

TALL FESCUE AND WHEATGRASS

VARIETY TRIALS

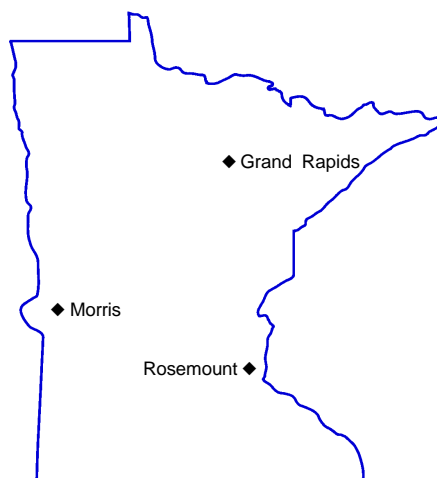
Minnesota Agricultural Experiment Station — University of Minnesota
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This is a report on results of tall fescue and wheatgrass hybrid variety performance tests conducted by the Minnesota Agricultural Experiment Station. This report was prepared by Nancy J. Ehlke (612-625-1791; <ehlke001@tc.umn.edu>), agronomist, and Donn J. Vellekson (612-625-9765; <velle001@tc.umn.edu>), research plot coordinator, Department of Agronomy and Plant Genetics, University of Minnesota, St. Paul, MN 55108.

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

Tall fescue, a bunchgrass, 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 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 sustain 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.



Locations where tall fescue and wheatgrass trials were conducted for this report.

Performance in Trials

Minnesota Agricultural Experiment Station scientists initiated performance trials of tall fescue and the wheatgrasses in 1992 and 1997. The trials were harvested three times per year. Nitrogen was applied in the early spring and after each harvest at a rate of 50 pounds per acre.

Yields were high in 1993, 1994 and 1998 due to good snow cover and favorable conditions 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. Wheatgrasses have better relative yields in drier climates.

Interpreting the Table

The LSD (Least Significant Difference) values associated with the data in table 1 are measures of variability within the trials. If a yield difference between two varieties within a single column exceeds the LSD value at the bottom, you can assume that the higher yielding variety was truly better yielding.

A 5 percent level of significance is used in the table. This means that yield differences exceeding the stated LSD value are real 95 percent of the time. If the difference is less than the LSD, greater attention should be given to other traits which are also important in making your variety choices.

Acknowledgements, Permissions and Caveats

Fieldwork for tall fescue and wheatgrass trials was supervised by Gregory Cuomo and Russell Mathison.

Publication project chair is Leland L. Hardman, professor, Agronomy and Plant Genetics. Web product manager for extension communications is Larry A. Etkin, senior editor.

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Table 1 — Dry matter yields, in tons dry matter per acre, of tall fescue and wheatgrass seeded at three locations.

Endophytes are fungi that invade plant tissues, which reduces forage palatability and animal performance.

Newhy yield is average reported for only 1993 and 1994. Severe winter injury at Rosemount in 1994-1995 resulted in stand loss of Newhy and reduced overall variety yield by 25 percent.

Variety	Grand Rapids 1994-1996	— Rosemount — 1993-1995	1998	Morris 1993-1996
<u>Tall Fescue</u>				
Barcel	3.0	5.3	—	4.5
Cajun	—	—	6.5	—
Fawn	3.3	4.9	—	5.0
Ky 31-endophyte infected	3.5	5.8	—	4.7
Ky 31-endophyte free	3.3	5.6	7.2	4.9
Martin	3.6	5.3	5.5	4.7
Maximize	—	—	6.0	—
Mozark	3.5	5.4	6.4	4.8
Mustang	2.7	4.7	6.0	—
Seine	—	—	6.8	4.8
Stif	33	5.3	—	—
<u>Wheatgrasses</u>				
Manska	2.9	4.0	—	4.8
Newhy (<i>quackgrass x wheatgrass</i>)	2.7	3.9	4.8	—
Reliant	3.0	4.2	—	5.0
LSD 5%	0.5	0.6	0.7	NS

Table 2 — Potential 1999 tall fescue, wheatgrass, and fescue x ryegrass hybrid seed sources known to the Minnesota Crop Improvement Association.

ABT/La Crosse Seed Company PO Box 187 LaCrosse WI 54601 800-658-9428	Olds Seed Company Box 7790 Madison WI 53707 800-356-7333, 608-249-9291
Agassiz Seed & Supply 445 7th Street NW West Fargo ND 58078 701-282-8118	Peterson Seed Company Box 346 Savage MN 55378 800-328-5898
Albert Lea Seed House 1414 West Main, PO Box 127 Albert Lea MN 56007 507-373-3161, 800-352-5247	Premium Seed Company, Inc. 7800 East State Hwy 101 Shakopee MN 55379 612-496-1783
Croplan Genetics PO Box 64089, Cenex/Land O' Lakes St. Paul MN 55164 612-451-5490	R.J. Hunt Seed Company 13477 County Road 101 Wadena MN 56482 218-631-4190
Discount Farm Center PO Box 84, West Hwy 212 Watertown SD 57201 605-886-5888	Top Farm Hybrids 17177 60th Street Southwest Cokato MN 55321 320-286-5516
Garst Seed Company 2369 330th Street Slater IA 50244 800-831-6630	Trelay, Inc. 11623 Hwy 80 North Livingston WI 53554 800-421-0397, 608-943-6363
Geertson Seed Farm 1665 Burrough Rd Adrian OR 97901 541-339-3768	Twin Cities Seeds 7265 Washington Avenue South Edina MN 55439 800-545-8873
International Seeds Inc. PO Box 168 Halsey OR 97348 541-369-2251	Werner Farm Seeds 3104 Millersburg Blvd. Dundas MN 55019 507-645-7995

Tall Fescue, Wheatgrass Planting Rates and Dates

Rates are 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
Alone	25	215,000	10	50/square foot	Early spring or summer
In mixtures			4	20/square foot	Use date for legume