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.), Lamberton (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 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.

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.

Varialal 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.
**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, Verticillium 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 varieties 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 vary significantly from variety to variety.

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

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*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

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

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1Varieties 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).

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<td>110</td>
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<td>Mustang</td>
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<td>108</td>
<td>105</td>
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<td>54Q02</td>
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<td>105</td>
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<td>5312</td>
<td>Oneida VR</td>
<td>99</td>
<td>101</td>
<td>100</td>
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<td>AMERISTAND 403T PLUS Am. Alf.</td>
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<td>99</td>
<td>102</td>
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<td>VERNAL</td>
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<td>Checks, tons/acre as hay</td>
<td>6.8</td>
<td>6.8</td>
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<td>LSD 5%</td>
<td>11</td>
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</table>

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.

<table>
<thead>
<tr>
<th>Variety</th>
<th>Marketer</th>
<th>Rosemount</th>
<th>Richmond RR</th>
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<tr>
<td>55V50</td>
<td>Pioneer</td>
<td>110</td>
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<tr>
<td>WL354HQ</td>
<td>W-L</td>
<td>100</td>
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<td>HYBRIFORCE-2400</td>
<td>DairyLand</td>
<td>111</td>
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<td>L-449APH2</td>
<td>Legacy</td>
<td>110</td>
<td>---</td>
</tr>
<tr>
<td>REBOUND 6.0</td>
<td>Croplan</td>
<td>100</td>
<td>---</td>
</tr>
<tr>
<td>AMERISTAND 407TQ</td>
<td>Am. Alf.</td>
<td>106</td>
<td>---</td>
</tr>
<tr>
<td>GUNNER</td>
<td>Croplan</td>
<td>108</td>
<td>---</td>
</tr>
<tr>
<td>SONIC</td>
<td>NuTech</td>
<td>104</td>
<td>---</td>
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<tr>
<td>CONSISTENCY 4.10RR</td>
<td>Croplan</td>
<td>---</td>
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<td>DKA41-18RR</td>
<td>Dekalb</td>
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<tr>
<td>5312</td>
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<td>AMERISTAND 405T RR</td>
<td>Am. Alf.</td>
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<td>ONEIDA VR</td>
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<tr>
<td>VERNAL</td>
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<td>Checks, tons/acre as hay</td>
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<td>---</td>
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<tr>
<td>LSD 5%</td>
<td>11</td>
<td>11</td>
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</tr>
</tbody>
</table>

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. 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.

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<th>Marketer</th>
<th>Company</th>
<th>Web URL</th>
</tr>
</thead>
<tbody>
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<td>AgVenture</td>
<td>AgVenture Feed and Seed Inc.</td>
<td><a href="http://www.agventurefeeds.com">www.agventurefeeds.com</a></td>
</tr>
<tr>
<td>Albert Lea</td>
<td>Albert Lea Seed House</td>
<td><a href="http://www.alsseed.com">www.alsseed.com</a></td>
</tr>
<tr>
<td>Allied</td>
<td>Allied Seed</td>
<td><a href="http://www.allieseed.com">www.allieseed.com</a></td>
</tr>
<tr>
<td>Am. Alf.</td>
<td>America’s Alfalfa</td>
<td><a href="http://www.americasalfalfa.com">www.americasalfalfa.com</a></td>
</tr>
<tr>
<td>Barenburg</td>
<td>Barenburg Midwest</td>
<td><a href="http://www.barusa.com">www.barusa.com</a></td>
</tr>
<tr>
<td>BioPlant</td>
<td>BioPlant Research</td>
<td>P.O. Box 320, Camp Point, IL 62320, 800-593-7708</td>
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<tr>
<td>Blue River</td>
<td>Blue River Hybrids</td>
<td><a href="http://www.blueriverorgseed.com">www.blueriverorgseed.com</a></td>
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<tr>
<td>BrettYoung</td>
<td>BrettYoung</td>
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<tr>
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<td>Crop Prod.</td>
<td>Crop Production Services</td>
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<td>Golden Harv.</td>
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