

FORAGE CROPS



Locations of Alfalfa Trials.

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 Waseca (replaced by Lewiston in 1996, Plainview/Potsdam in 1998); southwest: Lamberton; west-central: Morris and Stearns County (St. Martin, Melrose) since 1998; northwest: Crookston (to 1995) and northeast: Grand Rapids (see locations map above). 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 reported in those responses are listed on pages 16-19; each variety is keyed to distributors' addresses and telephone numbers on pages 20-21. Varieties seeded in

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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 14-15.

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 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 or five locations (Arlington, Lancaster and Marshfield, 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 superior. 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 on pages 16-19, with varieties listed 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.

Forage Yield

Yields of alfalfa varieties currently tested and/or reported by respondents as cur-



rently 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% 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 is also 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 includes 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 and milk per acre.

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.

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. Therefore, 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. The disease is favored by hot, moist conditions, and will therefore be most frequently observed 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. Therefore, using *certified* seed of adapted, high-yielding varieties best assures true-ness to name.

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

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

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 as percent of checks and winter survival index (WSI) at ALL and regional sites.

(**Bold** type yield numbers represent 3 or more tests¹, regular type: 2 tests, *Italic* type: only 1 test².)

Variety, ranked by Year 1 + Year 2 Average, Year 3, Year 1	WSI ²	Average Yield for Years 1, 1+2, 3 After Seeding Year ⁴											
		ALL ³			SE ³			WC ³		SW ³		NE ³	
		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, T/Acre 15%mc Hay		5.97	5.48	5.88	6.24	6.31	5.84	5.94	5.54	6.35	3.79	4.10	
Perfect	–	115	112	128	–	–	112	128	–	–	–	–	
Persist	–	110	112	118	112	120	116	116	105	–	–	–	
Laser	–	111	112	102	115	102	117	–	103	–	–	–	
Badger	–	110	111	114	111	114	–	–	–	–	–	–	
Abundance	3.4	111	111	107	111	107	–	–	–	–	–	–	
WinterMax	–	111	111	105	111	–	111	105	–	–	–	–	
MultiQueen	–	117	111	–	–	–	127	–	102	–	–	–	
HybriForce-400	–	109	110	117	110	117	–	–	–	–	–	–	
Paragon BR	–	111	110	116	110	116	–	–	–	–	–	–	
Magnum III	–	109	110	114	110	110	106	103	116	132	104	108	
Standout	–	110	110	112	–	–	113	115	106	110	–	–	
9326	–	110	110	110	112	98	115	119	101	105	–	–	
Root 66	2.1	107	110	109	110	109	–	–	–	–	–	–	
Stampede	–	109	110	104	110	104	–	–	–	–	–	–	
MagnaGraze	–	111	110	101	110	101	–	–	–	–	–	–	
Magnum III-Wet	–	110	110	101	110	101	111	–	–	–	–	–	
Quantum	–	114	110	99	107	99	118	–	–	–	–	–	
Radiant	–	108	109	117	109	117	–	–	–	–	–	–	
Surpass	–	109	109	107	111	107	106	104	–	–	108	110	
Voyager II	–	109	109	104	109	101	108	105	109	105	–	–	
Rebound 4.2	2.4	108	108	121	110	–	111	120	103	122	–	–	
GoldLeaf	3.0	112	108	113	108	113	–	–	–	–	–	–	
Monument	–	103	108	113	109	118	111	128	100	104	110	102	
Vitro	2.6	108	108	112	113	118	105	110	–	–	–	–	
Harvstar 812Hyb	–	110	108	111	108	111	–	–	–	–	–	–	
Spirit	–	105	108	110	112	–	108	103	106	117	–	–	
Gateway	–	111	108	109	107	107	109	112	–	–	–	–	
631	–	108	108	109	107	109	115	108	101	109	–	–	
Geneva	2.8	107	108	108	108	109	104	105	110	110	–	–	
Target II Plus	–	109	108	107	109	106	106	109	–	–	–	–	
Prolific	–	108	108	107	108	107	–	–	–	–	–	–	
BigHorn	3.1	107	108	105	105	98	114	125	–	–	–	–	

¹ 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.

² Winter Survival Index: 1=superior, 2=very good, 3=good, 4=adequate, 5=low 6=none. WSI is from joint Minnesota-Wisconsin 1996-2001 trials (Page 14 is 2001 WSI data only).

³ Locations: SE (southeast), Rosemount+Plainview; WC (west-central), Morris+Stearns County; SW (southwest), Lambertson; NE (northeast), Grand Rapids.

⁴ The full version of this table, with regional and year-1 data, is posted at the UM-Agronomy FORAGES website: www.agro.agri.umn.edu/forages

Alfalfa yield as percent of checks and winter survival index (WSI) at ALL and regional sites.

(**Bold** type yield numbers represent 3 or more tests ¹, regular type: 2 tests, *Italic* type: only 1 test ².)

Variety, ranked by Year 1 + Year 2 Average, Year 3, Year 1	WSI ²	Average Yield for Years 1, 1+2, 3 After Seeding Year ⁴										
		ALL ³			SE ³		WC ³		SW ³		NE ³	
		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
620 ~Garst	2.5	109	108	104	108	105	108	100	103	107	–	–
Magnum IV	–	107	108	104	108	104	–	–	–	–	–	–
Extend	2.9	108	108	99	108	<i>101</i>	–	–	–	–	<i>108</i>	<i>98</i>
Pointer	–	109	108	–	<i>111</i>	–	<i>110</i>	–	<i>100</i>	–	–	–
Forecast 3001	3.1	108	108	–	<i>105</i>	–	<i>110</i>	–	–	–	–	–
A4230	–	107	<i>107</i>	<i>117</i>	<i>107</i>	<i>117</i>	–	–	–	–	–	–
Magnum V	3.0	103	107	114	106	108	110	117	104	<i>120</i>	–	–
Alliant	3.0	112	<i>107</i>	<i>113</i>	<i>106</i>	<i>113</i>	–	–	–	–	–	–
350 ~ABT	2.8	108	107	113	111	<i>113</i>	104	<i>113</i>	–	–	–	–
Somerset	2.5	105	107	<i>112</i>	107	<i>112</i>	–	–	–	–	–	–
Rebel	–	108	107	109	–	–	<i>108</i>	<i>104</i>	<i>106</i>	<i>113</i>	–	–
Innovator+Z	2.3	105	107	109	107	103	<i>120</i>	<i>124</i>	<i>94</i>	<i>105</i>	–	–
FQ 315	–	109	107	108	108	<i>100</i>	106	<i>117</i>	–	–	–	–
Jade II	–	106	107	108	107	108	–	–	<i>107</i>	<i>109</i>	–	–
AlfaStar	–	113	107	106	<i>104</i>	<i>110</i>	–	–	<i>108</i>	<i>102</i>	–	–
Baralfa 32 IQ	3.0	108	107	105	103	105	<i>119</i>	<i>106</i>	–	–	–	–
5454	2.3	107	107	105	108	105	111	111	102	99	105	102
Imperial	–	107	107	105	107	107	<i>108</i>	<i>102</i>	–	–	–	–
WL 325 HQ	–	107	107	105	110	<i>121</i>	109	102	<i>95</i>	–	<i>110</i>	<i>96</i>
Columbia 2000	3.1	108	107	104	105	<i>101</i>	<i>110</i>	<i>110</i>	<i>109</i>	<i>112</i>	<i>105</i>	<i>93</i>
TMF 421	–	108	107	104	<i>103</i>	<i>94</i>	112	108	<i>108</i>	<i>106</i>	<i>100</i>	–
WL 324	–	107	107	103	107	–	108	108	–	–	<i>104</i>	<i>92</i>
AmeriStand 201+Z	2.0	105	107	103	108	103	108	103	103	<i>105</i>	–	–
Defiant	2.3	108	107	102	108	<i>104</i>	<i>105</i>	<i>95</i>	<i>107</i>	<i>106</i>	–	–
FQ 314	3.0	106	107	102	106	100	109	<i>107</i>	–	–	–	–
Green Feast	2.9	<i>111</i>	<i>107</i>	<i>101</i>	<i>107</i>	<i>101</i>	–	–	–	–	–	–
Mariner	–	111	107	101	105	<i>104</i>	–	–	–	–	<i>111</i>	<i>98</i>
Forecast 1001	2.9	107	107	–	<i>111</i>	–	<i>102</i>	–	–	–	–	–
WL 327	–	106	107	–	<i>111</i>	–	<i>101</i>	–	–	–	–	–
Garst 645	2.8	107	106	112	106	104	108	111	104	119	–	–
Enhancer	–	106	106	111	107	108	–	–	<i>105</i>	<i>116</i>	–	–
Bounty	–	107	106	108	104	109	<i>110</i>	<i>108</i>	–	–	–	–
Dominator	–	107	106	<i>108</i>	108	<i>108</i>	–	–	<i>99</i>	–	–	–
DK142	–	106	106	108	106	108	–	–	–	–	–	–
Rustler II	–	108	106	107	104	<i>105</i>	<i>111</i>	<i>110</i>	–	–	–	–
Forecast 3000	–	104	106	107	–	–	<i>103</i>	<i>99</i>	<i>110</i>	<i>115</i>	–	–
DK140	2.8	106	106	106	106	108	110	107	101	<i>95</i>	<i>100</i>	–
Notice	2.6	106	106	104	<i>104</i>	<i>103</i>	<i>111</i>	<i>104</i>	<i>102</i>	<i>105</i>	–	–
WinterGold	2.6	106	106	104	104	<i>99</i>	108	<i>109</i>	–	–	–	–
A-395	–	107	106	103	105	<i>101</i>	<i>106</i>	<i>101</i>	<i>107</i>	<i>107</i>	–	–
WinterStar	2.4	107	106	103	104	103	108	101	<i>107</i>	<i>111</i>	<i>104</i>	–
Evolution	–	107	106	100	111	<i>101</i>	<i>105</i>	<i>95</i>	–	–	<i>98</i>	<i>105</i>
Iroquois	–	104	106	99	104	98	106	102	<i>100</i>	<i>99</i>	<i>111</i>	<i>96</i>
5312 – check	3.0	105	105	105	107	110	104	101	104	99	104	107
A 30-06	1.9	104	105	<i>115</i>	<i>112</i>	<i>115</i>	–	–	<i>92</i>	–	–	–
Yielder	–	100	105	107	105	107	–	–	–	–	–	–
Rainier	2.9	105	105	106	105	108	<i>108</i>	<i>106</i>	<i>103</i>	<i>108</i>	<i>100</i>	<i>98</i>
Mainstay	2.7	104	105	105	105	105	–	–	–	–	–	–
WinterKing	2.5	107	105	104	104	99	107	104	<i>109</i>	<i>114</i>	<i>99</i>	–
WL 232 HQ	–	106	105	104	<i>109</i>	<i>108</i>	104	100	<i>103</i>	<i>108</i>	–	–

Alfalfa yield as percent of checks and winter survival index (WSI) at ALL and regional sites.

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Variety, ranked by Year 1 + Year 2 Average, Year 3, Year 1	WSI ²	Average Yield for Years 1, 1+2, 3 After Seeding Year ⁴										
		ALL ³			SE ³		WC ³		SW ³		NE ³	
		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
Breakout	2.5	105	105	104	105	104	–	–	–	–	104	–
GH787	–	107	105	103	105	105	–	–	–	–	109	98
329 ~Max	–	111	105	100	106	99	–	–	–	–	103	101
UltraLac	–	<i>105</i>	<i>105</i>	–	<i>105</i>	–	–	–	–	–	–	–
6410 ~Garst	2.7	106	104	122	110	122	90	–	98	–	–	–
Platinum	–	101	104	117	107	117	–	–	99	–	–	–
WinterGreen	2.5	105	104	112	107	112	–	–	–	–	100	–
Abound	2.5	107	104	111	104	111	103	–	100	–	–	–
9429	2.8	106	104	108	107	99	107	118	96	–	–	–
AmeriGraze 401+Z	–	102	104	107	101	102	114	117	–	–	–	–
Feast+EV	2.2	105	104	106	104	107	104	105	–	–	–	–
GH757	3.1	103	104	106	104	106	–	–	–	–	–	–
Sterling	–	106	104	105	102	104	111	111	99	100	–	–
GH766~QP	–	103	104	105	106	100	101	108	108	108	105	98
DK141	3.4	106	104	104	103	101	109	106	107	109	89	–
DK124	2.7	105	104	104	104	99	106	107	100	105	103	–
DK127	2.7	105	104	104	105	107	103	103	97	103	110	95
Magnum V-Wet	3.3	105	104	104	105	104	–	–	–	–	–	–
Multi 5301	–	103	104	104	102	101	103	107	107	106	–	–
WetLand	–	105	104	102	103	102	106	–	–	–	–	–
Viking 1	3.0	104	104	101	107	101	105	99	94	96	112	106
Nemesis	–	103	104	101	104	105	107	97	100	97	–	–
Ace	3.1	102	104	101	101	95	113	113	–	–	–	–
630	–	97	104	101	–	–	104	101	–	–	–	–
Affinity+Z	–	102	104	100	104	101	–	–	–	–	104	100
Hunter	–	105	104	99	103	99	–	–	–	–	–	–
54V54	2.5	108	104	–	110	–	101	–	93	–	–	–
Reliance	–	100	103	120	103	120	–	–	–	–	–	–
Depend+EV	–	105	103	114	102	98	–	–	–	–	103	130
53V08	–	105	103	113	–	–	103	110	104	117	–	–
53Q60	3.0	104	103	108	105	105	104	108	103	114	99	–
GH767	3.0	105	103	104	103	104	–	–	–	–	–	–
Complete	2.7	104	103	104	106	103	–	–	99	106	–	–
Pristine	–	102	103	104	103	104	–	–	–	–	–	–
LegenDairy 2.0	2.8	107	103	103	98	99	113	106	–	–	–	–
Multi 5302	–	105	103	102	–	–	104	95	101	108	–	–
Avalanche+Z	2.4	103	103	102	109	100	99	106	95	107	100	94
Award	3.3	105	103	101	103	101	94	–	99	–	112	101
Wrangler	–	102	103	101	106	107	106	103	98	106	100	91
Multiplier II ~TMF	–	105	103	100	101	96	109	105	104	101	100	96
Spur	–	105	103	99	103	99	–	–	–	–	–	–
Sprint	2.6	101	103	99	105	99	99	–	–	–	–	–
Legend Gold	–	103	103	96	107	96	102	–	95	–	–	–
645-II ~Garst	–	108	103	–	–	–	–	–	99	–	–	–
Samurai	–	103	103	–	103	–	–	–	–	–	–	–
Emperor	2.6	99	102	109	102	109	–	–	–	–	–	–
Gold Plus	–	102	102	105	101	103	106	109	–	–	–	–
Oneida-ck	–	104	102	104	102	103	103	102	98	106	106	108
Ranger	3.0	102	102	102	100	101	125	117	97	99	–	–
53V63	2.8	105	102	96	99	97	107	95	100	98	101	–

Alfalfa yield as percent of checks and winter survival index (WSI) at ALL and regional sites.

(**Bold** type yield numbers represent 3 or more tests ¹, regular type: 2 tests, *Italic* type: only 1 test ².)

Variety, ranked by Year 1 + Year 2 Average, Year 3, Year 1	WSI ²	Average Yield for Years 1, 1+2, 3 After Seeding Year ⁴										
		ALL ³			SE ³		WC ³		SW ³		NE ³	
		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
NetYield 500	2.9	<i>100</i>	<i>102</i>	–	<i>102</i>	–	–	–	–	–	–	–
GH750	–	106	101	<i>108</i>	<i>102</i>	<i>108</i>	<i>104</i>	–	<i>93</i>	–	–	–
Rhino	–	104	101	<i>108</i>	<i>99</i>	<i>106</i>	<i>105</i>	<i>111</i>	–	–	–	–
MP2000	2.7	102	101	108	<i>103</i>	<i>108</i>	<i>107</i>	<i>113</i>	<i>94</i>	<i>105</i>	–	–
9111	–	<i>101</i>	<i>101</i>	<i>108</i>	–	–	<i>100</i>	<i>107</i>	<i>102</i>	<i>110</i>	–	–
Lactator	3.1	102	101	<i>104</i>	101	<i>104</i>	–	–	–	–	–	–
205 ~ABT	1.6	103	101	102	101	<i>103</i>	<i>105</i>	<i>102</i>	<i>94</i>	<i>100</i>	<i>100</i>	<i>102</i>
Empire	–	103	101	100	<i>99</i>	<i>97</i>	<i>105</i>	<i>103</i>	<i>95</i>	<i>98</i>	<i>102</i>	–
Milk River	–	105	101	–	<i>103</i>	–	<i>98</i>	–	<i>95</i>	–	–	–
AC Viva	–	<i>100</i>	<i>101</i>	–	<i>104</i>	–	–	–	<i>98</i>	–	–	–
Oneida VR-check	–	100	100	101	103	104	100	103	95	96	<i>101</i>	<i>96</i>
Vernal-check	1.9	100	100	100	100	100	99	99	102	99	100	100
Mariner II	–	<i>97</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	–	–	–	–	–	–
400 SCL ~ABT	–	<i>102</i>	<i>100</i>	<i>84</i>	<i>100</i>	<i>84</i>	–	–	–	–	–	–
Agate	–	98	99	106	101	110	97	101	100	<i>100</i>	<i>89</i>	<i>96</i>
Spredor 3 ~check	1.8	<i>99</i>	<i>98</i>	<i>98</i>	97	94	103	100	<i>102</i>	<i>105</i>	96	100
Guardian	3.0	99	98	104	<i>109</i>	<i>110</i>	<i>98</i>	<i>104</i>	<i>87</i>	<i>97</i>	–	–
Banquet	–	101	96	<i>96</i>	<i>97</i>	<i>99</i>	–	–	–	–	<i>95</i>	<i>94</i>
Ameriguard 302+Z	–	<i>93</i>	<i>95</i>	–	–	–	–	–	<i>95</i>	–	–	–
DK134	2.6	115	–	–	–	–	–	–	–	–	–	–
Monument II	–	114	–	–	–	–	–	–	–	–	–	–
Arrow Head	–	<i>113</i>	–	–	–	–	–	–	–	–	–	–
Ascend	–	<i>112</i>	–	–	–	–	–	–	–	–	–	–
Baralfa 42 IQ	2.3	<i>112</i>	–	–	–	–	–	–	–	–	–	–
Multiplier 3 ~TMF	2.8	111	–	–	–	–	–	–	–	–	–	–
Phabulous	–	<i>110</i>	–	–	–	–	–	–	–	–	–	–
Defense+EV	–	<i>109</i>	–	–	–	–	–	–	–	–	–	–
Good as Gold II	–	<i>109</i>	–	–	–	–	–	–	–	–	–	–
Phirst	–	<i>109</i>	–	–	–	–	–	–	–	–	–	–
Trophy	–	<i>109</i>	–	–	–	–	–	–	–	–	–	–
4200	–	<i>108</i>	–	–	–	–	–	–	–	–	–	–
Lightning II	–	<i>108</i>	–	–	–	–	–	–	–	–	–	–
Value Plus I	2.6	<i>107</i>	–	–	–	–	–	–	–	–	–	–
AmeriStand 403T	2.1	106	–	–	–	–	–	–	–	–	–	–
GH700	2.9	<i>106</i>	–	–	–	–	–	–	–	–	–	–
Ripin	–	<i>106</i>	–	–	–	–	–	–	–	–	–	–
4 Traffic	–	1 test	–	–	–	–	–	–	–	–	–	–
6420 ~Garst	–	2 tests	–	–	–	–	–	–	–	–	–	–
8599	–	1 test	–	–	–	–	–	–	–	–	–	–
AV 3420	–	1 test	–	–	–	–	–	–	–	–	–	–
DKA42-15	2.4	2 tests	–	–	–	–	–	–	–	–	–	–
LegenDairy YPQ	–	1 test	–	–	–	–	–	–	–	–	–	–
Starbuck	–	1 test	–	–	–	–	–	–	–	–	–	–
WL 342	–	1 test	–	–	–	–	–	–	–	–	–	–
YieldMax	2.3	–	–	–	–	–	–	–	–	–	–	–

¹ 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.

² Winter Survival Index: 1=superior, 2=very good, 3=good, 4=adequate, 5=low 6=none. WSI is from joint Minnesota-Wisconsin 1996-2001 trials (Page 14 is 2001 WSI data only).

³ Locations: SE (southeast), Rosemount+Plainview; WC (west-central), Morris+Stearns County; SW (southwest), Lamberton; NE (northeast), Grand Rapids.

⁴ The full version of this table, with regional and year-1 data, is posted at the UM-Agronomy FORAGES website: www.agro.agri.umn.edu/forages

Alfalfa winter survival test results for Minnesota and Wisconsin, planted in April 2000, rated during April 2001.

Variety	Winter Survival Index: 1=Superior, 2=Very Good, 3=Good, 4=Adequate, 5=Low, 6=No Winter Survival			Mean
	Arlington, Wis.	Rosemount, Minn.	Morris, Minn.	
Beaver (index 1 check)	1.0	1.2	1.1	1.1
WL 319HQ	0.8	1.6	2.8	1.8
526 (index 2 check)	2.1	2.3	1.8	2.1
Vernal (index 2 check)	2.4	2.2	2.0	2.2
Abound	2.3	2.2	3.1	2.5
DK124	2.3	2.8	3.0	2.7
DK134	2.7	2.8	2.9	2.8
Multiplier 3	2.7	2.5	3.3	2.8
DK127	2.5	2.9	3.3	2.9
GH 700	2.7	3.0	3.1	2.9
Alliant	2.6	3.0	3.3	3.0
GoldLeaf	2.7	3.2	3.4	3.1
Somerset	2.8	3.1	3.9	3.2
Magnum V-Wet	3.4	3.2	3.2	3.3
Abundance	3.4	3.4	3.3	3.4
Ranger (index 3 check)	3.4	3.2	3.6	3.4
Dart (index 3 check)	3.7	3.6	3.2	3.5
WL 316 (index 4 check)	–	3.5	3.9	3.7
Fortress (index 4 check)	4.1	3.7	3.5	3.7
G-2852 (index 4 check)	3.8	–	–	3.8
Southern Special (index 5 check)	3.9	4.3	4.6	4.3
Archer (index 5 check)	4.1	4.2	4.7	4.3
CUF 101 (index 6 check)	6.0	6.0	6.0	6.0
MOAPA 69 (index 6 check)	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 acres percent of checks.

Year-after-seeding harvest, 1996-2000.

Variety, by Milk/Acre	WI ¹ and MN ²	
	/Ton	/Acre
Nemesis	103	117
8498	101	116
FQ 314	103	115
GH 700	103	115
WinterGold	103	115
DK 141	100	114
Spirit	100	114
9429	102	113
A4230	102	113
Multi 5301	102	113
DK 140	103	112
Geneva	103	112
Radiant	103	112
53V63	103	111
Breakout	103	111
Exceed	100	111
GH 757	100	111
DK 124	105	110
Alliant	103	110
GH 767	103	110
GH 766	102	110
Cimarron VR	105	109
Award	103	109
DK 127	102	109
6410	104	108
9326	101	108
Abound	101	108
WinterStar	101	108
Sprint	102	107
Extend	101	107
205	100	107
Baralfa 32IQ	103	106
Spur	103	106
DK 133	101	106
Rainier	101	106
Somerset	101	106
A30-06	101	105
Columbia 2000	100	105
WinterKing	104	104
GH 787	103	103
DK 134	102	103
53Q60	100	103
WL 322 HQ	101	101
Vernal	100	100
Cimarron	97	100
ValuePlus 1	100	98
Check, pounds per:	Ton	Acre
Vernal	2,603	8,684
LSD .05	4	11

2001 harvest of 2000 seeding.

Variety	Wisconsin ¹		Minnesota ²	
	/Ton	/Acre	/Ton	/Acre
6410	102	108	103	106
A30-06	98	106	102	105
A4230	101	116	104	107
Abound	102	107	103	101
Alliant	100	116	101	106
Cimarron	–	–	100	101
DK 124	101	110	105	108
DK 127	102	106	102	102
DK 134	98	113	101	103
GH 700	101	115	102	104
Somerset	101	121	104	112
ValuePlus 1	100	113	–	–
Vernal	100	100	–	–
Check, pounds per:	Ton	Acre		
Vernal	2,476	17,080	2,528	11,345
LSD .05	2	7	3	6

2001 harvest of 2001 seeding.

Variety	Wisconsin	
	/Ton	/Acre
6410	102	93
Legendairy YPQ	100	92
Starbuck	100	93
Vernal	100	100
Vitro	98	99
Check, pounds per:	Ton	Acre
Vernal	2,230	7,304
LSD .05	3	17

Bold values are not significantly different from highest value.

1: Milk /acre is calculated using season average quality and season average yield at Arlington, Wis.

2: Milk/acre is calculated using season average quality and season average yield at Rosemount, Minn.

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

Variety ¹	Developer or Marketer ²	Seed Source ³	Fall Dormancy ⁴	Disease Resistance Ratings ^{5,6}					
				BW	VW	FW	An	PRR	Aph
Dormant									
205 ~ABT	Allied Seed	37	2	HR	R	HR	R	HR	R
329 ~Max	L&H Seed	32	3	HR	HR	HR	HR	HR	R
350 ~ABT	Allied Seed	37	3	HR	HR	HR	HR	HR	HR
4 Traffic	Kaltenberg Seed Farms	0	4	HR	HR	HR	HR	HR	HR
400 SCL ~ABT	Allied Seed	37	4	HR	HR	HR	HR	HR	HR
4200	AV Seeds	0	4	HR	HR	HR	HR	HR	HR
4375LH	Mycogen Seeds	43	4	–	–	–	R	R	R
5312	Pioneer Hi-Bred International	50	3	HR	HR	HR	HR	HR	R
53Q60	Pioneer Hi-Bred International	50	3	HR	R	R	HR	HR	R
53V08	Pioneer Hi-Bred International	50	3	HR	HR	HR	HR	HR	LR
53V63	Pioneer Hi-Bred International	50	3	HR	HR	HR	HR	HR	HR
5454	Pioneer Hi-Bred International	50	4	R	MR	HR	HR	HR	LR
54H69	Pioneer Hi-Bred International	50	4	HR	R	HR	HR	HR	R
53H81	Pioneer Hi-Bred International	50	3	HR	HR	HR	HR	R	HR
54H91	Pioneer Hi-Bred International	50	4	HR	R	HR	HR	HR	R
54V54	Pioneer Hi-Bred International	50	4	HR	HR	HR	HR	HR	MR
5-Star	Croplan Genetics	18	5	HR	R	HR	HR	HR	R
620	Garst Seed	25	2	HR	R	HR	HR	HR	R
630	Garst Seed	25	4	HR	MR	R	MR	R	–
631	Garst Seed	25	4	HR	R	HR	R	HR	MR
6310	Garst Seed	25	3	HR	R	HR	HR	HR	R
6410	Garst Seed	25	4	HR	HR	HR	HR	HR	HR
6420	Garst Seed	25	4	HR	R	HR	R	HR	R
645-II ~Garst	Garst Seed	25	3	HR	HR	HR	HR	HR	HR
8599	Mallard Seed	41	4	HR	HR	HR	HR	HR	R
9326	LG Seeds	40	3	HR	R	HR	R	HR	R
9429	LG Seeds	40	4	HR	R	HR	HR	HR	HR
A 30-06	PGI/MBS	49	3	HR	HR	HR	HR	HR	HR
A-395	PGI/MBS	49	3	HR	R	HR	HR	HR	R
A4230	United Suppliers/CW	64	4	HR	HR	HR	HR	HR	HR
Abound	Monsanto	42	3	HR	HR	HR	HR	HR	HR
Abundance	BPR/Ziller Seed	69	4	HR	R	HR	R	HR	R
AC Viva	Oseco	0	3	HR	HR	–	MR	–	–
Ace	W-L Research/UAP Seeds	63	4	HR	R	HR	HR	HR	R
Affinity+Z	America's Alfalfa	9	4	HR	HR	HR	HR	HR	R
Agate	USDA/Minn. AES	2, 67	2	HR	–	HR	MR	R	–
AlfaStar	Shepard Seed/Kaystar	35	4	HR	R	HR	HR	HR	R
Alliant	Monsanto	42	4	HR	R	HR	HR	HR	HR
AmeriGraze 401+Z	America's Alfalfa	9	4	HR	R	HR	HR	HR	R
AmeriGuard 302+Z	America's Alfalfa	9	3	HR	HR	HR	HR	HR	HR
AmeriStand 201+Z	America's Alfalfa	9	2	HR	HR	HR	R	HR	HR
AmeriStand 403T	America's Alfalfa	9	4	HR	HR	HR	HR	HR	R
Arrowhead	Tri-West Seed	0	2	HR	R	HR	R	HR	R
Ascend	Kussmaul Seeds	36	5	HR	HR	HR	HR	HR	HR
AV3420	AgVenture	5	4	HR	R	HR	HR	HR	HR
Avalanche+Z	America's Alfalfa	9	2	HR	HR	HR	HR	HR	R

¹ Varieties includes those marketed in Minnesota for which disease resistance ratings were provided. Varieties which are not seeded in a recent Minnesota yield trial are excluded from Yield Tables on pages 10-13. ² Developers, from trials entrants contacts or Alfalfa Council report (www.alfalfa.org/falldormancy.html). ³ Seed source numbers reference Forage Seed Sources list, pages 20-21. KEY at end of forage crop section. ⁴ Fall dormancy & pest resistance ratings from Alfalfa Council report (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: 9=tallest (tend to be least winterhardy), 1=shortest. ⁵ Diseases abbreviated as BW: Bacterial Wilt, PRR: Phytophthora Root Rot, FW: Fusarium Wilt, An: Anthracnose, VW: Verticillium Wilt, Aph: Aphanomyces Root Rot. ⁶ 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).

Variety ¹	Developer or Marketer ²	Seed Source ³	Fall Dormancy ⁴	Disease Resistance Ratings ^{5,6}					
				BW	VW	FW	An	PRR	Aph
Dormant									
Award	Monsanto	42	4	HR	HR	HR	HR	HR	R
Badger	Bio Plant Research	13	3	HR	R	HR	HR	HR	R
Banquet	Tri-State Seed & Ag	48	4	HR	HR	HR	HR	HR	R
Baralfa 32 IQ	Barenbrug USA	12	3	HR	R	HR	HR	HR	HR
Baralfa 42 IQ	Barenbrug USA	12	4	HR	HR	HR	HR	HR	HR
BigHorn	Mycogen Seeds	43	4	HR	R	HR	HR	HR	HR
Bounty	PGI/MBS	49	2	HR	R	HR	HR	HR	R
Breakout	Brown Seed Farms	14	4	HR	R	HR	HR	HR	R
Columbia 2000	Allied Seed	8, 34	4	R	R	R	LR	LR	S
Complete	Fontanelle Hybrids	24	3	HR	HR	HR	HR	HR	R
Cyclone	Tri-State Seed & Ag	61	3	HR	HR	HR	HR	HR	HR
Defense+EV	AgriPro Seeds	0	3	HR	HR	HR	HR	HR	HR
Defiant	AgriPro Seeds	3	2	HR	HR	HR	R	HR	R
Depend+EV	AgriPro Seeds	3	4	HR	HR	HR	HR	HR	R
DK124	Monsanto	42	2	HR	HR	HR	HR	HR	HR
DK127	Monsanto	42	3	HR	R	R	HR	HR	HR
DK134	Monsanto	42	3	HR	HR	HR	HR	HR	HR
DK140	Monsanto	42	4	HR	R	HR	HR	HR	HR
DK141	Monsanto	42	4	HR	HR	HR	HR	HR	HR
DK142	Monsanto	42	4	HR	R	HR	R	HR	HR
DKA37-20	Monsanto	42	3	HR	HR	HR	HR	HR	HR
DKA42-15	Monsanto	42	4	HR	HR	HR	HR	HR	HR
Dominator	AgriPro Seeds	3	4	HR	R	HR	HR	HR	R
Emperor	ABI Alfalfa	1	4	HR	HR	HR	HR	HR	HR
Empire	Brunner Seed Farm	15	2	HR	R	HR	HR	HR	R
Enhancer	Fontanelle Hybrids	24	4	HR	R	HR	R	HR	MR
EverGreen	Syngenta	57	3	HR	R	HR	HR	HR	R
Evolution	Mycogen Seeds	43	2	HR	R	HR	HR	HR	R
Extend	Spangler Seedtech	55	4	HR	R	R	HR	HR	R
Feast+EV	AgriPro Seeds	3	3	HR	HR	HR	R	HR	HR
Forecast 1001	Dairyland Seed	20	4	HR	R	HR	R	HR	R
Forecast 3000	Dairyland Seed	0	4	HR	R	HR	R	R	MR
Forecast 3001	Dairyland Seed	20	3	HR	R	HR	R	HR	R
FQ 302HR	Mycogen Seeds	43	3	HR	R	HR	HR	HR	HR
FQ 314	Mycogen Seeds	43	3	HR	HR	HR	HR	HR	HR
FQ 315	Mycogen Seeds	43	3	HR	R	HR	HR	HR	HR
Garst 645	Garst Seed	0	3	HR	R	R	HR	HR	MR
Gateway	Jung Seed Genetics	33	4	HR	R	HR	HR	HR	R
Geneva	Syngenta	57	4	HR	HR	HR	HR	HR	HR
GoldLeaf	Albert Lea/Gold Country	6, 27	3	HR	R	HR	R	HR	R
GH700	Golden Harvest	28	4	HR	HR	HR	HR	HR	HR
GH750	Golden Harvest	29	4	HR	HR	HR	HR	HR	HR
GH757	Golden Harvest	28	4	HR	HR	HR	HR	HR	HR
GH766	Golden Harvest	29	3	HR	R	HR	HR	HR	R
GH767	Golden Harvest	28	2	HR	R	HR	HR	HR	R
GH787	Golden Harvest	0	3	HR	R	R	HR	HR	R
Gold Plus	PGI/Top Farm Hybrids	49, 59	4	HR	R	HR	HR	HR	R
Good as Gold II	Dairyland Research	0	4	HR	R	HR	R	HR	MR
GreenFeast	North-Gro/W-L Res.	47	2	HR	HR	HR	HR	HR	HR
Guardian	AgVenture	5	3	HR	HR	HR	HR	HR	R
Harvstar 812HY	Fielder's Choice Direct	23	4	HR	R	HR	R	HR	R
Hay Maker II	Kussmaul Seeds	36	4	HR	R	HR	HR	HR	R
Hunter	Ramy International	53	4	HR	R	HR	HR	HR	R
HybriForce™-400	Dairyland Seed	20	4	HR	R	HR	R	HR	MR

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

Variety ¹	Developer or Marketer ²	Seed Source ³	Fall Dormancy ⁴	Disease Resistance Ratings ^{5,6}					
				BW	VW	FW	An	PRR	Aph
Dormant									
HybriGreen-41	Dairyland Research	0	4	HR	R	HR	R	HR	MR
Ignite	Jung Seed Genetics	33	3	HR	R	HR	HR	HR	HR
Imperial	ABI Alfalfa	1	3	HR	R	HR	HR	HR	R
Innovator+Z	America's Alfalfa	9	3	HR	HR	HR	HR	HR	R
Iroquois	Cornell Univ.	2, 6, 52	2	HR	S	MR	S	S	—
Jade II	NC+ Hybrids	44	4	HR	R	HR	R	HR	MR
Journey 204 Hybrid	Fontanelle Hybrids	24	4	HR	R	HR	HR	HR	R
Lactator	Elk Mound Seed	0	2	HR	HR	HR	HR	R	R
Laser	Ampac Seed	10, 65	4	HR	R	HR	R	HR	MR
Legend Gold	Legend Seeds	38	3	HR	HR	HR	HR	HR	HR
LegenDairy 2.0	Croplan Genetics	18	3	HR	R	HR	HR	HR	R
LegenDairy YPQ	Croplan Genetics	18	3	HR	R	HR	HR	HR	HR
LH 3000	Jung Seed Genetics	33	3	HR	HR	HR	HR	HR	R
Lightning II	Jung Seed Genetics	33	4	HR	HR	HR	HR	R	MR
MagnaGraze	Dairyland Seed	20	3	HR	R	HR	R	HR	R
Magnum III	Dairyland Seed	20	4	R	MR	R	MR	R	LR
Magnum III-Wet	Dairyland Seed	20	3	R	MR	R	MR	R	MR
Magnum IV	Dairyland Seed	20	4	HR	R	HR	R	HR	MR
Magnum V	Dairyland Seed	20	4	HR	R	HR	R	HR	MR
Magnum V-Wet	Dairyland Seed	20	3	HR	R	HR	R	HR	R
Mainstay	AgVenture	5	3	HR	R	HR	HR	HR	R
Mariner	Allied Seed	8	2	R	MR	HR	MR	HR	MR
Mariner II	Allied Seed	8	2	HR	R	HR	R	HR	R
Maxi-Graze GT	Croplan Genetics	18	2	HR	R	HR	HR	HR	R
Maximum I	Gutwein/Garst Seeds	31	3	HR	HR	HR	HR	HR	R
Milk River	R.J. Hunt Seed	52	3	HR	R	HR	HR	HR	R
Monument	Geertson Seed Farms	26	3	R	LR	R	—	MR	—
Monument II	Geertson Seed Farms	26	4	R	LR	HR	S	R	—
MP2000	Croplan Genetics	18	3	HR	R	HR	HR	HR	HR
Multi 5301	Geertson Seed Farms	26	4	R	R	HR	HR	MR	—
Multi 5302	Geertson Seed Farms	0	4	HR	R	HR	MR	MR	MR
Multiplier III –TMF	Mycogen Seeds	43	3	HR	R	HR	HR	HR	HR
Multiplier II –TMF	Mycogen Seeds	43	3	HR	HR	HR	HR	HR	R
MultiQueen	Gutwein/Garst Seeds	31	4	HR	R	HR	HR	HR	R
Nemesis	Renk Seed	54	3	R	HR	HR	HR	HR	HR
NetYield 500	NetSeeds	45	4	HR	R	HR	R	HR	MR
Notice	Midwest Seed Genetics	17	3	HR	R	HR	HR	HR	R
NutriMax	Alfalfa Genetics Direct	7	4	HR	HR	HR	HR	HR	R
Oneida VR	N.Y.S.I.P./Public	0	3	R	HR	HR	MR	MR	—
Paragon BR	Bio Plant Research	13	3	HR	R	HR	R	HR	R
Perfect	Grassland Central	30	4	HR	HR	HR	HR	HR	HR
Persist	Kaltenberg Seed Farms	34	4	HR	R	HR	R	HR	MR
Phabulous	Trelay Seed	60	4	HR	HR	HR	HR	HR	HR
Phirst	Doebler's PA Hybrids	21	4	HR	R	HR	HR	HR	R
Platinum	Midwest Seed Genetics	0	4	HR	HR	HR	HR	HR	HR
Pointer	Dahlco Seeds	19	4	HR	R	HR	HR	HR	HR
Pristine	Doebler's PA Hybrids	0	4	HR	R	HR	HR	HR	R
Prolific	Doebler's PA Hybrids	13	3	HR	R	HR	R	HR	R
Quantum	Renk Seed	54	2	HR	HR	HR	HR	HR	R
Radiant	Ampac/DeLong	10, 58, 65	4	HR	HR	HR	HR	HR	HR
Rainier	Syngenta	57	3	HR	R	HR	HR	HR	HR
Ranger	USDA/Nebraska AES	2	3	MR	S	MR	S	S	—
Rebel	Target Seeds	0	4	HR	HR	HR	HR	HR	HR

Variety ¹	Developer or Marketer ²	Seed Source ³	Fall Dormancy ⁴	Disease Resistance Ratings ^{5,6}					
				BW	VW	FW	An	PRR	Aph
Dormant									
Rebound 4.2	Croplan Genetics	18	4	HR	HR	HR	HR	HR	HR
Reliance	Allied Seed	8	3	HR	HR	HR	HR	HR	R
Rhino	Geertson Seed Farms	26	3	HR	R	R	R	R	R
Ripin	Ampac/DeLong	10, 58	4	HR	R	HR	R	HR	R
Rocket	Croplan Genetics	18	4	HR	R	HR	HR	HR	HR
Root 66	Trelay Seed	60	4	HR	HR	HR	R	HR	HR
Rustler II	Andrews Seed	11	4	HR	HR	HR	HR	HR	R
Samurai	ABI Alfalfa	0	3	HR	R	HR	HR	HR	R
Somerset	Syngenta	57	3	HR	HR	HR	HR	HR	HR
Spirit	PGI Alfalfa	49	3	HR	R	HR	R	HR	MR
Spredor 3	Syngenta	57	1	HR	MR	HR	R	MR	S
Sprint	Specialty Seeds	56	3	HR	R	HR	R	HR	HR
Spur	Allied Seed	8	4	HR	R	HR	HR	HR	R
Stampede	Allied Seed	8	3	HR	R	R	–	HR	R
Starbuck	Spangler Seedtech	55	3	HR	R	HR	HR	HR	HR
Standout	Ray Brothers Seed Farms	0	3	R	MR	R	R	R	MR
Sterling	Mycogen Seeds	43	2	HR	R	HR	HR	HR	R
Surpass	Andrews Seed	6, 11, 52	3	HR	R	HR	MR	R	–
Target II Plus	Producers Hybrids	51	3	HR	R	HR	R	HR	MR
Teton	S. Dakota Agr. Exp. Sta.	2	1	LR	–	MR	S	LR	–
TMF 421	Mycogen Seeds	43	2	HR	HR	R	HR	HR	HR
TMF 4355LH	Mycogen Seeds	43	3	HR	R	HR	HR	HR	R
Travois	S. Dakota Agr. Exp. Sta.	2, 6	1	R	–	MR	S	S	–
Trophy	Geertson Seed Farms	26	4	R	R	HR	R	HR	R
UltraLac	Elk Mound Seed	22	2	HR	HR	HR	HR	HR	HR
Value Plus 1	Brown Seed Farms	14	4	HR	R	HR	HR	HR	R
Vernal	USDA/Wis. AES	2, 6, 48, 52, 67	2	R	–	MR	–	–	–
Viking 1	Syngenta	57	2	R	HR	HR	R	R	–
Vitro	North-Gro Seed	47	3	HR	HR	HR	HR	HR	R
Voyager II	Lemke Seeds/Ziller Seed	39, 69	4	HR	R	HR	R	HR	MR
WetLand	Producers/Spangler	69	3	R	MR	R	R	HR	MR
WinterCrown	Ampac/DeLong	10, 58	3	HR	R	HR	R	HR	R
WinterGold	L&H Seed/Renk Seed	54	4	HR	HR	HR	HR	HR	HR
WinterGreen	Renk Seed	54	3	HR	HR	HR	HR	HR	R
WinterKing	Wensman Seed	66	3	HR	HR	HR	HR	HR	R
WinterMax	Alfalfa Genetics Direct	7	2	HR	HR	HR	HR	HR	R
WinterStar	Wensman Seed	66	2	HR	HR	HR	HR	HR	R
WL 232 HQ	W-L Research	4, 48, 63, 68	2	HR	HR	HR	HR	HR	HR
WL 319HQ	W-L Research	63	3	HR	HR	HR	HR	HR	HR
WL 324	W-L Research	4, 48, 63, 68	3	HR	R	HR	HR	HR	HR
WL 325 HQ	W-L Research	4, 48, 63, 68	3	HR	R	HR	HR	HR	R
WL 326 GZ	W-L Research	48, 63	4	HR	HR	HR	HR	HR	HR
WL 327	W-L Research	4, 48, 63, 68	4	HR	R	HR	HR	HR	HR
WL 342	W-L Research	4, 48, 63, 68	4	HR	HR	HR	HR	HR	HR
Wrangler	USDA / Nebraska AES	2, 6, 48, 52, 67	2	R	LR	R	LR	HR	–
Yielder	AgriPro Seeds	3	3	HR	HR	HR	R	HR	–
YieldMax	Alfalfa Genetics Direct	7	4	HR	HR	HR	HR	HR	HR

¹ Varieties includes those marketed in Minnesota for which disease resistance ratings were provided. Varieties which are not seeded in a recent Minnesota yield trial are excluded from Yield Tables on pages 10-13. ² Developers, from trials entrants contacts or Alfalfa Council report (www.alfalfa.org/falldormancy.html). ³ Seed source numbers reference Forage Seed Sources list, pages 20-21. KEY at end of forage crop section. ⁴ Fall dormancy & pest resistance ratings from Alfalfa Council report (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: 9=tallest (tend to be least winterhardy), 1=shortest. ⁵ Diseases abbreviated as BW: Bacterial Wilt, PRR: Phytophthora Root Rot, FW: Fusarium Wilt, An: Anthracnose, VW: Verticillium Wilt, Aph: Aphanomyces Root Rot. ⁶ 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).

Forage Seed Sources, key number refers to Seed Source column in preceding table.

0	No marketer, or discontinued for 2002. The variety is listed to update previous report with 2001 production year data.	11	Andrews Seed Co. 580 S. Oregon, Ontario, OR 97914 541-889-9109	25	Garst Seed Co. 2369 330th St, Slater, IA 50244 800-831-6630
1	ABI Alfalfa, Inc. 2316 259th St., Ames, IA 50014 515-292-2432	12	Barenbrug Midwest 1506 West 32nd St., Vinton, IA 52349 888-470-5569, 319-472-5569	25	Garst Seed Co. RR1 Box 111, Dawson, MN 56232 320-769-4445
1	ABI Alfalfa, Inc. 12351 West 96th Terrace, Suite 101, Lenexa, KS 66215 800-873-2532	12	Barenbrug USA P.O. Box 239, Tangent, OR 97389 800-547-4101	26	Geertson Seed Farm 1665 Burroughs Rd, Adrian, OR 97901 800-843-0390
*2	Agassiz Seed & Supply 445 7th St. NW, West Fargo, ND 58078 701-282-8118	13	Bio Plant Research P.O. Box 320, 116E. State St., Camp Point, IL 62320 800-593-7708, 217-593-7707	27	Gold Country Seed 16506 Hwy 15N, P.O. Box 6043 Hutchinson, MN 55350 320-587-1050
3	AgriPro Seeds, Inc. 2369 330th St., Slater, IA 50244 800-831-6630	*14	Brown Seed Farms 720 St. Croix, Box 186, Prescott, WI 54021 800-712-7696, 715-262-4331	28	Golden Harvest Seeds 27525 135th Ave. North, Cordova, IL 61242 309-654-2234
4	AgVenture East 65064 250th Ave., Kasson, MN 55944 800-657-4890	15	Brunner Seed W3850 U.S. Hwy 10, Durand, WI 54736 715-672-5887	28	Golden Harvest Seeds 251 West Main St., Wabasha, MN 55981 612-565-2945
5	AgVenture Central 513 Main St., Madison Lake, MN 56063 507-243-3263	*16	CEBECO International Seeds Inc. P.O. Box 229, Halsey, OR 97348 541-369-2251	29	Golden Harvest/J.C. Robinson Box A, 100 J.C. Robinson Blvd. Waterloo, NE 68069 402-779-2531
5	AgVenture Inc. P.O. Box 29, 207 N 7th St. Kentland, IN 47951-0029 888-999-0859, 219-474-5557	17	Channel Bio Corp P.O. Box 157, Kentland, IN 47951 219-474-6868	29	Golden Harvest/J.C. Robinson 102 Ringer Drive, Sherburne, MN 56171 507-764-3640
5	AgVenture West P.O. Box 184, Jeffers, MN 56145 507-628-4929	*18	CroPlan Genetics P.O. Box 64406, MS7455 St. Paul, MN 55164-0406 800-851-8810, 651-634-8105	30	Grassland Central 12912 Ventura Court #24 Shakopee, MN 55379 952.233.5181
*6	Albert Lea Seed House 1414 West Main, P.O. Box 127 Albert Lea, MN 56007 800-352-5247, 507-373-3161	19	Dahlco Seeds 14730 15th St., Cokato, MN 55321 320-286-5982	31	Gutwein/Garst Seeds 15691 West 600 South, Francesville, IN 47946 866-488-9346
7	Alfalfa Genetics Direct P.O. Box 404, Princeton, IL 61356-0404 866-233-7283	*20	Dairyland Seed Co. P.O. Box 958, West Bend, WI 53095 800-236-0163	31	Gutwein/Garst Seeds 6659 E Hunter Ridge Ct., Monticello, IN 47960 219-583-9083
8	Allied Seed 1108 Hillsdale Drive, Macon, MO 63552 800-880-8127	21	Doebbler's PA Hybrids RR1 Box 424, Jersey Shore, PA 17740 800-853-2676	32	Johnson Seeds P.O. Box 3000, Arborg, MB, ROC OAO 204-376-5528
8	Allied Seed 9311 Highway 45, Nampa, ID 83686 219-833-6992	22	Elk Mound Seed P.O. Box 187, 308 Railroad Ave. Elk Mound, WI 54739 715-879-5556	*33	Jung Seed Genetics, Inc. 341 South High St., Randolph, WI 53956 800-242-1855, 920-326-5891
9	America's Alfalfa 1870 Backbone Road West, Box 20 Princeton, IL 61356-0404 800-873-2532	23	Fielder's Choice Direct 306 North Main St., Box 898 Monticello, IN 47960 800-321-3177, 219-583-2741	*33	Jung Seed Genetics 723 Madison Ave. South, Eyota, MN 55934 507-545-0151
*10	AMPAC Seed Co. 5167 Deerskin Drive, Westerville, OH 43081 888-550-2930, 614-890-2929	24	Fontanelle Hybrids 10981 8th St., Fontanelle, NE 68044-2505 402-721-1410	34	Kaltenberg Seed Farms P.O. Box 278, 55506 Hwy. 19 Waunakee, WI 53597 800-383-3276, 608-849-5021
*10	AMPAC Seed Co. 403 Wooster Rd., Winona Lake, IN 46590 219-268-9549			35	KayStar Seeds P.O. Box 947, Huron, SD 57350 605-352-8791

- 35 Shepherd Seeds
RR 1 535 Middle Rd., South Beloit, IL 61080
800-383-2676
- 36 Kussmaul Seeds
9020 Hwy. 18, Mt. Hope, WI 53816
608-988-4568
- *37 La Crosse Forage & Turf Seed Co.
P.O. Box 995, LaCrosse, WI 54602-0995
800-329-1909
- 38 Legend Seeds
P.O. Box 241, DeSmet, SD 57006
605-854-3346
- 39 Lemke Seeds
10220 N. Granville Rd., Mequon, WI 53097
262-242-2647
- 40 LG Seeds
N8181 940th St., River Falls, WI 54022
800-637-2887, 715-426-7577
- 40 LG Seeds
15434 NE 70th St., Elk River, MN 55330
612-618-4712
- 41 Mallard Seed
P.O. Box 637, 311 W. Broadway
Plainview, MN 55964
800-562-1768, 507-534-2300
- 42 Monsanto
3670 CR 207, Liberty Hill, TX, 78642
512-778-5316
- 43 Mycogen Seeds/Dow Agrosience
9330 Zionville Road, Building 308/3E
Indianapolis, IN 46268
317-337-7560
- 44 NC+ Hybrids
Box 4408, Lincoln, NE 68504
800-279-7999, 402-467-2517
- 44 NC+ Hybrids
417 West 9th St., Spencer, IA 51301
712-262-9216
- 45 NetSeeds
9001 Hickman Rd., Ste.320
Urbandale, IA 50322
515-331-0939
- 46 North Star Genetics/Falk Seed Farm
1170 Hwy. 9 NE, Murdock, MN 56271
320-875-4341
- 47 North-Gro Seeds Inc.
613 N. Randolph St., Cuba City, WI 53807
608-744-7333
- *48 Olds Seed Solutions
2901 Packers Ave., Madison, WI 53704
800-356-7333, 608-249-9291
- *48 MN/Olds Seed Solutions
P.O. Box 346, Savage, MN 55378
800-328-5898, 952-445-2606
- 49 PGI Alfalfa Inc.
225 West 1st St., Story City, IA 50248
800-247-3967, 515-733-5274
- 50 Pioneer Hi-Bred International Inc.
7100 NW 62nd Ave., Box 1150
Johnston, IA 50131
515-334-6935
- 51 Producers Hybrids, Inc.
P.O. Box C, Battle Creek, NE 68715
888-675-3190, 402-675-2975
- *52 R.J. Hunt Seed Co.
13477 Co. Rd. 101, Wadena, MN 56482
218-631-4190
- 53 Ramy International Ltd.
1329 N. River Front Drive
Mankato, MN 56001
800-658-7269, 507-387-4091
- *54 Renk Seed Company
6800 Wilburn Rd., Sun Prairie, WI 53590
800-289-7365, 608-837-7351
- 55 Spangler Seedtech Inc.
803 W. Racine St., Jefferson, WI 53549
800-284-1080, 414-674-4606
- 56 Specialty Seeds
26787 Hillhaven Dr., Cold Spring, MN 56320
320-685-4520
- 57 Syngenta Seeds, Inc.
P.O. Box 959, 7500 Memorial Highway
Golden Valley, MN 55427
763-593-7286
- 58 The DeLong Company
513 Front St., Clinton, WI 53525
608-676-2255
- *59 Top Farm Hybrids
P.O. Box 850, Cokato, MN 55321
320-286-5516
- 60 Trelay Seed Co.
11623 State Rd 80, Livingston, WI 53554
800-421-0397, 608-943-6363
- 61 Tri-State Seed & Ag
28401 Golden Gate Rd.
Sleepy Eye, MN 56085
800-203-8581, 507-794-3078
- *62 Twin Cities Seeds
7265 Washington Ave. South, Edina, MN 55439
800-545-8873, 612-545-8879
- 63 UAP Midwest
P.O. Box 10, Wall Lake, IA 51466
712-664-2444
- 64 United Suppliers Inc.
P.O. Box 538, Eldora, IA 50627
515-858-2341
- *65 Welter Seed & Honey
17724 Hwy. 136, Onslow, IA 52321
319-485-2762
- 66 Wensman Seed Co.
P.O. Box 190, Wadena, MN 56482
218-631-2954
- *67 Werner Farm Seeds
3104 Millersburg Blvd., Dundas, MN 55019
507-645-7995
- 68 W-L Research, Inc.
P.O. Box 8112, 2901 Packers Ave.
Madison, WI 53708-8112
800-406-7662, 608-240-0630
- 69 Ziller Seed Co., Inc.
76374 380th St., Bird Island, MN 55310
320-365-3674
- * These sources are useful contacts for public alfalfas (2,6,48,52,67) and several other forages species, such as:
Red clover (2,6,10,14,16,18,20,30,33,37,48,52,54)
Birdsfoot trefoil (2,6,8,10,16,37,48,52,62,67)
Kura clover (6,10,37,48,58,67)
Alsike, ladino, white clovers (6,8,10,14,16,62)
Reed canarygrass (2,6,8,10,14,37,48,52,58,67)
Smooth bromegrass (2,6,8,18,48,54)
Orchardgrass (2,6,10,16,18,37,48,52,54,58,62,67)
Timothy (2,6,10,14,16,18,37,48,52,54,58,59,62,67)
Tall fescue (2,6,8,10,16,18,37,48,52,58,62)
Ryegrass (6,8,10,48,58,62,65).