



## STAND TAKEOUT AND VOLUNTEER MANAGEMENT

Crop rotations can be divided into two main groups, alfalfa rotated to: 1) grass crops (e.g. corn and cereal crops); and 2) broadleaf crops. More herbicide alternatives exist for management of volunteer alfalfa in grass crops. The recommended steps for controlling volunteer Roundup Ready Alfalfa are:

### Diligent Stand Takeout

Use appropriate commercially available herbicide treatments alone for reduced tillage systems or in combination with tillage to terminate the Roundup Ready Alfalfa stand. Refer to your regional technical bulletin for specific stand takeout recommendations. NOTE: Roundup agricultural herbicides are **not** effective for terminating Roundup Ready Alfalfa stands.

### Start Clean

If necessary, utilize tillage and/or additional herbicide application(s) after stand takeout, and before planting of the subsequent rotational crop to manage any newly emerged or surviving alfalfa.

### Plan for Success

Rotate to crops with known and available mechanical or herbicidal methods for managing volunteer alfalfa, keeping in mind that Roundup agricultural herbicides will not terminate Roundup Ready Alfalfa stands.

- Rotations to certain broadleaf crops are not advisable if the grower is not willing to implement recommended stand termination practices.
- In the event that no known mechanical or herbicidal methods are available to manage volunteer alfalfa in the desired rotational crop, it is suggested that a crop with established volunteer alfalfa management practices be introduced into the rotation.

### Timely Execution

Implement in-crop mechanical or herbicide treatments for managing alfalfa volunteers in a timely manner; that is, before the volunteers become too large to control or begin to compete with the rotational crop.

## WEED RESISTANCE MANAGEMENT GUIDELINES

Follow the guidelines below to minimize the risk of developing glyphosate-resistant weed populations in a Roundup Ready Alfalfa system:

- Scout fields before and after each herbicide application.
- Use the right herbicide product at the right rate and at the right time.
- To control flushes of weeds in established alfalfa, make applications of Roundup WeatherMAX

herbicide at 22 to 44 oz/A before weeds exceed 6", up to 5 days before cutting.

- Use other herbicide products tank-mixed or in sequence with Roundup agricultural herbicide if appropriate for the weed spectrum present as part of a Roundup Ready Alfalfa weed control program.
- Report repeated non-performance to Monsanto or your local retailer.

## ROUNDUP READY ALFALFA STEWARDSHIP

All growers shall sign a Monsanto Technology/ Stewardship Agreement (MTSA) limited-use license application which provides the terms and conditions for the authorized use of the product. Due to special circumstances, alfalfa growers in the Imperial Valley of California will also sign an Imperial Valley Use Agreement (IVUA) with specific stewardship commitments.

Both the MTSA or IVUA explicitly prohibit all forms of commercial seed harvest on the stand. Every alfalfa grower producing seed of Roundup Ready Alfalfa must possess an additional, separate, and distinct seed grower contract to produce Roundup Ready Alfalfa seed.

When deregulated, Roundup Ready Alfalfa seed is for sale and distribution by authorized Seed Companies or their dealers for use in the United States only. Roundup Ready Alfalfa seed may not be planted outside of the United States, or for the production of seed or sprouts. Any product produced from a Roundup Ready Alfalfa crop or seed, including hay and hay products, may only be used, exported to, processed, or sold in countries where regulatory approvals have been granted. It is a violation of national and international law to move material containing biotech traits across boundaries into nations where import is not permitted.

# Roundup Ready® Alfalfa



## PRODUCT DESCRIPTION

Roundup Ready® Alfalfa varieties have in-plant tolerance to Roundup® agricultural herbicides, enabling growers to apply labeled Roundup agricul-

tural herbicides up to 5 days before cutting for unsurpassed weed control, excellent crop safety, and preservation of yield potential and quality.

## ROUNDUP AGRICULTURAL OVER-THE-TOP HERBICIDE PRODUCTS

Herbicide products sold by Monsanto for use over the top of Roundup Ready Alfalfa for the 2008 crop season are as follows:

- Roundup WeatherMAX®
- Roundup Original MAX®
- Other labeled Roundup branded agricultural herbicides

For complete information about the use of Roundup agricultural herbicides over the top of Roundup Ready Alfalfa, refer to the appropriate Monsanto product's label booklet, or to supplemental labeling or fact sheets published separately by Monsanto. To learn more about applicable supplemental labels or fact sheets, call 1-800-ROUNDUP.

Tank mixtures of this product with herbicides, insecticides, or fungicides may result in crop injury or reduced weed control.

Certain Roundup agricultural herbicides referred to above may not be labeled for this application in your specific state. Please contact the manufacturer of this product, the local retailer, or the local extension agent for confirmation that this is an approved application.

You may use another glyphosate herbicide, but only if it has federally approved label instructions for use over Roundup Ready Alfalfa, and the product and the use label for Roundup Ready Alfalfa have been approved by your specific state. Contact the product manufacturers, the local retailers, or the local extension agents for confirmation that the products carry EPA and state approved labeling for this use. MONSANTO DOES NOT MAKE ANY REPRESENTATIONS, WARRANTIES OR RECOMMENDATIONS CONCERNING THE USE OF GLYPHOSATE PRODUCTS SUPPLIED BY OTHER COMPANIES THAT ARE LABELED FOR USE OVER ROUNDUP READY ALFALFA. MONSANTO SPECIFICALLY DENIES ALL RESPONSIBILITY AND DISCLAIMS ANY LIABILITY FOR ANY DAMAGE FROM THE USE OF THESE PRODUCTS IN ROUNDUP READY ALFALFA. ALL QUESTIONS AND COMPLAINTS CAUSED BY THE USE OF GLYPHOSATE PRODUCTS SUPPLIED BY OTHER COMPANIES SHOULD BE DIRECTED TO THE SUPPLIER OF THE PRODUCT IN QUESTION.

## HAY AND FORAGE MANAGEMENT PRACTICES

Roundup Ready Alfalfa must be managed for high quality hay/forage production, including timely cutting to promote high forage quality (i.e. before 10% bloom) and to prevent seed development. In geographies where conventional alfalfa seed production is intermingled with forage production and the agronomic conditions (climate and water/irrigation availability) are such that forage alfalfa is allowed to stand and flower late in the season, Roundup Ready Alfalfa must be harvested at or before 10 percent bloom to minimize potential pollen flow from hay to common or conventional alfalfa seed production. Growers who are unwilling to or who cannot make this commitment to stewardship should not continue to grow Roundup Ready Alfalfa.

Roundup Ready Alfalfa varieties have excellent tolerance to over-the-top applications of labeled Roundup agricultural herbicides. An in-crop weed control program using Roundup WeatherMAX or Roundup Original MAX will provide excellent weed control in most situations. A residual herbicide labeled for use in alfalfa may also be applied postemergence in alfalfa. Contact a Monsanto Representative, local crop advisor, or extension specialist to determine the best option for your situation.



## ROUNDUP READY ALFALFA STEWARDSHIP

Pursuant to a Court Order issued on May 3, 2007, Roundup Ready® Alfalfa growers must adhere to the following requirements of the Court until the USDA completes its regulatory process:

- Pollinators shall not be added to Roundup Ready Alfalfa fields grown only for hay production.
- Farm equipment used in Roundup Ready Alfalfa production shall be properly cleaned after use.
  - Cleaning procedures for harvesters, tractors and tillage equipment shall be submitted to and approved by APHIS prior to implementation.
  - Cleaning procedures shall be designed to minimize the risk of Roundup Ready Alfalfa seed and hay movement from authorized production site.

- All equipment shall be cleaned in accordance with the approved procedures before it leaves the farm on which it came in contact with Roundup Ready Alfalfa.
- Roundup Ready Alfalfa shall be handled and clearly identified to minimize commingling after harvest. Immediately after harvest, growers or seed producers shall store Roundup Ready Alfalfa in specifically designated and clearly labeled containers.¹

Monsanto Company and Forage Genetics International will issue further guidance on the implementation of these requirements.

## WEED CONTROL RECOMMENDATIONS

In established stands, to preserve the quality potential of forage and hay, applications should be made after weeds have emerged but before alfalfa re-growth

interferes with application spray coverage of the target weeds.

PROGRAM	INSTRUCTIONS AND USE RATES	ADDITIONAL INFORMATION
<b>Established Stands</b>	After the first harvest of a newly established stand, up to 44 oz/A of Roundup WeatherMAX® herbicide per cutting may be applied up to 5 days before each subsequent cutting. The combined total per year for all in-crop applications in established stands must not exceed 132 oz/A (4.1 qt/A) of Roundup WeatherMAX.	Applications between cuttings may be applied as a single application or in multiple applications (e.g. 2 applications of 22 oz/A).  Sequential applications should be at least 7 days apart.
<b>Weeds Controlled</b>	For specific application rates and instructions for control of various annual and perennial weeds, refer to the Roundup WeatherMAX herbicide label booklet. Some weeds with multiple germination times or suppressed (stunted) weeds may require a second application of Roundup WeatherMAX herbicide for complete control. For some perennial weeds, repeated applications may be required to eliminate crop competition throughout the growing season.	In addition to those weeds listed in the Roundup WeatherMAX label booklets, this product will suppress or control the parasitic weed, dodder ( <i>Cuscuta</i> spp.) in Roundup Ready Alfalfa. Repeat applications may be necessary for complete control.  For tough-to-control weeds or weeds not controlled by Roundup® agricultural herbicides use labeled rates of other herbicides, alone or in tank-mixtures, with Roundup agricultural herbicides.
<b>Maximum Use Rates</b>	<b>In-Crop:</b> <ul style="list-style-type: none"> <li>• 44 oz/A per single application.</li> <li>• Established Stand Total: 44 oz/A per cutting up to 5 days before harvest.</li> </ul>	<b>Total Per Year:</b> The combined total per year for all in-crop applications in established stands must not exceed 132 oz/A (4.1 qt/A) of Roundup WeatherMAX.

¹If using another Roundup agricultural herbicide, you must refer to the label booklet or separately published Roundup Ready Alfalfa supplemental label for that brand to determine appropriate use rates. If using Roundup Original MAX®, application rates are the same as for Roundup WeatherMAX.

## RECOMMENDATIONS FOR MANAGING GLYPHOSATE-RESISTANT WEEDS IN ROUNDUP READY ALFALFA

In certain areas, populations of ryegrass, maretail, common ragweed, giant ragweed and waterhemp are known to be resistant to glyphosate. For control recommendations for resistant biotypes of these weeds, refer to [www.weedresistancemanagement.com](http://www.weedresistancemanagement.com) or call 1-800-ROUNDUP. When approved, supplemental labeling for specific herbicide products can also be viewed on [www.cdms.net](http://www.cdms.net) or [www.greenbook.net](http://www.greenbook.net).