety grown is endophyte-free. Endophytes are fungi that invade plant tissues, reducing forage palatability and animal performance.

The wheatgrasses are valuable, native forage species. They are especially suitable for growing in the northern Great Plains area of the United States. Wheatgrasses can produce excellent forage yields and sustained productivity under hay and pasture management systems either in monoculture or in mixtures with alfalfa or other suitable legumes. Recent releases of improved varieties have prompted interest in these species, especially in western areas of Minnesota.

Minnesota Agricultural Experiment Station scientists initiated performance trials of tall fescue and the wheatgrasses in 1992. The trials were harvested three times per year, and Nitrogen was applied in the early spring and after each harvest at rates of 40 to 50 pounds per acre.

Yields were high in 1993 and 1994 probably due to mild winters, and abundant rainfall and cool temperatures during the growing season. Severe winter injury in 1995 reduced

forage yields significantly at Rosemount. The wheatgrasses did yield less forage than the tall fescue varieties, however the wheatgrasses are better adapted to environments drier than the previous growing seasons.

Table 1. Maturity rating and dry matter yields, tons per acre, of tall fescue and wheatgrass varieties seeded at Rosemount (1993-1996). [1]

Note Key:

[1] Trials established in 1992 at Rosemount.

[2] Maturity rating scored on June 3, 1994 at Rosemount: 0=no panicle emergence, 9=complete panicle emergence.

[3] Endophytes: fungi that invade plant tissues. Reduces forage palatability, animal performance.

[4] Winter injury severe at Rosemount resulting in low yields and stand loss of Newhy.

Variety	Maturity [2]	1993	Yield 1994	1995 [4]
Tall Fescue				
Barcel	1	6.1	6.1	3.8
Fawn	8	5.2	5.5	3.9
Ky 31 - endophyte infected [3]	2	6.6	6.4	4.4
Ky 31 - endophyte-free	4	6.6	5.8	4.4
Martin	7	5.9	5.8	4.3
Mozark	7	6.2	5.7	4.2
Mustang	—	5.3	5.3	3.6
Stef	0	5.5	6.0	4.5
Wheatgrass				
Manska	0	4.2	4.0	3.7
Newhy	—	4.1	3.6	—
Reliant	0	4.5	4.1	3.9
LSD 0.05	1	0.8	0.6	0.6

Table 2. Dry matter yields, tons per acre, of tall fescue and wheatgrass varieties seeded at Grand Rapids and Morris (1993-1996). [1]

Note Key:

[1] Trials established in 1992 at Morris and 1993 at Grand Rapids.

[2] Endophytes: fungi that invade plant tissues, reducing forage palatability and animal performance.

Variety	Grand Rapids			1993	Morris		
	1994	1995	1996		1994	1995	1996
Tall Fescue							
Barcel	4.4	2.7	1.8	6.6	5.6	4.4	1.5
Fawn	4.2	3.2	2.4	7.7	5.5	4.8	1.8
Ky 31 - endophyte infected [2]	5.1	3.2	2.3	7.0	5.4	4.8	1.6
Ky 31 - endophyte-free	4.6	3.0	2.2	7.2	5.4	5.0	1.8
Martin	4.8	3.5	2.5	6.7	5.3	5.1	1.9
Mozark	4.8	3.4	2.4	6.8	5.8	4.9	1.7
Mustang	3.7	2.5	1.8	—	—	—	—
Stef	4.5	3.3	2.2	6.8	5.5	4.8	2.2
Wheatgrass							
Manska	3.4	3.1	2.2	5.6	6.0	5.0	2.7
Newwhy	3.5	2.6	2.1	—	—	—	—
Reliant	3.5	3.1	2.4	5.6	6.1	5.4	2.7
LSD 0.05	0.6	0.5	0.3	0.7	NS	0.7	0.4

Table 3. Tall fescue seed sources for 1997 production. Alphabetical listing, with marketed variety noted with each entry.

Marketer	Variety
Kaltenberg Seed Farms Inc.	<i>Ky 31</i>
20155 Biscayne Ave. W ... Farmington, MN 55024 ... 612-463-8997	
PO Box 278 ... Waunakee, WI 53597 ... 608-849-5021	
Olds/Payco Seed Co.	<i>Fawn, Ky 31</i>
Box 7790 ... Madison, WI 53707 ... 800-356-7333	
Premium Seed Co., Inc.	<i>Barcel, Fawn, Ky 31</i>
7800 E State Hwy 101 ... Shakopee, MN 55379 ... 612-496-1783	
Twin Cities Seeds	<i>Martin</i>
7265 Washington Ave. S ... Edina, MN 55439 ... 612-944-7105	
Werner Farm Seeds	<i>Ky 31</i>
3104 Millersburg Blvd. ... Dundas, MN 55019 ... 507-645-7995	

Tall Fescue Planting Rate and Date

Rate is based on normal seedbeds and on normal size, good quality seed. Rate used can vary greatly depending on seed cost, desired stand, expected mortality, emerging ability, seed weight, seed germination, seedbed condition, depth of planting and planting equipment. Weight given is the most widely accepted in the U.S.

Crop Use	Bushel Weight (pounds)	Seeds/pound (number)	Rate/acre (pounds)	Rate (seeds)	Planting Date
In Mixtures	25	229,000	4	21/square foot	Early spring or summer
