



## PRODUCT DESCRIPTION

Roundup Ready® cotton varieties contain in-plant tolerance to Roundup® agricultural herbicides,

enabling growers to make in-crop applications of Roundup WeatherMAX® or Roundup Original MAX®.

## ROUNDUP AGRICULTURAL OVER-THE-TOP HERBICIDE PRODUCTS

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

- Roundup WeatherMAX
- Roundup Original MAX

**Do not add additional surfactants to these Roundup agricultural herbicides.** Other glyphosate products labeled for use in Roundup Ready cotton may require the addition of surfactants or other additives to optimize performance and can increase the potential for crop injury. Monsanto will label and promote only fully tested brands that do not require additional surfactants and other additives for over-the-top applications.

**Roundup Ready cotton is genetically improved to provide tolerance to glyphosate, the active ingredient in Roundup agricultural herbicides. Roundup Ready cotton can receive over-the-top applications of Roundup agricultural herbicides only through the four-leaf stage. With the launch of Roundup Ready Flex cotton there is the potential for both Roundup Ready cotton and Roundup Ready Flex cotton to be used on a grower's farm. This creates concern for the safety of Roundup Ready cotton. Monsanto recommends that growers:**

- **Maintain accurate records of which technologies have been planted and where they have been planted.**

- **Communicate field plan with other members of their work force to ensure proper applications for each technology.**
- **Clearly mark fields to indicate which technology has been planted.**



Should you use another glyphosate herbicide, ensure that it has federally approved label instructions for use over Roundup Ready cotton, and the product and the use label for Roundup Ready cotton 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 WHICH ARE LABELED FOR USE OVER ROUNDUP READY COTTON. MONSANTO SPECIFICALLY DENIES ALL RESPONSIBILITY AND DISCLAIMS ANY LIABILITY FOR ANY DAMAGE FROM THE USE OF THESE PRODUCTS IN ROUNDUP READY COTTON. 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.

## WEED RESISTANCE MANAGEMENT GUIDELINES

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

- Scout fields before and after each burndown and in-crop application.
- Start clean with a burndown herbicide program or tillage.
- Use the right herbicide product at the right rate and right time.
- Add soil residual herbicide(s) and cultural practices as part of a Roundup Ready cotton weed control program.

- In-crop, apply Roundup WeatherMAX at a minimum of 22 oz/A when weeds are small.
- Tank-mix other herbicides with Roundup WeatherMAX if necessary for postemergence weed control.
- Should repeated non-performance occur, report to Monsanto or your local retailer.
- Clean equipment before moving from field to field to minimize the spread of weed seed (as well as nematodes, insects, and other cotton pests).





## WEED CONTROL RECOMMENDATIONS

### Agronomic Principles in Cotton

Weed control in cotton is essential to maximize both fiber yield and quality potential. Cotton is very sensitive to early season weed competition, which

can result in unacceptable stands and/or reduced yield potential. The Roundup Ready cotton system provides growers with the right tools to control weeds before they become competitive.

PROGRAM	INSTRUCTIONS	ADDITIONAL INFORMATION
<b>Preplant Burndown</b>	<p>Always start clean by planting into a weed-free field using either tillage or a burndown application.</p> <p>In no-till and reduced-till systems, apply a preplant burndown application of Roundup WeatherMAX* at 22 to 44 oz/A in a tank-mix with dicamba or 2,4-D.</p> <p>See the dicamba and 2,4-D product label for rates and time intervals required between application and cotton planting. State restrictions may apply.</p>	<p>Early-season weed competition can result in unacceptable stands and/or reduced yield potential.</p> <p>This tank-mix is recommended for control and management of glyphosate-resistant horseweed (marestail, <i>Conyza sp.</i>) or other tough-to-control weeds.</p> <p>Burndown application should be made far enough in advance of planting to control existing weeds.</p>
<b>Residual Herbicides</b>	<p>Apply residual herbicide(s) as part of a Roundup Ready cotton weed control program. Use the recommended label rate and timing of the residual herbicide applied. Refer to individual product labels for list of residual herbicides that may be used.</p>	<p>The residual herbicide(s) may be applied as either a preemergence (including preplant incorporated), postemergence, and/or layby application as allowed on the label of the specific product being used.</p>
<b>Over-The-Top through Fourth Leaf</b>	<p>Apply Roundup WeatherMAX over the top from crop emergence through the fourth true-leaf (node) stage (until the fifth true leaf reaches the size of a quarter).</p> <p>Two applications can be made during this period at a maximum rate of 22 oz/A per application.</p> <p>Refer to the "Annual Weeds Rate Table" in the Roundup WeatherMAX label for rate recommendations for specific annual weeds.</p>	<p>In-crop over-the-top applications must be at least 10 days apart and the cotton must have at least two nodes of incremental growth between applications. Care should be taken to record growth stage at first application.</p> <p>In situations where the potential for weed infestations is high (including perennial weeds), make the first application early enough to allow a second application before cotton exceeds the fourth true-leaf stage. Over-the-top applications after the fourth true-leaf stage can result in boll loss, delayed maturity, and/or yield loss.</p>
<b>Selective Equipment</b>	<p>After the fourth true-leaf stage through layby, Roundup WeatherMAX may be applied using precision post-directed or hooded sprayers which direct the spray to the base of the cotton plant.</p> <p>Two post-directed applications can be made during this period at a maximum rate of 22 oz/A per application.</p>	<p>Place nozzles in a low horizontal position to permit spray pattern to overlap in the row while contact of spray solution with cotton leaves should be avoided to the maximum extent possible. Excessive foliar contact can result in boll loss, delayed maturity, and/or yield loss.</p> <p>There must be two nodes of growth and at least 10 days between applications.</p>
<b>Preharvest Over-The-Top Applications</b>	<p>Before harvest and after cotton reaches 20 percent boll-crack, if needed, apply up to 44 oz/A of Roundup WeatherMAX.</p> <p>This treatment is effective in controlling late season perennial weeds and can improve harvest efficiency.</p>	<p>Applications must be made at least 7 days prior to harvest.</p> <p>Roundup agricultural herbicides are not effective for preharvest cotton regrowth in Roundup Ready cotton.</p> <p>Do not apply Roundup agricultural herbicides preharvest to crops grown for seed under contract at an authorized cotton seed company.</p>

Roundup Ready cotton has excellent vegetative tolerance to Roundup WeatherMAX allowing early season over-the-top applications. Incomplete reproductive tolerance requires that applications after the 4-leaf (node) stage be properly post-directed.

**ATTENTION:** Use of Roundup agricultural herbicides in accordance with label directions is expected to result in normal growth of Roundup Ready cotton, however, various environmental conditions, agronomic practices, and other factors make it impossible to eliminate all risks associated with the product, even when applications are made in conformance with the label specifications. In some cases, these factors can result in boll loss, delayed maturity, and/or yield loss.

\*If using another Roundup agricultural herbicide, you must refer to the label booklet or Roundup Ready cotton 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 COTTON

WEEDS	INSTRUCTIONS AND USE RATES
<p><b>Glyphosate-Resistant Marestail</b></p>	<p>Start clean with a burndown herbicide program or tillage. -Tank-mix Roundup® agricultural herbicides with dicamba or 2,4-D (consult label for plant back timing).</p> <p>If you have dense stands of marestail, use a preplant residual herbicide at the recommended rate and timing, such as diuron (Direx®) or flumioxazin (Valor®).</p> <p>Use Roundup WeatherMAX® in-crop, as needed, at a minimum of 22 oz/A to control other weeds.</p> <p>In-crop, if applying post-directed to glyphosate-resistant marestail, Roundup WeatherMAX can be tank-mixed with other herbicides, such as diuron or MSMA.</p>
<p><b>Glyphosate-Resistant Palmer Amaranth</b></p>	<p>Start clean with a burndown herbicide program or tillage.</p> <p>Apply a preemergence residual herbicide labeled for control of <i>Palmer amaranth</i> such as pendimethalin (Prowl®) plus fluometuron or fomesafen (Reflex®).</p> <p>In-crop, tank-mix Roundup WeatherMAX at 22 oz/A with metolachlor before <i>Palmer amaranth</i> emerges.</p> <p>Use Roundup WeatherMAX in-crop, as needed, at a minimum of 22 oz/A to control other weeds.</p> <p>A post-directed application of Roundup WeatherMAX tank-mixed with MSMA and a residual such as diuron (Direx) or flumioxazin (Valor) should be made to control small <i>Palmer amaranth</i> and prevent additional flushes.</p>
<p>In certain areas populations of common ragweed, giant ragweed and waterhemp are known to be resistant to glyphosate. For control recommendations for resistant biotypes of these weeds, refer to <a href="http://www.weedresistancemanagement.com">www.weedresistancemanagement.com</a> or call 1-800-ROUNDUP. When approved, supplemental labeling for specific herbicide products can also be viewed on <a href="http://www.cdms.net">www.cdms.net</a> or <a href="http://www.greenbook.net">www.greenbook.net</a>.</p>	

