

Roundup Ready® Soybean Management Guide



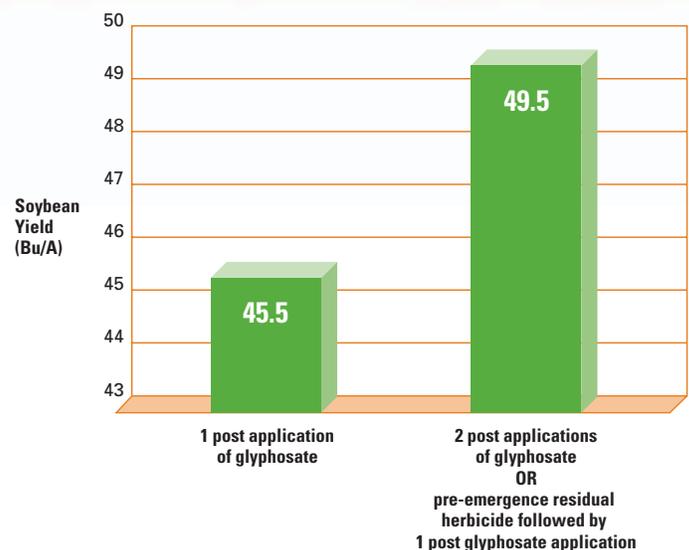
Monsanto is committed to providing information and product recommendations necessary to maximize product stewardship and grower value. By utilizing the information below, growers can implement best management practices that will maximize and preserve the value of the Roundup Ready Soybean System.

Timely Management is Key to System Success

Managing weeds in Roundup Ready Soybeans with a single post-emergence application of glyphosate can create problems when applications are delayed until soybeans and weeds are well established. Many weeds can grow in excess of recommended heights for treatment, the period of weed competition with the crop can become extended, and soybean yields can be reduced. Even a weed-free field at harvest can yield less because of early season weed competition. Delayed applications also increase risk for weed escapes, weed population shifts and potential weed resistance, as well as add to management time and costs.

Independent research has documented the difficulty in maximizing soybean yields with a single application of glyphosate versus two, timely herbicide applications.

In no-till soybeans, a pre-emergence herbicide can be combined with burndown treatment without increasing the number of trips made across the field.



Data compiled from 38 university trials, 1998-2005. Glyphosate rates were 0.75 lbs ae/acre or less. All comparisons made with a clean start at planting (tillage or burndown).

For more information call 1-800-Roundup
or visit www.weedresistancemanagement.com

Roundup Ready Soybean System Recommendations

Since the introduction of Roundup Ready Soybeans, Monsanto recommendations have emphasized starting clean with a weed-free field followed by timely, postemergence in-crop applications of Roundup® agricultural herbicides. The approach provides the best opportunity for maximum weed control and yield potential in Roundup Ready Soybeans, and reduces the potential for weed escapes that require additional management:

- ✓ Scout fields before and after herbicide applications.
- ✓ Always start with a weed-free field using a burndown herbicide and/or tillage. In no-till, tank-mix with 2,4-D to control glyphosate-resistant marestail or other tough-to-control broad leaf weeds.
- ✓ If you have dense stands of weeds such as waterhemp, common lambsquarters, palmer amaranth or common ragweed, use a residual herbicide such as Intrro® or Valor®. A residual herbicide should also be used in a continuous Roundup Ready Soybean System.
- ✓ In-crop, apply Roundup WeatherMAX® or Roundup Original Max® at a minimum of 22 oz/A before weeds exceed 8 inches.
- ✓ If an additional flush of weeds occurs, a sequential application of Roundup WeatherMAX at the maximum label rate for the target weeds may be needed.
- ✓ Tank-mix other herbicides with Roundup WeatherMAX or Roundup OriginalMax® if necessary for postemergence control.
- ✓ Roundup agricultural herbicides may be applied from emergence through flowering (R2 stage soybeans). R2 soybeans ends at R3 stage when a pod 5 millimeters (3/16 inch) long appears at one of the four uppermost nodes on the main stem with a fully developed leaf.

Roundup Agricultural Herbicides and Asian Soybean Rust Management

Glyphosate has been shown to have activity against Asian soybean rust¹. Monsanto is evaluating the potential for Roundup agricultural herbicides to manage the disease. However, additional research and development is needed to determine whether glyphosate could provide sufficient levels of Asian rust control as part of an Asian rust management program; then EPA approval of directions for use and product labels must be obtained.

Since Asian rust typically requires management at later stages of soybean development, Monsanto wants to emphasize that growers must not delay Roundup agricultural herbicide applications into reproductive soybean growth stages in an attempt to gain additional rust management value.

Monsanto has revised language – not made a change in use recommendations – on Roundup agricultural herbicide labels and in the Technical Use Guide to emphasize the approved application window for Roundup agricultural herbicide use with Roundup Ready Soybeans.

Current language states that Roundup agricultural herbicide applications may be made to Roundup Ready Soybeans throughout flowering. New language incorporates generally accepted soybean growth stage terminology to define “flowering” and emphasize that applications may be made through the R2 stage of growth ending when the R3 stage begins [a pod 5 millimeters (3/16 inch) long appears at one of the four uppermost nodes on the main stem with a fully developed leaf]. Applications made beyond the R2 stage of soybean growth are not labeled uses.

Monsanto will continue to fully evaluate the activity of glyphosate against Asian soybean rust and research potential commercial uses. **Glyphosate is not currently registered or labeled for fungicidal use.** *It is a violation of federal law to use a pesticide in a manner inconsistent with labeling.* Growers should consult local retailers about labeled fungicides and recommendations for Asian soybean rust control and prevention.

**For more information call 1-800-Roundup
or visit www.weedresistancemanagement.com**

1. PNAS Article: *Glyphosate inhibits rust diseases in glyphosate-resistant wheat and soybean*. Paul C. C. Feng, G. James Baley, William P. Clinton, Greg J. Bunkers, Murtaza F. Alibhai, Timothy C. Paulitz, and Kimberlee K. Kidwell - Monsanto Biotechnology Research, St. Louis, MO 63017; Department of Crop and Soil Sciences, Washington State University, Pullman, WA 99164-6420; and Root Disease and Biological Control Research Unit, Agricultural Research Service, U.S. Department of Agriculture, Pullman, WA 99164-6430; PNAS (Proceedings of the National Academy of Sciences) 2005 102: 17290-17295; published online before print November 17 2005, 10.1073/pnas.0508873102