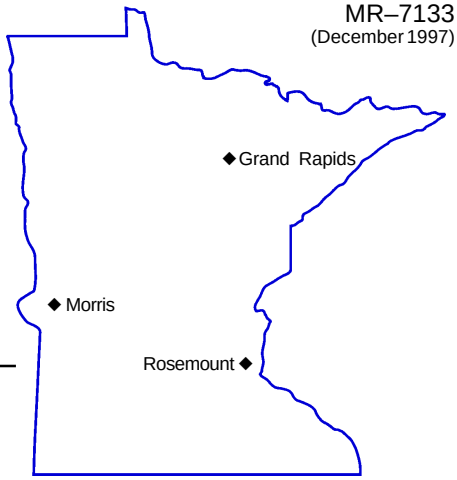
MR–7133
(December 1997)

Minnesota Agricultural Experiment Station

VARIETY TRIALS

Red Clover



Locations of red clovertrials.

Successful production of red clover 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, red clover varieties are not classed into any subgroups. Variety descriptions are arranged alphabetically.

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

<http://www.rrtrade.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 red clover 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 author of this report is Nancy J. Ehlke. Fieldwork for these trials was supervised by Gregory Cuomo and Russell Mathison.

Publication Chair ..... Deon Stuthman
EDS Product Manager ..... Larry A. Etkin

Produced in the Educational Development System of the University of Minnesota ExtensionService.

For Crop Production 1998 _____

RED CLOVER VARIETY TRIALS

Minnesota Agricultural Experiment Station — University of Minnesota
December 1997

Results of red clover variety performance 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

Red clover can be seeded in pure stands or with timothy for hay or silage. It is more easily established in pasture renovation than either alfalfa or trefoil.

Historically, the winter-hardy varieties of red clover have not persisted beyond two crop years in Minnesota because they are susceptible to diseases. However, most of the improved varieties currently sold for use in Minnesota can persist for three years if the weather provides good winter snow cover.

Minnesota Agricultural Experiment Station scientists established performance trials of red clover at three locations in 1991 and 1995. Stands from the 1991 trials were sufficient for data collection only at Grand Rapids in 1992 and 1993, and at Rosemount from 1992 to 1994. The trials established in 1995 were harvested at Grand Rapids, Morris and Rosemount from 1992 to 1994. The trials established in 1995 were harvested at Grand Rapids, Morris and Rosemount in 1996.

No differences in dry matter yield were found in the 1991 trial between the varieties harvested at either trial location during either 1992 or 1993, though yields and stands were better at Rosemount than Grand Rapids in both years. Marathon produced the highest forage yield during the third production year at Rosemount.

In the 1995 trials, varietal differences for forage yield were found at Grand Rapids and Rosemount. Yields were highest at Grand Rapids due to favorable environmental conditions, and lowest at Rosemount due to winter injury.

Table 1. Percent stand and vigor of red clover varieties seeded at three locations (Grand Rapids, Morris and Rosemount) in 1991 and 1995. [1]

Note Key:

[1] Trials established in 1991 and 1995 were harvested three times per year.

[2] Percent stand rated at Rosemount on May 20, 1996.

[3] Vigor rated at Rosemount on May 20, 1996: 1=least vigorous, 5=most vigorous.

Variety	Stand [2]	Vigor [3]
Acclaim	—	—
Arlington	94	3.8
Astrid	68	3.3
Cinnamon	92	4.3
Concord	—	—
Marathon	91	3.9
Randolph	85	3.8
Redland III	—	—
Red Star	—	—
Scarlett	90	4.0
LSD 5%	26	0.5

Table 2. Dry matter yield of red clover varieties, tons per acre, seeded at three locations (1992-94; 1996-97). [1]

Note Key:

[1] Trials established in 1991 and 1995 were harvested three times per year.

[2] Residual harvest taken at Rosemount on June 3, 1994.

Variety	Grand Rapids			Rosemount					Morris	
	1992	1993	1996	1992	1993	1994	1996	1997	1996 [2]	1997
Acclaim	3.2	3.0	—	5.4	4.5	1.3	—	—	—	—
Arlington	2.9	3.0	3.7	5.1	4.4	1.2	2.6	3.3	3.2	2.0
Astrid	—	—	3.3	—	—	—	2.2	2.2	2.5	1.8
Cinnamon	—	—	4.0	—	—	—	3.1	3.7	3.4	2.1
Concord	—	—	4.3	—	—	—	—	—	—	—
Marathon	2.9	3.2	4.3	5.1	4.7	1.5	3.2	3.5	3.4	1.7
Randolph	—	—	3.8	—	—	—	3.7	3.5	3.8	2.0
Redland III	—	—	—	—	—	—	—	—	3.3	1.9
Red Star	3.1	3.4	—	5.3	4.8	1.0	—	—	—	—
Scarlett	—	—	3.0	—	—	—	3.0	3.5	3.7	1.8
LSD 5%	NS	NS	0.9	NS	NS	0.3	0.9	0.5	NS	0.3

Table 3. Red clover seed sources for 1998 production. Alphabetical listing, with marketed variety noted with each entry.

Marketer	*Variety*
Agassiz Seed & Supply 445 7th St. NW, West Fargo, ND 58078;701-282-8118	*Marathon*
Albert Lea Seedhouse 1414 West Main/PO Box 127, Albert Lea, MN 56007; 507-373-3161	*Arlington, Marathon*
Allied Seed Cooperative PO Box 945,Angola, IN 46703; 800-813-5025 12 Hilldale Drive, Macon, MO 63552; 800-624-8904	*Cinnamon*
Jung Seed Genetic 1229 NW 41st St., Rochester, MN 55901; 507-288-1930 335 South High St., Randolph, WI 53957; 800-242-1855	*Randolph*
Premium Seed Co., Inc. 7800 E State Hwy 101, Shakopee, MN 55379; 612-496-1783	*Arlington, Marathon*
R.J. Hunt Seed Co. RR 1, Box 112, Wadena, MN 56482; 218-631-4190	*Arlington, Marathon*
Top Farm Hybrids 17177 60th St. SW, Cokato, MN 55321; 320-286-5516	*Arlington*
Werner Farm Seeds 3104 Millersburg Blvd., Dundas, MN 55019; 507-645-7995	*Arlington, Marathon*

Red Clover 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
Alone	60	252,000	9	50/square foot	Early spring to August 10
With Grass			5	30/square foot	