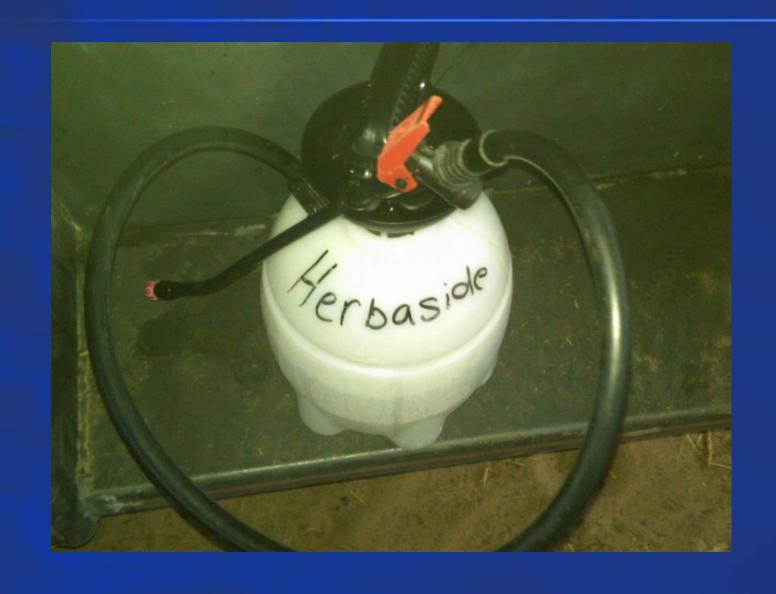
Weed Control in Field Corn 2025

Eric P. Prostko
Extension Weed Specialist
Dept. Crop & Soil Sciences





Problems



Herbicide Injury or ?????



Before



After 30 lbs S



Glyphosate at Tassel

Honcho K6 5.5SL @ 40 oz/A + Atrazine 4L @ 16 oz/A; P-1847, DKC-7045



Postemergence (In-crop)

USE INSTRUCTIONS: This product may be applied alone or in a tank-mix over the top of field corn hybrids with Roundup Ready 2 Technology from emergence through the V8 stage (8 leaves with collars), or until corn plant height reaches 30 inches (freestanding), whichever comes first, unless otherwise directed. Use drop nozzles for optimum spray coverage and weed control when corn plant height is 24 to 30 inches. When corn plants are 30 to 48 inches tall (freestanding), apply this product using **only** ground application equipment fitted with drop nozzles aligned to avoid spraying into the whorls of the corn plants. Maximum single in-crop application rate of this product up to 48-inch field corn is 32 fluid ounces per acre. Total in-crop application of this product from corn plant emergence through 48 inches in height must not exceed 64 fluid ounces per acre.

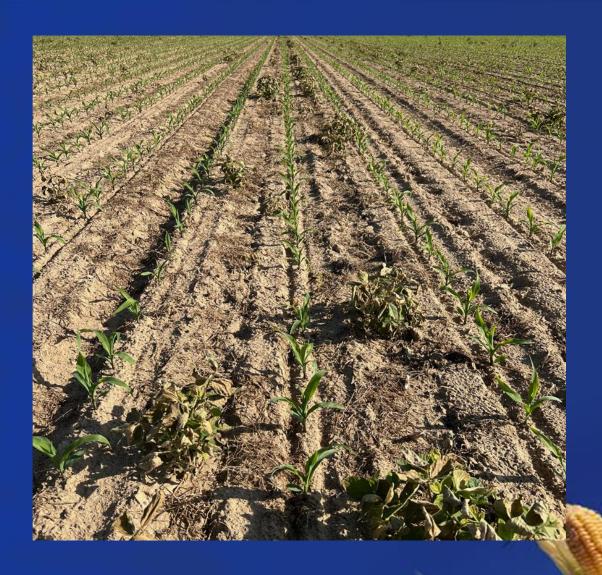
	Pare			
	R	r	F2	
Parent 2	RR	Rr	RR Rr rr	25% 50% 25%
Pare	Rr	rr		

C. Cloud 06/14/24

https://www.pioneer.com/CMRoot/Pioneer/US/Non_Searchable/agronomy/cropfocus_pdf/off_label_glyphosate_app_corn.pdf

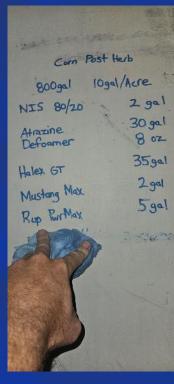
Volunteer Soybean (RR/Enlist) Control in Field Corn Roundup + Atrazine + Sandea

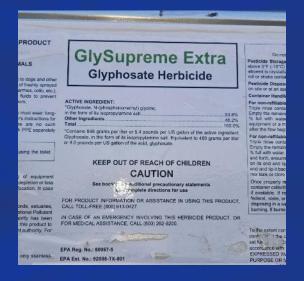




Halex GT + Atrazine with Glyphosate-IPA



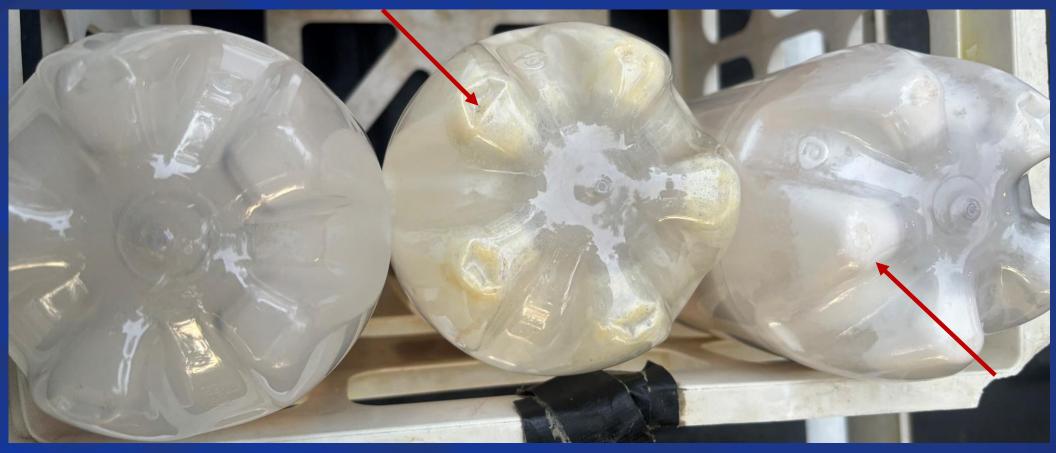








Halex GT + Atrazine with Different Glyphosate Formulations



Roundup PowerMax3 (K-salt)

Credit Extreme (IPA + K-salt)

GlySupreme Extra (IPA)

Tank-Mixing Order (for most but not all)

צפאלות אותצל זכל זפטים פתואלוו - בב.ב.ב.ואו.גא.עע

Wettable powders, flowable (DC, DF, DG, DS, F, DF, Gr, SG, SP)

Agitate, Anti-flowing compounds, buffers

Microcapsule suspension (ME)

Liquid and soluble (SN, SC, Li, Su)

Emulsifiable concentrates (EC)

G High load Glyphosates

S Surfactants

When in doubt, consult the label



Gramoxone Tank-Mixing

RESTRICTED USE PESTICIDE

TO BE USED BY CERTIFIED APPLICATORS ONLY - NOT TO BE USED BY UNCERTIFIED PERSONS WORKING UNDER THE SUPERVISION OF A CERTIFIED APPLICATOR, EXCEPT THAT UNCERTIFIED PERSONS MAY TRANSPORT CONTAINERS AS PROVIDED UNDER DIRECTIONS FOR USE

PULL HERE TO OPEN -

Gramoxone SL 3.0

syngenta.

Herbicide

Desiccant/Defoliant Herbicide

Paraquat dichloride 56.1% *CAS No. 4685-14-

Gramoxone SL 3.0 is formulated as a liquid containing 3.0 pounds paraquat cation per gallon as 4.134 pounds paraquat dichloride per gallon.

Gramoxone St. 3.0 contains alerting agent (odor), emetic,

EPA Reg. No. 100-1652 EPA Est. 100-LA-001 SCP 1652A-L1E 0822 4167554 KEEP OUT OF REACH OF CHILDREN / MANTENER FUERA DEL ALCANCE DE LOS NIÑOS.



Si usted no entiende la etiqueta, busque a alguien para que se la xolique a usted en detalle. Ilf you do not understand the label. find someone to explain it to you in detail See additional precautionary statements and directions for us

a Bipyridylium Herbicide If inhaled: More person to fresh air. If person is not breathing, call 911 or an ambulance. Call a poison control center or doctor for further treatment advice. The odor of this product is from the stanching agent which has been added, not from the paraquat dichloride. If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remov contact lenses. If present, after the first 5 minutes, then continue rinsing ew Call a poison control center or doctor for treatment advice. If swallowed SPEED IS ESSENTIAL. Immediate medical attention is required. If available nive an ademinent such as articular channel, hontonite or Fuller's Forth, Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. The person may be vomiting as a consequence of the included emetic but Do Not induce vomiting unles told to do so by a poison control center or doctor. Do not give anythin by mouth to an unconscious person. If on skin or clothing: Take of contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. NOTE TO PHYSICIAN: Refer to the booklet "Paraquat Poisoning. A Practical Guide to Diagnosis, First Aid and Hospital Treatment'. (http://www4.svngenta.com/what-we-do/crops-and-products/paragus safety) Administer either activated charcoal (100g for actuts or 2g/kg body weight in children or Fuller's Earth (15% solution; 1 liter for adults

or 15million body weight in children). MOTE: The use of gestric lawage thout administration of an adsorbent has not shown any clinical benefit Do not use supplemental oxygen. Eye splashes from concentrated materia should be treated by an eye specialist after initial treatment. With the possibility of late onset comeal ulceration, it is advised that patients with araquat eve injuries are reviewed by an eve specialist the day after first presentation. Use treatment that is appropriate for chemical burns, intact kin is an effective barrier to personal, however contact with imitated or ou skin or repeated contact with intact skin may result in polsoning. Have the product container or label with you when calling a poison control center or doctor, or going for treatment. HOTLINE NUMBER: For 24-Hour Medical Emergency Assistance (Human or Animal) Or Chemical Emergency Assistance (Split, Leak, Fire or Accident) Call 1-800-888-8372.

CORROSIVE TO SKIN AND EYES.

NEVER TRANSFER THIS PRODUCT INTO FOOD OR REVERAGE CONTAINERS OR CONTAINERS NOT EXPLICITLY INTENDED FOR PESTICIDES.

IN THE CASE OF AN ACCIDENT, SEEK IMMEDIATE MEDICAL

ATTENTION, SYMPTOMS ARE PROLONGED, PAINFUL, AND

CORROSIVO PARA LA PIEL Y LOS OJOS.

NUNCA TRANSFIERA ESTE PRODUCTO A RECIPIENTES PARA COMIDA O DE BEBIDAS O RECIPIENTES NO EXPLICITAMENTE PREVISTOS PARA

LEA LA ETIQUETA COMPLETA ANTES DE USAR ESTE PRODUCTO.

SINTOMAS SON PROLONGADOS, DOLOROSOS Y PLIEDEN SER MORTALES

ATTENTION

DANGER - FATAL IF SWALLOWED OR INHALED.

CAUSES SEVERE EYE INJURY. CORROSIVE TO SKIN.

CONTAINERS OR CONTAINERS NOT EXPLICITLY INTENDED FOR

STORE TIGHTLY CLOSED IN ORIGINAL CONTAINER, AND IN

A LOCKED PLACE AWAY FROM CHILDREN AND ANIMALS. NEVER USE THIS PRODUCT IN RESIDENTIAL OR PUBLIC RECREATIONAL SETTINGS (E.G., HOMES, HOME GARDENS, SCHOOLS, RECREATIONAL

PARKS, GOLF COURSES, AND/OR PLAYGROUNDS THIS PRODUCT IS TOXIC! AN ALERTING AGENT (ODOR) HAS REEN

ADDED TO HELP PREVENT ACCIDENTAL INGESTION. SEE BACK OF PRODUCT CONTAINER FOR IMPORTANT SAFETY INFORMATION.

PELIGRO: MORTAL SI SE INGIERE O INHALA.

CAUSA LESIONES GRAVES EN LOS OJOS.

CORROSIVO PARA LA PIEL.
 NUNCA TRANSFIERA ESTE PRODUCTO A RECIPIENTES PARA COMIDA I

DE BEBIDAS O RECIPIENTES NO EXPLÍCITAMENTE PREVISTOS PARA PLAGUICIDAS.

CERRADO LEJOS DE NIÑOS Y ANIMALES. NUNCA USE ESTE PRODUCTO EN ÁREAS RESIDENCIALES O PÚBLICAS

(COMO HOGARES, JARDINES, ESCUELAS, PARQUES RECREATIVOS CAMPOS DE GOLF O SALONES DE JUEGOS).

¡ESTE PRODUCTO ES TÓXICO! SE HA AGREGADO UN AGENTE DE ALERTA (OLOR) PARA AYUDAR A PREVENIR SU INGESTIÓN

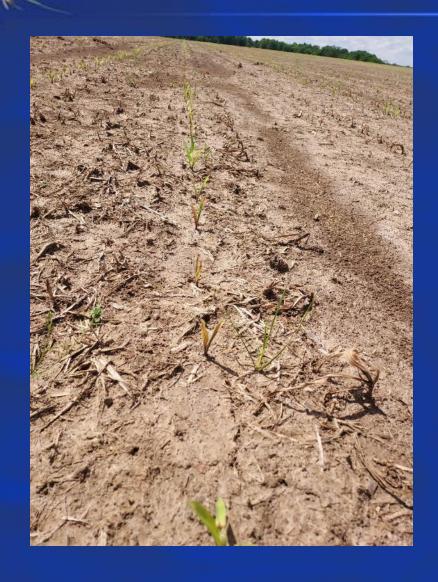
LA PARTE POSTERIOR DEL ENVASE DEL PRODUCTO TIENE

2.5 gallons Net Contents

4.4.3 GRAMOXONE SL 3.0 IN TANK MIXTURES

- Fill spray tank ¹/₂ full with clean water or other approved carriers such as clear liquid fertilizer.
- Add nonionic surfactant to tank
- Begin tank agitation and continue throughout mixing and spraying.
- Add dry formulations (WP, DF, etc.) to tank.
- Add liquid formulations (SC, EC, L, etc.) to tank.
- Add Gramoxone SL 3.0 to tank.
- Add crop oil concentrate or methylated seed oil to tank where needed.
- Fill remainder of spray tank.

Clethodim 2EC @ 3 oz/A Applied the Day of Planting (oops!)





Volunteer/Replant Situations



- most hybrids are RR or RR + LL
- Options
 - □ Gramoxone (paraquat)
 - + PSII Inhibitor (Atrazine or Metribuzin)????
 - ☐ Liberty (glufosinate)
 - ☐ Select (clethodim)
 - 6 day plant-back
- corn growing point below ground until ~V5 stage

RR Corn Control (Pioneer 33M57) 40 DAT*



NTC (123 Bu/A)



SelectMax 0.97EC @ 6 oz/A Induce @ 0.25% v/v AMS X-TRA @ 2.5% v/v (0 Bu/A)



Gramoxone Inteon 2SL @ 40 oz/A
Atrazine 4L @ 32 oz/A
Agridex @ 1% v/v
(27 Bu/A)

What happens when you spray Liberty on a non-LL corn hybrid?



CN-01B-16 DKC 66-59 Liberty @ 29 oz/A + Atrazine @ 48 oz/A Applied V4-V5 (6")

*Only made 28 Bu/A!!!!!

*Other treatments made ~231 Bu/A

*88% yield loss



15 DAT

RR Field Corn (DKC-6835) Control for Replant – 2024

Applied 20 DAP (V5, 11" tall)





Select Max 0.97EC @ 6 oz/A Induce @ 0.25% v/v



Gramoxone 3SL @ 32 oz/A Induce @ 0.25% v/v

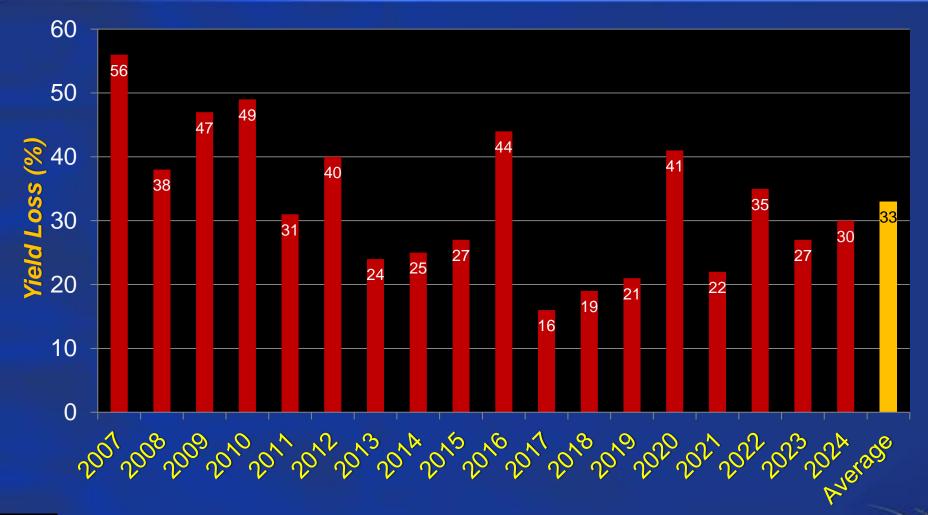


Liberty 2.34SL @ 32 oz/A AMSOL @ 2% v/v



Field Corn Yield Loss (%) Caused by Uncontrolled Weeds in UGA Weed Science Research Trials (2007-2024)

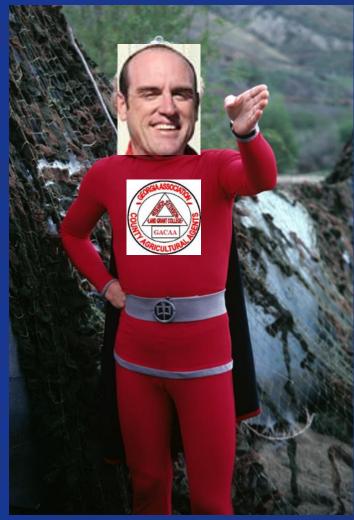
Treated vs. Non-treated



200 Bu/A X 0.33 X \$4.10 = \$271/A 250 Bu/A X 0.33 X \$4.10 = \$338/A What about harvest? What about next year? Year

As always.....

- start clean
 - Cover crops, tillage, herbicides
- multiple residuals
- Timely POST's
- Post-Harvest



"The Greatest American County Agent"

Field Corn Weed Control Programs

Table 2. Herbicide Programs for Field Corn.

Corn Hybrid/System	Preemergence (All Systems)	Early-Postemergence¹ (~17-30 DAP, V3-V5, ~279-411 GDD's²)	Layby/ Directed/Hooded
Conventional	Atrazine ³ or Dual II Magnum or Warrant	1) Prowl + Atrazine + Crop Oil or	Evik or Paraquat
	or Outlook	2) Prowl + Atrazine + <u>one</u> of the following: Accent Q; Callisto; Capreno; Armezon/Impact/Impact Z; Laudis; Revulin Q; Shieldex; Steadfast Q	
Liberty Link®		 Liberty + Atrazine + <u>one</u> of the following: Acuron (48 oz/A); Anthem Maxx; Dual Magnum; Outlook; Prowl; Warrant; Zidua or Sinate + Atrazine 	
Roundup Ready®		1) Glyphosate + Atrazine + one of the following: Anthem Maxx; Dual Magnum; Outlook; Prowl; Zidua or	1
		2) Glyphosate + Atrazine + one of the following: Callisto; Capreno; Armezon/Impact/Impact Z; Laudis; Revulin Q; Shieldex; Steadfast Q	
		or	
		3) Glyphosate + Status or	
		4) Acuron GT or Halex GT + Atrazine or	
1		5) Glyphosate + Acuron (48 oz/A)	

¹When using Counter (INFR) for soil insect and nematode control, the following herbicides should <u>NOT</u> be applied POST: Accent Q, Acuron GT, Acuron, Callisto, Capreno, Halex GT, Revulin Q, and Steadfast Q. ²GDD's = growing degree-days from planting (50°/86° F). ³A maximum of 2.0 to 2.5 lb ai/A of atrazine can be applied in a single year depending upon application methods.

EPA Updates Atrazine CE-LOC to 9.7 μg/L (*up from* 3.4 μg/L) - July 8, 2024

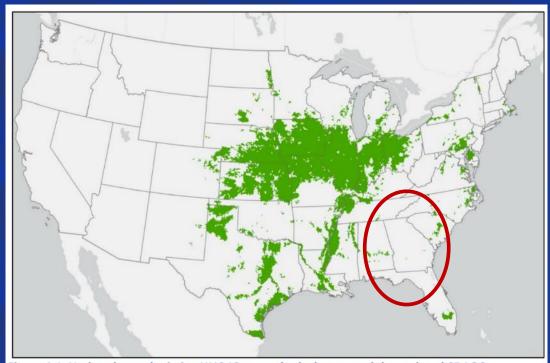


Figure 4-1. Updated map depicting HUC 12 watersheds that exceed the updated CE-LOC.

Watersheds with higher predicted atrazine concentration are expected to have waterbodies with greater vulnerability to atrazine runoff due to landscape features (e.g., soil restrictive layers), precipitation, and atrazine usage.



Worth/Turner Tattnall/Evans

2026?

New(er) Products Being Tested - I Not in UGA Pest Control Handbook (yet?)

AMVAC

- ☐ Sinate (glufosinate + topramezone)
- □ Impact Core (topramezone + acetochlor)
- BASF
 - □ Surtain (pyroxasulfone + saflufenacil)
- Bayer
 - □ *TriVolt* (isoxaflutole + thiencarbazone + flufenacet)
- □ Corteva
 - □ Kyro (encapsulated acetochlor + topramezone + clopyralid)
 - □ Resicore (mesotrione + acetochlor + clopyralid)
 - □ Resicore XL (mesotrione + encapsulated acetochlor + clopyralid)
- Syngenta
 - □ Acuron GT (bicyclopyrone + s-metolachlor + mesotrione + glyphosate)
 - □ Acuron XR (bicyclopyrone + s-metolachlor + mesotrione + atrazine)
 - □ Storen (s-metolachlor + mesotrione + bicyclopyrone + pyroxasulfone)

New(er) Products Being Tested - II Not in UGA Pest Control Handbook (yet?)

□ Helm

- Katagon (tolpyralate + nicosulfuron)
- ☐ Helmet Maxx (metolachlor + atrazine + mesotrione)

Helena

- Empyros (tolpyralate + s-metolachlor)
- ☐ Empyros Triad (tolpyralate + s-metolachlor + atrazine)
- □ Empyros Triad Flex (tolpyralate + s-metolachlor + atrazine)

Valent

- ☐ *Maverick* (mesotrione + pyroxasulfone + clopyralid)
- Summit Agro
 - □ Restraint (tolpyralate + acetochlor + dichlormid)

Roundup + Liberty Rates?





Specially formulated for Roundup Ready crops

Complete Directions for Use

Selective broad-spectrum weed control in Roundup Ready® and other listed glyphosate tolerant crops Non-selective, broad-spectrum weed control for many agricultural systems and farmsteads

ACTIVE INGREDIENT

*Glyphosate, N-(phosphonomethyl) glycine, in the form of its potassium salt	. 51.2%
OTHER INGREDIENTS:	48.8%
	100.0%

*Contains 705 grams of the active ingredient glyphosate, in the form of its potassium salt, per liter or 5.88 pounds per U.S. gallon, which is equivalent to 575 grams of the acid, glyphosate, per liter or 4.8 pounds per U.S. gallon (41.8% by weight).

Keep out of reach of children CAUTION

See inside for additional precautions

Not all products listed on this label are registered for use in California. Check the registration status of

AVOID CONTACT OF THIS HERBICIDE WITH FOLIAGE, GREEN STEMS, EXPOSED NON-WOODY ROOTS OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES, EXCEPT AS DIRECTED FOR USE ON ROUNDUP READY® AND OTHER LISTED GLYPHOSATE TOLERANT CROPS, AS SEVERE PLANT INJURY OR DESTRUCTION COULD RESULT.

> FOR PRODUCT INFORMATION OR ASSISTANCE USING THIS PRODUCT, CALL TOLL-FREE, 1-866-99BAYER (1-866-992-2937). IN CASE OF AN EMERGENCY INVOLVING THIS HERBICIDE PRODUCT, OR FOR MEDICAL ASSISTANCE, CALL COLLECT, DAY OR NIGHT, 1-800-334-7577

EPA Est. 524-IA-1 EPA Reg. No. 524-659

Packed For-BAYER CROPSCIENCE LP 800 N LINDBERGH BLVD ST. LOUIS, MISSOURI, 63167 USA ©2020 Bayer Group. All rights reserved.

US30053528C 200317Cv3 11/20



Glufosinate-ammonium Group 10 Herbicide

We create chemistry



Liberty 280 SL

Herbicide

Liberty® 280 SL herbicide is a nonselective herbicide that provides control of a broad spectrum of broadleaf and grassy weeds.

Liberty 280 SL is registered for use as a:

- . burndown treatment prior to planting or prior to emergence of canola, corn, sweet corn, cotton, sovbean, and sugar beet
- postemergence weed control herbicide to be applied on LibertyLink® or glufosinate-resistant crops including LibertyLink canola, LibertyLink corn, LibertyLink sweet corn, LibertyLink cotton, and LibertyLink soybeans
- postemergence weed control herbicide to be applied in cotton with a hooded sprayer only

Active Ingredient:

glufosinate-ammonium*: 2-amino-4-(hydroxymethylphosphinyl) butanoic *CAS Number 77182-82-2 "Fquivalent to 2.34 pounds of active ingredient per U.S. gallon.

EPA Reg. No. 7969-448

EPA Est. No.

KEEP OUT OF REACH OF CHILDREN WARNING/AVISO

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

See full label for complete First Aid. Precautionary Statements. Directions For Use. Conditions of Sale and Warranty, and state-specific crop and/or use site restrictions. In case of an emergency endangering life or property involving this product, call day or night 1-800-832-HELP (4357).

Net Contents:

[Recirculation is advised] [for bulk tanks] [for totes]

BASF Corporation

26 Davis Drive, Research Triangle Park, NC 27709

LIBERTY LINK' W

Weed Control In Field Corn with Roundup + Liberty - 2024



NTC



Roundup P-Max3 5.88SL @ 22 oz/A Liberty 2.34SL @ 22 oz/A Aatrex 4L @ 64 oz/A Prowl H₂O 3.8SC @ 32 oz/A Applied POST (24 DAP)



Roundup P-Max3 5.88SL @ 27 oz/A Liberty 2.34SL @ 27 oz/A Aatrex 4L @ 64 oz/A Prowl H₂O 3.8SC @ 32 oz/A Applied POST (24 DAP)



Roundup P-Max3 5.88SL @ 32 oz/A Liberty 2.34SL @ 32 oz/A Aatrex 4L @ 64 oz/A Prowl H₂O 3.8SC @ 32 oz/A Applied POST (24 DA)

Liberty® ULTRA 1.76SL

- BASF
- glufosinate-P-ammonium
 - More active isomer
 - Dual vs. Dual Magnum
 - Metolachlor vs. S-metolachlor
- lower use rate (19-29 oz/A)
- Mandatory downwind spray buffer
 - ground = 10'/aerial = 50'
- 3 points for ESA runoff/erosion
 - \square Tift Co. = 2 points
 - □ sandy soils = 2 points

Liberty ULTRA

Herbicide - Powered by Glu-L™ Technology

Liberty® ULTRA herbicide — Powered by Glu-L™ Technology is a nonselective herbicide that provides control of a broad spectrum of broadleaf and grassy weeds in LibertyLink or glufosinate-resistant crops.

Active Ingredient:

Glufosinate-P-Ammonium*	18.7%*
Other Ingredients:	81.3%
Total:	100.0%

^{*}CAS Number 73777-50-1

^{**} Equivalent to 1.76 pounds of active ingredient per U.S. gallon; equivalent to 1.61 pounds per U.S. gallon acid equivalent, as glufosinate-P.

Conventional Field Corn

Dual, Warrant, Outlook (PRE)

- Callisto, Laudis, Shieldex, Revulin Q, Steadfast Q (POST)
 - □ + Atrazine (64 oz/A) + Prowl (32 oz/A)
 - Anthem Maxx, Dual, Warrant, Outlook, Zidua if you don't like/want/Prowl but.....
 - adjuvant as needed/required

Weed Control in Field Corn with No Roundup, Liberty, or Atrazine - 2024



Dual II Magnum 7.62EC @ 16 oz/A PRE

Callisto 4SC @ 3 oz/A Prowl H₂0 3.8SC @ 32 oz/A Induce @ 0.25% v/v POST (28 DAP)

Impact 2.8SC @ 1.25 oz/A

Prowl H₂0 3.8SC @ 32 oz/A

Induce @ 0.25% v/v

POST (28 DAP)











Dual II Magnum 7.62EC @ 16 oz/A PRE

Laudis 3.5SC @ 3 oz/A Prowl H₂0 3.8SC @ 32 oz/A Induce @ 0.25% v/v POST (28 DAP)



Dual II Magnum 7.62EC @ 16 oz/A

Shieldex 3.33SC @ 1.35 oz/A Prowl H₂0 3.8SC @ 32 oz/A Induce @ 0.25% v/v POST (28 DAP)



GR-Resistant Ryegrass?



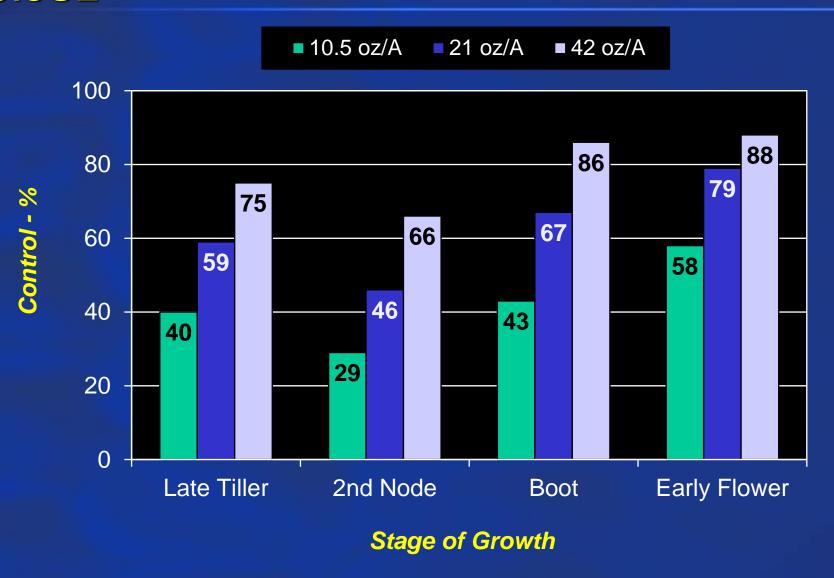
Burndown Control of Wheat/Ryegrass - 2024





Roundup PowerMax3 5.55SL @ 25 oz/A AMSOL @ 2% v/v

Annual Ryegrass Control with Roundup WeatherMax 5.5SL



Burndown Control of Wheat/Ryegrass - 2024



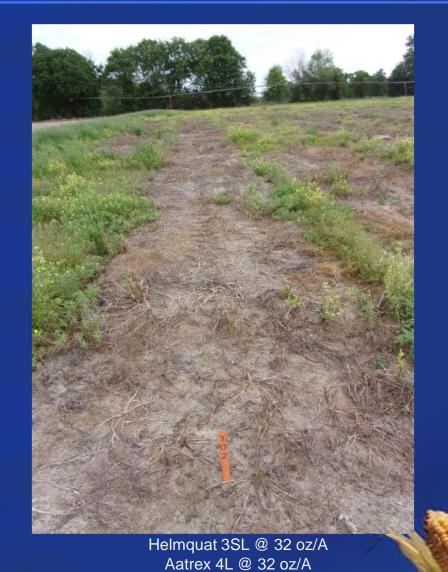


Gramoxone 3SL @ 32 oz/A Aatrex 4L @ 32 oz/A Induce @0.25% v/v

Pre-Plant Burndowns



NTC



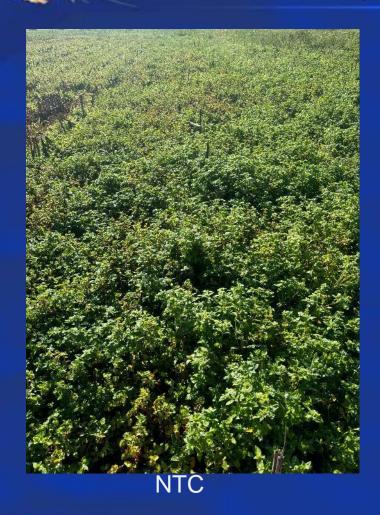
Induce @ 0.25% v/v

Post-Harvest Benghal Dayflower Test - 2024



Post-Harvest Tropical Spiderwort Control – 2024

COMBE: 12-16" tall; flowering; POST1 = 09/10/24; POST2= 09/17/24





Gramoxone 3SL @ 32 oz/A Induce @ 0.25% v/v POST1 + POST2



Roundup P-MAX3 5.88 SL @ 32 oz/A Enlist One 3.8SL @ 24 oz/A POST1 + POST2

Post-Harvest Tropical Spiderwort Control – 2024

COMBE: 12-16" tall; flowering; POST1 = 09/10/24; POST2= 09/17/24



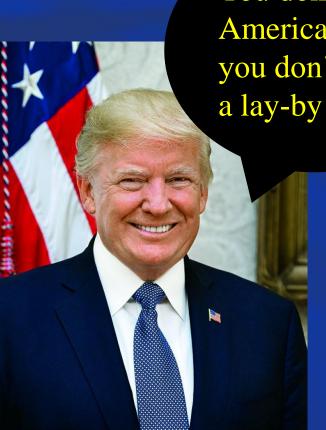
Roundup P-MAX3 5.88 SL @ 32 oz/A Aim 2EC @ 1.5 oz/A POST1 + POST2



Roundup P-MAX3 5.88 SL @ 32 oz/A Reviton 2.83SC @ 1.5 oz/A POST1 + POST2

A Must Have for GA Growers?

You don't love America if you don't have a lay-by rig!





Are you satisfied with your weed control?

Do you want/need better spray coverage?

- Think about
 - tractor speed
 - boom height
 - water volume
 - droplet size





Questions/Comments

