What You’ll Learn...

- Burndown applications are integral to reduced-till systems
- Starting clean with tillage or a burndown herbicide application is essential for establishing effective weed management programs
- An ineffective or late application on difficult to control weeds will allow weed escapes and may lead to lost soybean yield potential
- Incorporating a residual herbicide application at burndown and/or preemergence will help manage tough to control weeds

Importance of Burndown Applications

Burndown herbicide applications control winter annual, summer annual, and perennial weeds and are an integral part of weed management programs in reduced-till and no-till systems. Removing prior to planting provides a clean seedbed for potentially earlier planting dates, more uniform planting conditions, uniform stand establishment, and high yield potential. A burndown application can:

- Help control weeds that can be the most competitive with soybean.
- Contribute to managing difficult-to-control weeds.
- Remove hosts for diseases and insects.
- Provide an opportunity to use alternate mode of action herbicides for weed resistance management

Burndown applications that are delayed can lead to reduced yield potential. Burndown applications that were delayed until the first trifoliate growth stage of soybean resulted in an average yield loss of 8.3 bu/acre (Table 1).

<table>
<thead>
<tr>
<th>Application Timing</th>
<th>Yield Loss bu/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 days prior to planting</td>
<td>0</td>
</tr>
<tr>
<td>1st trifoliate</td>
<td>8.3</td>
</tr>
<tr>
<td>3rd trifoliate</td>
<td>9.2</td>
</tr>
<tr>
<td>Untreated</td>
<td>20.1</td>
</tr>
</tbody>
</table>

Source: Sprague, C. 2010.

Weeds may become more difficult to control if burndown applications are delayed. Larger weeds, dense weeds populations, perennial or biennial weeds at advanced stages of development, and variable environmental conditions may require higher herbicide rates and/or tank mixtures to provide adequate burndown. In addition, some herbicides may have planting interval restrictions or crop injury precautions that may impact the timing and mixtures available in delayed burndown situations.

<table>
<thead>
<tr>
<th>Planting Date</th>
<th>Yield Loss bu/acre/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 1 - 10</td>
<td>0.10</td>
</tr>
<tr>
<td>May 11 - 20</td>
<td>0.23</td>
</tr>
<tr>
<td>May 21-30</td>
<td>0.36</td>
</tr>
<tr>
<td>June 1 - 10</td>
<td>0.54</td>
</tr>
</tbody>
</table>


Burndown Recommendations

In an optimal situation, burndown applications of Roundup WeatherMAX® or Roundup PowerMAX® herbicides with dicamba or 2,4-D ester would be applied several weeks prior to planting, followed by at-planting and in-crop herbicide applications, to provide full season weed control. Several factors should be considered for a burndown application, particularly if it is delayed:

- Herbicides needed to cover the existing weed spectrum
- Planting interval restrictions (product, rate, application timing, soil type, moisture)
- Crop emergence status
- Tank mixing a burndown with a residual herbicide to improve burndown activity, control the next flush of weeds, and increase efficiency
- Spray additives required to improve weed control
- Herbicide-resistant weeds present or expected

With this information in hand, a plan can be assembled for the burndown application. The plan should also take into account time and equipment availability to spray and planting in a timely manner.

Tips for Roundup WeatherMAX® or Roundup PowerMAX® Herbicides

- Use the highest label rate of Roundup WeatherMAX® or Roundup PowerMAX® herbicides
- Always add ammonium sulfate at a rate of 8.5 to 17 lbs/100 gallons of spray solution, alone or in tank mixtures
Burndown Applications and Soybean Planting

- Weed management tactics for tough-to-control weeds such as marestail, giant ragweed, kochia, lambsquarters, *Amaranthus* species, and others can be found at [www.roundupreadyPLUS.com](http://www.roundupreadyPLUS.com) or download Weed Manager PLUS at the App Store.

Recommendations for burndown products and residual products with some burndown activity are available from your local Technical Agronomist.

It is important to scout fields before and after a burndown to:

- Determine the herbicides needed to control the weed spectrum
- Determine the effectiveness of the herbicide application
- Determine weed sizes to make properly timed herbicide applications
- Plan in-crop treatments

Herbicide Use Precautions

Many soybean herbicides have planting interval, use rate, weed size, tank mixture, and crop tolerance precautions that must be factored into burndown decisions. Consult each individual product label before use.

In general, 2,4-D at 1 pt/acre needs to be applied at least 7 days prior to planting soybean. Labels for dicamba herbicides vary in soybean plant back restrictions. After a field receives an accumulated total rainfall of 1 inch following the burndown application with dicamba, plant back restrictions may be from 14 to 28 days depending on the rate applied.

Some burndown products must be applied prior to crop emergence or restrict products that can be included in tank mixtures that may compromise crop safety. Specific recommendations for burndown applications and herbicide use vary by state and geography. Consult local University recommendations, experts, and product labels prior to application.

### Table 3. Recommendations for Roundup WeatherMAX® or Roundup PowerMAX® herbicide tank mixtures in soybean.

<table>
<thead>
<tr>
<th>Practice</th>
<th>Products³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soybean Burndown</td>
<td>dicamba or 2,4-D</td>
</tr>
<tr>
<td>Soybean Preplant or PRE¹</td>
<td>Warrant® Herbicide, Fierce®, Valor®, Valor® XLT, Gangster®, Authority® Assist, Authority® First, Authority® MAXX, Authority® MTZ, or Authority® XL</td>
</tr>
<tr>
<td>Soybean POST 1²</td>
<td>Warrant® Herbicide</td>
</tr>
<tr>
<td>Soybean POST 2</td>
<td>Warrant® Herbicide + Cobra® or fomesafen</td>
</tr>
</tbody>
</table>

Always refer to product labels for use rates, application guidelines, and rotational crop restrictions.

³PRE herbicides may also include other herbicides based on local weeds and preferences.

²Tank mix Select® or Select Max® if volunteer corn is present.


Residual Herbicides

Herbicides with residual activity are essential for weed management systems in soybean. Incorporating residual herbicides in a burndown application can help to control tough weeds. University research shows that weeds emerging with the crop should be controlled by the V2 or V3 stage of soybean development, when weeds are typically 3 to 6 inches tall, to help prevent yield loss. Weeds can reduce soybean yield by 1% per day if left uncontrolled after the V2 to V3 stage of soybean development.³ Residual herbicides that are a part of the burndown application or as a pre-emergence application can keep fields clean during the first few weeks after planting to help protect yield potential. Residual herbicides help control early emerging, competitive weeds so that post-emergence herbicide applications can be made when weeds are small and weed populations are less dense.

Sources:

