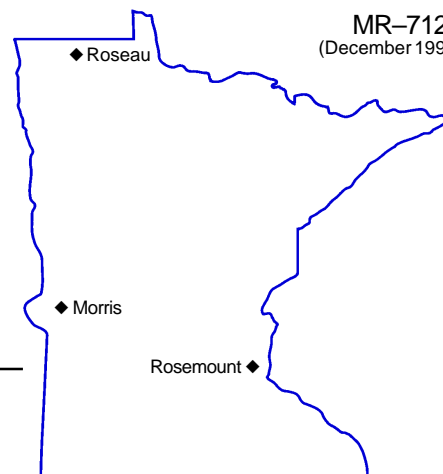


# Minnesota Agricultural Experiment Station

# VARIETY TRIALS

## Winter Wheat



**Locations of winter wheat trials.**

Successful production of winter wheats depend 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 Morris, Rosemount and Roseau. Wheat 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

Only a limited number of winter wheat varieties are available. Variety descriptions are arranged alphabetically in the text but are ordered according to maturity in the tables of this report.

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 1998 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 offices of the University of Minnesota Extension Service. The information is also available on-line at:

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

### Interpreting the Tables

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

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

These winter wheat 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

The authors of this report are Robert Busch and Gary Linkert. Information on the reactions of varieties of winter wheat to rust was obtained by Donald V. McVey, USDA-Cereal Rust Laboratory.

Fieldwork for these wheat trials was supervised by Gary Linkert, George Nelson and Greg Johnson.

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# **WINTER WHEAT** **VARIETY TRIALS**

Minnesota Agricultural Experiment Station — University of Minnesota  
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Results of winter wheat variety tests conducted by the Minnesota Agricultural Experiment Station. This report was prepared by research geneticist Robert H. Busch [phone: 612/625-1975; e-mail: <busch005@maroon.tc.umn.edu>] and scientist Gary L. Linkert [phone: 612/625-5263; e-mail: linke002@maroon.tc.umn.edu], Department of Agronomy and Plant Genetics, University of Minnesota, St. Paul, MN 55108.

## **Crop Background**

Varieties are listed in maturity order. A minimum of two years testing is required before any data is presented. Cultural practices have a major effect on winter survival of all winter wheats. Planting into a firm seedbed with at least some stubble remaining to retain snow cover can reduce winterkill.

## **Publicly Developed Varieties**

**Arapahoe**—Awned, semidwarf, early and good lodging resistance. Winter-hardy. Resistant to leaf rust and stem rust. High yield and medium test weight. Satisfactory quality. Released by the Nebraska Agricultural Experiment Station and USDA-ARS 1988. Seed sale regulated by U.S. Plant Variety Protection Act.

**Elkhorn**—Awned, tall, medium-late, and fair lodging resistance. Winter-hardy to very winter-hardy. Moderately susceptible to leaf rust and resistant to stem rust. High yield and medium test weight. Medium protein percent. Satisfactory quality. Released by the North Dakota Agricultural Experiment Station 1995.

**Roughrider**—Awned, tall, medium maturity and fair lodging resistance. Very winter-hardy. Susceptible to leaf rust but moderately resistant to stem rust. Medium yield and high test weight. Satisfactory quality. Released by the North Dakota Agricultural Experiment Station 1975.

**Seward**—Awned, tall, medium-late, and fair lodging resistance. Very winter-hardy. Moderately resistant to leaf rust and resistant to stem rust. Very high yield and high test weight. Low protein percent. Satisfactory quality. Released by the North Dakota Agricultural Experiment Station 1987.

Table 1. Growth characteristics of publicly developed winter wheat varieties (1994-97).

Note Key:

[1] Heading date. Data does not include Roseau.

[2] Height expressed in inches.

[3] Winter survival rating: VH=very hardy, H=hardy, MH=moderately hardy, NH=not hardy.

[4] Lodging score: 1=erect, 9=flat.

[5] Resistance to rust: R=resistant, MR=moderately resistant, MS=moderately susceptible, S=susceptible.

[6] 1995-97 data.

Variety	Heading [1]	Height [2]	Hardiness [3]	Lodging [4]	Leaf Rust Reaction [5]	Stem Rust Reaction [5]
Arapahoe	6-12	37	H	1.1	R	R
Roughrider	6-14	40	VH	2.0	S	MR
Seward	6-15	40	VH	1.4	MR	R
Elkhorn [6]	6-15	41	VH	1.4	MS	R

Table 2. Yield, in bushels per acre, and yield characteristics of publicly developed winter wheat varieties (1994-97).

Note Key:

[1] Test weight expressed as pounds per bushel; 1994 and 1995 data.

[2] Protein expressed as a percentage, calculated at 12% moisture.

[3] 1994-96 data.

[4] 1994 data only.

Locations: ROS=Rosemount; M=Morris; ROU=Roseau; AVG=average for all three sites.

Variety	Test Weight [1]	Protein [2]	Yield			
			ROS [3]	M	ROU [4]	AVG
Arapahoe	58.1	13.0	69	49	57	58
Roughrider	59.1	12.1	54	48	49	50
Seward	58.7	12.1	70	53	59	60
Elkhorn	58.1	12.9	63	50	—	55
LSD 5%			8	NS	7	8

## Winter Wheat 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.

Bushel Weight (pounds)	Seeds/pound (number)	Rate/acre (pounds)	Rate (seeds)	Planting Date
60	14,500	75+	25/square foot	August 20 to September 20