Getting a Good Start for Your Alfalfa Crop

Growing alfalfa (Medicago sativa ssp. sativa) is a multi-year investment. Select a variety proven to be adapted to your area and that can maintain high production in the 3rd and 4th year. Now is a good time to start planning for spring seeding of alfalfa.

Selecting the right variety is one of the most important decisions producers should make for a good forage-production system. Characteristics of a good, certified alfalfa variety include good seed quality with high germination percentage, high yield potential, vigorous, disease and insect resistance, and adapted to the region's environmental conditions. These varietal characteristics determine stand persistence and productivity.

**Disease and Insect Resistance**

Choose varieties that can resist crown rots, Phytophthora root rot, bacterial wilt, Fusarium wilt, Verticillium wilt, and Anthracnose. Additionally, select varieties with resistance to insects such as the spotted alfalfa aphid and pea aphid. A few varieties with tolerance to low levels of alfalfa weevil infestations are available.

**Fall Dormancy and Winter Hardiness**

When choosing an alfalfa variety, it is important to select a variety with an acceptable fall dormancy rating, which is different from the winter hardiness rating. Both characteristics are not genetically linked. Older alfalfa varieties that survive winter conditions go into dormancy earlier than the new varieties. The latter are able to produce well into the fall and still can survive the winters.

The fall dormancy scale is 1-11, with one being the most dormant variety and 11 being the least dormant variety. In areas with harsh winters, it is best to plant varieties with a fall dormancy rating of 3-5. The winter survival scale is 1-6, with one being the most winter hardy variety and 6 being the least hardy variety.

**Time of Planting**

Alfalfa can be planted either in the spring, after last day of frost, or late summer. Planting in late summer should be accomplished in mid-August, when moisture and temperature conditions are likely to be more favorable for adequate seedling establishment. Ideally, plants should have at least three to five trifoliate leaves before entering dormancy.

**Seeding Rates**

Optimum seeding rates vary with region as shown in Table 1. In many areas, seeding rates tend to range from 10-16 pounds per acre. Most often, in the western irrigated regions of the US, seeding rates between 20 and 25 pounds per acre are recommended. Generally, growers should follow the recommended seeding rates that can be obtained from a local extension office.

It is always better to invest in good alfalfa genetics and plant at an optimum rate than to purchase economically priced seed and plant at a higher rate.

**Weed Control**

A successful weed-management program begins prior to alfalfa seeding and continues throughout the life of the stand. Many perennial weed species can be difficult to control in established alfalfa stands; the Roundup® Ready trait will aid in control of these species. Heavy weed pressure can reduce plant stands by choking newly seeded alfalfa, causing thin stands and reducing forage quality and yield potential. However, vigorous alfalfa stands are very competitive with weeds and, with proper management, may reduce specific weeds such as common milkweed, hemp dogbane, Johnsongrass, and shattercane.

**Before Planting.** It is important to know the history of the cropping system, weed problems, and herbicide use prior to seeding a new stand of alfalfa. Some herbicides can carry over from the previous crop and injure alfalfa seedlings. Weeds must be controlled with tillage operations or proper burndown applications before alfalfa is seeded. Several herbicides can be used prior to planting in reduced-tillage systems or for perennial-weed control. Typically, one or two applications of Roundup® brand agricultural herbicide can provide excellent weed control. The four applications listed in Table 2 may not be required.

### Table 1. Recommended seeding rates suggested by the University of Wisconsin based on several alfalfa seeding rate studies.

<table>
<thead>
<tr>
<th>State</th>
<th>Seeding Year</th>
<th>Seeding Rate Range</th>
<th>Recommended Seeding Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD</td>
<td>1985</td>
<td>2-30</td>
<td>10-14</td>
</tr>
<tr>
<td>WI</td>
<td>1989</td>
<td>6-20</td>
<td>12-15</td>
</tr>
<tr>
<td>PA</td>
<td>1991-92</td>
<td>6-24</td>
<td>9</td>
</tr>
<tr>
<td>PA + MO</td>
<td>1995-98</td>
<td>3-25</td>
<td>&lt;15</td>
</tr>
</tbody>
</table>

Source: Ranklin, M. University of Wisconsin.
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Some herbicides may be tank mixed with Roundup® brand agricultural herbicides, others may not. Several herbicides approved for use in alfalfa are listed in Table 3. If using Roundup PowerMAX®, herbicide same use rates apply. A fully integrated approach to weed management is important and should include multiple modes of action.

**Always read and follow all herbicide label directions**

### Alfalfa Fertility
A soil pH range of 6.5 to 7.0 is ideal for new seedlings to establish and develop rapidly. Take soil samples for analysis several months before seeding or reseeding a field to determine soil pH and lime and fertilizer needs. Once alfalfa is established, there is no opportunity to incorporate lime. Apply fertilizer as needed, using soil test results as a guide. Alfalfa responds well to liming and phosphorus and potassium levels need to be in the upper medium to high range at the time of seeding. Phosphorus promotes rapid root growth, strong seedling development, and high yield potentials. Potassium is necessary for healthy, vigorous plants, winter hardiness, and persistent stands. In most cases, application of nitrogen is not necessary since properly inoculated alfalfa can fix its own atmospheric nitrogen with the help of bacteria (*Rhizobium*).

### Seedbed Preparation
Seeded preparation should be done when soil moisture allows soil to crumble when worked. Ensure a good soil-to-seed contact by creating clods less than 1/4 inch in diameter. This can be accomplished by a disk followed by spring-tooth and spike-tooth harrowing to further break clods and to help smooth the field. It is important to have moisture one to three inches below the surface. It is not essential to have moisture at the surface, as most successful plantings are done when seed is planted into a dry soil surface. A sign of a good seedbed is the appearance of boot prints or the bars of a tractor tires. No imprint is made if the soil is too dry and no detail will remain of boot prints or tractor tire bars if the soil is too fluffy.

### Coated Seed
Seed coating or pelletization is a process where seed is coated with a mixture of pesticides, nutrients or bacteria in the genus *Rhizobium*. Alfalfa seed is coated with bacteria *Rhizobium*-peat mixture, a lime coating, a fungicide, or a combination thereof followed by a “glue” to hold it all together. There is a symbiotic relationship between *Rhizobium* and alfalfa roots. The bacteria infect the roots from which they obtain food, at the same time the bacteria obtain nitrogen from soil and air and fix in a form that is available by the plants. Nitrogen is accumulated in nodules that are formed on alfalfa roots. Fungicides can protect seedlings against *Pythium* and *Phytophthora* root rot and lime coating counteracts the acidity of soil pH. Higher survival rate for the seedlings means better stands and less seed is needed to establish a good stand.

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### Table 2. Recommended rate and time of application options for Roundup® brand agricultural herbicides.

<table>
<thead>
<tr>
<th>Time of Application</th>
<th>Roundup WeatherMAX® (oz/acre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preplant - emergence</td>
<td>22-44</td>
</tr>
<tr>
<td>Emergence - 4 trifoliate leaves</td>
<td>22-44</td>
</tr>
<tr>
<td>5 trifoliate leaves - 5 days before first cutting</td>
<td>22-44</td>
</tr>
<tr>
<td>Total in - crop application per cutting after first cutting, applied up to 5 days before next cutting</td>
<td>22-44</td>
</tr>
<tr>
<td>Combined total per year for all in - crop applications</td>
<td>132</td>
</tr>
</tbody>
</table>

### Table 3. Weed management options in Genuity® Roundup Ready® Alfalfa.

<table>
<thead>
<tr>
<th>Practice</th>
<th>Product</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional Mode of Action - POST</td>
<td>4 oz. Pursuit®</td>
<td>Use on 1-3 inch weeds, 2nd trifoliate alfalfa</td>
</tr>
<tr>
<td>Additional Mode of Action - POST</td>
<td>4 oz. Raptor®</td>
<td>Use on 1-3 inch weeds, 2nd trifoliate alfalfa</td>
</tr>
<tr>
<td>Additional Mode of Action - POST</td>
<td>1 – 1.5 pt Buctril®</td>
<td>Use on small weeds, 4th trifoliate alfalfa</td>
</tr>
<tr>
<td>Volunteer Roundup Ready® Corn 2/grass control - POST</td>
<td>9-32 oz SelectMax®</td>
<td>For volunteer Roundup Ready® Corn 2 control or additional MOA for grass control</td>
</tr>
</tbody>
</table>
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Genuity® Roundup Ready® Alfalfa seed will come with 8% clay seed coat, fungicide treatment of Apron XL®, and inoculant will be pre-applied.

Irrigation

Alfalfa is a deep-rooted (8 to 12 feet deep) drought-tolerant perennial with a long growing season. When soil water is sufficient in early spring, alfalfa grows in direct relation to the temperature and sunlight available. The average seasonal water need for alfalfa is about 4 acre-inches per ton of production. During the summer months, the water use is 6 to 7 acre-inches per ton. Alfalfa is sensitive to excess soil water or the lack of good aeration. Surface water should not be allowed to stand more than 24 hours during hot weather or 48 hours during lower temperatures. A deep, medium- to coarse-textured soil with adequate water is ideal. Scheduling irrigation requires an initial estimate or measurement of root-zone soil water needed. This usually requires installing soil-water-measuring equipment or soil probing.

Genuity® Roundup Ready® Alfalfa

In late January 2011, the U.S. Department of Agriculture (USDA) authorized resumption of the sale and planting of Genuity Roundup Ready Alfalfa. This means, for the first time since 2007, U.S. farmers will have the choice to plant the technology that gives them many benefits, just in time for spring planting.

Genuity Roundup Ready Alfalfa varieties have now been tested for several years in both industry and university trials. Data from these trials confirm that agronomic performance of the Roundup Ready varieties is competitive with the best of the conventional commercial varieties.

Before purchasing Genuity Roundup Ready Alfalfa seed, growers should remember that the factors important for selecting conventional alfalfa varieties should also apply to selecting Genuity Roundup Ready Alfalfa varieties.

ATTENTION: Based on the decision of the U.S. Department of Agriculture (USDA) on January 27, 2011, Genuity Roundup Ready Alfalfa seed is available for sale and distribution by authorized Seed Companies or their dealers.

Main Benefits of Genuity Roundup Ready Alfalfa include:

- Superior crop safety for healthier, faster-growing stands.
- Broaders application flexibility.
- Fewer weeds in every bale, resulting in better quality feed.
- Increased high-quality yield opportunity.

Your local dealer/seed representatives are available for questions regarding Genuity Roundup Ready Alfalfa seed.

SUMMARY

Consider the following tips for planting alfalfa:

⇒ Have the soil tested for pH, phosphorus and potassium levels.
⇒ Select varieties based on state performance test results. Also, look at disease resistance and fall dormancy ratings of a variety. The lower the number, the earlier the variety goes into dormancy and the less productive it is in the early fall.
⇒ Plant in firm, moist soil, which can be accomplished with no-till.
⇒ Make sure weeds are controlled before spring planting and after emergence.
⇒ Read and follow all label directions when using any pesticide.
⇒ Make sure there is no potentially harmful herbicide carryover remaining in the field prior to planting alfalfa.
⇒ In general, plant seed 1/4 to 1/2 inch deep but never less than 3/4 inch deep in sandy soils, unless the field is irrigated.

Sources: