

# Liberty® ULTRA

Herbicide – Powered by **Glu-L™** Technology

# Engenia®

Herbicide

# Outlook®

Herbicide

# Maximize Your Weed Control, Minimize Weed Resistance

## Why Control Palmer Amaranth?

- Competition with cotton can cost yield<sup>1</sup>
- Widespread resistance to glyphosate<sup>2</sup>
- Speed of growth (up to 3" per day)<sup>3</sup>
- Produces up to ½ million seeds per plant<sup>3</sup>

## What Does This Mean For Your Farm?

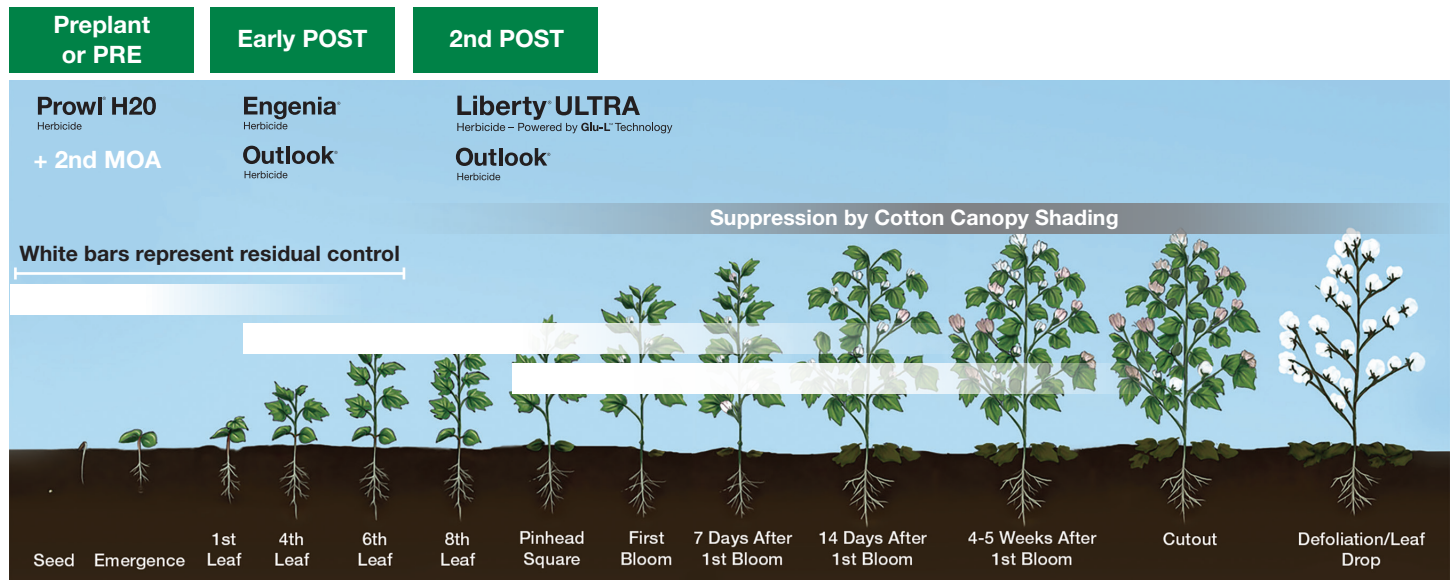
- Surviving weed seed increases weed pressure in future seasons
- Weeds can reduce land value due to loss of productivity
- Escapes may indicate the beginning of new herbicide resistance

## How to Maximize Weed Control and Minimize Development of Resistance?

- Using multiple effective SOA can reduce weed resistance development by as much as 83x<sup>1</sup>
- Target small emerged weeds 3 inches or less
- Incorporate a residual herbicide like Outlook® herbicide or Zidua® SC herbicide to minimize emergence of new weeds

## Recommended Cotton Programs

PRE	Prowl® H2O herbicide + another MOA herbicide
Early POST	Engenia® herbicide + Outlook herbicide
Late POST	Liberty ULTRA herbicide + Outlook herbicide



Engenia herbicide is an EPA restricted use pesticide.

# BASF

We create chemistry

## Technical Information Bulletin

# Unlock Your Cotton Crop's Full Potential with a Season Long Weed Management System from BASF

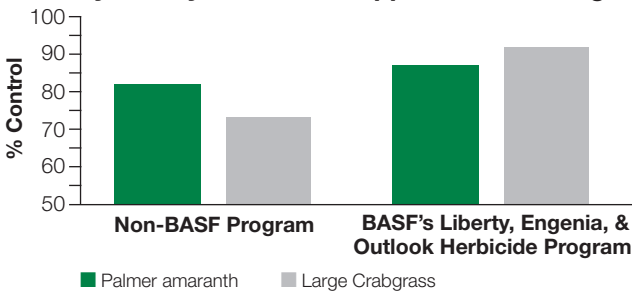
## Liberty® ULTRA, Engenia®, and Outlook® Herbicides

- Achieve outstanding weed control
- Multiple effective sites of action reduce risk of herbicide resistance
- Reduces emergence of new weeds throughout the season

## Liberty ULTRA Herbicide

- Better weed control from Liberty Lock formulation; delivers up to 20% better weed control vs generic glufosinate<sup>4</sup>
- Exclusively stronger with new max use rate, courtesy of Glu-L™ technology, allows 20% increase in maximum use rate
- Backed by BASF with an R&D investment of \$1B per year; manufacturing across 4 USA facilities; best-in-class local sales team

## Efficacy 39 Days After Last Application – Georgia



2020 BASF Sponsored trial; Macon County, GA. Dr. Stanley Culpepper

**Both treatments included the same PRE. Non-BASF Program:** PRE followed by dicamba + glyphosate followed by dicamba + glyphosate. **BASF Program:** PRE followed by Engenia herbicide + Outlook herbicide + glyphosate followed by Liberty herbicide + Outlook herbicide + glyphosate

**EVERY application of Engenia herbicide requires the use of an approved VRA and DRA solution at their approved rate. Always read and follow all label directions. Engenia Herbicide is a U.S. EPA Restricted Use Pesticide. Additional state restrictions may apply.**

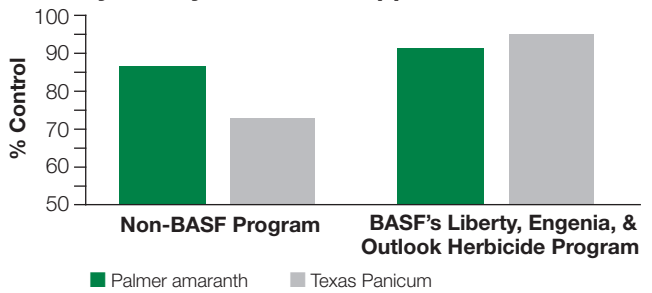
## Outlook Herbicide

- Most reliably activated Group 15 herbicide with just 1/4" of rain or irrigation
- Readily washes off crop foliage and soil residue to ensure adequate weed control
- Excellent residual control of both annual grasses and broadleaf weeds

## Engenia Herbicide

- Ounce-for-ounce most powerful broadleaf weed control in its class<sup>5</sup>
- Lowest and most simple use rate; engineered specifically for DT crops
- Provides control of over 200 broadleaf weeds
- Trusted by growers on over 100 million acres and counting backed by over 60 years of dicamba expertise

## Efficacy 28 Days After Last Application – Texas



2020 BASF Sponsored trial; Corpus Christi, TX. Dr. Joshua McGinty



To learn more, scan this QR code or visit [EngeniaHerbicide.com](https://www.EngeniaHerbicide.com)

**BASF**  
We create chemistry

**Liberty® ULTRA**  
Herbicide – Powered by **Glu-L™** Technology

**Engenia® Outlook®**  
Herbicide Herbicide

<sup>1</sup> One Palmer amaranth plant per square meter can reduce cotton lint yield by up to 59%. Morgan, G.D., P. A. Baumann, and J.M. Chandler. 2001. Competitive impact of Palmer amaranth (*Amaranthus palmeri*) on cotton (*Gossypium hirsutum*) development and yield. *Weed Technol.* 15: 408-412

<sup>2</sup> 77% of farmers across the US report glyphosate resistance on their farm. (Weed Resistance Tracking Survey - Stratus Ag Research, 2018)

<sup>3</sup> [https://www.nrcs.usda.gov/Internet/FSE\\_PLANTMATERIALS/publications/mtpmcf13130.pdf](https://www.nrcs.usda.gov/Internet/FSE_PLANTMATERIALS/publications/mtpmcf13130.pdf).

<sup>4</sup> BASF lab and growth chamber study to evaluate penetration and absorption of glufosinate formulations, 2025. Analysis of active ingredient within the leaves of pigweed 4 hours after glufosinate was applied. % Uptake = amount detected in leaf / (amount deposited on leaf + amount detected in leaf); measured in mg ai / kg leaf mass.

<sup>5</sup> Engenia herbicide offers the highest concentration of active ingredient compared to other dicamba-tolerant alternatives labeled for cotton and soybeans.

**Always read and follow label directions. Engenia herbicide is a U.S. EPA restricted use pesticide.** All Engenia herbicide applications must be made in accordance with all applicable Federal and state label requirements. In the event a state implements a more stringent Engenia herbicide application restriction, that state restriction will apply. Every application of Engenia herbicide requires the use of a Volatility Reduction Agent (VRA) (visit [www.EngeniaHerbicide.com/VRA](https://www.EngeniaHerbicide.com/VRA) for a list of approved VRAs and required rates) and the use of an oil emulsion Drift Reducing Agent (DRA) at a rate of 0.3% v/v. Glu-L is a trademark and Engenia, Liberty, Outlook, Prowl and Zidua are registered trademarks of BASF. Copyright ©2026 BASF Agricultural Solutions US LLC. All Rights Reserved. APN# 20210116LDG Liberty-Engenia-Outlook-Cotton-Mar2026