



Alfalfa

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(Redwood Co.), St. Martin and Richmond (Stearns Co.), Underwood (Otter Tail Co.), and Grand Rapids (Itasca Co.). Yield performance of conventional (non-Roundup Ready) varieties is presented as a percentage of check variety yields (average for Vernal, Oneida VR, and 5312).

Yield results for alfalfa varieties tested in current Minnesota yield trials (2008 to 2011 seeding years) are listed in Tables 1 through 4. Yields in 2011 were adversely affected by drought conditions that began in August. Alfalfa variety seed marketers and matching web sites are provided in Table 5. Disease resistance information for alfalfa varieties is available on the web at www.alfalfa.org.

Winterhardiness and Winter Survival Index

Severe winters make winterhardiness a primary consideration in variety selection for most areas of Minnesota. Winterhardiness of varieties is difficult to determine because winter injury can occur as a result of weather events that cause varied responses in alfalfa plants of differing ages.

The best indicator of winter survival potential is the yield performance in the third production year after seeding. Fall dormancy rating, sometimes an indicator of winter survival potential, is available at www.alfalfa.org.

When selecting alfalfa varieties for your farm, greatest winterhardiness is needed in west central and northwestern Minnesota (see winter injury potential map). East central and southeastern Minnesota also frequently experience severe winters. Southwestern Minnesota seldom experiences severe winter injury because of dry soils, high soil potassium levels and neutral soil pH. Northeastern Minnesota also seldom experiences severe winter injury because of dependable snow cover.



Forage Yield

Yield results for alfalfa varieties tested in current Minnesota trials are presented in Tables 1 to 5. Yields are expressed as a percentage of check variety yields; for example, '113' means the variety had 13% greater yield than the average of the check varieties. Varieties are ranked within each table according to their average performance across ALL current trials in which they have been tested (2008 to 2010 seedings). Individual tables correspond to test results from different regions of Minnesota.

Greatest confidence should be placed in variety yield information that represents six or more site-years of testing; that is, two years of yield data at each of three test sites. Each variety in the yield result tables has been formatted to reveal how many site-years of Minnesota yield data have been collected. Varieties appearing in bold type have been tested in six or more site-years.

Varietal yield difference tends to increase with stand age. Thus, to choose a variety for short-term stands, consider yield performance the first and second years after seeding; that is, yield performance in 2009 and 2010 for a 2008 seeding. For long-term stands, choose varieties based on their performance through the third year after seeding; that is, 2011 yield for 2008 seeding.

Yield is the single largest determinant of economic return per acre for alfalfa production. Selecting alfalfa varieties with high yield potential is fundamental to obtaining high yields. The yield advantage realized with good alfalfa varieties quickly offsets their greater seed cost.

Yield potential of alfalfa varieties is evaluated in research trials at University of Minnesota Research and Outreach Centers and on cooperating farmers' fields. The trials are conducted using recommended fertility and pest control practices to optimize alfalfa yield and persistence.

Test locations are in alfalfa production regions with different winter injury risk. Test locations include Rosemount (Dakota Co.), Zumbro Falls (Wabasha Co.), Lambertson



Locations of alfalfa trials.

Potato Leafhopper Tolerance

Potato leafhoppers (PLH) are usually the most damaging insect pest of alfalfa in Minnesota. Some alfalfa varieties have tolerance via inhibited PLH population growth and higher economic thresholds. Alfalfa varieties with greater than 50% resistance to PLH have an economic threshold three times higher than conventional varieties. Variety resistance to potato leaf hopper is available at www.alfalfa.org.

Despite their potential for significant damage, PLH are not a problem in every harvest, year and region of Minnesota. PLH pressure is more consistent south and east of Minnesota.

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, Verti-

cillium wilt, and Aphanomyces root rot, races 1 and 2. Plant resistance for all six diseases is widely available, except for Aphanomyces race 2, for which only a few, but growing number of, varieties have known resistance. Variety resistance ratings for each disease are available on the web at www.alfalfa.org. Brown root rot is known to be present in Minnesota soils, but varietal resistance is currently unknown. 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 that vari-

eties with less than Very Good (2.0) WSI have at least (R) levels of disease resistance to produce more than two years after the seeding year under intensive management (four cuts/season) in the east-central and southeastern areas of Minnesota.

Roundup Ready

Roundup Ready alfalfa varieties are new on the market; there is now a trial in Stearns County for comparing their yields. Roundup was used, for weed control, at the recommended management for weed control. Otherwise alfalfa was managed using protocols employed in the conventional variety trials.

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. Disease resistance, yield, winter survival, and other characteristics may

Table 1. Alfalfa variety yield as percentage of check varieties at Rosemount (Dakota County).

Variety ¹	Marketer	2008 Seeding				2010 Seeding
		2011	2010	2009	3-Year Total	1-Year Total
PROFUSION-HX	Renze	—	—	—	—	116
DKA43-13	Dekalb	120	114	108	114	119
375HY/BR	DairyLand	—	—	—	—	115
LIGHTNING IV	Jung	115	113	107	112	—
RENEW	DairyLand	—	—	—	—	—
AMERISTAND 407TQ	Am. Alf.	116	116	106	113	—
HYBRIFORCE-2420/Wet	DairyLand	112	116	106	112	—
HYBRIFORCE-2400	DairyLand	121	121	113	119	115
55V50	Pioneer	—	—	—	—	119
PHIRST EXTRA	Millborn Seed	114	110	110	112	112
VELOCITY	NuTech	114	109	114	112	—
REBOUND 6.0	Croplan	—	—	—	—	121
4S417	Mycogen	118	115	118	117	117
6431	Garst	113	111	104	109	—
6415	Garst	117	115	103	112	—
55V48	Pioneer	116	116	108	114	118
6417	Garst	117	110	106	111	—
WL343HQ	W-L	—	—	—	—	112
DG 4210	Crop Prod.	—	—	—	—	123
LEGEND EXTRA	Legend Seeds	114	108	102	108	—
54Q32	Pioneer	—	—	—	—	110
5312		103	106.098	101.641	104	98
WL 322HQ		102	108	98	103	—
ONEIDA VR		99	98	99	98	110
CIMARRON		99	99	103	100	—
VERNAL		98	96	100	98	91
Checks, tons/acre as hay		5.7	7.7	6.0	19.3	5.5
LSD 5%		5	8	8	5	9

¹ Varieties are ranked according to their performance across all current trials. Bold varieties have been in Minnesota trials for more than 5 site-years. Entries are listed by the name under which they are submitted for testing, which may be either variety or brand.

change within a blend from lot to lot or year to year as blend composition changes. Using certified seed of adapted, high-yielding varieties best assures trueness to name.

For the web version of this report go to the Minnesota Agricultural Experiment Station website: www.maes.umn.edu/pubs.html

More detailed alfalfa variety performance results are available on the UM-Agronomy FORAGES website: www.extension.umn.edu/forages.

Test Plot Research

Joshua Larson, Russ Mathison, Steve Quiring and Doug Holen supervised test plot research and management.

Alfalfa Planting Rate and Date

Bushel Weight, Pounds.....	60
Seeds/Pound.....	220,000
Planting Rate, Pounds/Acre	
Alone.....	13
With Grass.....	5-10
Planting Rate, Seeds/Sq.Ft.	
Alone.....	65
With Grass.....	25-50
Planting Date...Late April–Early May or Late July–Early August	

Table 2. Alfalfa variety yield as percentage of check varieties at Zumbro Falls (Wabasha County) and Lamberton (Redwood County).

Variety ¹	Marketer	Zumbro Falls				Lamberton			
		2008 Seeding			3-Year Total	2010 Seeding	2009 Seeding		
		2011	2010	2009		1-Year Total	2011	2010	2-Year Total
NSF7011ML	DairyLand	—	—	—	—	—	123	128	125
MAGNUM 7	DairyLand	—	—	—	—	—	115	116	116
DKA43-13	Dekalb	121	117	116	118	97	118	123	120
LIGHTNING IV	JUNG	113	114	107	111	—	—	—	—
AMERISTAND 407TQ	Am. Alf.	120	119	111	117	—	108	114	110
WL363HQ	W-L	109	109	102	107	—	—	—	—
HYBRIFORCE-2420/Wet	DairyLand	—	—	—	—	—	112	122	116
HYBRIFORCE-2400	DairyLand	—	—	—	—	105	106	111	108
AV4211/DS 813-T	AgVenture	114	113	112	113	—	—	—	—
PGI 459	Producer's	117	110	106	112	—	—	—	—
SONIC	NuTech	—	—	—	—	—	111	115	112
GENOA	FG	113	117	106	112	—	—	—	—
55V50	Pioneer	—	—	—	—	104	—	—	—
VELOCITY	NuTech	109	111	101	107	—	117	124	120
55V12	Pioneer	—	—	—	—	—	105	113	108
REBOUND 6.0	Croplan	—	—	—	—	101	—	—	—
4S417	Mycogen	—	—	—	—	—	113	110	112
6431	Garst	108	111	109	109	—	—	—	—
6415	Garst	110	116	105	110	—	—	—	—
55V48	Pioneer	110	112	101	108	105	118	119	118
6422Q	Syngenta	—	—	—	—	100	111	122	116
CHESAPEAKE	Dahlco	—	—	—	—	—	114	122	118
4A415	Mycogen	113	115	107	112	103	—	—	—
6417	Garst	108	113	107	109	99	—	—	—
WL343HQ	W-L	108	111	112	110	—	—	—	—
DG 4210	Crop Prod.	—	—	—	—	97	—	—	—
4030/DS 812-T	Brett Young	111	110	100	108	—	—	—	—
GH727	GOLDEN HARV.	105	111	105	107	—	—	—	—
LEGEND EXTRA	Legend Seeds	101	109	102	104	—	—	—	—
54Q32	Pioneer	—	—	—	—	102	102	111	106
SENECA	DairyLand	—	—	—	—	105	—	—	—
5312		100	104	103	102	103	102	107	104
ONEIDA VR		101	100	100	100	97	102	94	98
AMERISTAND 403T PLUS	Am. Alf.	—	—	—	—	—	101	107	104
VERNAL		99	96	97	98	99	97	99	98
PGI557	Producer	—	—	—	—	93	—	—	—
Checks, tons/acre as hay		7.2	5.2	5.4	17.8	8.4	6.7	5.0	11.7
LSD 5%		13	8	13	10	7	13	16	13

¹ Varieties are ranked according to their performance across all current trials. Bold varieties have been in Minnesota trials for more than 5 site-years. Entries are listed by the name under which they are submitted for testing, which may be either variety or brand.

Table 3. Alfalfa variety yield as percentage of check varieties at St. Martin and Richmond (Stearns County) and Underwood (Otter Tail County).

Variety ¹	Marketer	St. Martin			Underwood				
		2009 Seeding			2008 Seeding				2010 Seeding
		2011	2010	2-Year Total	2011	2010	2009	2-Year Total	1-Year Total
PROLIFIC II	Lemke Seed/Millborn Seed	—	—	—	119	123	125	122	—
MILESTONE II	BPR	—	—	—	118	122	119	120	—
KF401B	Byron Seed	114	117	116	—	—	—	—	—
DKA43-13	Dekalb	108	116	112	132	115	113	121	111
LIGHTNING IV	JUNG	—	—	—	125	122	113	122	—
RENEW	DairyLand	117	111	114	—	—	—	—	—
AMERISTAND 407TQ	Am. Alf.	114	115	115	—	—	—	—	—
WL363HQ	W-L	—	—	—	132	120	110	123	—
KINGFISHER 243	Byron Seed	114	113	114	—	—	—	—	—
HYBRIFORCE-2400	DairyLand	—	—	—	—	—	—	—	112
PGI 459	Producer's Choice	—	—	—	125	109	110	116	—
55V50	Pioneer	—	—	—	—	—	—	—	112
VELOCITY	NuTech	104	108	106	130	119	108	121	—
6305Q	Garst	—	—	—	—	—	—	—	111
55V12	Pioneer	118	108	113	—	—	—	—	—
FSG 329	Farm Science	111	112	111	—	—	—	—	111
45417	Mycogen	112	108	110	—	—	—	—	111
6431	Garst	—	—	—	117	114	111	115	—
55V48	Pioneer	112	106	109	125	120	110	120	109
6422Q	Syngenta	107	112	110	—	—	—	—	—
CHESAPEAKE	Dahlco	111	110	110	—	—	—	—	—
6417	Garst	—	—	—	123	112	99	114	—
DG 3210	Crop Prod.	—	—	—	—	—	—	—	109
WL343HQ	W-L	—	—	—	118	102	94	107	111
LEGENDAIRY 5.0	CROPLAN	107	110	108	—	—	—	—	—
DG 4210	Crop Prod.	—	—	—	—	—	—	—	104
420 PLUS	Mustang	—	—	—	111	111	98	109	—
54Q32	Pioneer	103	108	105	—	—	—	—	103
5312	—	107	104	106	103	102	105	103	102
ONEIDA VR	—	99	101	100	104	104	103	104	104
AMERISTAND 403T PLUS	Am. Alf.	105	99	102	—	—	—	—	—
VERNAL	—	94	94	94	93	93	92	93	94
Checks, tons/acre as hay	—	6.8	6.8	13.7	6.4	6.4	3.3	16.0	7.3
LSD 5%	—	8	10	7	12	16	20	13	15

¹ Varieties are ranked according to their performance across all current trials. Bold varieties have been in Minnesota trials for more than 5 site-years. Entries are listed by the name under which they are submitted for testing, which may be either variety or brand.

Table 4. Seeding year alfalfa variety yields as a percentage of check varieties at Rosemount (Dakota County) and Richmond (Stearns County). Richmond is a Roundup-Ready trial.

Variety ¹	Marketer	Rosemount	Richmond RR
55V50	Pioneer	110	—
WL354HQ	W-L	100	—
HYBRIFORCE-2400	DairyLand	111	—
L-449APH2	Legacy	110	—
REBOUND 6.0	Croplan	100	—
AMERISTAND 407TQ	Am. Alf.	106	—
GUNNER	Croplan	108	—
SONIC	NuTech	104	—
CONSISTENCY 4.10RR	Croplan	—	103
DKA41-18RR	Dekalb	—	103
5312	—	101	—
AMERISTAND 405T RR	Am. Alf.	—	98
DG 4210	Crop Prod.	98	—
55VR03	Pioneer	—	100
ONEIDA VR	—	102	—
VERNAL	—	97	—
WL355.RR	WL	—	93
Checks ² , tons/acre as hay	—	3.3	2.4
LSD 5%	—	11	11

¹ Varieties are ranked according to their performance across all current seeding year trials. Bold varieties have been in Minnesota trials for more than 5 site-years.

² The RR trial the average is over all of the varieties in the trial.

Entries are listed by the name under which they are submitted for testing, which may be either variety or brand.

Table 5. Sources of forage seed for 2011 trials.

Marketer	Company	Web URL
AgVenture	AgVenture Feed and Seed Inc.	www.agventurefeeds.com
Albert Lea	Albert Lea Seed House	www.alseed.com
Allied	Allied Seed	www.alliedseed.com
Am. Alf.	America's Alfalfa	www.americasalfalfa.com
Barenburg	Barenburg Midwest	www.barusa.com
BioPlant	BioPlant Research	P.O. Box 320, Camp Point, IL 62320, 800-593-7708
Blue River	Blue River Hybrids	www.blueriverorgseed.com
BrettYoung	BrettYoung	www.brettyoung.ca/USA
Byron Seed	Byron Seed	www.bestforage.com/
Crop Prod.	Crop Production Services	www.cpsagu.com
CROPLAN	CROPLAN Genetics	www.croplangenetics.com
Dahlco	Dahlco Seed	www.dahlco.com
DairyLand	DairyLand Seed Co.	www.dairylandseed.com
Deer Creek	Deer Creek Seed	www.deercreekseed.com/index.html
Dekalb	AsgrowDekalb	www.asgrowanddekab.com/web
Farm Science	Farm Science Genetics	www.farmsciencegenetics.com/
FFR	FFR Cooperative	www.ffrcoop.org
Garst	Garst Seed Co.	www.garstseed.com
Golden Harv.	JC Robinson Seeds/Golden Harvest	www.goldenharvestseeds.com
Jung	Jung Seed Genetics	www.jungseedgenetics.com
La Crosse	LaCrosse Forage and Turf	www.lftseed.com
Legacy	Leqacy Seeds, Inc.	www.legacyseeds.com
Legend	Legend Seeds	www.legendseeds.com
Lemke	Lemke Seed	www.lemkeseed.com
LG Seeds	LG Seeds	www.lgseeds.com
Mallard	Mallard Seed	www.mallardseed.com
Millborn	Millborn Seed	www.millbornseeds.com
Mustang	Mustang Seeds	www.mustangseeds.com
Mycogen	Mycogen Seeds	www.mycogen.com
NC+	NC+ Hybrids	www.nc-plus.com
NK Brand	NK Brand	www.nk-us.com
NuTech	NuTech Seed	www.nutechseed.com
Pioneer	Pioneer Hi-Bred International	www.pioneer.com
Prairie	Prairie Brand	www.prairiebrandseed.com/index.html
Producer	Producer's Choice	www.producerschoiceseed.com
Renk	Renk Seed Co.	www.renkseed.com
Trelay Inc.	Trelay Inc.	www.trelay.com
W-L	W-L Research, Inc.	www.wlresearch.com
Ziller	Ziller Seed Co. Inc.	www.zillerseed.com
U of MN	University of Minnesota Forages	http://www.extension.umn.edu/forages/