

# FORAGE CROPS



## ALFALFA

### *Alfalfa Data Sources, Selection*

Successful alfalfa production depends on selecting the best varieties for a particular farm. Varieties have been compared for yield in trial plots on Minnesota Agricultural Experiment Station fields: yearly at Rosemount, and alternate years at the other locations. The trials are conducted using recommended fertility and pest control practices to optimize yield and persistence.

Test results from new and previous seedings of varieties currently available in Minnesota are published as accumulated performance years averaged as a percent of check varieties. Test locations are representative of the risk of winter injury in specific regions of Minnesota – southeast: Rosemount and Plainview/Potsdam (formerly Waseca, then Lewiston 1996-1998), southwest: Lamberton, west-central: Morris and Stearns County (St. Martin or Melrose since 1998), northwest: Crookston (to 1995) and northeast: Grand Rapids (see locations of alfalfa trials map). Varieties of alfalfa are tested for winter survival index (WSI) and forage quality at selected experiment stations of the Universities of Minnesota and Wisconsin-Madison.

Early each fall alfalfa developers and marketers who have provided current contact addresses are asked to declare

which varieties approved for seed certification will be marketed in Minnesota for the next seeding year.

The varieties and suppliers reported in those responses are listed in disease resistance tables, pages 16-19. Seed source locations, telephone numbers and websites are on pages 20-21. Varieties seeded in past or present Minnesota yield trials are included on pages 10-13; those with winter survival or forage quality performance data are listed on pages 13-14.

### *Winterhardiness and Winter Survival Index*

Severe winters make winterhardiness a primary consideration in variety selection for most areas of Minnesota. The greatest winterhardiness is needed in the west central and northwest Minnesota area (see winter injury potential map). Because of the high frequency of severe winters in this area, only varieties with at least very good winter survival should be selected. The east-central and southeast areas also experience severe winters frequently. The southwest area seldom experiences severe winter injury because of dry soils, high soil potassium levels and neutral soil pH. The northeast area seldom experiences severe winter injury because of dependable snow cover.

Winterhardiness of varieties is extremely difficult to determine because winter injury can occur as a result of many different weather events that cause varied responses in alfalfa plants of differing ages. A standardized test, the North American Alfalfa Improvement Conference (NAAIC) Winter Survival Test, measures the survival of a variety after a severe winter. Tests conducted annually at four locations (Arlington and Lancaster, Wis. and Rosemount and Morris, Minn.) are the basis for the winter survival index (WSI) on page 14.

The WSI for each tested variety was averaged over all test locations to provide a robust estimate of winterhardiness and

is presented beside yield data in on pages 10-13. Varieties are rated from superior (1) to adequate (4) in winter survivability. Vernal, a traditional winterhardy variety is rated very good. Varieties rated adequate in winter survivability are expected to be injured the most after a severe winter. All varieties tested to date have rated above adequate. If a variety does not have a WSI, (company has not entered variety in Winter Survival trial) the fall dormancy index is the next best indicator of winterhardiness: (1 = very winterhardy; 2 = winterhardy; 3 and 4 = moderately winterhardy).

### *Fall Dormancy*

Fall dormancy ratings are shown with ranked yield data on pages 10-13 and included in disease resistance tables on pages 16-19, which list varieties alphabetically. Fall dormancy ratings describe the relative amount of fall growth of alfalfa varieties. Very fall-dormant varieties have little fall growth and are slow to recover after cutting. Fall-dormant varieties are adaptable to all areas of the state. Moderately fall-dormant varieties produce good fall growth, are characterized by rapid recovery after harvest, and usually reach 1/10 bloom several days earlier than more dormant varieties. Although increased fall dormancy has traditionally been associated with greater winter survival, the WSI is now considered a better predictor of winter survival.



**Locations of Alfalfa Trials.**



## Forage Yield

Yields of alfalfa varieties currently tested and/or reported by respondents as currently marketed in Minnesota are shown on pages 10-13. Yields are expressed as a percentage of check varieties, for example, 113 means the variety had 13 percent greater yield than the check varieties. Varieties are ranked according to their average performance in *harvest years after the seeding year* across ALL locations in which they have been tested; first by the average of year-1 and year-2 yields, then by year-3 yield, then by year-1 yield. Variety performance also is aggregated regionally as SE (southeast): Rosemount+Plainview; WC (west-central): Morris+Stearns County; SW (southwest): Lamberton, and NE (northeast): Grand Rapids.

Greatest confidence should be placed in data that include three or more tests for a particular variety. Each seeding at any location is considered a “test.” Each yield number in the table has been formatted to reveal how many tests it represents. **Bold** type yield data indicates that the variety has been in three or more tests, regular type indicates two tests, and *italic* type indicates only one test.

Varietal differences in yield tend to increase with stand age. Thus, to choose a variety for short-term stands, use the ALL-location yield for years 1+ 2. For long-term stands, choose varieties based on their performance through year 3.

## Forage Quality

While maturity is the greatest determinant of forage quality or feeding value of alfalfa, varieties also differ. A NAAIC-Standardized Forage Quality Test has

been performed at Arlington, Wis., and Rosemount, Minn., since 1995. Relative forage quality of alfalfa varieties tested in Minnesota and Wisconsin from 1996 to 2000 and in 2001 is shown on page 15. Data are expressed as milk per ton of forage, milk per acre and relative forage quality.

Milk per ton is calculated based on MILK2000 and combines crude protein, neutral detergent fiber (NDF), and NDF digestibility to predict milk production per ton of forage DM. In MILK2000, the intake of energy from forage for a 1,350-pound milking cow consuming a 30% NDF diet is calculated, and the cow’s maintenance energy requirement is then subtracted from energy intake to provide an estimate of energy available from forage for conversion to milk. Forage DM yield multiplied by the milk produced per ton of forage DM provides an estimate of the milk produced per acre and combines yield and quality into a single term. For a technical discussion of NDFD and MILK2000 see: [www.uwex.edu/ces/forage/pubs/milk2000.htm](http://www.uwex.edu/ces/forage/pubs/milk2000.htm)

Relative forage quality (RFQ) is a new index with similar mean and range as RFV that includes NDF digestibility in estimates of DMI and TDN to calculate RFQ. For a technical discussion of RFQ see: [www.uwex.edu/ces/forage/pubs/rfq.htm](http://www.uwex.edu/ces/forage/pubs/rfq.htm)

In the seeding year, varieties are evaluated on one or two cuts taken in July and/or late August. Production year evaluation (first year after seeding only) is done by analyzing each of three cuttings taken at late bud to 1/10-bloom stages of maturity.

## Disease Resistance

Alfalfa root and crown diseases occur in most Minnesota soils. The most important diseases are bacterial wilt, Phytophthora root rot, Fusarium wilt, anthracnose, Verticillium wilt and Aphanomyces root rot. Plant resistance is available for all six diseases. The variety resistance ratings for each disease are presented on pages 16-19. While moderate resistance (MR) to a disease will provide protection to a variety under most conditions, either resistance (R) or high

resistance (HR) is required for protection under severe disease conditions.

Winter injury can be the result of a combination of injury from cold temperatures and from root and crown diseases. Under some conditions disease resistances can compensate for lesser levels of cold tolerance. While all varieties can benefit from improved disease resistance, it is especially important for moderately fall-dormant varieties to have at least (R) levels of disease resistance to stay productive for more than two years after the seeding year under intensive management (four cuts/season) in the east-central and southeast areas of Minnesota.

**Bacterial Wilt** – This disease is prevalent in most areas of the state. Wilt-susceptible varieties are poor risks and should not be grown. They generally show losses in stand by the end of the second year after seeding. In some cases where infection is severe, stand losses are often observed by the end of the first year after seeding. Stand reductions after winter are often due to a combination of wilt damage and winter injury.

**Phytophthora Root Rot** – This fungal disease is a major concern on poorly drained soils, especially in the east-central and southeast area of the state. It can cause stand losses of seedlings, and can contribute to lower productivity in older stands if the soil remains wet for a week or more.

**Fusarium Wilt** – The fungus that causes Fusarium wilt is present in most soils. It contributes to stand decline mainly in combination with other disease organisms. Consequently, resistance to Fusarium wilts in addition to resistance to both bacterial wilt and Phytophthora root rot contributes to longer stand life.

**Anthracnose** – This fungus disease was first found in Minnesota in 1978 and has become more prevalent each year, but only in the east central and southeast area. It infects stems and crowns and kills susceptible plants. Because anthracnose is favored by hot, moist conditions, it is most often seen in southeast Minnesota.

**Verticillium Wilt** – This potentially destructive fungus disease was first found in several eastern Minnesota fields in 1981. It has usually been found in 2- or 3-year-old fields, and its spread in the state has been slow. Planting resistant varieties will help provide insurance for long-life stands. Varieties having at least a low level of resistance are indicated on pages 16-19.

**Aphanomyces Root Rot** – This disease is associated with very slowly drained soils and is easily confused with Phytophthora root rot. It stunts and kills seedlings as well as causing a chronic root disease in established plants. Few cases of this disease have been identified in Minnesota. Consider planting a variety with Aphanomyces resistance if Phytophthora-root-rot-resistant varieties fail to persist.

### Blends

Many companies sell blends, a mixture of two or more varieties, at a reduced price from named varieties. Blends may perform as well as the best varieties, or may do very poorly. Since blends may have been derived in various ways, their performance depends on the skill and integrity of the seed company. Disease resistance, winter survival and other characteristics may change within a blend from lot to lot or year to year. Using *certified* seed of adapted, high-yielding varieties best assures trueness to name.

The web version of this report is on the Minn. Agricultural Experiment Station website:

[www.maes.umn.edu/pubs.html](http://www.maes.umn.edu/pubs.html)

The full version of the yield table, which

shows the number of tests and regional year-1 data, is posted at the University of Minnesota-Agronomy FORAGES website:

[www.agro.agri.umn.edu/forages](http://www.agro.agri.umn.edu/forages)

### Alfalfa Planting Rate and Date

Bushel Weight, Pounds .....	60
Seeds/Pound.....	220,000
Planting Rate, Pounds/Acre	
Alone .....	11
With Grass .....	7
Planting Rate, Seeds Sq.Ft.	
Alone .....	55
With grass .....	35
Planting Date .....	Early Spring, Late Summer

### Alfalfa yield (percent of checks), winter survival index (WSI) and fall dormancy (FD) ratings at ALL and regional sites.<sup>5</sup> (Bold type yield numbers represent 3 or more tests<sup>1</sup>, regular type: 2 tests, *Italic* type: only 1 test.)

Variety, ranked by Year 1 + Year 2 Average, Year 3, Year 1	WSI <sup>2</sup>	FD <sup>4</sup>	Average Yield for Years 1, 1+2, 3 After Seeding Year										
			ALL <sup>3</sup>			SE <sup>3</sup>		WC <sup>3</sup>		SW <sup>3</sup>		NE <sup>3</sup>	
			Yr 1	Yr 1+2	Yr 3	Yr 1+2	Yr 3	Yr 1+2	Yr 3	Yr 1+2	Yr 3	Yr 1+2	Yr 3
Checks, Ton/Ac 15%mc Hay			<b>5.90</b>	<b>5.78</b>	<b>5.43</b>	<b>6.33</b>	<b>6.00</b>	<b>5.61</b>	<b>5.41</b>	<b>6.14</b>	<b>5.52</b>	<b>4.22</b>	<b>4.06</b>
Webfoot Supreme	–	4	<i>118</i>	<i>120</i>	–	<i>120</i>	–	–	–	–	–	–	–
Lightning II	–	4	108	<i>120</i>	–	<i>120</i>	–	–	–	–	–	–	–
WL 319HQ	1.8	3	<i>115</i>	<i>119</i>	–	<i>119</i>	–	–	–	–	–	–	–
Ascend	–	5	112	<i>119</i>	–	<i>121</i>	–	–	–	–	–	–	–
DK134	2.8	3	<b>115</b>	116	–	<i>123</i>	–	–	–	–	–	106	–
Phabulous	–	4	<b>108</b>	<i>115</i>	–	<i>115</i>	–	–	–	–	–	–	–
Prairie Max	–	3	112	<i>114</i>	–	<i>115</i>	–	–	–	–	–	–	–
Baralfa 42 IQ	2.3	4	<i>112</i>	<i>113</i>	–	<i>113</i>	–	–	–	–	–	–	–
Multiplier 3 -TMF	2.8	3	<b>111</b>	113	–	<i>117</i>	–	–	–	104	101	113	–
HybriForce-400	2.8	4	<b>112</b>	112	112	111	112	–	–	–	–	–	–
Laser	–	4	<b>111</b>	<b>112</b>	<i>102</i>	<i>115</i>	<i>102</i>	<i>117</i>	–	<i>103</i>	–	–	–
Trophy	–	4	109	<i>112</i>	–	<i>113</i>	–	–	–	–	–	–	–
Persist	–	4	<b>110</b>	<b>111</b>	118	110	<i>120</i>	116	<i>116</i>	<i>105</i>	–	–	–
GoldLeaf	3.1	3	<b>112</b>	111	<i>113</i>	112	<i>113</i>	–	–	–	–	–	–
Abundance	3.4	4	<b>111</b>	111	<i>107</i>	111	<i>107</i>	–	–	–	–	–	–
Monument II	–	4	<b>114</b>	111	–	<i>115</i>	–	–	–	–	–	109	–
Paragon BR	3.0	3	<i>111</i>	<i>110</i>	<i>116</i>	<i>110</i>	<i>116</i>	–	–	–	–	–	–
Magnum III	–	4	<b>110</b>	<b>110</b>	<b>116</b>	<b>109</b>	<i>104</i>	<i>106</i>	<i>106</i>	116	132	<i>104</i>	<i>108</i>
Alliant	3.0	4	<b>111</b>	<b>110</b>	<i>113</i>	111	<i>113</i>	–	–	–	–	115	–

<sup>1</sup> Each seeding in any location counts as one "Test." Test data from experimental seed is retired as data from tests on commercial seed are sufficient to replace it.

<sup>2</sup> Winter Survival Index: 1 = superior, 2 = very good, 3 = good, 4 = adequate, 5 = low 6 = none. WSI is from joint Minnesota-Wisconsin 1996-2002 trials (Page 14 is 2002 WSI data only). <sup>3</sup> Locations: SE (southeast), Rosemount+Plainview; WC (west-central), Morris+Stearns County; SW (southwest), Lamberton; NE (northeast), Grand Rapids. <sup>4</sup> Fall dormancy and pest resistance ratings from Alfalfa Council report ([www.alfalfa.org/falldormancy/html](http://www.alfalfa.org/falldormancy/html)) or provided by a developer, with dormancy based on fall growth in mid-October after cutting first week of September: 11 = tallest (tend to be least winterhardy), 1 = shortest. <sup>5</sup> The full version of this table, with number of tests, regional and year 1 and 2 data, is posted at the UM-Agronomy FORAGES website: [www.agro.agri.umn.edu/forages](http://www.agro.agri.umn.edu/forages)

\*Variety used as check in some or all tests.

**Alfalfa yield (percent of checks), winter survival index (WSI) and fall dormancy (FD) ratings at ALL and regional sites (continued).**<sup>5</sup> (Bold type yield numbers represent 3 or more tests<sup>1</sup>, regular type: 2 tests, *Italic* type: only 1 test.)

Variety, ranked by Year 1 + Year 2 Average, Year 3, Year 1	WSI <sup>2</sup>	FD <sup>4</sup>	Average Yield for Years 1, 1+2, 3 After Seeding Year										
			ALL <sup>3</sup>			SE <sup>3</sup>		WC <sup>3</sup>		SW <sup>3</sup>		NE <sup>3</sup>	
			Yr 1	Yr 1+2	Yr 3	Yr 1+2	Yr 3	Yr 1+2	Yr 3	Yr 1+2	Yr 3	Yr 1+2	Yr 3
9326	-	3	<b>110</b>	<b>110</b>	<b>108</b>	112	98	115	119	101	102	-	-
Stampede	-	3	109	110	104	110	104	-	-	-	-	-	-
MagnaGraze	-	3	111	110	101	110	101	-	-	-	-	-	-
Magnum III-Wet	-	3	<b>110</b>	<b>110</b>	101	<b>110</b>	101	111	-	-	-	-	-
AmeriStand 403T	2.1	4	<b>104</b>	110	-	112	-	-	-	-	-	-	-
Perfect	-	4	109	109	128	-	-	112	128	-	-	-	-
Radiant	-	4	108	109	117	109	117	-	-	-	-	-	-
Monument	-	3	<b>106</b>	<b>109</b>	<b>116</b>	109	118	111	128	-	-	110	102
Root 66	2.1	4	105	109	109	109	109	-	-	-	-	-	-
BigHorn	3.1	4	<b>108</b>	<b>109</b>	<b>108</b>	106	99	114	125	-	-	-	-
Pointer	-	4	<b>109</b>	<b>109</b>	<b>106</b>	112	104	110	113	100	102	-	-
Supreme	-	3	109	109	104	107	104	-	-	-	-	-	-
Magnum IV	-	4	<b>108</b>	<b>109</b>	104	<b>108</b>	104	114	-	107	-	-	-
Somerset	2.5	3	<b>105</b>	<b>109</b>	103	<b>109</b>	103	-	-	-	-	-	-
Rebound 4.2	2.4	4	<b>108</b>	<b>108</b>	<b>112</b>	110	100	111	117	103	113	-	-
Vitro	2.6	3	<b>108</b>	<b>108</b>	<b>112</b>	114	118	105	110	-	-	-	-
WinterGold	2.6	4	<b>109</b>	<b>108</b>	<b>111</b>	108	99	108	116	-	-	-	-
Spirit	-	3	<b>105</b>	<b>108</b>	110	112	-	108	103	106	117	-	-
631	-	4	<b>108</b>	<b>108</b>	<b>109</b>	<b>108</b>	<b>109</b>	115	108	101	109	-	-
Jade II	-	4	<b>108</b>	<b>108</b>	<b>108</b>	107	108	-	-	109	109	-	-
Prolific	3.1	3	109	108	107	108	107	-	-	-	-	-	-
Surpass	-	3	<b>109</b>	<b>108</b>	<b>107</b>	<b>109</b>	107	106	104	-	-	108	110
Target II Plus	-	3	<b>109</b>	<b>108</b>	<b>107</b>	109	106	106	109	-	-	-	-
Geneva	2.7	4	<b>107</b>	<b>108</b>	<b>107</b>	<b>108</b>	<b>106</b>	104	105	110	110	-	-
620 -Garst	2.6	2	<b>110</b>	<b>108</b>	<b>104</b>	<b>108</b>	<b>105</b>	<b>106</b>	<b>101</b>	103	107	118	-
Forecast 3001	3.1	3	108	108	102	105	95	110	109	-	-	-	-
WL 327	-	4	<b>105</b>	<b>108</b>	101	111	101	103	101	-	-	-	-
Extend	2.9	4	<b>108</b>	<b>108</b>	99	108	101	-	-	-	-	108	98
A4230	-	4	107	107	117	107	117	-	-	-	-	-	-
Harvestar 812HY	-	4	109	107	111	107	111	-	-	-	-	-	-
Magnum V	3.0	4	<b>103</b>	<b>107</b>	<b>110</b>	<b>106</b>	<b>106</b>	<b>110</b>	<b>112</b>	104	114	-	-
Innovator+Z	2.3	3	<b>105</b>	<b>107</b>	<b>109</b>	<b>107</b>	103	120	124	94	105	-	-
630	-	4	<b>105</b>	<b>107</b>	<b>108</b>	<b>110</b>	112	101	98	107	107	99	-
Forecast 1001	2.9	4	107	107	107	111	112	102	102	-	-	-	-
AmeriStand 201+Z	2.0	2	<b>105</b>	<b>107</b>	<b>107</b>	108	103	<b>108</b>	<b>110</b>	103	108	-	-
AlfaStar	-	4	<b>113</b>	107	106	104	110	-	-	108	102	-	-
FQ 315	-	3	<b>109</b>	<b>107</b>	<b>106</b>	108	99	106	114	-	-	-	-
Baralfa 32 IQ	-	3	<b>108</b>	<b>107</b>	<b>105</b>	<b>103</b>	<b>105</b>	119	106	-	-	-	-
5454	2.7	4	<b>107</b>	<b>107</b>	<b>105</b>	<b>108</b>	<b>105</b>	<b>111</b>	<b>111</b>	<b>102</b>	99	<b>105</b>	<b>102</b>
WL 325 HQ	3.0	3	<b>107</b>	<b>107</b>	<b>105</b>	110	121	109	102	95	102	110	96
Columbia ~2000	3.1	4	<b>108</b>	<b>107</b>	<b>104</b>	<b>105</b>	101	110	110	109	112	105	93
TMF 421	-	2	<b>108</b>	<b>107</b>	<b>104</b>	103	94	112	108	108	106	100	-
Voyager II	-	4	<b>107</b>	<b>107</b>	<b>104</b>	<b>106</b>	101	108	105	109	105	-	-
Imperial	-	3	<b>107</b>	<b>107</b>	<b>103</b>	<b>107</b>	<b>103</b>	108	102	-	-	-	-
FQ 314	3.0	3	<b>106</b>	<b>107</b>	<b>103</b>	106	100	109	106	-	-	-	-
Green Feast	2.9	2	111	107	101	107	101	-	-	-	-	-	-
Mariner	-	2	<b>111</b>	<b>107</b>	101	105	104	-	-	-	-	111	98
WL 324	-	3	<b>107</b>	<b>107</b>	<b>101</b>	107	97	108	108	-	-	104	92
Enhancer	-	4	<b>106</b>	<b>106</b>	<b>111</b>	107	108	-	-	105	116	-	-
Setter	-	3	106	106	111	101	95	111	127	-	-	-	-

**Alfalfa yield (percent of checks), winter survival index (WSI) and fall dormancy (FD) ratings at ALL and regional sites (continued).**<sup>5</sup> (Bold type yield numbers represent 3 or more tests<sup>1</sup>, regular type: 2 tests, *Italic* type: only 1 test.)

Variety, ranked by Year 1 + Year 2 Average, Year 3, Year 1	WSI <sup>2</sup>	FD <sup>4</sup>	Average Yield for Years 1, 1+2, 3 After Seeding Year										
			ALL <sup>3</sup>			SE <sup>3</sup>		WC <sup>3</sup>		SW <sup>3</sup>		NE <sup>3</sup>	
			Yr 1	Yr 1+2	Yr 3	Yr 1+2	Yr 3	Yr 1+2	Yr 3	Yr 1+2	Yr 3	Yr 1+2	Yr 3
Bounty	–	2	<b>107</b>	<b>106</b>	<b>108</b>	104	109	<i>110</i>	<i>108</i>	–	–	–	–
Dominator	–	4	<b>107</b>	<b>106</b>	<i>108</i>	<b>108</b>	<i>108</i>	–	–	99	–	–	–
Rustler II	–	4	<b>108</b>	<b>106</b>	107	104	<i>105</i>	<i>111</i>	<i>110</i>	–	–	–	–
DK140	2.8	4	<b>106</b>	<b>106</b>	<b>105</b>	<b>106</b>	<b>107</b>	<b>110</b>	<b>106</b>	101	101	<i>100</i>	–
9429	2.8	4	<b>107</b>	<b>106</b>	<b>104</b>	112	<i>97</i>	<i>107</i>	<i>118</i>	99	98	–	–
Magnum V-Wet	3.3	3	<b>105</b>	106	<i>104</i>	107	<i>104</i>	–	–	–	–	–	–
A-395	–	2	<b>107</b>	<b>106</b>	<b>103</b>	<b>105</b>	<i>101</i>	<i>106</i>	<i>101</i>	<i>107</i>	<i>107</i>	–	–
WinterStar	2.4	2	<b>107</b>	<b>106</b>	<b>103</b>	104	103	<b>108</b>	<b>101</b>	<i>107</i>	<i>111</i>	<i>104</i>	–
Abound	2.5	3	<b>108</b>	<b>106</b>	<b>102</b>	107	<i>95</i>	<i>103</i>	<i>106</i>	<i>100</i>	<i>106</i>	<i>113</i>	–
Evolution	–	2	<b>107</b>	<b>106</b>	<b>100</b>	111	<i>101</i>	<i>105</i>	<i>95</i>	–	–	<i>98</i>	<i>105</i>
Dynamic	–	2	<i>107</i>	<i>106</i>	<i>99</i>	<i>106</i>	<i>99</i>	–	–	–	–	–	–
A 30-06	1.9	3	<b>104</b>	105	107	<i>112</i>	<i>115</i>	–	–	<i>92</i>	<i>98</i>	–	–
Yielder	–	3	100	105	107	105	107	–	–	–	–	–	–
350	2.8	3	<b>107</b>	<b>105</b>	<b>106</b>	<i>109</i>	<i>99</i>	104	110	–	–	–	–
Feast+EV	2.2	3	<b>107</b>	<b>105</b>	<b>106</b>	105	<i>107</i>	106	105	–	–	–	–
Rainier	2.9	3	<b>105</b>	<b>105</b>	<b>106</b>	<b>105</b>	<b>108</b>	<i>108</i>	<i>106</i>	<i>103</i>	<i>108</i>	<i>100</i>	<i>98</i>
Mainstay	2.7	3	<b>104</b>	<b>105</b>	<b>105</b>	<b>105</b>	<b>105</b>	–	–	–	–	–	–
WinterKing	2.5	3	<b>107</b>	<b>105</b>	<b>104</b>	104	<i>99</i>	107	104	<i>109</i>	<i>114</i>	<i>99</i>	–
WL 232 HQ	2.8	2	<b>106</b>	<b>105</b>	<b>104</b>	<i>109</i>	<i>108</i>	<b>104</b>	<b>102</b>	<i>103</i>	<i>108</i>	–	–
Breakout	2.5	4	<b>105</b>	<b>105</b>	104	105	104	–	–	–	–	<i>104</i>	–
5312*	3.0	3	<b>105</b>	<b>105</b>	<b>104</b>	<b>107</b>	<b>108</b>	<b>103</b>	<b>99</b>	<b>104</b>	<b>100</b>	104	107
329 -Max	–	3	<b>111</b>	<b>105</b>	<b>100</b>	<b>106</b>	<i>99</i>	–	–	–	–	<i>103</i>	<i>101</i>
54V54	–	4	<b>108</b>	<b>105</b>	<b>100</b>	112	<i>107</i>	<i>100</i>	<i>96</i>	<i>96</i>	<i>96</i>	<i>110</i>	–
UltraLac	–	2	<i>105</i>	<i>105</i>	<i>94</i>	<i>105</i>	<i>94</i>	–	–	–	–	–	–
Depend+EV	–	4	<b>108</b>	<b>104</b>	114	105	<i>98</i>	–	–	–	–	–	–
53Q60	3.1	3	<b>103</b>	<b>104</b>	<b>107</b>	<b>105</b>	<b>103</b>	<b>103</b>	<b>108</b>	102	110	103	–
AmeriGraze 401+Z	–	4	<b>102</b>	<b>104</b>	<b>107</b>	<b>101</b>	<i>102</i>	<i>114</i>	<i>117</i>	–	–	–	–
Multi 5301	–	4	<b>104</b>	<b>104</b>	<b>106</b>	<i>103</i>	<i>105</i>	103	<i>107</i>	107	<i>106</i>	–	–
GH757	3.1	4	103	104	106	104	106	–	–	–	–	–	–
Platinum	–	4	<b>103</b>	104	106	107	<i>117</i>	–	–	<i>99</i>	<i>96</i>	–	–
6410 -Garst	2.7	4	<b>107</b>	<b>104</b>	<b>105</b>	<b>110</b>	<b>113</b>	<i>92</i>	<i>83</i>	<i>98</i>	<i>103</i>	–	–
Sterling	–	2	<b>106</b>	<b>104</b>	<b>105</b>	102	104	<i>111</i>	<i>111</i>	<i>99</i>	<i>100</i>	–	–
WetLand	–	3	<b>105</b>	<b>104</b>	<b>105</b>	<b>103</b>	<b>102</b>	<i>106</i>	<i>115</i>	–	–	–	–
DK127	2.9	3	<b>105</b>	<b>104</b>	<b>104</b>	<b>106</b>	<b>107</b>	<b>103</b>	<b>103</b>	97	103	108	95
DK141	3.4	4	106	104	103	103	<i>99</i>	109	106	107	107	–	–
645-II -Garst	–	3	<b>109</b>	<i>104</i>	<i>102</i>	–	–	–	–	<i>99</i>	<i>102</i>	–	–
GH766	–	3	<b>103</b>	<b>104</b>	<b>102</b>	106	<i>100</i>	<b>101</b>	<b>102</b>	<i>108</i>	<i>108</i>	<i>105</i>	<i>98</i>
Viking 1	3.0	2	<b>104</b>	<b>104</b>	<b>101</b>	<b>107</b>	101	<b>105</b>	<i>99</i>	<i>94</i>	<i>96</i>	<i>112</i>	<i>106</i>
Affinity+Z	–	4	<b>102</b>	<b>104</b>	100	104	<i>101</i>	–	–	–	–	<i>104</i>	<i>100</i>
Hunter	–	4	<b>105</b>	104	<i>99</i>	103	<i>99</i>	–	–	–	–	–	–
DK124	2.7	2	<b>105</b>	<b>104</b>	<b>98</b>	<b>105</b>	<b>96</b>	<b>106</b>	<b>99</b>	100	99	105	–
Milk River	–	3	<b>107</b>	<b>104</b>	<b>97</b>	105	<i>99</i>	<i>99</i>	<i>98</i>	<i>99</i>	<i>93</i>	<i>114</i>	–
Reliance	–	3	<i>100</i>	<i>103</i>	<i>120</i>	<i>103</i>	<i>120</i>	–	–	–	–	–	–
GH767	3.0	2	<b>105</b>	<b>103</b>	<b>104</b>	<b>103</b>	<b>104</b>	–	–	–	–	–	–
Wrangler	–	2	<b>103</b>	<b>103</b>	<b>103</b>	102	–	<i>106</i>	<i>103</i>	<i>98</i>	<i>106</i>	<i>107</i>	<i>100</i>
LegenDairy 2.0	2.8	3	<b>105</b>	<b>103</b>	<b>101</b>	<b>99</b>	<i>98</i>	<i>113</i>	<i>106</i>	–	–	–	–
Nemesis	–	3	<b>102</b>	<b>103</b>	<b>101</b>	<i>102</i>	<i>107</i>	<i>107</i>	<i>97</i>	<i>100</i>	<i>97</i>	–	–
Legend Gold	–	3	<b>103</b>	<b>103</b>	<b>100</b>	107	<i>99</i>	<i>102</i>	<i>102</i>	<i>95</i>	<i>101</i>	–	–
Spur	–	4	105	103	<i>99</i>	103	<i>99</i>	–	–	–	–	–	–
Award	3.3	4	<b>105</b>	<b>103</b>	<b>98</b>	<b>103</b>	<b>100</b>	<i>94</i>	<i>88</i>	<i>99</i>	<i>96</i>	<i>112</i>	<i>101</i>

**Alfalfa yield (percent of checks), winter survival index (WSI) and fall dormancy (FD) ratings at ALL and regional sites (continued).**<sup>5</sup> (Bold type yield numbers represent 3 or more tests<sup>1</sup>, regular type: 2 tests, *Italic* type: only 1 test.)

Variety, ranked by Year 1 + Year 2 Average, Year 3, Year 1	WSI <sup>2</sup>	FD <sup>4</sup>	Average Yield for Years 1, 1+2, 3 After Seeding Year										
			ALL <sup>3</sup>			SE <sup>3</sup>		WC <sup>3</sup>		SW <sup>3</sup>		NE <sup>3</sup>	
			Yr 1	Yr 1+2	Yr 3	Yr 1+2	Yr 3	Yr 1+2	Yr 3	Yr 1+2	Yr 3	Yr 1+2	Yr 3
Avalanche+Z	2.4	2	<b>103</b>	<b>103</b>	<b>98</b>	<b>109</b>	100	99	94	95	107	100	94
Samurai	–	3	103	103	96	103	96	–	–	–	–	–	–
Emperor	2.6	4	99	102	109	102	109	–	–	–	–	–	–
Sprint	2.6	3	<b>99</b>	<b>102</b>	<b>104</b>	105	100	<i>99</i>	<i>110</i>	–	–	–	–
Gold Plus	–	4	<b>101</b>	<b>102</b>	<b>103</b>	99	100	<i>106</i>	<i>109</i>	–	–	–	–
NetYield 500	2.9	4	<i>100</i>	<i>102</i>	<i>101</i>	<i>102</i>	<i>101</i>	–	–	–	–	–	–
53V63	–	3	<b>105</b>	<b>102</b>	<b>96</b>	99	97	107	95	<i>100</i>	<i>98</i>	<i>101</i>	–
Rhino	–	3	<b>104</b>	<b>101</b>	108	99	<i>106</i>	<i>105</i>	<i>111</i>	–	–	–	–
MP2000	2.7	3	<b>102</b>	<b>101</b>	<b>108</b>	<i>103</i>	<i>108</i>	<i>107</i>	<i>113</i>	94	<i>105</i>	–	–
GH750	–	4	<b>106</b>	<b>101</b>	<b>102</b>	<i>102</i>	<i>108</i>	<i>104</i>	99	93	98	–	–
205	1.6	2	<b>103</b>	<b>101</b>	<b>102</b>	<b>101</b>	103	105	102	94	<i>100</i>	<i>100</i>	<i>102</i>
AC Viva	–	3	100	101	102	<i>104</i>	<i>101</i>	–	–	<i>98</i>	<i>104</i>	–	–
Empire	–	2	<b>103</b>	<b>101</b>	<b>100</b>	99	97	105	103	95	98	102	–
Defense+EV	–	3	<i>109</i>	<i>101</i>	–	<i>101</i>	–	–	–	–	–	<i>103</i>	<i>130</i>
Iroquois	–	2	102	<i>101</i>	–	<i>101</i>	–	–	–	–	–	–	–
Oneida VR*	–	3	<b>99</b>	<b>100</b>	<b>101</b>	<b>103</b>	<b>103</b>	<b>100</b>	<b>103</b>	<b>95</b>	<b>96</b>	<b>101</b>	96
Vernal*	2.0	2	<b>100</b>	<b>100</b>	<b>100</b>	<b>99</b>	<b>100</b>	<b>99</b>	<b>98</b>	<b>102</b>	<b>100</b>	<b>100</b>	<b>100</b>
Mariner II	–	2	<i>97</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	–	–	–	–	–	–
400 SCL	–	4	<i>102</i>	<i>100</i>	<i>84</i>	<i>100</i>	<i>84</i>	–	–	–	–	–	–
Spredor 3*	1.8	1	<b>99</b>	<b>98</b>	<b>98</b>	<b>96</b>	<b>94</b>	<b>103</b>	<b>100</b>	102	105	<b>96</b>	<b>100</b>
Banquet	–	4	<b>101</b>	<b>96</b>	96	97	99	–	–	–	–	95	94
Ameriguard 302+Z	–	3	<i>93</i>	<i>95</i>	<i>95</i>	–	–	–	–	95	95	–	–
Starbuck	–	3	<i>119</i>	–	–	–	–	–	–	–	–	–	–
AV 3420	–	4	<i>115</i>	–	–	–	–	–	–	–	–	–	–
LegenDairy YPO	–	3	<i>115</i>	–	–	–	–	–	–	–	–	–	–
Arrow Head	–	2	<i>113</i>	–	–	–	–	–	–	–	–	–	–
6420 –Garst	–	4	109	–	–	–	–	–	–	–	–	–	–
Good as Gold II	–	4	<i>109</i>	–	–	–	–	–	–	–	–	–	–
Phirst	–	4	<i>109</i>	–	–	–	–	–	–	–	–	–	–
Value Plus I	2.6	4	107	–	–	–	–	–	–	–	–	–	–
8599	–	4	<i>106</i>	–	–	–	–	–	–	–	–	–	–
GH700	2.9	4	<i>106</i>	–	–	–	–	–	–	–	–	–	–
Ripin	–	4	<i>106</i>	–	–	–	–	–	–	–	–	–	–
4 Traffic	2.4	4	<i>105</i>	–	–	–	–	–	–	–	–	–	–
Multi 775	–	4	<i>104</i>	–	–	–	–	–	–	–	–	–	–
4A421	2.0	4	<i>101</i>	–	–	–	–	–	–	–	–	–	–
6400HT	2.5	4	<i>101</i>	–	–	–	–	–	–	–	–	–	–
DKA42-15	2.7	4	101	–	–	–	–	–	–	–	–	–	–
WL 342	–	4	<i>101</i>	–	–	–	–	–	–	–	–	–	–
54H91	–	4	–	–	–	–	–	–	–	–	–	–	–
54Q25	–	4	–	–	–	–	–	–	–	–	–	–	–
Ignite	–	3	–	–	–	–	–	–	–	–	–	–	–
Maximum I	–	3	–	–	–	–	–	–	–	–	–	–	–
Oneida Ultra	–	4	–	–	–	–	–	–	–	–	–	–	–

<sup>1</sup> Each seeding in any location counts as one "Test." Test data from experimental seed is retired as data from tests on commercial seed are sufficient to replace it.

<sup>2</sup> Winter Survival Index: 1 = superior, 2 = very good, 3 = good, 4 = adequate, 5 = low 6 = none. WSI is from joint Minnesota-Wisconsin 1996-2002 trials (Page 14 is 2002 WSI data only). <sup>3</sup> Locations: SE (southeast), Rosemount+Plainview; WC (west-central), Morris+Stearns County; SW (southwest), Lamberton; NE (northeast), Grand Rapids. <sup>4</sup> Fall dormancy and pest resistance ratings from Alfalfa Council report ([www.alfalfa.org/falldormancy/html](http://www.alfalfa.org/falldormancy/html)) or provided by a developer, with dormancy based on fall growth in mid-October after cutting first week of September: 11 = tallest (tend to be least winterhardy), 1 = shortest. <sup>5</sup> The full version of this table, with number of tests, regional and year 1 and 2 data, is posted at the UM-Agronomy FORAGES website: [www.agro.agri.umn.edu/forages](http://www.agro.agri.umn.edu/forages)

\*Variety used as check in some or all tests.

**Wisconsin and Minnesota 2002 alfalfa winter survival (WSI) test results,  
planted in April 2001, rated during April 2002.**

Variety	Winter Survival Index: 1=Superior, 2=Very Good, 3=Good, 4=Adequate, 5=Low, 6=No Winter Survival				
	Arlington, Wis.	Lancaster, Wis.	Rosemount, Minn.	Morris, Minn.	Average
BEAVER (index 1 check)	0.9	1.0	1.8	1.4	1.3
ZG 0033	1.1	1.5	1.9	2.3	1.7
ZG 9830	1.3	1.7	2.3	1.9	1.8
3M55	1.8	1.9	1.8	1.6	1.8
ZG 0041	2.0	1.3	2.5	2.3	2.0
ZG 0040	1.7	2.1	2.2	2.5	2.1
VERNAL (index 2 check)	1.9	2.1	2.5	2.2	2.2
3S11	1.9	2.9	2.2	2.2	2.3
4S41	2.7	2.0	2.3	2.2	2.3
5262	2.3	2.8	2.1	2.1	2.3
4 TRAFFIC	2.6	2.2	2.5	2.4	2.4
526 (index 2 check)	2.5	2.6	2.2	2.5	2.4
AVALANCHE +Z	3.1	2.2	2.3	2.2	2.4
3S14	2.1	3.0	2.3	2.4	2.5
ZG 0034	2.9	2.7	2.5	2.1	2.5
DKA42-15	2.8	2.6	2.4	2.9	2.7
54V54	3.2	2.7	2.6	2.4	2.7
HYBRIFORCE-400	3.0	3.3	2.5	2.5	2.8
WL 325 HQ	3.5	3.3	2.5	2.6	3.0
PARAGON BR	3.6	2.9	2.9	2.7	3.0
53Q60	3.4	3.4	2.9	2.5	3.1
WL 316 (index 4 check)	–	–	3.1	3.0	3.1
DART (index 3 check)	3.8	3.3	3.2	2.9	3.3
FORTRESS (index 4 check)	3.6	3.8	2.9	3.3	3.4
ARCHER (index 5 check)	3.9	3.9	3.1	3.4	3.6
RANGER (index 3 check)	3.5	3.8	4.2	4.3	3.9
G-2852 (index 4 check)	4.2	3.9	–	–	4.0
SOUTHERN SPECIAL (index 5 chk)	4.5	4.1	4.2	4.6	4.4
CUF 101 (index 6 check)	6.0	6.0	6.0	6.0	6.0
MOAPA 69 (index 6 check)	6.0	6.0	6.0	6.0	6.0

**Note:** WSI values reported in Yield table, pages 10-13 are from this, or prior, Winter Survival trials, with some WSI values averaged.

**Forage quality of alfalfa varieties as milk per ton and per acre (as percent of Vernal) and relative forage quality (RFQ).**

**Year-after-seeding harvest, 1996-2001.**

Variety	Wis. <sup>1</sup> and Minn. <sup>2</sup>	
	/Ton	/Acre
205	100	107
53Q60	100	103
53V63	<b>103</b>	<b>111</b>
6410	<b>103</b>	105
9326	101	<b>108</b>
9429	102	<b>113</b>
A30-06	101	105
A4230	102	<b>113</b>
Abound	101	106
Alliant	102	<b>110</b>
Award	<b>103</b>	<b>109</b>
Baralfa 32IQ	<b>103</b>	106
Breakout	<b>103</b>	<b>111</b>
Cimarron	98	101
Cimarron VR	<b>105</b>	<b>109</b>
Columbia 2000	100	105
DK 124	<b>104</b>	<b>110</b>
DK 127	102	<b>108</b>
DK 134	101	105
DK 140	<b>103</b>	<b>112</b>
Extend	101	107
FQ 314	<b>103</b>	<b>115</b>
Geneva	<b>103</b>	<b>112</b>
GH 700	102	<b>112</b>
GH 757	100	<b>111</b>
GH 766	102	<b>110</b>
GH 767	<b>103</b>	<b>110</b>
LegenDairy YPQ	100	92
Multi 5301	102	<b>113</b>
Nemesis	<b>103</b>	<b>117</b>
Radiant	<b>103</b>	<b>112</b>
Rainier	101	106
Somerset	102	<b>111</b>
Spirit	100	<b>114</b>
Sprint	102	107
Spur	<b>103</b>	106
Starbuck	100	93
ValuePlus 1	101	105
Vernal	100	100
Vitro	101	101
WinterGold	<b>103</b>	<b>115</b>
WinterKing	<b>104</b>	104
WinterStar	101	<b>108</b>
WL 322 HQ	101	101
Check, pounds per:	Ton	Acre
Vernal	<b>2,571</b>	<b>9,222</b>
LSD .05	3	10

**2002 harvest of 2001 seeding.**

Variety	Wisconsin <sup>1</sup>			Minnesota <sup>2</sup>		
	/Ton	/Acre	RFQ <sup>3</sup>	/Ton	/Acre	RFQ <sup>3</sup>
6410	<b>104</b>	112	<b>145</b>	<b>102</b>	<b>115</b>	158
LegenDairy YPQ	<b>107</b>	<b>122</b>	<b>152</b>	<b>99</b>	<b>119</b>	149
Starbuck	<b>104</b>	114	<b>145</b>	<b>103</b>	<b>122</b>	<b>161</b>
Vitro	<b>108</b>	114	<b>155</b>	<b>103</b>	<b>113</b>	<b>160</b>
<b>Checks</b>						
Cimarron	–	–	–	105	96	<b>144</b>
WL 322 HQ	–	–	–	<b>100</b>	103	153
Vernal, pounds:	2,309	15,649	137	2,387	7,476	154
LSD .05	6	6	8	11	12	16

**2002 harvest of 2002 seeding.**

Variety	Wisconsin			Minnesota		
	/Ton	/Acre	RFQ	/Ton	/Acre	RFQ
620 -Garst	–	–	–	105	96	<b>144</b>
6410	105	110	<b>159</b>	101	94	137
Baralfa 42 IQ	–	–	–	111	95	<b>158</b>
Feast+EV	104	110	<b>157</b>	92	98	119
Gold Leaf	–	–	–	106	108	<b>145</b>
<b>Checks</b>						
Cimarron	–	–	–	84	123	117
WL 322 HQ	–	–	–	100	100	<b>152</b>
Vernal, pounds:	2,544	5,815	146	2,251	3,991	133
LSD .05	3	ns	9	ns	ns	36

**Bold** values are not significantly different from highest value in trial.

<sup>1</sup> Milk/acre calculated from season average quality and yield at Arlington, Wis.

<sup>2</sup> Milk/acre calculated from season average quality and yield at Rosemount, Minn.

<sup>3</sup> Relative forage quality is a new index with similar mean and range as RFV that includes NDF digestibility in estimates of DMI and TDN to calculate RFQ. For a technical discussion of RFQ see: [www.uwex.edu/ces/forage/pubs/rfq.htm](http://www.uwex.edu/ces/forage/pubs/rfq.htm)



## Disease resistance and fall dormancy of alfalfa varieties marketed in Minnesota.

Variety <sup>1</sup>	Fall Dormancy <sup>2</sup>	Disease Resistance Ratings <sup>3,4</sup>						Seed Source <sup>5</sup>
		BW	VW	FW	An	PRR	Aph	
205	2	HR	R	HR	R	HR	R	LaCrosse Forage & Turf Seed
329 -Max	3	HR	HR	HR	HR	HR	R	Johnson Seeds
350	3	HR	HR	HR	HR	HR	HR	LaCrosse Forage & Turf Seed
4 Traffic	4	HR	HR	HR	HR	HR	HR	Kaltenberg Seed Farms
400 SCL	4	HR	HR	HR	HR	HR	HR	LaCrosse Forage & Turf Seed
4375LH	4	–	–	–	R	R	R	Mycogen Seed
4A421	4	HR	HR	HR	HR	HR	HR	Mycogen Seed
5312	3	HR	HR	HR	HR	HR	R	Pioneer Hi-Bred International
53H81	3	HR	HR	HR	HR	R	HR	Pioneer Hi-Bred International
53Q60	3	HR	R	R	HR	HR	R	Pioneer Hi-Bred International
53V63	3	HR	HR	HR	HR	HR	HR	Pioneer Hi-Bred International
5454	4	R	MR	HR	HR	HR	LR	Pioneer Hi-Bred International
54H69	4	HR	R	HR	HR	HR	R	Pioneer Hi-Bred International
54H91	4	HR	HR	R	HR	HR	R	Pioneer Hi-Bred International
54Q25	4	HR	HR	HR	HR	HR	R	Pioneer Hi-Bred International
54V46	4	R	HR	HR	HR	HR	HR	Pioneer Hi-Bred International
54V54	4	HR	HR	HR	HR	HR	MR	Pioneer Hi-Bred International
5-Star	5	R	R	HR	R	R	R	Croplan Genetics
620	2	HR	R	HR	HR	HR	R	Garst Seed
630	4	HR	MR	R	MR	R	S	Garst Seed
631	4	HR	R	HR	R	HR	MR	Garst Seed
6310	3	HR	HR	HR	HR	HR	R	Garst Seed
6325	3	HR	HR	HR	HR	HR	HR	Garst Seed
6400HT	4	HR	HR	HR	HR	HR	HR	Garst Seed
6410	4	HR	HR	HR	HR	HR	HR	Garst Seed
6420	4	HR	R	HR	R	HR	R	Garst Seed
645-II	3	HR	HR	HR	HR	HR	R	Garst Seed
8599	4	HR	HR	HR	HR	HR	R	Mallard Seed
9326	3	HR	R	HR	R	HR	R	LG Seeds
9429	4	HR	R	HR	HR	HR	HR	LG Seeds
A30-06	3	HR	HR	HR	HR	HR	HR	PGI Alfalfa, Producer's Hybrids
A-395	3	HR	R	HR	HR	HR	R	PGI Alfalfa
A4230	4	HR	HR	HR	HR	HR	HR	United Suppliers
Abound	3	HR	HR	HR	HR	HR	HR	Monsanto
Abundance	4	HR	R	HR	R	HR	R	Ziller Seed
Affinity+Z	4	HR	HR	HR	HR	HR	R	America's Alfalfa
AlfaStar	4	HR	R	HR	HR	HR	R	Kaystar Seed, Shepherd Seeds
Alliant	4	HR	R	HR	HR	HR	HR	Monsanto
AmeriGraze 401+Z	4	HR	R	HR	HR	HR	R	America's Alfalfa
AmeriGuard 302+Z	3	HR	HR	HR	HR	HR	HR	America's Alfalfa
AmeriStand 201+Z	2	HR	HR	HR	R	HR	HR	America's Alfalfa
AmeriStand 403T	4	HR	HR	HR	HR	HR	HR	America's Alfalfa
Arrowhead	2	HR	R	HR	R	HR	R	Bio Plant Research
Ascend	5	HR	HR	HR	HR	HR	HR	Kusssmaul Seeds

<sup>1</sup> Varieties includes those marketed in Minnesota for which disease resistance ratings were provided. Varieties not seeded in a recent Minnesota yield trial are excluded from yield tables on pages 10-13. <sup>2</sup> Fall dormancy and pest resistance ratings from Alfalfa Council report ([www.alfalfa.org/falldormancy.html](http://www.alfalfa.org/falldormancy.html)) or provided by a developer, with dormancy based on fall growth in mid-October after cutting first week of September: 11 = tallest (tend to be least winterhardy), 1 = shortest. <sup>3</sup> Diseases abbreviated as BW: bacterial wilt, PRR: Phytophthora root rot, FW: Fusarium wilt, An: anthracnose, VW: Verticillium wilt, Aph: Aphanomyces root rot. <sup>4</sup> Pest resistance rating (percent resistant plants): HR = high resistance (51 +), R = resistant (31-50), MR = moderate resistance (16-30), LR = low resistance (6-15), and S = susceptible (0-5). <sup>5</sup> Seed source phone numbers and websites are listed in "Forage Seed Sources," pages 20-21. \*A version of this table with additional or updated disease resistance ratings is posted at the UM-Agronomy Forages website: [www.agro.agri.umn.edu/forages](http://www.agro.agri.umn.edu/forages)

Variety <sup>1</sup>	Fall Dormancy <sup>2</sup>	Disease Resistance Ratings <sup>3,4</sup>						Seed Source <sup>5</sup>
		BW	VW	FW	An	PRR	Aph	
Ascend 552	5	HR	HR	HR	HR	HR	HR	Kussmaul Seeds
AV3420	4	HR	R	HR	HR	HR	HR	AgVenture
Avalanche+Z	2	HR	HR	HR	HR	HR	R	America's Alfalfa
Award	4	HR	HR	HR	HR	HR	R	Monsanto
Awesome	4	HR	HR	HR	HR	HR	HR	LG Seeds
Banquet	4	HR	HR	HR	HR	HR	R	Olds Seed Solutions
Baralfa 32 IQ	3	HR	R	HR	HR	HR	HR	Barenbrug USA
Baralfa 42 IQ	4	HR	HR	HR	HR	HR	HR	Albert Lea Seed House
BigHorn	4	HR	R	HR	HR	HR	HR	Mycogen Seed
Bounty	2	HR	R	HR	HR	HR	R	PGI Alfalfa
Breakout	4	HR	R	HR	HR	HR	R	Brown Seed Farms
Champion LH2	3	HR	HR	HR	HR	HR	HR	Kaltenberg Seed Farms
Columbia 2000	4	R	R	R	LR	LR	S	Allied Seed, Kaltenberg Seed
Cyclone	3	HR	HR	HR	HR	HR	HR	Tri-State Seed & Ag
Defense+EV	3	HR	HR	HR	HR	HR	HR	Not Available
Depend+EV	4	HR	HR	HR	HR	HR	R	AgriPro brand - Garst Seed
DK124	2	HR	HR	HR	HR	HR	HR	Monsanto
DK127	3	HR	R	R	HR	HR	HR	Monsanto
DK134	3	HR	HR	HR	HR	HR	HR	Monsanto
DK140	4	HR	R	HR	HR	HR	HR	Monsanto
DK141	4	HR	HR	HR	HR	HR	HR	Not Available
DKA37-20	3	HR	HR	HR	HR	HR	R	Monsanto
DKA42-15	4	HR	HR	HR	HR	HR	HR	Monsanto
Dominator	4	HR	R	HR	HR	HR	R	AgriPro brand - Garst Seed
Dynamic	2	HR	HR	HR	HR	HR	HR	Grassland Central
Emperor	4	HR	HR	HR	HR	HR	HR	ABI Alfalfa
Empire	2	HR	R	HR	HR	HR	R	Brunner Seed Farm
Enhancer	4	HR	R	HR	R	HR	MR	Fontanelle Hybrids
EverGreen	3	HR	R	HR	HR	HR	R	Syngenta
Evolution	2	HR	R	HR	HR	HR	R	Mycogen Seed
Extend	4	HR	R	HR	HR	HR	R	Spangler Seedtech
Feast+EV	3	HR	HR	HR	R	HR	HR	AgriPro brand - Garst Seed
Forecast 1001	4	HR	R	HR	R	HR	R	Dairyland Seed
Forecast 3001	3	HR	R	HR	R	HR	R	Dairyland Seed
FQ 314	3	HR	HR	HR	HR	HR	HR	Mycogen Seed
FQ 315	3	HR	R	HR	HR	HR	HR	Mycogen Seed
FSG300LH	3	HR	HR	HR	HR	HR	HR	LaCrosse Forage & Turf Seed
Geneva	4	HR	HR	HR	HR	HR	HR	Syngenta
GH700	4	HR	HR	HR	HR	HR	HR	Golden Harvest Seed
GH750	4	HR	HR	HR	HR	HR	HR	JC Robinson Seeds/Golden Harvest
GH757	4	HR	HR	HR	HR	HR	HR	Golden Harvest Seed
GH766	3	HR	R	HR	HR	HR	R	JC Robinson Seeds/Golden Harvest
GH767	2	HR	R	HR	HR	HR	R	Golden Harvest Seed
Gold Plus	4	HR	R	HR	HR	HR	R	PGI Alfalfa, Top Farm Hybrids
GoldLeaf	3	HR	R	HR	R	HR	R	Gold Country Seed, Albert Lea Seed House
Good as Gold II	4	HR	R	HR	R	HR	MR	Bio Plant Research
GreenFeast	2	HR	HR	HR	HR	HR	HR	Olds Seed Solutions
Harvestar 812HY	4	HR	R	HR	R	HR	R	Fielder's Choice Direct Seed Corn
HayGrazer	4	HR	R	HR	R	R	MR	Kaltenberg Seed Farms
HayMaker II	4	HR	R	HR	HR	HR	R	Kussmaul Seeds
Hunter	4	HR	R	HR	HR	HR	R	Ramy International
HybriForce-400	4	HR	R	HR	R	HR	MR	Dairyland Seed

***Disease resistance and fall dormancy of alfalfa varieties marketed in Minnesota (continued).***

Variety <sup>1</sup>	Fall Dormancy <sup>2</sup>	Disease Resistance Ratings <sup>3,4</sup>						Seed Source <sup>5</sup>
		BW	VW	FW	An	PRR	Aph	
HybriGreen-41	4	HR	R	HR	R	HR	R	Not Available
Ignite	3	HR	R	HR	HR	HR	HR	Jung Seed Genetics
Imperial	3	HR	R	HR	HR	HR	R	ABI Alfalfa
Innovator+Z	3	HR	HR	HR	HR	HR	R	America's Alfalfa
Iroquois	2	HR	S	MR	S	S	–	R.J Hunt Seed
Jade II	4	HR	R	HR	R	HR	MR	NC+ Hybrids
Journey 204 Hybrid	4	HR	R	HR	HR	HR	R	Fontanelle Hybrids
Laser	4	HR	R	HR	R	HR	MR	AMPAC Seed
Legend Gold	3	HR	HR	HR	HR	HR	HR	Legend Seeds
LegenDairy 2.0	3	HR	R	HR	HR	HR	R	Croplan Genetics
LegenDairy YPQ	3	HR	R	HR	HR	HR	HR	Croplan Genetics
LH 3000	3	HR	HR	HR	HR	HR	R	Jung Seed Genetics
Lightning II	4	HR	HR	HR	HR	HR	HR	Jung Seed Genetics
MagnaGraze	3	HR	R	HR	R	HR	R	Dairyland Seed
Magnum III	4	R	MR	R	MR	R	LR	Dairyland Seed
Magnum III-Wet	3	R	MR	R	MR	R	MR	Dairyland Seed
Magnum IV	4	HR	R	HR	R	HR	MR	Dairyland Seed
Magnum V	4	HR	R	HR	R	HR	MR	Dairyland Seed
Magnum V-Wet	3	HR	R	HR	R	HR	R	Dairyland Seed
Mainstay	3	HR	R	HR	HR	HR	R	AqVenture
Mariner	2	R	MR	HR	R	HR	MR	Allied Seed
Mariner II	2	HR	R	HR	R	HR	R	Allied Seed
Maximum I	3	HR	HR	HR	HR	HR	R	Johnson Seeds of Dassel
Milk River	3	HR	R	HR	HR	HR	R	R.J Hunt Seed
Monument	3	R	LR	R	–	MR	–	Geertson Seed Farm
Monument II	4	R	LR	HR	S	R	–	Geertson Seed Farm
MP2000	3	HR	R	HR	HR	HR	HR	Croplan Genetics
Multi 5301	4	R	R	HR	HR	MR	–	Geertson Seed Farm
Multi 775	4	HR	R	HR	R	R	R	Geertson Seed Farm
Multiplier 3 -TMF	3	HR	R	HR	HR	HR	HR	Mycogen Seed
Nemesis	3	R	HR	HR	HR	HR	HR	Renk Seed
NetYield 500	4	HR	R	HR	R	HR	MR	Net Seeds
Oneida Ultra	4	HR	HR	HR	R	R	–	LaCrosse Forage & Turf Seed
Oneida VR	3	R	HR	HR	MR	MR		Not Available
Paragon BR	3	HR	R	HR	R	HR	R	Bio Plant Research
Perfect	4	HR	HR	HR	HR	HR	HR	Grassland Central
Persist	4	HR	R	HR	MR	HR	MR	Kaltenberg Seed Farms
Phabulous	4	HR	HR	HR	HR	HR	HR	Trelay
Phirst	4	HR	R	HR	HR	HR	R	Bio Plant Research
Platinum	4	HR	HR	HR	HR	HR	HR	Not Available
Pointer	4	HR	HR	HR	HR	HR	HR	Dahlco Seeds
Prairie Max	3	HR	R	HR	HR	HR	HR	Sansgaard Seed Farms
Prolific	3	HR	R	HR	R	HR	R	Bio Plant Research
Radiant	4	HR	HR	HR	HR	HR	HR	AMPAC Seed, De Long
Rainier	3	HR	R	HR	HR	HR	HR	Syngenta
Rebound 4.2	4	HR	HR	HR	HR	HR	HR	Croplan Genetics
Reliance	3	HR	HR	HR	HR	HR	R	Allied Seed
Rhino	3	HR	R	R	R	R	R	Geertson Seed Farm
Ripin	4	HR	R	HR	R	HR	R	AMPAC Seed, Delong Seed, Welter Seed & Honey
Root 66	4	HR	HR	HR	HR	HR	HR	Trelay
Rustler II	4	HR	HR	HR	HR	HR	R	Andrews Seed
Samurai	3	HR	R	HR	HR	HR	R	Not Available

Variety <sup>1</sup>	Fall Dormancy <sup>2</sup>	Disease Resistance Ratings <sup>3,4</sup>						Seed Source <sup>5</sup>
		BW	VW	FW	An	PRR	Aph	
Setter	3	HR	HR	HR	HR	HR	HR	Dahlco Seeds
Somerset	3	HR	HR	HR	HR	HR	HR	Syngenta
Spirit	3	HR	R	HR	R	HR	MR	PGI Alfalfa
Spredor 3	1	HR	MR	HR	R	MR	S	Syngenta
Sprint	3	HR	R	HR	R	HR	HR	Specialty Seeds
Spur	4	HR	R	HR	HR	HR	R	Allied Seed
Stampede	3	HR	R	R	R	HR	R	Allied Seed
Starbuck	3	HR	R	HR	HR	HR	HR	Spangler Seedtech
Sterling	2	HR	R	HR	HR	HR	R	Mycogen Seed
Supreme	3	HR	HR	HR	HR	HR	HR	Kussmaul Seeds
Surpass	3	HR	R	HR	MR	R	-	Albert Lea Seed, Andrews Seed
Sustain	4	HR	R	HR	R	R	R	Kussmaul Seeds
Target II Plus	3	HR	R	HR	R	HR	MR	Producers Hybrids
TMF 421	2	HR	HR	R	HR	HR	HR	Mycogen Seed
TMF 4355LH	3	HR	R	HR	HR	HR	R	Mycogen Seed
Trophy	4	R	R	HR	R	HR	R	Not Available
UltraLac	2	HR	HR	HR	HR	HR	HR	Elk Mound Seed
Value Plus 1	4	HR	R	HR	HR	HR	R	Brown Seed Farms
Vernal	2	R	-	MR	-	-	-	Albert Lea Seed, RJ Hunt Seed
Viking 1	2	R	HR	HR	R	R	-	Syngenta
Vitro	3	HR	HR	HR	HR	HR	R	North-Gro Seeds
Voyager II	4	HR	R	HR	R	HR	MR	Bio Plant Research, Lemke Seed
Webfoot Supreme	4	R	R	R	R	R	LR	Great Lakes Hybrids
WetLand	3	R	MR	R	R	HR	MR	Bio Plant Research
WinterGold	4	HR	HR	HR	HR	R	HR	Renk Seed
WinterKing	3	HR	HR	HR	HR	HR	R	Wensman Seed
WinterStar	2	HR	HR	HR	HR	HR	R	Wensman Seed
WL 232 HQ	2	HR	HR	HR	HR	HR	HR	W-L Alfalfas, AgVenture East, Kaystar Seeds, Olds Seed Solutions, UAP Midwest
WL 319HQ	3	HR	HR	HR	HR	HR	HR	W-L Alfalfas, AgVenture East, Kaystar Seeds, Olds Seed Solutions, UAP Midwest
WL 324	3	HR	R	HR	HR	HR	HR	Olds Seed Solutions
WL 325 HQ	3	HR	R	HR	HR	HR	R	W-L Alfalfas, AgVenture East, Kaystar Seeds, Olds Seed Solutions, UAP Midwest
WL 326 GZ	4	HR	HR	HR	HR	HR	HR	W-L Alfalfas, AgVenture East, Kaystar Seeds, Olds Seed Solutions, UAP Midwest
WL 327	4	HR	R	HR	HR	HR	HR	W-L Alfalfas, AgVenture East, Kaystar Seeds, Olds Seed Solutions, UAP Midwest
WL 342	4	HR	HR	HR	HR	HR	HR	W-L Alfalfas, AgVenture East, Kaystar Seeds, Olds Seed Solutions, UAP Midwest
WL 346LH	4	HR	HR	HR	HR	HR	HR	Olds Seed Solutions
Wrangler	2	R	LR	R	LR	HR	-	Albert Lea Seed, RJ Hunt Seed
Yielder	3	HR	HR	HR	R	HR	MR	AgriPro brand - Garst Seed

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