

Committed to cotton.  
**Committed to you.**



 **BASF**

We create chemistry



A photograph of a vast agricultural field filled with green, leafy crops, likely soybeans, under a dramatic sunset sky. The sun is a small, bright orange orb on the horizon, casting a warm, golden glow across the sky and the tops of the plants. The sky is filled with soft, wispy clouds in shades of orange, yellow, and light brown. In the distance, a dark line of trees and a few white structures, possibly farm buildings, are visible against the horizon. On the left side, two utility poles with wires are visible. The overall mood is peaceful yet powerful, emphasizing the importance of crop protection in agriculture.

# CROP PROTECTION



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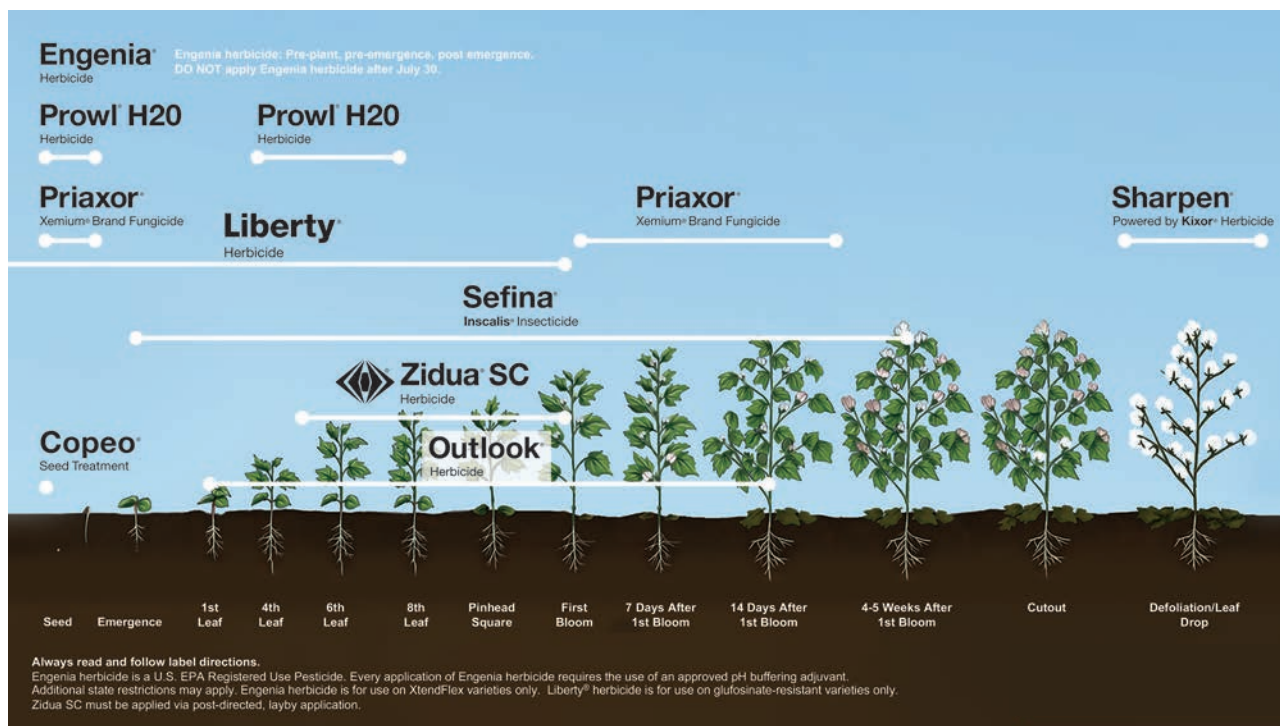
## Protect your crops. Enjoy your yields.

Your cottonseed is more than just the beginning of a season. It helps establish what's possible in your operation. It's the foundation for what you do. A lot goes into selecting your seed, and it needs to be protected to reach its full yield potential.

We provide a full portfolio of products to help your cotton out-compete any threat. BASF herbicides, fungicides, seed treatments, and insecticides are trusted solutions to help you face threats from weeds, diseases, and pests.

No matter what the season brings, you can tap into our field-tested solutions, agronomic insights and customized recommendations to help deal with your toughest challenges — so you can grow the cotton that makes you proud.

## Plan your cotton crop protection.









# SEED TREATMENT

Great seasons need a great start.

The BASF seed treatment packages for cotton ensure growers have a strong start and enjoy the best performance from FiberMax® and Stoneville® cotton seed.

- Early-season disease protection
- Early-season insect protection
- F500® vigor benefits for strong growth
- Nematicide protection on every bag with Copeo® Seed Treatment

## CORE SEED TREATMENT PACKAGE

- Protection against key early-season diseases
- Copeo Seed Treatment in every bag for protection against nematodes

Brand/Active Ingredient	Targets
<b>F500® Fungicide</b> <i>pyraclostrobin</i>	<i>Rhizoctonia solani</i> , <i>Fusarium</i>
<b>Xemium® Fungicide</b> <i>fluxapyroxad</i>	<i>Rhizoctonia solani</i> , <i>Fusarium</i>
<b>Copeo Seed Treatment</b> <i>fluopyram</i>	Nematodes
<i>myclobutanil</i>	<i>Thielaviopsis basicola</i> , <i>Rhizoctonia solani</i>
<i>metalaxyl</i>	Pythium
<i>imidacloprid</i> <b>4.7 oz/100 lbs seed</b>	Storage pests

## PRIME SEED TREATMENT PACKAGE

- Enhanced rate against key early-season diseases
- Improved vigor and healthier plants in tough planting situations
- Protection from early-season insects, including thrips and aphids
- Copeo Seed Treatment in every bag for protection against nematodes

Brand/Active Ingredient	Targets
<b>F500® Fungicide</b> <i>pyraclostrobin</i> - <b>enhanced rate</b>	<i>Rhizoctonia solani</i> , <i>Fusarium</i> <b>Early season vigor</b>
<b>Xemium® Fungicide</b> <i>fluxapyroxad</i>	<i>Rhizoctonia solani</i> , <i>Fusarium</i>
<b>Copeo Seed Treatment</b> <i>fluopyram</i>	Nematodes
<i>myclobutanil</i> - <b>enhanced rate</b>	<i>Thielaviopsis basicola</i> , <i>Rhizoctonia solani</i>
<i>metalaxyl</i>	Pythium <b>Enhanced protection</b>
<i>imidacloprid</i> <b>0.375 mg ai/seed</b> (12.8 oz/100 lbs seed, 0.5 lbs imidacloprid/100 lbs seed @ 6055 seeds/lb)	Storage pests, <b>Thrips, Aphids</b>

# Copeo®

## Seed Treatment

Copeo® Seed Treatment is a premier seed treatment for cotton that helps deliver higher yields under nematode pressure. It's exclusively available on FiberMax® and Stoneville® cotton seed.



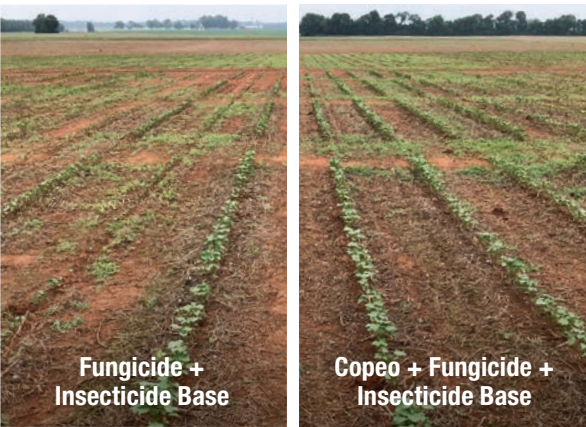
**PROTECTS COTTON ROOTS**  
from economically significant nematodes, including reniform and root-knot nematodes



**CONTRIBUTES TO INCREASED GROWTH**  
and vigor under nematode pressure



**SUPPORTS HEALTHIER PLANTS**  
and roots for higher yield potential

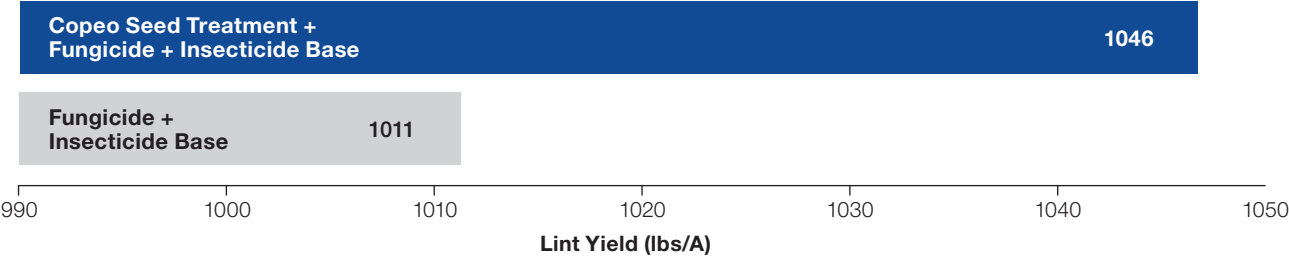


BASF Sponsored Trial, Belle Mina, AL, 2019.



BASF Sponsored Trial, Leachville, AR, 2017.

### ACHIEVES HIGHER YIELD BY PROTECTING AGAINST NEMATODES



116 Comparisons Across All Regions

# HERBICIDES

## Prowl® H2O

Herbicide

The starting point for weed control.



### RELIABLE PERFORMANCE AND SCHEDULE FLEXIBILITY

with sunlight-stable capsules that activate with as little as 1/4" of rain weeks after application



### CONTROLS MORE THAN 70 GRASS AND BROADLEAF WEEDS



### PROVIDES RESIDUAL CONTROL

of both glyphosate and ALS-resistant Palmer amaranth



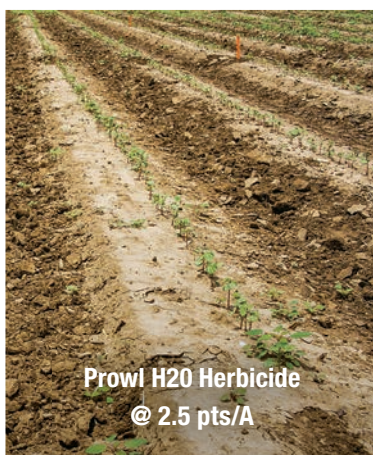
### WATER-BASED ENCAPSULATION

easily washes off residue to control germinating weeds



### IMPROVED SOIL-SURFACE STABILITY

leads to confidence in dry conditions and effective weed control in wet conditions



## Use Methods

- Preplant surface
- Preplant incorporated
- Preemergence
- Layby application (at last cultivation)
- Postemergence (4-8 leaf cotton)

BASF Sponsored Trial, applied 3 weeks prior to planting. Lubbock, TX, 2015.

# Engenia®

Herbicide

## Choose the most advanced dicamba for the worst weeds.

### **LOWER USE RATE FOR DICAMABA-TOLERANT (DT) COTTON**

It has a lower use rate compared with other dicamba post emerge options that allows it to cover more acres with less product.

### **RESIDUAL CONTROL**

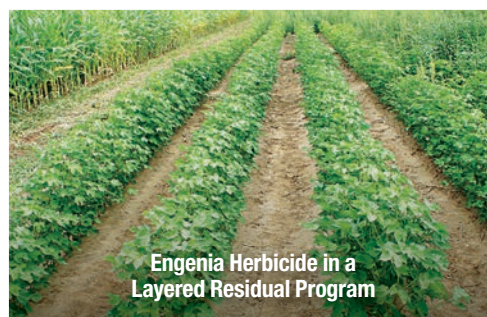
It offers two weeks of broadleaf residual control and provides control for PPO and glyphosate-resistant broadleaf weeds.

### **ADDITIONAL SITE OF ACTION**

Dicamba-tolerant cotton enables the use of an additional herbicide site of action. This helps control weeds that are resistant to glyphosate and PPOs.

### **UNIQUE SYSTEMIC ACTIVITY**

Unlike a contact herbicide, Engenia® herbicide moves from the point of application to other parts of the plant to provide more consistent performance.



BASF Sponsored Trial, Lubbock, TX. Photos taken 42 days after 5 leaf application (7/21/2015).

## Resistant weeds and residual herbicides.

- Include a residual herbicide in PRE applications to reduce early-season competition
- Use of residuals is particularly important for combating weeds with a long emergence period, such as Palmer amaranth
- Engenia herbicide followed by Liberty® herbicide provides a tool for resistance management by incorporating an additional site of action while still providing excellent weed control in post applications
- Use of a residual in both an early post (21 to 28 days after planting) and mid-late post application helps ensure that emerging weeds are controlled during the critical management window

## Application stewardship is vital.

Reducing risk of off-target movement and sensitive plant injury is a result of effective application stewardship. The advanced dicamba formulation of Engenia herbicide, along with proper application, can provide maximum broadleaf weed control and effectively minimize off-target potential.

Engenia® herbicide is a U.S. EPA Restricted Use Pesticide.  
Additional state restrictions may apply. Always read and follow label directions.



# HERBICIDES

## Liberty®

Herbicide

Flexible, reliable weed control with Liberty® herbicide.



### TRAIT FLEXIBILITY

Flexibility to use on your trait system — including LibertyLink®, Enlist™ and XtendFlex® cotton traits



### EFFECTIVE WEED CONTROL

Excellent control of tough weeds, like Palmer amaranth and kochia, with broad spectrum performance on both broadleaves and grasses



### PEACE OF MIND

Ease of application through traditional label requirements; proven formulation provides reliable, consistent performance — backed by the Liberty Weed Control Guarantee

\*Based on company field trials. 2014-2018. Protocol included a pre-emergence herbicide followed by Liberty 280 at 32 oz/A.

Weeds included: velvetleaf, Palmer amaranth, redroot pigweed, common waterhemp, common ragweed, lambsquarters, large crabgrass, barnyard grass, annual grass, morning glory, fall panicum and giant foxtail.



BASF Sponsored Trial, Lubbock, TX, July 22, 2018.

Program	Preemergence Residual	First Post Application	Second Post Application (as needed)	Third Post Application (as needed)	Seasonal Maximum Rate
<b>Guidelines</b>	Preplant incorporated at planting	Weeds < 3" Use a residual tank-mix	Min 10 days after first application Use a residual tank-mix	—	—
<b>Recommended</b>	Prowl® H2O herbicide	Liberty herbicide @ 32-43 fl oz/A + Outlook® herbicide	Liberty herbicide @ 29 fl oz/A + residual	—	72 fl oz/A**
<b>Alternative</b>	Use preemergence residuals	Liberty herbicide @ 29 fl oz/A + Outlook® herbicide	Liberty herbicide @ 29 fl oz/A + residual	Liberty herbicide @ 29 fl oz/A + residual	87 fl oz/A

# Outlook®

Herbicide

The broad-spectrum postemergence residual herbicide.



## CONSISTENT PERFORMANCE

- Most reliable activation with just 1/4" of rain or irrigation
- Readily washes off crop foliage and soil residue to where weeds germinate



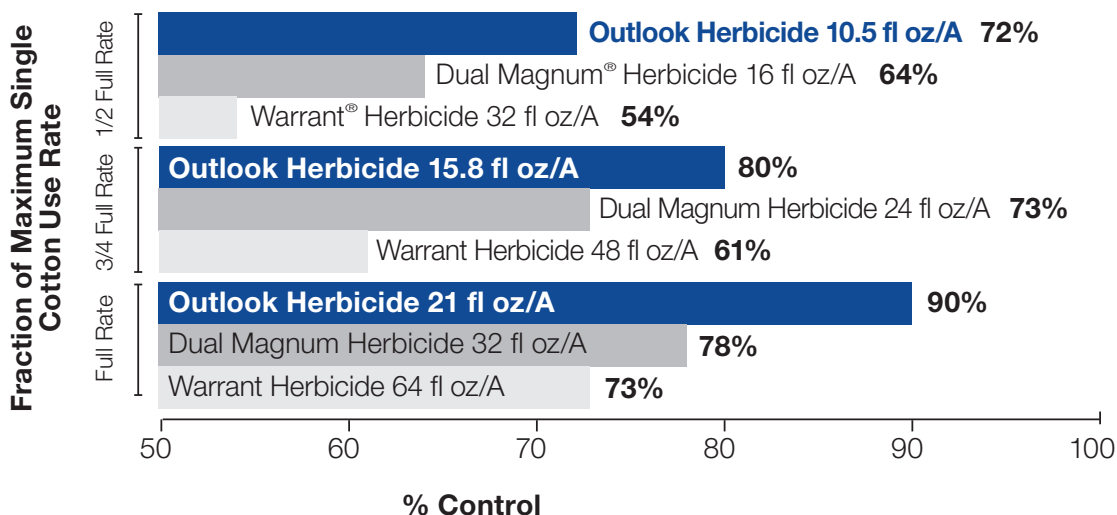
## FLEXIBLE USE FOR OPERATIONAL EFFICIENCY

- Postemergence: First true leaf to mid-bloom stage
- Low use rate for easy handling
- Compatible with post tank-mix partners to meet field-specific weed control needs



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BASF Sponsored Trial, Halfway, TX, 2014.



*Amaranthus* spp. control – 4 to 6 weeks after treatment on bare ground.  
Average of internal and BASF sponsored research trials (2017). N=5.



# HERBICIDES



Setting the standard for residual control.



## LONGER LASTING

Zidua® SC herbicide residual control lasts up to two weeks longer than many competitive products



## FLEXIBILITY

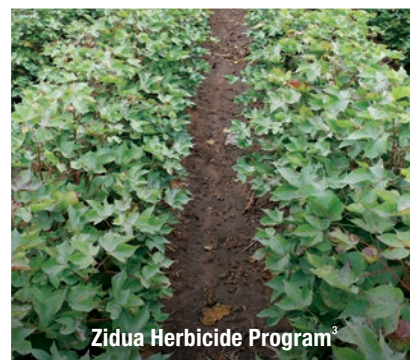
Low use rate with as little as 1/20 the use rate of other residual herbicides  
Can be applied postemergence-directed (layby)



## BROAD-SPECTRUM GRASS AND BROADLEAF WEED CONTROL

Superior Palmer amaranth control

Control weed control — Palmer amaranth



BASF Sponsored Trial, 2016. Texas A&M University, Lubbock, TX. Planting date: 5/24. Early POST: 6/13. Mid-POST: 7/15. Layby: 8/5. Photos taken: 9/16.

<sup>1</sup>Roundup PowerMAX 32 fl oz/A applied 6/13 and 7/15.

<sup>2</sup>A layered residual program with Dual Magnum 21 fl oz/A, Liberty® 32 fl oz/A, COC 1% applied 6/13. Liberty 32 fl oz/A, COC 1% applied 7/15.

<sup>3</sup>A layered residual program with Zidua WG herbicide 2.5 oz/A (Zidua SC herbicide equivalent = 4 fl oz/A), Liberty 32 fl oz/A, 1% COC applied layby, 8/5.

## Best Use Recommendations

**Cotton Use Rate:** 1.25-3.5 fl oz/A

**Application Timing for Cotton:** Postemergence-directed (layby) spray; at 5-leaf to beginning bloom stage

**PHI:** There is no required pre-harvest interval between a Zidua herbicide post application and cotton harvest.

## General Information:

Tank-mix order: Always follow mixing instructions on the product label. Include Zidua SC herbicide before adding soluble liquids like glyphosate and Engenia® herbicide.\*

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Additional state restrictions may apply. Always read and follow label directions.

# INSECTICIDE

## Sefina®

Inscalix® Insecticide

Strong on target pests.  
Gentle on beneficial insects.

### RAPID ONSET OF ACTION

to stop feeding and protect yield potential

### UNIQUE MODE OF ACTION

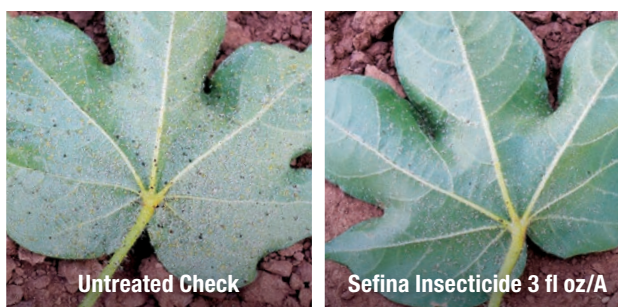
classification (IRAC 9D) in cotton for  
resistance management

### GENTLE ON BENEFICIALS

for complete Integrated Pest Management

Sefina® insecticide controls key piercing/sucking insects like aphids and whiteflies. Section 2(ee) recommendations are also available for cotton fleahopper control in Alabama, Arizona, Kansas, New Mexico, Oklahoma, Tennessee and Texas.

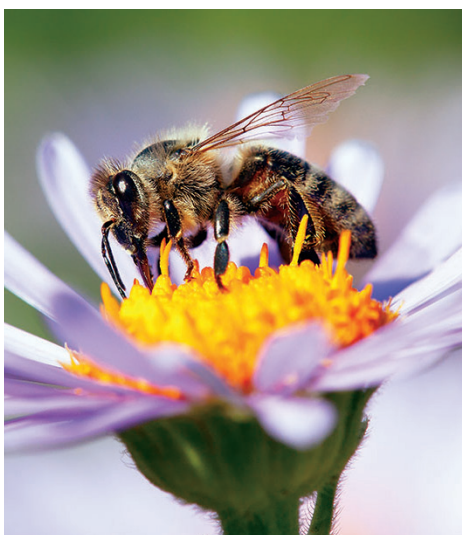
### COMMERCIAL COTTON APHID CONTROL



BASF Sponsored Trial, Lubbock, TX. White flecks on the treated leaf are cast skins the aphid population left behind after being treated with Sefina insecticide. The untreated leaf has a very high aphid infestation that includes both winged and wingless adults.



Sefina insecticide controls aphids and whiteflies and keeps the beneficial insects working for you.





# FUNGICIDE

## Priaxor®

Xemium® Brand Fungicide

Decrease stress. Increase yield.

### BEST-IN-CLASS DISEASE CONTROL

on devastating diseases like target spot



### REDUCED PLANT STRESS

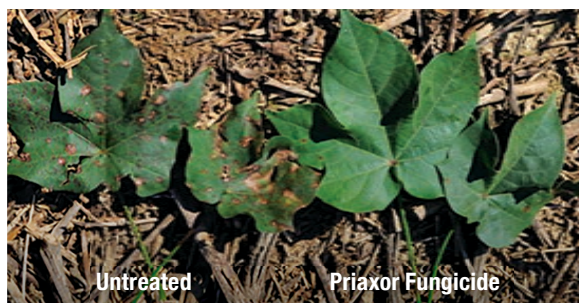
improves Plant Health from environmental stress conditions typical in cotton-growing regions



### INCREASED GROWTH EFFICIENCY

Priaxor® fungicide aids growth by maximizing photosynthesis

### TARGET SPOT CONTROL FROM PRIAXOR FUNGICIDE IN COTTON

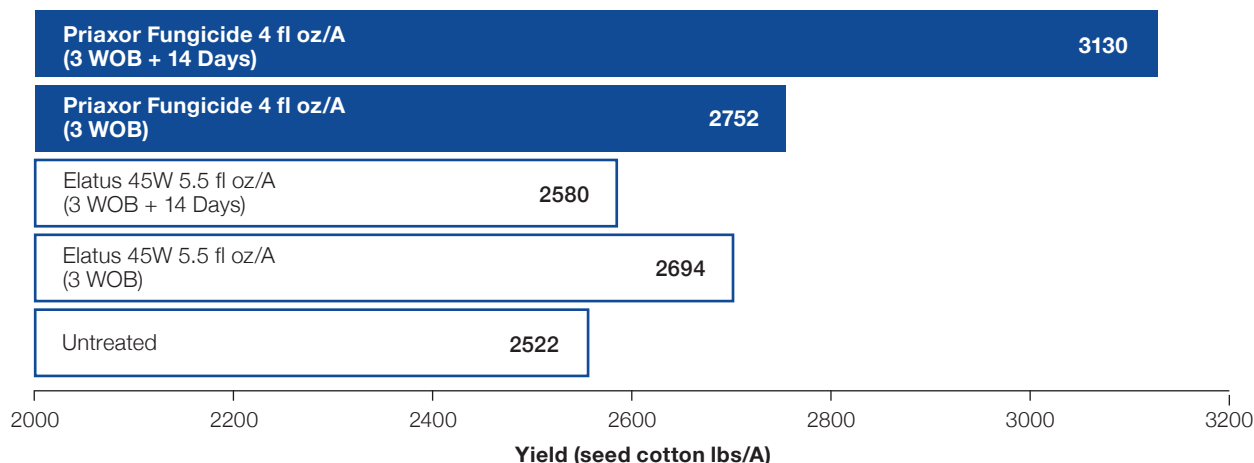


Priaxor fungicide 4 fl oz/A at 2nd week of bloom fb Priaxor fungicide 4 oz/A 4th week of bloom. BASF Sponsored Trial, 2016. Picture 10 weeks after 1st bloom.

## Target diseases:

- Target spot
- *Diplodia* boll rot
- *Fusarium* hard lock
- *Phoma* blight
- Rust
- *Stemphylium* leaf spot
- Anthracnose boll rot
- *Alternaria* leaf spot and boll rot
- *Ascochyta* blight and boll rot
- *Cercospora* blight and leaf spot

### PRIAXOR FUNGICIDE IS THE INDUSTRY LEADER FOR MAXIMIZING COTTON YIELDS



2016. Auburn University – Fairhope, AL. Planted: 5/9/16. WOB=Week of Bloom.

# HARVEST AID

## Sharpen®

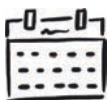
Powered by **Kixor®** Herbicide

Powerful tool for defoliation and preventing regrowth.



### FAST AND COMPLETE HARVEST AID

- Rapid drydown and defoliation
- Reduced incidence of regrowth
- Controls the toughest broadleaf weeds
- Prepares the cotton for a cleaner harvest



### FLEXIBILITY FOR YOUR OPERATION

- Use in first or second harvest aid application
- Mixes well with defoliants and boll openers
- Not a restricted use pesticide



BASF Sponsored Trial, Seminole, TX.

### Flexible Use Pattern — Tank Mixes With Defoliants or Boll Openers

	Remove Mature Foliage	Desiccates Immature Foliage	Regrowth Suppression	Desiccates Regrowth	Open Bolls	Desiccates Weeds
<b>Sharpen® Herbicide</b>	G	E	E	E	F	E
<b>Sharpen Herbicide + thidiazuron</b>	E	E	E	E	G	E
<b>Sharpen Herbicide + ethephon</b>	VG	E	VG	E	E	E
<b>Sharpen Herbicide + tribufos</b>	E	E	E	E	G	E
<b>Sharpen Herbicide + paraquat*</b>	F	E	VG	VG	G	E

2006 BASF Internal Study  
E=Excellent VG=Very Good G=Good F=Fair

\*Not recommended for 1st application





We create chemistry

BASF is a member of Excellence Through Stewardship® (ETS).

Liberty® herbicide is not registered for use in all states.

Engenia® herbicide is a U.S. EPA Restricted Use Pesticide.

ALWAYS READ AND FOLLOW LABEL DIRECTIONS.

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