

2018 Alfalfa Field Crop Trials Results



Minnesota Agricultural Experiment Station and the College of Food, Agricultural and Natural Resource Sciences

Forage yield and forage quality are important factors in determining economic return per acre for alfalfa production. Selecting alfalfa varieties with high yield potential and persistence is fundamental to obtaining and maintaining high yields.

Yield potential of alfalfa varieties are continually 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.) and Richmond (Stearns Co.). Yield performance of varieties are presented as a percentage of check variety yields (avg. for Vernal, Oneida VR and 5312).

Yield results for alfalfa varieties currently tested Minnesota yield trials



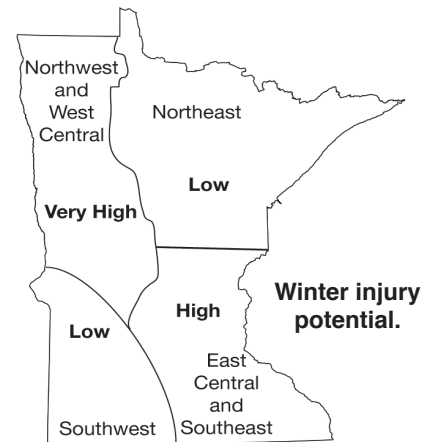
(2015, 2017 and 2018 seeding years) are listed in Tables 1 through 3; alfalfa variety, seed marketers and matching websites are provided in Table 4. Disease resistance information for alfalfa varieties is available on the web at https://www.alfalfa.org/pdf/2018_Variety_Leaflet.pdf

Winter Survival

The potential of severe winters make winter survival a primary consideration in variety selection for most areas of Minnesota. Winter hardiness 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. Winter survival levels of alfalfa varieties are shown at https://www.alfalfa.org/pdf/2018_Variety_Leaflet.pdf

Forage Yield

Yield results for alfalfa varieties tested in current Minnesota trials are presented in Tables 1 to 3. 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. Within each table, varieties are ranked according to their average performance across ALL current trials in which they have been tested (2015, 2017 and 2018 seeding years). LSD numbers beneath yield columns indicate whether the difference between yields is due to genetics or to other factors, such as variations in the



environment. If the yield difference between two entries equals or exceeds the LSD value, the higher-yielding entry was probably superior in yield. A difference less than the LSD value is probably due to environmental factors.

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 (e.g., yield performance in 2016 and 2017 for a 2015 seeding). For long-term stands, choose varieties based on their performance through the third year after seeding (e.g. 2018 yield for 2015 seeding).

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 variet-

ies with greater than 50% resistance to PLH have an economic threshold three times higher than conventional varieties. Variety resistance to potato leafhopper is available at https://www.alfalfa.org/pdf/2018_Variety_Leaflet.pdf

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, Verticillium wilt and Aphanomyces root rot (races 1 and 2). Variety resistance ratings for each disease are available on the web at www.alfalfa.org. While moderate resistance (MR) to a disease will provide protec-

tion 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 varieties with less than Very Good (2.0) Winter Survival have at least (R) levels of disease resistance to produce more than two years after the seeding year under intensive management (4 cuts/season) in the east central and southeastern areas of Minnesota.

Blends

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

For web version of this report, go to MN Agricultural Experiment Station website: <https://www.maes.umn.edu/publications/field-crop-trials>

Authors and Researchers

Authors of this alfalfa report are: Craig Sheaffer, Jacob Jungers and Joshua Larson. Test plot establishment and management are supervised by Joshua Larson.

Table 1. Alfalfa variety yields as a percentage of check varieties at Rosemount (Dakota County) seeded in 2017.

Variety ¹	Marketer	Rosemount
		2017 Seeding
		1-Yr
SW4107	SW	125
HybriForce-4400	Alforex	124
SW5210	SW	124
AFX 469	Alforex	120
AFX 429	Alforex	120
SW3407	SW	120
AFX 460	Alforex	119
FSG 415 BR ALFALFA	La Crosse	115
QUAIL	Blue River	115
ROBIN	Blue River	114
VIKING 372 HD	Albert Lea	109
KING BIRD	Blue River	108
LUZELLE ALFALFA	Albert Lea	102
LUKAL ALFALFA	Albert Lea	98
5312	Check	104
VERNAL	Check	99
ONEIDA VR	Check	97
LSD (0.05)		13
Ave, Tons/Acre as Hay		6.9

¹Varieties are ranked according to their performance across all current trials.

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 yields as a percentage of check varieties at Rosemount (Dakota County) and Richmond (Stearns County) seeded in 2015.

Variety ¹	Marketer	Rosemount				Richmond			
		2015 Seeding				2015 Seeding			
		2016	2017	2018	3-Yr	2016	2017	2018	3-Yr
FSG 426	La Crosse	116	125	135	124	133	125	128	128
HybriForce-4400	Alforex	123	135	131	129	132	126	117	126
HybriForce-3400	DairyLand	122	128	123	124	—	—	—	—
55Q27	Pioneer	114	121	124	119	125	117	124	122
55V50	Pioneer	110	118	116	114	127	129	119	126
FF42.A2	La Crosse	117	122	120	119	—	—	—	—
55Q14	Pioneer	106	111	119	111	116	117	119	117
4H400	Mycogen	—	—	—	—	115	112	114	113
5312	Check	102	106	101	103	103	103	106	104
VERNAL	Check	98	96	104	99	99	101	99	100
ONEIDA VR	Check	100	97	95	98	99	96	95	97
LSD (0.05)		9	13	17	9	9	10	29	9
Ave, Tons/Acre as Hay		6.6	5.5	4.4	16.5	8.2	7.6	5.8	21.6

¹Varieties are ranked according to their performance across all current trials.

Table 3. Seeding year alfalfa variety yields as a percentage of check varieties at Rosemount (Dakota County).

Variety ¹	Marketer	Rosemount
		2018 Seeding
		1-Yr
AFX 460	Alforex	110
SW4107	SW	106
Skylark	Blue River	104
Swift	Blue River	102
Finch	Blue River	101
HybriForce-4400	Alforex	94
SW5210	SW	93
ONEIDA VR	Check	102
VERNAL	Check	101
5312	Check	97
LSD (0.05)		16
Ave, Tons/Acre as Hay		2.9

Table 4. Sources of forage seed for 2018 trials.

Marketer	Company	Web URL
Albert Lea	Albert Lea Seed House	www.alseed.com
Alforex	Alforex Seed	www.alforexseeds.com
Am. Alf.	America's Alfalfa	www.americasalfalfa.com
Beck's	Beck's Hybrids	www.beckshybrids.com
Blue River	Blue River Hybrids	www.blueriverorgseed.com
BrettYoung	BrettYoung	www.brettyoung.ca/USA
Channel	Channel Seed	www.channel.com
Crop Prod.	Crop Production Services	www.cpsagu.com
CROPLAN	CROPLAN Genetics	www.croplangenetics.com
DairyLand	DairyLand Seed	www.dairylandseed.com
DeKalb	AsgrowDeKalb	www.asgrowanddekab.com
FG	Forage Genetics	www.foragegenetics.com
Jung	Jung Seed Genetics	www.jungseedgenetics.com
La Crosse	LaCrosse Forage and Turf	www.lftseed.com
Latham	Latham Hi-Tech Seeds	www.lathamseeds.com
Legacy	Legacy Seeds	www.legacyseeds.com
Legend	Legend Seeds	www.legendseeds.com
MW Bioag	Midwestern BioAg	www.midwesternbioag.com
Mustang	Mustang Seeds	www.mustangseeds.com
Nexgrow	Nexgrow	www.plantnexgrow.com
NuTech	NuTech Seed	www.nutechseed.com
Pioneer	Pioneer Hi-Bred Int'l	www.pioneer.com
Pref. Alf.	Preferred Seed	www.preferredseed.com
Producer	Producer's Choice	www.producerschoiceseed.com
Ranier	Ranier Seeds	www.ranierseeds.com
Renk	Renk Seed	www.renkseed.com
SW	S & W Seed	www.swseedco.com
W-L	W-L Research	www.wlresearch.com
U of MN	University of Minnesota Forages	www.extension.umn.edu/forages