

# Glyphosate-Resistant Giant Ragweed: Challenges and Solutions

Giant ragweed's rapid emergence and fierce competitiveness make it one of the most difficult weeds in U.S. corn and soybean fields. According to the University of Illinois, season-long competition from a population of two plants per square meter can reduce corn yield by 37 percent and a population of one plant per square meter can reduce soybean yield by 52 percent. In Ohio, a single giant ragweed plant every 3 feet of row caused approximately 65 percent yield loss in corn and 80 percent in soybeans.

Giant ragweed typically emerges before the crop (April), but recent research shows plants germinating as late as July. Uncontrolled ragweed can grow up to 15 feet tall. Glyphosate resistance in giant ragweed is carried in the pollen. Therefore, excellent control of "receptor" plants is crucial in weed resistance management.

Giant ragweed has the ability to germinate at considerable depths and, as of recently, emerge later in the growing season, escaping soil-applied herbicides. The large seeds provide more energy reserves for seedlings, making it a more resilient weed. Movement of seeds is limited, and it therefore becomes increasingly important for growers to manage problems in their own fields.

Syngenta leads the industry in communicating, educating and informing customers of the risks associated with continuous glyphosate use and the importance of using different herbicide modes of action and cultural practices to diversify weed management systems.

Each of the weed control programs outlined in this bulletin use a minimum of two herbicide classes. Several of these systems partner pre-emergence residual herbicides followed by post-emergence applications. Pre-emerge residual herbicides are crucial in diversifying weed control while taking the pressure off glyphosate by removing early weed competition helping preserve maximum yield. For specific control options, Syngenta recommends a variety of choices to fit individual needs.

An effective weed management plan requires more than a single year strategy. Visit [resistancefighter.com](http://resistancefighter.com) for more information on glyphosate weed resistance and weed control solutions.

## biology



### Giant Ragweed (*Ambrosia trifida*)

An annual weed that can grow up to 15' in height in fertile, moist soil

#### Flower or Seed Head

- Male (shown) flowers abundant in clusters on branch tips and stems
- Female flowers sparse, without petals and found in the axils of the upper leaves

#### Leaves

- All opposite
- Slightly hairy
- Large, entire or cleft into 3–5 lobes, with slightly margined leaf stems

#### Stem

- Coarse, rough, hairy
- 9'–15' tall in fertile, moist soils; 3'–7' tall in drier, less fertile soils

#### Roots

- Shallow, fibrous

Weed control plan	Program (rate/A)	Mode of Action		Notes
		Specific	Program Total	
Two-pass GT system	Lumax® (2 qt.) / pre followed by Lumax (1 qt.) plus Touchdown Total® (24 oz.) post	27, 15, 5 27, 15, 5 9	4	Where glyphosate-resistant weeds are suspected, use full labeled rates of pre-emergence, residual herbicides to manage giant ragweed.  These programs manage glyphosate-resistant, ALS-resistant and PPO-resistant weeds, including waterhemp, Palmer pigweed, lambsquarters, velvetleaf and ragweed.  ^ For heavy giant ragweed infestations, a post-emergence treatment may be needed for full-season control
	Lexar® (2.5 qt.) pre followed by Lexar (1 qt.) plus Touchdown Total (24 oz.) post	27, 15, 5 27, 15, 5 9	4	
	Lumax (2 qt.) pre followed by Northstar® (5 oz.) post	27, 15, 5 2, 4	5	
	Lexar (2.5 qt.) pre followed by Northstar (5 oz.) post	27, 15, 5 2, 4	5	
One-pass GT or conventional system^	Lumax (2.5-3 qt.) plus AAtrex® pre	27, 15, 5 5	3	
	Lexar (3-3.5 qt.) plus AAtrex pre	27, 15, 5 5	3	
One-pass GT system	Halex™ GT (3.6 pt.) plus AAtrex post	27, 15, 9 5	4	
Two-pass conventional system	Lumax (1.5-2 qt.) pre followed by Lumax (1 qt.) post	27, 15, 5 27, 15, 5	3	
	Lexar (2-2.5 qt.) pre followed by Lexar (1 qt.) post	27, 15, 5 27, 15, 5	3	
	Lumax (2.5-3 qt.) pre followed by Northstar (5 oz.) post	27, 15, 5 2, 4	5	
	Lexar (3-3.5 qt.) pre followed by Northstar (5 oz.) post	27, 15, 5 2, 4	5	
	Bicep II Magnum® (1.6-2.1 qt.) pre followed by Callisto® (3 oz.) plus AAtrex post	5, 15 27 5	3	



Weed control plan	Program (rate/A)	Mode of Action		Notes
		Specific	Program Total	
GT system	Prefix™ (2-3 pt.) pre followed by Touchdown Total (24 oz.) post	14, 15 9	3	Where glyphosate-resistant weeds are suspected, use full labeled rates* of pre-emergence, residual herbicides to manage giant ragweed.  For giant ragweed resistant to PPO, ALS and glyphosate herbicides a pre-emergence herbicide is your best option. These programs are the best weed control options possible, but may not provide 100 percent control. Consider cultivation to control resistant weeds.
	Boundary® 6.5EC (1.5-3 pt.) pre followed by Touchdown Total (24 oz.) plus Flexstar® (1-1.5 pt.) post	5, 15 9 14	4	



\*Maximum rate allowed according to soil texture classification and percent organic matter content and geographic area; refer to the product label for additional information.

Note: Use Gramoxone Inteon® tankmixed with phenoxy (such as 2,4-D) or residual herbicides as a glyphosate alternative burndown in corn or soybeans. Always refer to the product label for specific recommendations, precautions, restrictions and geographic rate limitations.

**Numerical system to describe modes of action as designated by the Weed Science Society of America:**

- |   |   |                                       |
|---|---|---------------------------------------|
| 2 – ALS inhibition  | 9 – EPSPS synthase inhibition (glyphosate)      | 22 – Photosystem I electron diversion |
| 4 – Synthetic auxin   | 14 – PPO inhibition                             | 27 – Inhibition of HPPD               |
| 5 – Photosystem II (PSII), different binding behavior than groups 6 & 7 | 15 – Inhibition of a very long-chain fatty acid |                                       |

For more information, contact the Syngenta Customer Center at **1-866-SYNGENTA (866-796-4368)** or log on to **resistancefighter.com**.

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