



2019 Alfalfa Field Crop Trials Results

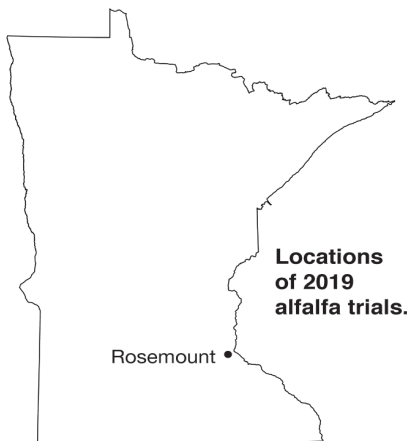
Minnesota Agricultural Experiment Station and the College of Food, Agricultural and Natural Resource Sciences

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.

The test location is Rosemount (Dakota 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 (2017 and 2018 seeding years) are listed in Tables 1 alfalfa variety, seed marketers and match-



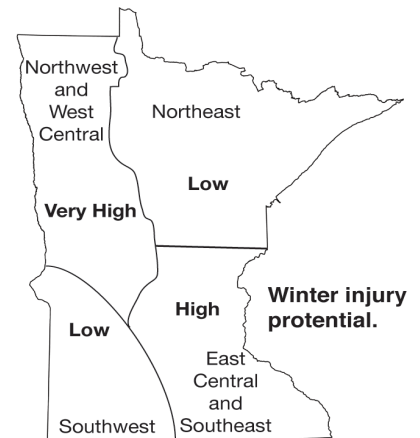
ing web sites are provided in Table 2. Disease resistance information for alfalfa varieties is available on the web at <https://www.alfalfa.org/pdfMedia/2019VarietyLeaflet.pdf>.

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/pdfMedia/2019VarietyLeaflet.pdf>.

Forage Yield

Yield results for alfalfa varieties tested in current Minnesota trials are presented in Tables 1. 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 the table, varieties are ranked according to their average performance across ALL current trials in which they have been tested (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 probably was 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 2018 and 2019 for a 2017 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 varieties 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 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 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 Agric. Exp. Sta. website: <https://www.maes.umn.edu/publications/field-crop-trials>.

Authors and Researchers

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Test plot establishment and management are supervised by Joshua Larson and Dayana Carvalho.

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 1. Alfalfa variety yields as a percentage of check varieties at Rosemount (Dakota County) seeded in 2017 and 2018.

Variety ¹	Marketer	Rosemount			
		2017 Seeding			2018 Seeding
		2018	2019	2 Yr Total	1 Yr Total
AFX 469	Alforex	120	130	124	—
HybriForce-4400	Alforex	124	129	126	118
SW 5210	SW	124	115	120	—
SW 4107	SW	125	114	120	—
SW 3407	SW	120	116	118	—
AFX 429	Alforex	120	113	117	—
AFX 460	Alforex	119	103	112	125
SW5210	SW	—	—	—	112
FSG 415 BR ALFALFA	La Crosse	115	108	112	—
QUAIL	Blue River	115	108	112	—
SW4107	SW	—	—	—	110
ROBIN	Blue River	114	102	109	—
VIKING 372 HD	Albert Lea	109	106	108	—
Skylark	Blue River	—	—	—	106
Swift	Blue River	—	—	—	103
LUKAL ALFALFA	Albert Lea	98	101	99	—
KING BIRD	Blue River	108	91	100	—
LUZELLE ALFALFA	Albert Lea	102	95	99	—
Finch	Blue River	—	—	—	115
5312	Check	104	106	105	112
ONEIDA VR	Check	97	94	95	96
VERNAL	Check	99	100	100	92
Checks, ton/acre as hay		6.7	5.3	12.1	5.2
LSD 5%		13	23	21	13

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

Table 2. Sources of forage seed for 2018 trials.

Marketer	Company	Web URL
Albert Lea	Albert Lea Seed	www.alseed.com
Alforex	Alforex Seed	www.alforexseeds.com
Blue River	Blue River Hybrids	www.blueriverorgseed.com
La Crosse	LaCrosse Forage and Turf	www.lftseed.com
SW	S & W Seed	www.swseedco.com
U of MN	University of Minnesota Forages	www.extension.umn.edu/forages