

# NO-TILL SOYBEAN

## Relative Response of Cover Crops and Weeds to Burndown Herbicides<sup>1</sup>

HERBICIDE	COVER CROPS									COOL SEASON WEEDS								WARM SEASON WEEDS													
	Alfalfa	Clover, Red	Clover, White	Fescue, Tall	Orchardgrass	Rye	Ryegrass, Annual	Vetch	Wheat	Brome spp.	Chickweed	Dandelion	Dock, Curly	Fleabane	Henbit / Purple Nardhatia	Lettuce, Prickly	Horseweed (Marestail)	Mustard spp.	Musk Thistle	Barnyardgrass	Crabgrass	Foxtail, Giant	Fall Panicum	Johnsongrass (seedling)	Johnsongrass (rhizome)	Lambsquarters	Yellow Nutsedge	Pokeweed	Ragweed, Common	Ragweed, Giant	Smartweed
Paraquat	3	7	5	5	3	7	6	7	7	7	9	4	2	6	8	5	4	6	3	7	9	9	6	7	3	6	4	4	7	7	5
Glyphosate <sup>2</sup>	6	6	5	7	6	8	7	6	9	9	9	6	4	8	8	8	8*	8	6	8	9	9	8	9	8	9	6	6	9	9	8
Canopy	4	-	-	-	-	3	-	6	3	6	9	-	-	-	8	9	8	8	-	3	5	5	3	5	3	9	7	-	9	8	7
Canopy EX	-	-	-	-	-	-	-	-	-	-	9	-	-	-	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-
2,4-D Ester <sup>3</sup>	6	8	5	0	0	0	0	7	0	0	5	7	4	6	4	8	8	8	7	0	0	0	0	0	0	8	-	5	9	9	6
Envive	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	9	9	-
FirstShot	-	-	-	-	-	0	0	7	0	0	9	-	8	-	8	-	7	-	-	0	0	0	0	0	0	8	-	-	6	4	-
Harmony Extra	-	-	-	-	-	0	0	7	0	0	9	-	8	-	8	-	-	-	-	0	0	0	0	0	0	8	-	-	6	4	-
Ignite <sup>4</sup>	-	-	-	-	-	-	3	8	5	-	9	6	7	-	7	-	8	-	-	7	7	8	8	8	-	8	-	-	9	8	9
Sequence	6	6	5	7	6	8	7	6	9	9	9	6	4	8	8	8	8*	8	6	8	9	9	8	9	7	9	6	6	9	9	8
Spartan Advance	6	6	5	7	6	8	7	6	9	9	9	6	4	8	8	8	8*	8	6	8	9	9	8	9	8	9	6	6	9	9	8

GOOD= 8-9

FAIR = 6-7

POOR = 5 or less

- Insufficient Data

- Information presented in this table is the relative burndown response of emerged plants to herbicides applied at normal rates for no-till soybeans. This information generally does not reflect soil residual effects of the herbicides. The relative response values are based on a numerical scale from 0 to 9 and compare effectiveness of herbicides to control a particular cover crop or weed species. A herbicide may perform better or worse than indicated in the table due to weed size, environmental conditions or when tank mixed with other herbicides. This table should be used only as a guide. If a farmer is achieving satisfactory results under his conditions, he should not necessarily change products as a result of information in this table.
- See page 20 for list of glyphosate products. Glyphosate will not effectively control biotypes of horseweed (marestail) or common ragweed that are resistant to this herbicide.
- Unacceptable injury may occur when 2,4-D is applied preplant to soybean. Delay planting soybean 7 to 30 days after application depending on rate of 2,4-D Ester. Consult label for rate of product.
- Environmental stress conditions such as cool temperatures and cloudy weather may limit burndown weed control with Ignite.

## SOYBEAN

### NO TILLAGE

Herbicides used in no-till soybeans include foliar-applied herbicides (often called a "burndown" herbicides) to control emerged weeds and soil-residual herbicides for preemergence weed control. Some herbicides are capable of providing both burndown control of small weeds as well as preemergence control.

No-till soybean herbicide treatments are usually applied as spring-applied Early Preplant (normally 15 to 30 days ahead of planting) or as Preemergence (to the crop) at the time of planting. Fall-applied Early Preplant treatments are occasionally used in no-till to manage cool-season species and generally do not control weeds that emerge after soybean planting.

Early preplant programs may require a sequential herbicide treatment applied at or after planting to provide additional length of weed control. Tillage after application may reduce effectiveness of the herbicide treatments.

### Preplant Foliar "Burndown" Herbicides for No-Tillage Soybeans

PARAQUAT	Herbicide Rate Based on Height of Annual Weeds		
	1 to 3" weeds	3 to 6" weeds	6" weeds
GRAMOXONE INTEON 2S or FIRESTORM 3 S or PARAZONE 3S ( <i>paraquat cation lb / A</i> )	2 to 2.5 pt/A  1.3 to 1.7 pt/A ( <i>0.5 to 0.63 lb ai/A</i> )	2.5 to 3 pt/A  1.7 to 2.0 pt/A ( <i>0.63 to 0.75 lb ai/A</i> )	3 to 4 pt/A  2.0 to 2.7 pt/A ( <i>0.75 to 1 lb ai/A</i> )

**Additives:** Non-ionic surfactant at 1 to 2 pt/100 gal of spray mixture or Crop Oil Concentrate at 4 qt/100 gal.

**Weeds Controlled:** Many small annuals including chickweed, crabgrass, giant foxtail, henbit.

**Spray Volume:** Apply in 10 to 20 gal of clean water or complete clear liquid fertilizers per acre. Do not use suspension type fertilizers. A spray volume of more than 20 GPA may be needed if weeds exceed 6 inches in height.

**General Comments:** Paraquat containing products are classified as Restricted-Use Pesticide. Apply before, during, or after planting but before crop emergence. Regrowth may occur from perennial grasses and broadleaf weeds, legume sods, or perennial grass sods. Annuals such as marehail, prickly lettuce, smartweed, and giant ragweed may not be controlled. Applying with 2,4-D ester (7 to 30 days early preplant) or Canopy may be needed for improved control of horseweed(marehail). Grass cover crops such as wheat may not be effectively controlled between tillering and boot stage of growth. Split applications may improve control of fescue, orchardgrass, or ryegrass. Do not exceed 6 pt/A of GRAMOXONE INTEON or 4 pt/A of FIRESTORM or PARAZONE per season.

**Environmental Statements:** Drift of spray can desiccate green tissue and result in injury to non-target plants which may render them unfit for sale, use, or consumption.

**Rain Delay:** 15-30 minutes for GRAMOXONE INTEON: 30 minutes for FIRESTORM and PARAZONE.

**Rotation Restrictions:** All rotational crops may be planted immediately after last application.

**Harvest & Forage Restrictions:** Do not graze or use for forage before R3 (early pod stage).

**Tank Mixtures GRAMOXONE INTEON:** Canopy, Canopy XL, Command, Dual Magnum, Dual II Magnum, FirstRate, Harmony Extra, Prowl, Scepter, Turbo, 2,4-D ester (7 to 30 days EPP).

**Tank Mixtures FIRESTORM:** Canopy, Dual Magnum, Harmony Extra, Prowl, Scepter, Turbo, 2,4-D ester (7 to 30 days EPP)

<b>GLYPHOSATE</b>		
Listed below are examples of glyphosate formulations and approximate rates for most burndown applications in no-tillage soybeans. The specific rate of product will vary depending on glyphosate formulation and size and species of weeds.		
<b>Glyphosate formulation<sup>1</sup></b>	<b>Annuals &lt;6" tall</b>	<b>Annuals &gt;6" tall</b>
Glyphosate 4, Roundup Original, other products (3 lb ae/gal)	1.5 to 2 pt/A (24 to 32 fl oz/A) (0.56 to 0.75 lb ae/A)	2 to 3 pt/A (32 to 48 fl oz/A) (0.75 to 1.13 lb ae/A)
Buccaneer 5 (3.75 lb ae/gal)	1.2 to 2 pt/A (19 to 32 oz/A) (0.56 to 0.94 lb ae/A)	1.75 to 2.5pt/A (28 to 40 oz/A) (0.82 to 1.17 lb ae/A)
Glyphomax XRT (4 lb ae/gal)	1.13 to 1.5 pt/A (18 to 24 fl oz/A) (0.56 to 0.75 lb ae/A)	1.5 to 2.25pt/A (24 to 36 oz/A) (0.75 to 1.13 lb ae/A)
Touchdown Total (4.17 lb ae/gal)	1.1 to 4.3 pt/A (17 to 69 oz/A) (0.57 to 2.24 lb ae)	1.5 to 5.8 pt/A (24 to 93 oz/A) (0.78 to 3.02 lb ae)
Roundup WeatherMAX Roundup PowerMAX (4.5 lb ae/gal)	1 to 1.4 pt/A (16 to 22 fl oz/A) (0.56 to 0.77 lb ae/A)	1.4 to 2 pt/A (22 to 32 fl oz/A) (0.77 to 1.13 lb ae/A)
Touchdown Hi-Tech (5 lb ae/gal)	0.9 to 2.25 pt (14 to 36 oz/A) (0.54 to 1.4 lb ae/A)	1.25 to 3 pt (20 to 48 oz/A) (0.78 to 1.88 lb ae/A)
<sup>1</sup> For a detailed list of glyphosate products see page 20		

**Additives:** For products that require a surfactant, a non-ionic surfactant at 0.25% v/v is often used. Consult the herbicide product label to verify if a surfactant is needed and the type and rate of surfactant to include. Dry Ammonium Sulfate at 1 to 2% by weight (8.5 to 17 lb/100 gal) or an equivalent amount of AMS in a liquid formulation may improve glyphosate activity under certain conditions such as dry weather, or when mixed in hard water or with certain herbicides, or applied to certain weed species.

**Annual Weeds Controlled:** Annual fleabane, barnyardgrass, brome spp., chickweed, common ragweed, crabgrass, fall panicum, giant foxtail, giant ragweed, henbit, johnsongrass (seedling), lambsquarters, mustards, prickly lettuce, rye, smartweed, volunteer corn (except glyphosate resistant), wheat.

**Perennial Weeds:** CONSULT LABEL FOR GLYPHOSATE RATE FOR SPECIFIC PERENNIAL WEED SPECIES. Best control of perennial weeds is usually achieved when treated at late growth stages (approaching maturity) and when soil moisture is adequate for active plant growth. At normal application times for no-till soybeans, perennial weeds may not be at the proper growth stage. Control may be reduced if plants are mowed or grazed and not allowed to regrow to recommended growth stage. Perennial weeds may require multiple applications for optimum control.

**Spray Volume:** Apply in 10 to 20 gallons of clean water/A when mixing with other herbicides. A spray volume of 3 to 10 gallons of water/A is often recommended when glyphosate is used alone at reduced labeled rates for certain annual weed species.

**General Comments:** Apply before, during, or after planting but before crop emergence. Glyphosate is a translocated herbicide. Reduced control may occur if mixed with such products as Micro-Tech. Management programs that rely on repeated use of glyphosate alone without herbicides of other sites of action may lead to the development of populations of glyphosate-resistant biotypes of weeds. Applying with 2,4-D ester (7 to 30 days early preplant) or products containing chlorimuron or cloransulam may be needed for improved control of horseweed(marestail).

**Environmental Statements:** Take precautions to avoid spray drift to desirable plants.

**Rain Delay:** Rainfall soon after application may reduce effectiveness. Some labels indicate 6 hrs.

**Rotation Restrictions:** There are no rotational restrictions following normal use of glyphosate. Wait at least 30 days before planting of crops not listed on the label.

**Harvest & Forage Restrictions:** Do not harvest or graze treated vegetation for 8 weeks after application.

**Tank Mixtures:** Consult label for specific tank mixes.

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<b>2,4-D ESTER</b>	<u>Rate/A</u>	<u>(2,4-D)</u>
Small Annuals	0.5 to 1 pt/A	(0.25 to 0.5 lb ai/A)
Large Annuals	1 to 2 pt/A	(0.5 to 1 lb ai/A)
(NOTE: Application rates based on 4 lb ai/gal)		

**Additives:** Normally not required with 2,4-D, however, certain tank-mix partners may require an additive.

**Weeds Controlled:** Common ragweed, dandelion, giant ragweed, hairy vetch, horseweed (marestail), lambsquarters, mustards, prickly lettuce.

**Timing:** A restrictive interval between application of 2,4-D and soybean plating is required. The interval for most 2,4-D Ester formulations is 7 days for rates up to 0.5 lb ai/A, and 30 days for rates >0.5 lb to 1.0 lb ai/A. The restrictive interval for rates applied up to 1 lb ai/A may be less than 30 days for some 2,4-D ester products (examples of products include Weedone 650, E-99, and Salvo). Consult specific product label for details. Rage D-Tech is a premix of 2,4-D ester + carfentrazone. The preplant interval for Rage D-Tech is 7 days for 8 to 16 oz of product/A and 14 days for rates 17 to 32 oz of product/A.

**Spray Volume:** Apply in a minimum of 10 to 15 gal of water per acre. Check label for use with liquid fertilizer.

**General Comments:** Not all 2,4-D products are labeled for use prior to planting soybeans (consult product label). Unacceptable crop injury may occur when 2,4-D is applied as a pre-plant treatment to soybean. Plant soybean seed at least 1 ½ to 2 inches deep. Adjust planter press wheels to ensure that soybean seed are completely covered with soil. Applying with paraquat or glyphosate may improve control of horseweed (marestail). Do not exceed 1 lb ai/A/season.

**Environmental Statements:** Drift of 2,4-D spray or vapor can injure nearby susceptible plants.

**Rain Delay:** No information on label.

**Rotation Restrictions:** Do not replant fields treated with 2,4-D in the same growing season with crops other than those labeled for 2,4-D preplant use.

**Harvest & Forage Restrictions:** Do not cut soybeans for feed or graze fields treated with a 2,4-D pre-plant application. Do not harvest or graze treated cover crops.

**Tank Mixtures:** Gramoxone Extra, Roundup, Prowl, Scepter. Always check product labels for directions and other registered tank mixtures.

<b>HARMONY EXTRA SG with TotalSol 50 DF</b>	0.45 to 0.9 oz/A	[thifensulfuron:tribenuron (0.009:0.005) to (0.019:0.009) lb ai/A]
OR		
<b>FIRSTSHOT SG 50DF</b>	0.5 to 0.8 oz/A	[thifensulfuron:tribenuron (0.0078:0.0078) to (0.0125:0.0125) lb ai/A]

**Weeds Controlled:** Common chickweed, curly dock, wild garlic, lambsquarters. The addition of 2,4-D ester with FIRSTSHOT will enhance control of such weeds as marestail (horseweed).

**Additives:** Apply with a nonionic surfactant at 0.25 - 0.5% v/v (1-2 qt/100 gal spray solution), or with a petroleum based crop oil concentrate or vegetable-seed oil-based product at 1-2% v/v (1-2 gal/100 gal of spray solution). An ammonium nitrogen fertilizer or a high quality, sprayable grade of ammonium sulfate may be added to enhance control. When tank mixed with another herbicide, select adjuvant based on adjuvant limitations of the companion herbicide.

**Timing:** Apply early preplant, but no later than 7 days before planting soybean.

**Spray Volume:** A minimum of 20 GPA for flat fan tips and 10 to 20 GPA for flood tips.

**General Comments:** Apply pre-plant for "burndown" control of emerged wild garlic and cool-season broadleaf weeds. Apply to actively growing wild garlic and other broadleaf weeds when temperatures are generally above 60 F or more.

**Harvest & Forage Restrictions:** Do not graze treated fields or harvest for forage or hay.

**Tank Mixtures:** FIRSTSHOT Tank mixtures include 2,4-D ester, glyphosate, paraquat. Consult other labels for approved tankmix partners.

**Generic Formulations:** NIMBLE & TNT BROADLEAF are similar to HARMONY EXTRA. Follow label for rates & preplant intervals.

**IGNITE 280 SL**

29 to 36 fl oz/A

glufosinate 0.53 to 0.66 lb ai/A

**Weeds Controlled:** Chickweed, marestail (horseweed), giant foxtail, crabgrass, johnsongrass (seedling), lambsquarters, common ragweed, giant ragweed, smartweed, vetch.

**Additives:** If foaming occurs a silicone-antifoam based agent may be added.

**Timing:** Apply preplant or prior to crop emergence of any conventional or transgenic soybean varieties.

**Spray Volume:** A minimum of 15 GPA. For dense weed canopies use 20 to 40 GPA. Do not use nozzles or pressures that result in coarse sprays.

**General Comments:** Weed control may be reduced when applied to weeds stressed from drought or cool temperatures. If IGNITE is applied in burndown application, no additional application may be made to the crop during the growing season.

**Harvest & Forage Restrictions:** Do not apply within 70 days of harvesting soybean seed. Do not graze treated fields or harvest for forage or hay.

**Tank Mixtures:** IGNITE may be tank mixed with labeled rates of other herbicides, provided other products are labeled for burndown applications to soybean. No specific products are listed for burndown tank mixes.

## Preplant Foliar "Burndown" plus Residual Herbicides for No-tillage Soybeans

**CANOPY 75DG**

Rate/A

chlorimuron:metribuzin

Burndown Control

3 to 4 oz/A

(0.02:0.12) - (0.03:0.16 lb ai/A)

Burndown &amp; Residual Control

6 to 8 oz/A

(0.04:0.24) -(0.053:0.32 lb ai/A)

**Additives:** When CANOPY is used as a "burndown", add Crop Oil Concentrate at 1% (1 gal/ 100 gal) or Non-Ionic Surfactant at 0.25% (1 qt/100 gal).

**Weeds Controlled:** Burcucumber, chickweed, cocklebur, henbit, hophornbeam copperleaf, lambsquarters, morningglory, prickly lettuce, marestail, mustards, pennycress, pigweed, prickly sida, common ragweed, giant ragweed, sicklepod, smartweed, velvetleaf. The addition of 2,4-D LVE is required for burndown of marestail.

**Timing:** CANOPY may be applied preemergence or early preplant in the fall or spring up to 45 days prior to planting.

**General Comments:** Soybean injury may occur if soil pH is greater than 7.5. Do not exceed 3.5 oz/A if soil pH exceeds 7.0. CANOPY will provide some "burndown" of existing broadleaf weeds up to 3" and small annual grasses up to 1" tall when applied preemergence to soybean. For added postemergence control, apply with 2,4-D, paraquat, or glyphosate. Soybean stunting may occur under certain environmental conditions. Sprayer equipment should be thoroughly cleaned before spraying other crops.

**Environmental Statements:** The use of metribuzin on permeable soils may result to ground water contamination.

**Rain Delay:** Rainfast after 1 hour.

**Rotation Restrictions:** If soil pH is 7.0 or less and the CANOPY rate is less than 10 oz/A, rotational crops which may be planted include wheat or barley after 4 months; or alfalfa, tobacco, grain sorghum, field corn or popcorn after 10 months (9 months for corn if rate is  $\leq$  6 oz/A following treatment). Other crops require a minimum 18 month interval. Consult label for rotation restrictions if pH is greater than 7.0, CANOPY rate exceeds 10 oz/A, or when other long-residual herbicides are used during the same season. Over application can result in injury to rotational crops.

**Harvest & Forage Restrictions:** Do not graze treated fields or harvest for forage.

**Tank Mixtures:** alachlor, metolachlor, pendimethalin, 2,4-D, glyphosate, or paraquat





## SOYBEANS

### Guide to Weed and Crop Response to Soil Applied Herbicides <sup>1</sup>

	Barnyardgrass	Broadleaf Signalgrass	Crabgrass	Fall Panicum	Foxtail	Johnsongrass (seedling)	Johnsongrass (rhizome)	Shattercane	Yellow Nutsedge	Black Nightshade	Burcucumber	Cocklebur	Copperleaf, Hophornbeam	Horseweed (Marestail)	Lambsquarters	Morningglory	Pigweed, Smooth	Sida, Prickly	Ragweed, Common	Ragweed, Giant (Horseweed)	Sicklepod	Smartweed	Velvetleaf	Crop Response <sup>2</sup>
Authority First / Sonic	-	-	-	6	7	2	0	-	7	8	0	9	-	9	9	9	9	7	9	9	-	8	9	2
Authority MTZ	-	-	-	6	7	2	0	-	7	8	0	6	8	8	9	9	9	9	8	5	-	8	7	2
Boundary	8	7	9	9	9	5	0	5	6	7	2	6	8	-	9	5	9	9	8	6	7	9	7	2
Authority Assist	-	-	-	6	7	2	0	-	7	8	0	6	-	9	9	9	9	7	6	5	-	8	8	2
Canopy	6	5	6	6	6	5	0	2	2	5	8	9	8	9	9	8	9	9	9	8	8	9	8	2
Command 3ME (PRE only)	9	9	9	9	9	7	2	6	3	5	0	6	2	-	8	0	6	8	8	6	0	7	9	0
Dual II Magnum / Cinch	8	7	9	9	9	5	0	4	7	8	0	0	4	-	6	0	8	3	5	0	3	6	2	0
Gangster	7	-	6	5	7	-	-	3	2	9	-	8	9	9	9	8	9	8	9	7	4	9	8	2
Metribuzin	6	5	6	6	6	5	0	2	2	2	2	6	8	8	9	5	9	9	8	6	7	9	7	2
Outlook	8	7	9	9	9	5	0	4	7	8	0	0	4	-	7	0	8	0	5	0	2	5	0	0
Prowl or Pendimax	8	7	9	8	9	8	2	5	0	0	0	0	0	-	8	2	8	0	2	0	0	6	6	2
Python	0	0	0	0	0	0	0	0	0	7	0	6	-	-	9	5	9	8	7	5	6	8	7	1
Scepter	6	5	5	5	6	6	2	5	2	7	6	9	4	6	9	6	9	9	9	7	7	9	6	2
Spartan	-	-	-	6	7	2	0	-	7	8	0	6	-	7	9	9	9	7	6	5	-	7	7	2
Valor SX or Encompass	7	-	6	5	7	-	-	3	2	8	-	4	9	8	9	8	8	8	8	5	4	5	7	2
Valor XLT	7	-	6	5	7	-	3	3	2	8	-	4	9	9	9	8	8	8	8	5	4	5	7	2

**GOOD = 8 - 9    FAIR = 6 - 7    POOR = 5 or Less    - =Insufficient Data Available**

<sup>1</sup> This table should be used only as a guide. The relative response value is based on a numerical scale from 0-9 comparing the effectiveness of herbicides to a particular weed. Under certain weather or environmental conditions, a herbicide may perform better or worse than indicated in the table. Response may be less in no-tillage than in conventional tillage. If a farmer is getting satisfactory results under his conditions, he should not necessarily change products as a result of the information in the table.

<sup>2</sup> A rating of 3 or less will not result in a crop yield loss under normal conditions. Certain soybean varieties vary in their injury response to a herbicide treatment.

## SOIL APPLIED HERBICIDES

### AUTHORITY ASSIST

**AUTHORITY ASSIST** 4 L 8 to 10 fl oz/A

(sulfentrazone : imazethapyr)  
 [(0.21 : 0.042) to (0.26 : 0.052 lb ai/A)]

**Weeds Controlled:** Black nightshade, lambsquarters, marestalk (horseweed), morningglories, pigweeds, smartweed, velvetleaf.

Incorporation and use of high rate may improve control of yellow nutsedge.

**Crop Stage:** May be applied in the fall or spring (early preplant 30-45 days prior to planting); preplant incorporated; or preemergence up to 3 days after planting but before crop seed germinate. Soybean injury may occur if applied near or after crop emergence.

**General Comments:** A limited number of soybean varieties are susceptible to AUTHORITY ASSIST and may be injured. Consult label for other comments regarding crop injury.

**Environmental Statements:** AUTHORITY ASSIST has GROUND and SURFACE WATER ADVISORY statements on the label. This product should not be mixed or loaded within 50 feet of any wells, sink holes, perennial or intermittent streams, rivers, and natural or impounded lakes and reservoirs, unless an impervious pad is used.

**Rain Delay:** None.

**Rotation Restrictions:** Rotational crops that may be planted after AUTHORITY ASSIST include wheat, after 4 months; field corn after 10 months (18 months for popcorn); tobacco and barley after 9.5 months; alfalfa after 12 months; and sorghum after 18 months after application. Consult label for reduced intervals for Clearfield corn.

**Harvest & Forage Restrictions:** Do graze or harvest forage or hay.

**Tank Mixtures:** None specified on AUTHORITY MTZ label.

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### AUTHORITY FIRST or SONIC

**AUTHORITY FIRST** 70 DG 6.45 oz/A

or

(sulfentrazone:cloransulam 0.25 : 0.032 lb ai/A)

**SONIC** 70 DG 6.45 oz/A

**Weeds Controlled:** Black nightshade, cocklebur, lambsquarters, marestalk (horseweed), morningglories, common ragweed, giant ragweed, pigweeds, smartweed, velvetleaf. Incorporation and use of high rate may improve control of yellow nutsedge. For burndown and residual control of marestalk use 6.45 to 8 oz/A

**Crop Stage:** May be applied preplant incorporated or preemergence. For burndown plus residual control of marestalk (not ALS resistant biotypes) apply AUTHORITY FIRST or SONIC at 6.45 to 8 oz/A plus surfactant or crop oil concentrate plus AMS.

**General Comments:** Do not exceed 8 oz of AUTHORITY FIRST or SONIC per acre per season. When applying AUTHORITY FIRST or SONIC followed by post application of Authority, do not exceed a cumulative rate of 0.055 lb ai of cloransulam per acre per season.

**Environmental Statements:** AUTHORITY FIRST and SONIC have GROUND and SURFACE WATER ADVISORY statements on the label. These products should not be mixed or loaded within 50 feet of any wells, sink holes, perennial or intermittent streams, rivers, and natural or impounded lakes and reservoirs, unless an impervious pad is used.

**Rain Delay:** None.

**Rotation Restrictions:** Rotational crops include wheat after 4 months; field corn or popcorn after 10 months (18 months if organic matter is < 1.5% and soil pH > 7.0); alfalfa, barley, rye, or sorghum after 12 months after application. Tobacco requires a 30-month interval and a successful field bioassay.

**Harvest & Forage Restrictions:** Do not harvest soybeans for 65 days after application. Do not feed treated forage or hay.

**Tank Mixtures:** AUTHORITY FIRST: Aim, 2,4-D, glyphosate, paraquat.

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## 82 Soybean

### AUTHORITY MTZ

**AUTHORITY MTZ** 45 DG 14 to 18 oz/A

(sulfentrazone : metribuzin)  
[(0.158 : 0.24) to (0.2 : 0.3 lb ai/A)]

**Weeds Controlled:** Black nightshade, hophornbeam copperleaf, lambsquarters, marestalk (horseweed), morningglories, common ragweed, pigweeds, smartweed. Incorporation and use of high rate may improve control of yellow nutsedge.

**Crop Stage:** May be applied in the fall or in the spring (early preplant 30-45 days prior to planting); preplant incorporated; or preemergence up to 3 days after planting but before crop seed germinate.

**General Comments:** AUTHORITY MTZ is a Restricted Use Pesticide. A limited number of soybean varieties are susceptible to AUTHORITY MTZ and may be injured. Consult label for other comments regarding crop injury.

**Environmental Statements:** AUTHORITY MTZ has GROUND and SURFACE WATER ADVISORY statements on the label. This product should not be mixed or loaded within 50 feet of any wells, sink holes, perennial or intermittent streams, rivers, and natural or impounded lakes and reservoirs, unless an impervious pad is used.

**Rain Delay:** None.

**Rotation Restrictions:** Rotational crops that may be planted after AUTHORITY MTZ include wheat, barley and soybeans after 4 months; field corn or popcorn after 10 months; alfalfa and tobacco after 12 months; and sorghum after 18 months after application. Consult label for reduced intervals for corn & sorghum.

**Harvest & Forage Restrictions:** Do graze or harvest forage or hay.

**Tank Mixtures:** None specified on AUTHORITY MTZ label.

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### BOUNDARY

**BOUNDARY** 6.5EC 2.1 to 3.0 pt/A

[S-metolachlor + metribuzin]  
[(1.38:0.33) to (1.97:0.47) lb ai/A]]

**Weeds Controlled:** Barnyardgrass, common ragweed, crabgrass, fall panicum, foxtails, hophornbeam copperleaf, lambsquarters, pigweeds, prickly sida, smartweed.

**Crop Stage:** May be applied preplant incorporated or preemergence. BOUNDARY may be applied up to 30 days before no-till plantings.

**General Comments:** Seed should be planted at least 1.5 inches deep. When soil pH > 7.0, apply 1.5 pt/A rate only.

**Environmental Statements:** BOUNDARY has GROUND and SURFACE WATER ADVISORY statements on the label. This product should not be mixed or loaded within 50 feet of any wells, sink holes, perennial or intermittent streams, rivers, and natural or impounded lakes and reservoirs, unless an impervious pad is used.

**Rain Delay:** None.

**Rotation Restrictions:** Alfalfa, winter wheat, and barley may be planted 4.5 months, or corn after 8 months following BOUNDARY treatments. Other crops may require a 12-month rotational interval. Cover crops may be planted any time but stand reductions may occur. Do not graze or harvest cover crops for feed or food.

**Harvest & Forage Restrictions:** Wait 40 days after application before grazing or feeding soybean forage.

**Tank Mixtures:** Canopy, Canopy XL, Command 3ME, FirstRate, Gramoxone Extra, Prowl, Python, Scepter, Roundup Ultra, Touchdown, 2,4-D (LVE).

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## CANOPY

CANOPY	Rate/A	chlorimuron:metribuzin
Burndown Control	3 to 4 oz/A	(0.02:0.12) - (0.03:0.16 lb ai/A)
Burndown & Residual Control	6 to 8 oz/A	(0.04:0.24) - (0.053:0.32 lb ai/A)

**Additives:** When CANOPY is used as a "burndown", add Crop Oil Concentrate at 1% (1 gal/ 100 gal) or Non-ionic Surfactant at 0.25% (1 qt/100 gal).

**Weeds Controlled:** Burcucumber, chickweed, cocklebur, henbit, hophornbeam copperleaf, lambsquarters, marestail (horseweed), morningglory, prickly lettuce, marestail, mustards, pennycress, pigweed, prickly sida, common ragweed, giant ragweed, sicklepod, smartweed, velvetleaf. The addition of 2,4-D LVE is required for burndown of marestail.

**Crop Stage:** CANOPY may be applied preemergence or early preplant in the fall or spring up to 45 days prior to planting.

**General Comments:** Soybean injury may occur if soil pH is greater than 7.5. Do not exceed 3.5 oz/A if soil pH exceeds 7.0. CANOPY will provide some "burndown" of existing broadleaf weeds up to 3" and small annual grasses up to 2" tall when applied preemergence to soybean. For added postemergence control, apply with 2,4-D, paraquat, or glyphosate. Soybean stunting may occur under certain environmental conditions. Sprayer equipment should be thoroughly cleaned before spraying other crops.

**Environmental Statements:** The use of metribuzin on permeable soils may result to ground water contamination.

**Rain Delay:** Rainfast after 1 hour.

**Rotation Restrictions:** If soil pH is 7.0 or less and the CANOPY rate is less than 10 oz/A, rotational crops which may be planted include wheat or barley after 4 months; or alfalfa, tobacco, grain sorghum, field corn or popcorn after 10 months (9 months for corn if rate is  $\leq$  6 oz/A following treatment). Other crops require a minimum 18 month interval. Consult label for rotation restrictions if pH is greater than 7.0, CANOPY rate exceeds 10 oz/A, or when other long-residual herbicides are used during the same season. Over application can result in injury to rotational crops.

**Harvest & Forage Restrictions:** Do not graze treated fields or harvest for forage or hay.

**Tank Mixtures:** alachlor, metolachlor, pendimethalin, 2,4-D, glyphosate, or paraquat

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## COMMAND

**COMMAND 3ME** 2 to 2.67 pt/A (clomazone 0.75 to 1 lb ai/A)

**Weeds Controlled:** Barnyardgrass, broadleaf signalgrass, common ragweed, crabgrass, fall panicum, foxtails, lambsquarters, prickly sida, velvetleaf.

**Crop Stage:** COMMAND 3 ME may be used as preemergence surface applied treatment from 30 days from planting to just prior to crop emergence.

**General Comments:** In cases where additional seedbed preparation is needed following Command 3ME application, avoid moving herbicide deeper than 1.5 to 2 inches.

**Environmental Statements:** Drift of spray particles or vapors can cause foliar whitening or yellowing of desirable vegetation such as shrubs, flowers, fruits, vegetables, and other sensitive plants. A nontreated buffer zone of at least 1,200 feet is required between COMMAND treated fields and general areas such as adjacent towns, subdivisions, and areas used for vegetable, fruit, nursery, and greenhouse production.

**Rain Delay:** None.

**Rotation Restrictions:** Soybeans and tobacco may be planted any time. Rotational crops that may be planted after COMMAND include field corn, popcorn, or grain sorghum after 9 months; or wheat after 12 months; or other crops after 16 months after treatment. Cover crops may be planted anytime, but stand reduction may occur. Do not harvest cover crops for food or feed when planted less than 9 months after treatment. Consult label for additional crop rotation restrictions. Application to soils with pH  $\leq$  5.9 or when extremely dry conditions occur 4 months after application, may result in injury to rotational crops.

**Harvest & Forage Restrictions:** Do not use treated plants for feed or forage.

**Tank Mixtures:** Canopy, Prowl, Scepter.

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## 84 Soybean

### DUAL II MAGNUM (S- Metolachlor)

**DUAL II MAGNUM** 1.33 to 1.67 pt/A (S-metolachlor 1.27 to 1.6 lb ai/A)  
or

**CINCH** 1.33 to 1.67 pt/A

**Weeds Controlled:** Barnyardgrass, black nightshade, crabgrass, fall panicum, foxtails, pigweeds, Incorporation and use of high rate may improve control of yellow nutsedge.

**Crop Stage:** DUAL II MAGNUM and CINCH may be applied preplant incorporated or preemergence for control of annual grasses and certain broadleaf weeds. They may be applied within 30 days before planting. Dual II Magnum may be applied 1 to 1.33 pt/A postemergence before weeds emerge through 3 trifoliate soybean.

**General Comments:** Similar products include Brawl II, Charger Basic, Cinch, Parallel, Parallel PCS and Stalwart. BRAWL II, CHARGER BASIC, DUAL II MAGNUM, CINCH, MEDAL and MEDAL II contain 7.64 lb ai S-metolachlor per gal. PARALLEL contains 7.8 lb ai metolachlor. PARALLEL PCS and STALWART contain 8 lb ai metolachlor per gal.

**Environmental Statements:** These products have GROUND and SURFACE WATER ADVISORY statements on the label. They should not be mixed or loaded within 50 feet of any wells, sink holes, perennial or intermittent streams, rivers, and natural or impounded lakes and reservoirs, unless an impervious pad is used.

**Rain Delay:** None.

**Rotation Restrictions:** Field corn, popcorn, or grain sorghum (use CONCEP treated seed) or soybeans may be planted anytime following application. Small grains may be planted 4 ½ months, alfalfa 4 months, or clover 9 months after application. Plant other crops in the spring following treatment.

**Harvest & Forage Restrictions:** No restrictions except when Dual II Magnum is applied postemergence allow a minimum of 90 days before harvest. Do not graze or feed forage or hay to livestock.

**Tank Mixtures DUAL II MAGNUM:** Canopy, Command 4E, Gramoxone MAX, Roundup, Scepter.

**Tank Mixtures CINCH:** Scepter, Command 4E, Gramoxone, Touchdown, or Roundup UltraMax

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### ENVIVE

**ENVIVE 41.3 DG** 2.5 to 5.3 oz/A \* (chlorimuron 0.014 to 0.03 lb ai/A)  
(thifensulfuron 0.0045 to 0.0096 lb ai/A)  
(flumioxazin 0.046 lb ai/A to 0.097 lb ai/A)

\* Use > 4 to 5.3 oz/A where soil pH ≤ 7.0. There are no pH restrictions for 2.5 to 4 oz/A

**Additives:** Crop Oil Concentrate at 1 gal/100 gal of spray mixture. If tank mix partner prohibits use of crop oil concentrate, use non-ionic surfactant at 1 qt/100 gal of spray mixture.

**Weeds Controlled:** Burndown control of Dandelion, prickly lettuce, common ragweed, giant ragweed. Include 2,4-D LVE for optimum burndown control of horseweed (marestail), wild garlic, and certain other weed species. Preemergence control of chickweed, cocklebur, lambsquarters, hophornbeam copperleaf, dandelion, henbit, marestail, nightshade, pigweed, prickly sida, morningglories, common ragweed, giant ragweed, smartweed, velvetleaf.

**Crop Stage:** Apply as an early preplant treatment in the fall or spring up to 3 days after planting but before crop emergence.. For optimum control apply when annual broadleaf weeds are up to 3 inches and perennial broadleaf weeds are up to 6 inches in height or diameter.

**General Comments:** Do not exceed 4 oz/A where soil pH >7. Soybean stunting may develop if excessive rainfall occurs after application and for a short period after crop emergence. Risk of injury can be minimized by not using on poorly drained soils, planting seed at least 1.5 inches deep, and covering seed with soil.

**Environmental Statements:** Do not mix/load, or use within 50 feet of all wells including abandoned wells, drainage wells and sinkholes.

**Rain Delay:** 1 hour

**Rotation Restrictions:** Where soil pH is <7, the rotation intervals are 4 months for barley, wheat, 10 months for field corn, popcorn, sorghum, and transplanted tobacco; 12 months for alfalfa and clover, and 18 months for certain other crops. Consult ENVIVE label where soil pH is ≥ 7.

**Harvest & Forage Restrictions:** Do not graze treated fields or harvest for forage or hay.

**Tank Mixtures:** 2,4-D LVE, Express, glyphosate, metribuzin, paraquat, pendimethalin, Do not use VALOR or ENCOMPASS where flufenacet (Define), alachlor (Micro-Tech), metolachlor (Dual), or dimethenamid (Outlook) are applied or injury may occur.

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## GANGSTER

**GANGSTER (co-pack)** 1.8 to 3.6 oz/A  
*Gangster FR* 0.5 to 1 Water Sol Packet/A cloransulam 0.016 to 0.032 lb ai/A  
*Gangster V* 1.5 to 3 oz/A flumioxazin 0.048 to 0.096 lb ai/A

**Weeds Controlled:** Black nightshade, cocklebur, common ragweed, hophornbeam copperleaf, lambsquarters, marestail (horseweed), morningglories, pigweed, prickly sida, smartweed, and velvetleaf.

**Crop Stage:** May be applied in the fall or in the spring up to 3 days after planting but before crop emerges.

**General Comments:** When used for burndown control, consult label for use of additives. DO NOT INCORPORATE. Plant seed at least 1.5 inches deep and completely cover seed with soil. Crop injury may occur in poorly drained soils and under cool wet conditions. Crop injury may also occur if treated soil is splashed onto newly emerged plants.

**Environmental Statements:** cloransulam has the potential to occur in ground water.

**Rain Delay:** 2 hours

**Rotation Restrictions:** Rotational crops that may be planted following GANGSTER include wheat after 3 months; field corn, popcorn, and sorghum after 9 months; transplanted tobacco after 10 months (consult label for rate and requirement for field bioassay for tobacco). A 30-month interval and a successful soil bioassay are required for alfalfa and certain other crops.

**Harvest & Forage Restrictions:** Do not feed treated forage or hay to livestock.

**Tank Mixtures:** Command, glyphosate, 2,4-D LVE, Gramoxone Extra, Lorox, metribuzin, pendimethalin. Do not use GANGSTER where flufenacet (Axiom), alachlor (Micro-Tech), metolachlor (Dual), or dimethenamid (Outlook) are applied or injury may occur.

## METRIBUZIN 75 DF

**METRIBUZIN 75DF** 0.5 lb/A [metribuzin 0.38 lb ai/A]

**Weeds Controlled:** Common ragweed, hophornbeam copperleaf, lambsquarters, marestail (horseweed), pigweeds, prickly sida, smartweed.

**Crop Stage:** May be applied preplant incorporated, preemergence, or post directed after soybeans are 8 inches tall.

**General Comments:** Seed should be planted at least 1 ½ inches deep.

**Environmental Statements:** METRIBUZIN has a GROUNDWATER ADVISORY statement on the label.

**Rain Delay:** None.

**Rotation Restrictions:** Alfalfa, corn, wheat, barley, and forage grasses may be planted 4 months after METRIBUZIN treatments are applied to soybeans. Before planting grain sorghum or tobacco, wait 12 months after application. Cover crops may be planted any time but stand reductions may occur. Do not graze or harvest cover crops for feed or food.

**Harvest & Forage Restrictions:** When METRIBUZIN is soil-applied, wait 40 days before utilizing treated soybean plants for forage, feed, or grazing. For POST-DIRECTED applications of METRIBUZIN, wait 70 days after application before harvesting grain or utilizing treated soybean plants (dry vines) as a forage crop. Do not use green vines for feed.

**Tank Mixtures:** Consult specific metribuzin product labels.

**Generic Formulations:** DIMETRIC, METRI DF, METRIBUZIN 75, and TRICOR DF are examples of products containing the active ingredient metribuzin and are similar to SENCOR (a former brand name product.)

## 86 Soybean

### OUTLOOK

**OUTLOOK 6EC** 14 to 21 oz/A or (dimethenamid-P 0.66 to 0.98 lb ai/A)

**Weeds Controlled:** Barnyardgrass, black nightshade, crabgrass, fall panicum, foxtails, pigweeds. Incorporation and use of high rate may improve control of some weeds.

**Crop Stage:** Apply preplant incorporated or preemergence for control of annual grasses and certain broadleaf weeds. OUTLOOK may be applied up to 30 days before planting and may also be applied postemergence from first to third trifoliolate soybeans and before weeds emerge.

**General Comments:** ESTABLISH is another dimethenamid-P containing product. Incorporation and higher use rates will improve control of certain weeds.

**Environmental Statements:** OUTLOOK may have the potential to contaminate groundwater and surface water. This product should not be mixed or loaded within 50 feet of any wells, sink holes, perennial or intermittent streams, rivers, and natural or impounded lakes and reservoirs, unless an impervious pad is used.

**Rain Delay:** None.

**Rotation Restrictions:** Soybean, corn, or grain sorghum (with seed safener) may be planted immediately after application. Allow a 4-month rotational interval for fall-seeded small grains. Other rotational crops may be planted the following spring.

**Harvest & Forage Restrictions:** Do not use treated plants for feed or forage.

**Tank Mixtures:** Authority, Canopy, Command, Extreme, FirstRate, glyphosate, Gramoxone Extra, Scepter, or Touchdown. Consult label for approved combinations after soybean emergence.

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### PREFIX

**Prefix** 2.25 to 2.75 pt/A (S-metolachlor : fomesafen 1.22 : 0.27 to 1.49:0.33 lb ai/A)

**Weeds Controlled:** Barnyardgrass, black nightshade, crabgrass, fall panicum, foxtails, pigweeds, nutsedge. Incorporation and use of high rate may improve control of yellow nutsedge.

**Crop Stage:** PREFIX may be applied early preplant (up to 15 days before planting), preplant incorporated or preemergence for control of annual grasses and certain broadleaf weeds. For Postemergence applications use 2-2.33 pt/A from cracking through third trifoliolate stage.

**General Comments:** Do not exceed a maximum of 0.375 lb ai of fomesafen in alternate years. Do not apply metolachlor in tankmix or sequential applications with PREFIX.

**Environmental Statements:** PREFIX has ground and surface water advisory statements on the label. It should not be mixed or loaded within 50 feet of any wells, sink holes, perennial or intermittent streams, rivers, and natural or impounded lakes and reservoirs, unless an impervious pad is used.

**Rain Delay:** None.

**Rotation Restrictions:** Rotational crops include wheat or barley after 4.5 months, corn after 10 months, (popcorn after 12 months when rate  $\geq$  2 pt/A). Other crops require 18 months.

**Harvest & Forage Restrictions:** Do not graze or harvest for soybean forage or hay. Do not graze rotated small grains or harvest forage or straw for livestock.

**Tank Mixtures:** 2,4-D LVE, Gramoxone Inteon, glyphosate.

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### PROWL

**PROWL 3.3E** 1.8 to 3 pt/A (pendimethalin 0.74 to 1.24 lb ai/A)  
or

**PROWL H2O** 3.8 L 2 to 2.5 pt/A (pendimethalin 0.95 to 1.19 lb ai/A)  
or

**Weeds Controlled:** Barnyardgrass, crabgrass, fall panicum, foxtails, johnsongrass (seedling), lambsquarters, pigweeds.

**Crop Stage:** Early preplant in the fall or spring (up to 15 days prior to planting) or preemergence or preplant incorporated for control of annual grasses and certain broadleaf weeds. Apply preplant incorporated and at the higher recommended rate to reduce competition from harder-to-control weeds.

**General Comments:** The rate for preemergence applications at planting up through 2 days after planting should not exceed 2.4 pt/A for Prowl 3.3 EC or 2 pt/A for Prowl H2O. Lodging from "brittleness" of soybean stems may occur with preemergence applications of Prowl in conventional tillage.

**Environmental Statements:** None.

**Rain Delay:** None.

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### PROWL (continued)

**Rotation Restrictions:** Soybean or tobacco may be planted any time. Any rotational crop may be planted the year following application. Allow a 10-months interval following spring applications of Prowl H2O for sorghum (milo) or perennial grasses. Wheat or barley may be planted 4 months days after application. Allow a 12-months interval for wheat if less than 12" of rain occurs between application and planting rotational crop. Observe label when pendimethalin rate exceeds 2 lb ai/A.

**Harvest & Forage Restrictions:** Pendimethalin treated soybean plants may be used as a forage crop. Do not apply PROWL H2O within 85 days of grain harvest.

**Tank Mixtures with PROWL 3.3 EC or PENDIMAX 3.3:** Canopy, Command 4EC, Gramoxone Extra, Roundup, Scepter, Sencor, 2,4-D.

**Generic Formulations:** Acumen, Pendant, Pendimax, Stealth are other pendimethalin containing products formulated as 3.3 EC

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### PYTHON

PYTHON 80WDG 1 to 1.33 oz/A

(flumetsulam 0.05 to 0.067 lb ai/A)

**Weeds Controlled:** lambsquarters, pigweeds, prickly sida, smartweed.

**Crop Stage:** Apply preemergence or preplant incorporated. In addition, PYTHON may be applied up to 30 days before planting in no tillage.

**General Comments:** Do not apply: 1) where soil pH exceeds 7.8 as this may result in crop injury, or 2) where soil pH < 5.9 and organic matter > 5% or reduced weed control will result. The cumulative amount of flumetsulam per year should not exceed 0.07 lb ai / A.

**Environmental Statements:** PYTHON has GROUND WATER ADVISORY statements on the label. This product should not be mixed or loaded within 50 feet of any wells, sink holes, perennial or intermittent streams and rivers, and natural or impounded lakes and reservoirs, unless an impervious pad is used.

**Rain Delay:** None.

**Rotation Restrictions:** Soybeans and field corn may be planted anytime following PYTHON application. Rotational crops which may be planted include alfalfa, wheat, barley, or rye after 4 months; forage grasses, tobacco, or popcorn after 9 months; or grain sorghum 12 months after application. Other crops require a minimum 26-month interval and a successful field bioassay before planting.

**Harvest & Forage Restrictions:** Do not harvest within 85 days after application. Do not use or graze forage from PYTHON treated fields.

**Tank Mixtures:** 2,4-D, Glyphomax, Glyphomax Plus, Gramoxone Extra, Roundup UltraMAX, Touchdown.

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### SCEPTER

SCEPTER 70DG 2.8 oz/A

(imazaquin 0.123 lb ai/A)

**Weeds Controlled:** Cocklebur, common ragweed, lambsquarters, pigweeds, prickly sida, smartweed. Apply as a preplant incorporated treatment for optimum control of such weeds as black nightshade, burcucumber and giant ragweed.

**Crop Stage:** May be applied preplant incorporated, preemergence, (up to 45 days before planting) or postemergence up to 90 days before harvest.

**General Comments:** Internode shortening of soybean plants may be observed with SCEPTER.

**Environmental Statements:** The use of SCEPTER on permeable soils may result in ground water contamination.

**Rain Delay:** None.

**Rotation Restrictions:** Rotational crops which may be planted include wheat after 3 months; field corn or tobacco 9.5 months; or barley, or grain sorghum 11 months following treatment. Do not plant other rotational crops within 18 months after application. Consult label for rotation restrictions when other long-residual herbicides are used during the same season; for sequential SCEPTER applications; or when soil conditions are dry after application.

**Harvest & Forage Restrictions:** Do not harvest within 90 days after SCEPTER application. Do not use treated plants for feed or forage.

**Tank Mixtures:** Dual, Frontier, Gramoxone, Prowl, Roundup, Roundup Ultra, Sencor, Touchdown, 2,4-D.

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## 88 Soybean

### SPARTAN

SPARTAN 4F 8 to 10.1 fl oz/A

(sulfentrazone 0.25 to 0.32 lb ai/A)

**Weeds Controlled:** Black nightshade, lambsquarters, morningglories, pigweeds. Incorporation and use of high rate may improve control of yellow nutsedge.

**Crop Stage:** May be applied preplant incorporated (no deeper than 2 inches) or preemergence before soybeans emerge.

**General Comments:** Do not apply when there are visible signs of cracking of soil from soybean emergence. Soybean varieties vary in tolerance to sulfentrazone. Consult local seed supplier for varietal tolerance information. Use higher rates for soils with pH less than 7.0 and lower rates for pH greater than 7.0.

**Environmental Statements:** SPARTAN has GROUND and SURFACE WATER ADVISORY statements on the label. This product should not be mixed or loaded within 50 feet of any wells, sink holes, perennial or intermittent streams, rivers, and natural or impounded lakes and reservoirs, unless an impervious pad is used.

**Rain Delay:** None

**Rotation Restrictions:** Soybean and tobacco may be planted any time after application. Rotational crops that may be planted after SPARTAN include wheat, barley, or rye after 4 months; field corn or sorghum after 10 months (18 months for sorghum if rate > 8 oz/A); and alfalfa after 12 months following application. Other crops may require a 12-month interval. Consult label where field bioassay is required.

**Harvest & Forage Restrictions:** No information listed on the label.

**Tank Mixtures:** None specified on SPARTAN label. However label indicates it may be mixed with other labeled herbicides.

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### VALOR SX or ENCOMPASS

VALOR SX 51WDG 2 to 2.5 oz/A

or

(flumioxazin 0.064 to 0.080 lb ai/A)

ENCOMPASS 51 WDG 2 to 2.5 oz/A

**Weeds Controlled:** Black nightshade, common ragweed, hophornbeam copperleaf, lambsquarters, marestalk (horseweed), morningglories, pigweed, and prickly sida.

**Crop Stage:** May be applied for preemergence and for burndown control before soybeans emerge.

**General Comments:** When used for burndown control, consult label for use of additives. DO NOT INCORPORATE. Plant seed at least 1.5 inches deep and completely cover seed with soil. Crop injury may occur in poorly drained soils and under cool wet conditions. Crop injury may also occur if treated soil is splashed onto newly emerged plants.

**Environmental Statements:** VALOR and ENCOMPASS have the potential to runoff to surface water and adjacent land.

**Rain Delay:** 1 hour

**Rotation Restrictions:** Rotational crops that may be planted following VALOR at rates up to 3 oz/A include field corn and sorghum after 1 month; tobacco and wheat after 2 months; barley and rye after 4 months; and alfalfa, clover, oats, and other crops after 10 months (in no-till). A successful soil bioassay is required for other crops not listed. Consult VALOR label when rate is  $\leq 2$  oz/A or when soil is tilled for alfalfa, clover or oats. Observe ENCOMPASS label for rotational crop restrictions.

**Harvest & Forage Restrictions:** Do not feed treated forage or hay to livestock.

**Tank Mixtures:** Command, metribuzin, FirstRate, Gramoxone Extra, glyphosate, pendimethalin, Python, Scepter, 2,4-D LVE. Do not use VALOR or ENCOMPASS where flufenacet (Define), alachlor (Micro-Tech), metolachlor (Dual), or dimethenamid (Outlook) are applied or injury may occur.

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**VALOR XLT**

**VALOR XLT** 40.3WDG 3 to 4 oz/A (flumioxazin:chlorimuron (0.056:0.019 to 0.075:0.026 lb ai/A))

**Weeds Controlled:** Black nightshade, common ragweed, hophornbeam copperleaf, lambsquarters, marestalk (horseweed), morningglories, pigweed, and prickly sida.

**Crop Stage:** May be applied for preemergence and for burndown control before soybeans emerge.

**General Comments:** When used for burndown control, consult label for use of additives. Plant seed at least 1.5 inches deep and completely cover seed with soil. Crop injury may occur in poorly drained soils and under cool wet conditions.

**Environmental Statements:** Do not apply where runoff is likely to occur.

**Rain Delay:** 1 hour

**Rotation Restrictions:** Rotational crops that may be planted where soil pH is less than 7.0 are wheat or barley after 4 months, field corn, popcorn, or sorghum after 10 months, or alfalfa after 12 months after application. Other crops require 18 months. Consult label when soil pH  $\geq$  7.0.

**Harvest & Forage Restrictions:** Do not feed treated forage or hay to livestock.

**Tank mixtures:** 2,4-D, Express, Harmony GT, linuron, metribuzin, paraquat, pendimethalin, or Command. Tank mixes with chloroacetamide containing products (eg. Dual II magnum, Outlook, Intro) may result in crop injury.

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# Guide to Weed and Crop Response to Postemergence Herbicides<sup>1</sup>

	Barnyardgrass	Broadleaf Signalgrass	Crabgrass	Fall Panicum	Foxtail	Johnsongrass (seedling)	Johnsongrass (rhizome)	Shattercane (Wild Cane)	Volunteer Corn <sup>6</sup>	Yellow Nutsedge	Black Nightshade	Burcucumber	Cocklebur	Copperleaf, Hophornbeam	Horseweed (Marestail)	Lambsquarters	Morningglory	Pigweed, Smooth	Prickly sida (Teaweed)	Ragweed, Common	Ragweed, Giant (Horseweed)	Sicklepod	Smartweed	Velvetleaf	Crop Response <sup>2</sup>	
Assure II	8	8	8	9	9	9	8	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Basagran	0	0	0	0	0	0	0	0	0	8	2	5	9	0	2	6	5	4	8	7	8	0	9	8	1	1
Blazer Ultra	2	2	4	5	7	6	0	6	4	2	9	6	7	8	4	5	8	8	2	9	8	1	9	6	2	2
Classic	0	0	0	0	0	0	0	0	2	7	5	8	9	4	6*	3	7	8*	3	7	7	8	7	7	1	1
Cobra / Phoenix <sup>3</sup>	2	2	2	2	3	5	0	4	2	2	9	7	8	9	5	6	7	8	6	9	8	1	7	7	3	3
Extreme (RR-soybean) <sup>4</sup>	9	9	9	9	9	9	9	9	9+	7	8	8	9	-	7*	8	7	9	7	8	8	8	8	8	1	1
FirstRate / Amplify	1	0	1	0	2	2	0	3	-	3	3	-	9	-	7*	3	8	4	4	9	9	7	8	9	1	1
Flexstar	0	0	3	3	5	5	0	4	2	2	8	6	8	8	5	5	8	9	2	8	8	1	8	7	1	1
Fusion	8	9	9	9	9	9	8	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Glyphosate (RR-soybean) <sup>4,5</sup>	9	9	9	9	9	9+	9+	9+	9	6	8	8	9	7	7*	8	7	9	7	7	8	9	8	8	0	0
Harmony SG	0	0	0	0	0	0	0	0	0	0	4	1	7	-	-	8	5	8*	4	6	4	-	8	8	1	1
Ignite (Liberty Link soybean) <sup>4</sup>	7	7	7	8	9	8	5	8	7	5	9	7	9	-	-	8	8	8	8	9	8	7	9	8	0	0
Poast / Poast Plus	9	9	9	9	9	9	7	9	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pursuit	6	6	7	6	8	8	5	8	5	4	8	4	9	2	-	6	7	9*	6	7	8	0	8	8	1	1
Raptor	8	7	7	7	9	8	6	9	7	5	9	6	8	2	-	8	8	9*	6	7	8	0	9	8	2	2
Resource	0	0	0	0	0	0	0	0	0	0	5	5	7	-	-	6	6	7	7	8	7	-	5	9	2	2
Scepter	1	1	1	2	2	5	0	2	5	3	6	0	9	1	-	3	2	9*	1	5	3	5	6	4	1	1
Select MAX /Select , etc.	9	9	9	9	9	9	8	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sequence (RR-soybean)	9	9	9	9	9	9+	9+	9+	9	6	8	8	9	7	7*	8	7	9	7	7	8	9	8	8	0	0
Storm	2	2	3	4	5	5	0	5	2	6	7	6	8	8	4	6	7	8	7	8	8	1	9	6	1	1
Synchrony XP <sup>4</sup>	0	0	0	0	0	0	0	0	4	6	5	8	9	-	6*	8	6	8*	4	7	6	8	8	8	1	1

**EXCELLENT = 9+**    **GOOD = 8-9**    **FAIR = 6-7**    **POOR = 5 OR LESS**    **- INSUFFICIENT DATA**

<sup>1</sup> This table should be used only as a guide. The relative response value is based on a numerical scale from 0-9 comparing the effectiveness of herbicides to a particular weed. Under certain weather or environmental conditions, a herbicide may perform better or worse than indicated in the table. If a farmer is getting satisfactory results under his conditions, he should not necessarily change products as a result of the information in the table.

<sup>2</sup> A rating of 3 or less will not result in a crop yield loss under normal conditions. Certain soybean varieties vary in their injury response to a herbicide treatment.

<sup>3</sup> Crop response and velvetleaf control may be less with Phoenix than with Cobra.

<sup>4</sup> Apply only to selected soybean cultivars designated with GENETIC resistance /tolerance to Roundup Ready (RR- soybean) or Sulfonyleurea Tolerant (STS- soybean) or Liberty Link (LL soybean). Consult label for directions.

<sup>5</sup> Examples of specific glyphosate products are listed on page 20.

<sup>6</sup> Control of volunteer plants from previous herbicide-resistant corn hybrids may NOT be successful depending on source of herbicide tolerance.

\* Will not control biotypes resistant to the class of chemistry associated with this herbicide.

Response of Perennial Broadleaves to Postemergence Soybean Herbicides<sup>1</sup>

	Bindweed, Field	Dandelion	Dogbane, Hemp	Horsenettle	Milkweed, Common	Milkweed, Honeyvine	Morningglory, Bigroot	Pokeweed, Common	Thistle, Canada	Trumpet creeper
Basagran <sup>2</sup>	5	-	-	5	-	-	-	-	8	-
Cobra <sup>3</sup>	6	-	-	6	6	6	5	-	6	5
Extreme <sup>4</sup>	7	8	7	7	7	7	5	7	8	7
Flexstar <sup>5</sup>	6	-	-	6	-	6	-	-	6	5
Glyphosate (RR-soybean) <sup>6</sup>	7	8	7	7	7	7	5	8	8	7
Pursuit <sup>7</sup>	-	-	-	7	-	-	-	-	6	-
Raptor <sup>8</sup>	6	-	-	-	-	-	-	6	7	-
Synchrony (STS soybean) <sup>9</sup>	7	-	-	5	7	7	-	6	7	-
Ultra Blazer <sup>10</sup>	6	-	-	6	6	-	5	-	6	5

**GOOD = 8 - 9    FAIR = 6 - 7    POOR = 5 or less    - Insufficient Data**

1 **In-season herbicide treatments for perennial broadleaf weeds usually provide only partial control or suppression.** The response value indicated is based on a numerical scale from 0 to 9 comparing the relative effectiveness of the herbicides listed to a particular weed. Under certain weather or environmental conditions, a herbicide may perform better or worse than indicated in the table. **Therefore, this table should be used only as a guide for selecting treatments to deal with problem weeds.**

2 Apply Basagran at 2 to 3 pt/A for field bindweed. For Canada thistle apply 2 pt/A when plants are 8" to bud stage and apply a second application 7 to 10 days later if regrowth occurs. Do not exceed a total maximum seasonal rate of 4 pt/A. Include oil concentrate (1 to 2 pt/A), or 28% solution of UAN (4 to 8 pt/A), or AMS (2.5 lbs/A).

3 Apply Cobra (12.5 oz/A) or Phoenix (12.5 oz/A). Use crop oil concentrate at 4 pt/100 gal with Cobra or 1 pt/A with Phoenix for Canada thistle, bigroot morningglory, common milkweed, climbing milkweed, swamp smartweed, and trumpet creeper with a maximum of 6 leaves.

4 Apply Extreme (3 pt/A) + NIS (1 pt/100 gal) + AMS (8.5 to 17lb/100gal) only to on selected soybean cultivars designated as Roundup Ready or glyphosate resistant.

5 Apply Flexstar (1.5 pt/A) or + NIS (0.5 to 1 pt/25 gal) or crop oil concentrate (1 to 2 pt/25 gal) + 28% liquid N (2.5 qt/25gal) for field bindweed, honeyvine milkweed, and trumpet creeper.

6 Apply glyphosate 3L (32 to 64 oz/A); glyphosate 3.75 L (26 to 52 oz/A); glyphosate 4 L (24 to 48 oz/A); glyphosate 4.17 L (23 to 46 oz/A); or glyphosate 4.5 L (21 to 42 oz/A); or 5 L (19 to 38 oz/A) **only on selected soybean cultivars designated as Roundup Ready or glyphosate resistant.** Consult herbicide label for use of surfactant and AMS as additives. See page 20 for examples of GLYPHOSATE products.

7 Apply Pursuit DG (1.44 oz/A) + Crop Oil Conc. (1.25 gal/100 gal) or NIS (1 qt/100 gal) + 28% Liquid N (1.25 to 2.5 gal/100 gal). Apply up to 3" tall Canada thistle.

8 Apply Raptor (5 oz/A) + Crop Oil Conc. (1 to 2 gal/100 gal) + NIS (1 qt/100 gal) + 28% Liquid N (2.5 gal/100 gal). Apply up to 4" tall field bindweed or 5" tall Canada thistle.

9 Apply Synchrony XP (0.75 oz/A) or Synchrony STS (0.5 oz/A) + Crop Oil Conc. (1 gal/100 gal) + Liquid N (2 qt/A) only to cultivars designated as STS. Apply up to 6" tall common milkweed, up to 4" tall dandelion, up to 6" tall common pokeweed, and up to 4" tall Canada thistle.

10 Apply Ultra Blazer (1.5pt/A) + NIS (1 to 2 pt/100 gal) for field bindweed, common milkweed, climbing milkweed, and trumpet creeper.

**MAXIMUM WEED SIZE LABELED FOR POSTEMERGENCE HERBICIDE APPLICATIONS**

Herbicide	Rate	Barnyardgrass	Broadleaf Signalgrass	Crabgrass	Fall Panicum	)Foxtail (Giant)	Johnsongrass (seedling)	Johnsongrass (rhizome)	Shattercane (Wildcane)	Volunteer Corn	Volunteer Wheat
ARROW 2 EC	4 to 6 oz	X	X	X	X	X	X	X	X	12"	X
	6 to 8 oz	8"	6"	6"	8"	12"	10"	X	18"	24"	6"
	8 to 16 oz	—	—	—	—	—	—	24" <sup>2</sup>	—	—	—
ASSURE II 0.88E	5 oz	X	X	X	X	4"	8"	X	12"	18"	X
	8 oz	6"	X	6" <sup>1</sup>	6"	8"	—	X	—	30"	6"
	10 oz	—	6"	—	—	—	—	24" <sup>2</sup>	—	—	—
EXTREME	3 pt	6"	8"	12"	12"	18"	12"	12"	18"	20"	18"
FUSION 2.56E	6 oz	X	X	X	X	—	8"	X	12"	24"	X
	8 oz	4"	2"	4"	6"	8"	—	X	—	—	6"
	12 oz	—	4"	—	—	—	—	18"	—	—	—
IGNITE 280 SL	22 oz	3"	3"	3"	3"	12"	3"	X	6"	10" <sup>3</sup>	4"
POAST	1 pt	8"	8"	6"	8"	8"	8"	—	18"	20" <sup>3</sup>	X
	1.5 pt	—	—	—	—	—	—	20" <sup>2-4</sup>	—	—	4"
PURSUIT 2S	4 oz	3"	8"	3"	X	6"	8"	X	8"	X	X
RAPTOR 1S	5 oz	5"	5"	X	6"	6"	8"	X	8"	8" <sup>3</sup>	4"
ROUNDUP ORIGINAL <sup>5</sup> (3 lb ae/gal)	24 oz	3"	3"	6"	4"	12"	12"	X	12"	12" <sup>3</sup>	6"
	32 oz	6"	6"	12"	6"	20"	18"	Boot Stage <sup>6</sup>	20"	20"	12"
	48 oz	9"	9"	—	12"	—	24"	—	—	—	18"
ROUNDUP POWERMAX <sup>5</sup> (4.5 lb ae/gal)	16 oz	3"	3"	6"	4"	12"	12"	X	12"	12" <sup>3</sup>	6"
	22 oz	6"	6"	12"	6"	20"	18"	Boot Stage <sup>6</sup>	20"	20"	12"
	32 oz	9"	9"	—	12"	—	24"	—	—	—	18"
SELECT MAX 0.97 EC	6 to 12 oz	X	X	X	X	X	X	X	X	12"	X
	9 to 16 oz	8"	6"	6"	8"	12"	10"	X	18"	24"	6"
	12 to 32 oz	—	—	—	—	—	—	24"	—	36"	—
SEQUENCE	2.5 pt	6"	6"	12"	6"	18"	18"	X	18"	18" <sup>3</sup>	18"
	3.5 pt	12"	12"	—	18"	—	—	Boot Stage <sup>6</sup>	—	—	—
TOUCHDOWN TOTAL <sup>5</sup> (4.17 lb ae/gal)	17 oz	X	X	6"	6"	12"	12"	X	12"	12" <sup>3</sup>	12"
	24 oz	6"	6"	12"	—	18"	18"	Boot Stage <sup>6</sup>	18"	24"	18"
	35 oz	12"	12"	—	12"	—	24"	—	—	—	—

**X = Not labeled for control    — = Same height as indicated above**

1 Maximum length of lateral growth for crabgrass.

2 Two applications may be necessary for acceptable control. Consult the label for specific weed height, timing of application, treating regrowth, and tank mixtures with other herbicides.

3 Control of volunteer plants from previous herbicide-resistant corn hybrids may NOT be successful depending on source of herbicide tolerance.

4 Maximum height for rhizome johnsongrass is 25" in conventional tillage or 20" for no-tillage.

5 Consult labels of other glyphosate products for rates for specific weed species.

6 Rate of glyphosate for rhizome johnsongrass control may vary depending on tillage system.

7 Use the high rate under heavy grass pressure and/or when grasses are at the maximum height.

Herbicide	Rate	Black Nightshade	Burcucumber	Cocklebur	Copperleaf	Horseweed (Marestail)	Lambsquarters	Morningglory	Pigweed	Prickly Sida	Ragweed, Common	Ragweed, Giant (Horseweed)	Sicklepod	Smartweed	Velvetleaf	Yellow Nutsedge
BASAGRAN 4S	1.5 pt	X	X	6"	X	X	1.5"	X	X	3"	X	X	X	6"	2"	8"
	2 pt	X	X	10"	X	X	2"	X	X	4"	3"	6"	X	10"	5"	-
CLASSIC	0.5 oz	X	X	6"	X	3"	X	2"	2"	X	X	X	2"	2"	X	3"
	0.75 oz	X	6"	12"	X	6"	X	4"	4"	X	4"	6"	4"	4"	6"	4"
COBRA	12.5 oz	6 LF	4 LF	6 LF	6 LF	X	X	2 LF	6 LF	4 LF	8 LF	6 LF	X	X	X	X
EXTREME	3 pt	12"	12"	18"	2"	12"	8"	4"	18"	2"	9"	9"	3"	6"	5"	X
FIRSTRATE	0.3 oz	X	X	10"	X	6"	X	4"	X	X	8"	10"	<2"	6"	6"	X
FLEXSTAR	1 pt	4 LF	X	4 LF	4 LF	X	X	3 LF	4 LF	X	4 LF	4 LF	X	4 LF	2 LF	X
	1.5 pt	6 LF	X	8 LF	6 LF	X	X	5 LF	6 LF	4 LF	8 LF	8 LF	X	6 LF	4 LF	X
HARMONY SG	0.125 oz	X	X	X	X	X	4"	X	8"	X	X	X	X	6"	6"	X
IGNITE 280 SL	22 oz	6"	6"	6"	4"	X	4"	6"	3"	4"	6"	6"	4"	6"	3"	X
PHOENIX	12.5 oz	3"	X	2"	2"	X	X	X	4"	2"	6"	4"	X	X	X	X
PURSUIT 2S	4 oz	3"	X	8"	X	X	X	2"	8"	X	X	X	X	3"	3"	X
RAPTOR 1S	5 oz	5"	X	8"	X	X	5"	4"	8"	X	5"	5"	X	5"	8"	X
RESOURCE 0.86E	4 oz	X	X	X	X	X	X	X	X	X	X	X	X	X	6LF	X
	8 oz	X	X	X	X	X	X	X	4 LF	4 LF	6 LF	X	X	X	10LF	X
ROUNDUP ORIGINAL <sup>1</sup> (3 lb ae/gal)	24 oz	4"	6"	18"	2"	6"	6"	X	12"	2"	6"	6"	2"	X	X	X
	32 oz	6"	12"	24"	4"	12"	12"	3"	18"	4"	12"	12"	4"	6"	6"	X
	48 oz	12"	18"	36"	6"	18"	20"	6"	24"	6"	18"	18"	8"	9"	12"	X
ROUNDUP	16oz	4"	6"	18"	2"	6"	6"	X	12"	2"	6"	6"	2"	X	X	X
POWERMAX <sup>1</sup> (4.5 lb ae/gal)	22 oz	6"	12"	24"	4"	12"	12"	3"	18"	4"	12"	12"	4"	6"	6"	X
	32 oz	12"	18"	36"	6"	18"	20"	6"	24"	6"	18"	18"	8"	9"	12"	X
SCEPTER 70DG	1.4 oz	X	X	8"	X	X	X	X	4"	X	X	X	X	X	X	X
	2.8 oz	X	X	12"	X	X	X	X	12"	X	X	X	X	X	X	X
STORM 4S	1.5 pt	2"	X	6"	4"	X	X	2"	3"	2"	3"	6"	X	6"	X	X
SEQUENCE	2.5 pt	6"	12"	18"	3"	12"	—	3"	12"	3"	12"	12"	3"	6"	6"	X
	3.5 pt	12"	—	—	—	18"	18"	6"	18"	6"	18"	18"	6"	12"	12"	X
SYNCHRONY XP	0.75 oz/A	X	3"	8"	X	5"	4"	3"	8"	X	4"	4"	3"	8"	8"	3"
TOUCHDOWN TOTAL <sup>1</sup> (4.17 ae/gal)	17 oz	3"	6"	18"	3"	6"	X	X"	12"	X	6	6"	X	X	X"	X
	24 oz	6"	12"	24"	—	12"	6"	3"	18"	3"	12"	12"	3"	6"	6"	X
	35 oz	12"	—	—	6"	18"	12"	6"	24"	6"	18"	18"	6"	12"	12"	X
ULTRA BLAZER	1.5 pt	2"	X	2"	4"	X	X	4"	4"	X	3"	3"	X	6"	X	X

X = Not labeled

— = Same height as indicated above

<sup>1</sup> Consult labels of other glyphosate products for rates recommended for specific weed species. Some biotypes of Marestail or Common Ragweed may not be controlled.

## 94 Soybean

### POSTEMERGENCE HERBICIDES IN SOYBEANS, ADJUVANTS, CROP GROWTH STAGES, AND RAIN-FREE PERIODS

Herbicides	Adjuvant <sup>1</sup>	Crop Stage (Timing of Application) <sup>2</sup>	Rain Delay <sup>3</sup>
Assure II	COC or NIS + (Liquid N or AMS optional)	Before pod set and 80 days prior to harvest.	1 hour
Basagran	(COC or Liq N or AMS)	Tolerant at all stages of growth.	4 hours
Butyrac 200 (2,4-DB)	NIS or COC can enhance injury and may be prohibited	Do not apply within 60 days of harvest. Other limitations may apply if mixed with other herbicides.	** 3
Classic	NIS or COC + (Liq N / AMS optional)	After first trifoliolate leaf has expanded but 60 days before maturity.	1 hour
Cobra	COC or NIS (Liq N optional)	Normally when plants are in the one to two trifoliolate leaf stage; Do not apply within 45 days before harvest or after stage R6 (full seed).	30 min.
Extreme	NIS + AMS	Before bloom and prior to 85 days of harvest.	1 hour
FirstRate	NIS or COC + Liq N	Before 50% flowering stage.	2 hours
Flexstar	NIS or COC + (Liq N optional)	Do not apply within 45 days.	1 hour
Fusion	COC or NIS + (Liq N or AMS optional)	Before bloom stage.	1 hour
Glyphosate (Post Broadcast) (Spot Treat) (Preharvest)	NIS varies with product used. (AMS is optional)	Cracking throughout flowering. Before initial pod set. After pods have set and lost green color.	*** 4
Firestorm or Parazone (Directed) (Preharvest)	NIS or COC NIS or COC	≥ 8- inch tall soybean plants. Consult label.	30 min.
Gramoxone Inteon (Directed) (Preharvest)	NIS or COC NIS or COC	≥ 8- inch tall soybean plants. Consult label.	15 - 30 min.
Harmony SG	NIS or COC + Liq N	After first trifoliolate leaf has expanded until 60 days before harvest	** 3
Ignite	-----	After emergence up to but NOT including bloom stage and 70 days before harvest.	4 hours
Phoenix	NIS	Normally when plants are in the one to two trifoliolate leaf stage; Do not apply within 45 days before harvest or after stage R6 (full seed).	2 hours

**POSTEMERGENCE HERBICIDES IN SOYBEANS, ADJUVANTS,  
CROP GROWTH STAGES, AND RAIN-FREE PERIODS**

<b>Herbicides</b>	<b>Adjuvant<sup>1</sup></b>	<b>Crop Stage (Timing of Application)<sup>2</sup></b>	<b>Rain Delay<sup>3</sup></b>
Poast	COC or DASH (Liq. N optional)	Do not apply within 75 days of harvest.	1 hour
Poast Plus	COC or DASH (Liq. N optional)	Do not apply within 75 days of harvest.	1 hour
Pursuit	NIS or COC + Liq N or AMS	Before bloom stage and prior to 85 days of harvest.	1 hour
Raptor	NIS or MSO+Liq N (COC for certain situations)	Before bloom stage.	1 hour
Resource	COC + (Liq N optional) (Consult label for using NIS for certain mixes)	Within 60 days of harvest.	1 hour
Scepter	NIS or COC	From emergence until 90 days before harvest.	---
Select MAX & other clethodim products	NIS or COC (Consult label for using AMS)	Do not apply within 60 days of harvest.	1 hour
Sequence	AMS	From cracking through 3rd trifoliolate for Roundup Ready soybean	*** <sup>4</sup>
Storm	COC, Liq N, AMS, or NIS	Do not apply within 50 days of harvest.	4 hours
Synchrony XP	COC + Liq N (Consult label for using NIS for certain mixes)	After first trifoliolate has expanded until 60 days before harvest.	1 hour
Ultra Blazer	NIS (Consult label for using Liq N, AMS, and /or COC for certain mixes)	Do not apply within 50 days of harvest.	4 hours

<sup>1</sup> COC = Crop Oil Concentrate; NIS = Non-Ionic Surfactant (at least 80% active ingredient); Liq N generally involves Urea Ammonium Nitrate or UAN (28% to 32% nitrogen fertilizer) or 10-34-0. Consult label for specific type of adjuvant and rate.

<sup>2</sup> This information is based on optimum crop growth stage and/or preharvest interval for grain.

<sup>3</sup> \*\* Rainfall soon after application may reduce effectiveness. Do not apply if weather conditions are favorable for rain.

<sup>4</sup> \*\*\* A heavy rainfall soon after application of glyphosate may reduce effectiveness. Some product labels indicate that if rainfall occurs within 6 hours after treatment, the effectiveness may be reduced. A heavy rainfall within 2 hours after application may wash chemical off the foliage and thus requiring another treatment.

### POSTEMERGENCE TANK MIXTURES LABELED FOR SOYBEANS

	BASAGRAN	ULTRABLAZER	BUTYRAC	CLASSIC	COBRA	FIRSTRATE	FLEXSTAR	GLYPHOSATE **	PURSUIT	IGNITE	RAPTOR	RESOURCE	SCEPTER	SEQUENCE	STORM	SYNCHRONY
ARROW	L	NL	NL	L	L	L	L	L	L	L	L	L	X	NL	L	L
ASSURE II*	L	L	NL	L	L	L	L	L	L	L	NL	L	X	NL	L	L
BASAGRAN	-	L	L	L	L	L	L	L	L	NL	L	L	L	NL	L	L
ULTRA BLAZER	L	-	L	L	NL	L	NL	L	L	L	L	L	L	NL	NL	L
CLASSIC	L	L	L	-	L	L	L	L	NL	L	L	L	X	NL	L	NL
COBRA	L	NL	L	L	-	L	NL	L	L	L	NL	L	L	NL	NL	L
EXTREME	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	X	NL	NL	NL	NL	NL
FIRSTRATE	L	L	NL	L	L	-	L	L	L	L	L	L	NL	NL	L	L
FLEXSTAR	L	NL	L	L	NL	L	-	L	L	L	L	L	L	NL	NL	L
FUSION*	L	L	NL	L	L	L	L	L	L	L	NL	L	L	L	L	L
GLYPHOSATE**	L	L	L	L	L	L	L	-	L	NL	L	L	L	L	L	L
HARMONY SG	L	NL	NL	L	NL	NL	L	L	L	NL	NL	L	NL	NL	NL	L
IGNITE	NL	L	NL	L	L	L	L	NL	L	-	L	L	NL	NL	NL	L
PHOENIX	L	NL	L	L	NL	L	NL	L	L	L	L	L	L	NL	NL	L
POAST PLUS*	L	L	NL	L	L	L	L	L	L	L	L	L	X	NL	L	L
PURSUIT	L	L	L	X	L	L	L	L	-	L	X	L	L	NL	L	NL
RAPTOR	L	L	NL	L	NL	L	L	L	X	L	-	L	X	NL	L	NL
RESOURCE	L	L	NL	L	L	L	L	L	L	L	L	-	L	NL	L	L
SCEPTER	L	L	NL	X	L	NL	L	L	L	NL	X	L	-	NL	L	NL
SECTION	L	L	NL	L	L	L	L	L	L	L	L	L	NL	NL	L	L
SELECT MAX*	NL	NL	NL	L	L	L	L	L	L	L	L	L	X	NL	NL	L
SEQUENCE	NL	NL	NL	NL	NL	NL	NL	L	NL	NL	NL	NL	NL	-	NL	NL
STORM	L	NL	L	L	NL	L	NL	L	L	NL	L	L	L	NL	-	L
SYNCHRONY	L	L	L	NL	L	L	L	L	NL	L	X	L	NL	NL	L	-
VOLUNTEER*	L	L	NL	L	L	L	L	L	L	L	L	L	X	NL	L	L

\*For optimum control of rhizome johnsongrass, shattercane, volunteer corn, or certain other grasses apply these post-grass herbicides as sequential applications to avoid herbicide antagonism.

\*\* Information on tank mixing products containing glyphosate with other postemergence herbicides was combined across several labels; consequently more tank mixtures are represented in this table than indicated on a specific label. Consult label(s) of specific glyphosate product and tank mix partner for approved combinations.

L = Labeled tank mixture. Consult labels for use of additives.

NL = Not a labeled tank mixture. Consult labels for precautions or restriction that may limit mixing with chemicals not indicated on the label.

X = Do not tank mix these products since severe crop injury, herbicide carryover, or herbicide antagonism may occur.

## POSTEMERGENCE

### ASSURE II

<b>ASSURE II</b> 0.88E 5 to 12 oz/A	(quizalofop 0.034 to 0.083 lb ai/A)
+	+
OIL CONCENTRATE 8 pt/100 gal	(additive)
or	or
SURFACTANT (NON-IONIC 80%) 2 pt/100 gal	(additive)
+	+
[28% UAN (2 to 4 qt/A) or AMS (2 to 4 lb/A) may be included with surfactant or crop oil]	(additive)

**Weeds Controlled:** Barnyardgrass, broadleaf signalgrass, crabgrass, fall panicum, foxtails, johnsongrass, shattercane, volunteer corn.

**Crop Stage:** Before pod set and 80 days prior to harvest.

**General Comments:** Follow label directions for herbicide rate and stages of weed growth for optimum results. For volunteer corn (including RR and LL corn) control apply 4 oz/A for plants up to 12" tall; 5 oz/A for plants up to 18" tall; use 8 oz/A for plants 18 to 30" tall.

**Environmental Statements:** None

**Rain Delay:** 1 hour.

**Rotation Restrictions:** Do not plant other crops within 120 days after last application.

**Harvest & Forage Restrictions:** Apply no later than 80 days before harvest. Do not use treated soybean plants for feed or forage.

**Tank Mixtures:** Basagran, Classic, Flexstar, Harmony GT, Pursuit, or Synchrony. Also, glyphosate in glyphosate-resistant soybean. When using ASSURE II tank mixes or as a sequential treatment, follow label directions.

**Generic Formulations:** Targa

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### BASAGRAN

<b>BASAGRAN</b> 4S 1.5 to 2 pt/A	(bentazon 0.75 to 1.0 lb ai/A)
+	+
Oil Concentrate (1 to 2 pt/A)	(additive)
or	or
UAN (4 to 8 pt/A) or AMS (2.5 lb/A)	(additive)

[consult label for using NIS with certain tank mixes]

**Weeds Controlled:** Cocklebur, giant ragweed, prickly sida, smartweed, velvetleaf, yellow nutsedge.

**Crop Stage:** Tolerant at all stages of growth.

**General Comments:** Follow label directions for herbicide rates and stage of weed growth for optimum results.

**Environmental Statements:** None.

**Rain Delay:** 4 hours.

**Rotation Restrictions:** No restrictions on the label.

**Harvest & Forage Restrictions:** Do not graze or cut treated soybean fields for forage or hay for at least 30 days after treatment.

**Tank Mixtures:** Blazer, Classic, Cobra, 2,4-DB amine, FirstRate, Flexstar, Poast, Poast Plus, Pursuit, Raptor, Resource, or Scepter. Also, Roundup Ultra for Roundup Ready soybeans or Synchrony for STS soybeans.

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## 98 Soybean

### CLASSIC

<b>CLASSIC</b> 25DF	0.5 to 0.75 oz/A	chlorimuron 0.008 to 0.012 lb ai/A)
	+	+
SURFACTANT (NON-IONIC 60%)	2 pt/100 gal	(additive)
	or	
CROP OIL CONCENTRATE	8 pt/100 gal	
	+	+
28% UAN (4 to 8 pt/A) or AMS (2 to 4 lb/A)		(additive)
[may be included with surfactant or crop oil for certain weed species.]		

**Weeds Controlled:** Burcucumber, cocklebur, pigweeds, sicklepod.

**Crop Stage:** After first trifoliolate leaf has expanded but no later than 60 days before maturity.

**General Comments:** Follow label directions for herbicide rate and stages of weed growth for optimum results.

**Environmental Statements:** Do not mix, load, or use within 50 ft of wells including abandoned wells, drainage wells, and sink holes.

**Rain Delay:** 1 hour.

**Rotation Restrictions:** Crops which may be planted after CLASSIC include wheat or barley after 3 months; corn after 8 months; popcorn, sorghum, tobacco, alfalfa or clover after 9 months following treatment. If applied after August 1, extend recrop interval 2 months for alfalfa, clover, corn, popcorn, sorghum, or tobacco. Consult labels when other chlorimuron containing products (i.e. CANOPY), imazaquin (i.e. SCEPTER, etc.), or imazethapyr (i.e. PURSUIT) are applied the same year.

**Harvest & Forage Restrictions:** Apply no later than 60 days before soybean maturity. Do not use treated plants for feed or forage.

**Tank Mixtures:** Assure II, Ultra Blazer, Cobra, FirstRate, Flexstar, Harmony GT, Phoenix. Also, glyphosate herbicides for Roundup Ready soybeans.

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### COBRA or PHOENIX

<b>COBRA</b> 2L	12.5 oz/A	(lactofen 0.2 lb ai/A)
	+	+
CROP OIL CONCENTRATE	2 to 4 pt/100 gal or	(additive)
SURFACTANT (NON-IONIC)	2 pt/100 gal	
(Liquid Nitrogen fertilizer or Ammonium Sulfate may be included as additives. Consult COBRA label.)		
	or	or
<b>PHOENIX</b> 2 EC	12.5 oz/A	(lactofen 0.2 lb ai/A)
	+	+
SURFACTANT (NON-IONIC)	1 to 2 pt/100 gal	(additive)
(Consult PHOENIX label for other additives)		

**Weeds Controlled:** Black nightshade, cocklebur, common ragweed, giant ragweed, hophornbeam copperleaf, pigweeds.

**Crop Stage:** Normally applied when plants are in the 1- to 2- trifoliolate leaf stage; Do not apply within 45 days before harvest or after stage R6 (full seed).

**General Comments:** Follow label directions for herbicide rates and optimum stages of weed growth. Do not apply to soybeans under stress.

**Environmental Statements:** Lactofen has characteristics similar to other chemicals detected in groundwater.

**Rain Delay:** 30 minutes for COBRA. 2 hours for PHOENIX.

**Rotation Restrictions:** No rotational crop restrictions indicated on herbicide label.

**Harvest & Forage Restrictions:** Do not apply later than 45 days before harvest or after stage R6 (full seed). Do not use treated soybean plants for feed or forage.

**Tank Mixtures with COBRA:** Assure II, Basagran, Classic, 2,4-DB, FirstRate, Pursuit, Scepter, or Select. Also, Roundup Ultra for Roundup Ready soybeans, or Synchrony for STS soybeans only).

**Tank Mixtures with PHOENIX:** Basagran, Classic, 2,4-DB, FirstRate, Harmony GT, Pursuit, Raptor, Resource, Scepter, or Select. Also, glyphosate (RR-soybeans), or Synchrony (STS soybeans only).

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**EXTREME**

<b>EXTREME</b> 2.17 L 3 pt/A	(imazethapyr : glyphosate 0.064:0.75 lb ai/A)
+	+
SURFACTANT (NON-IONIC 80%) 1 pt/100 gal or	(additive)
+	+
AMS 8.5 to 17 lb/A	(additive)

**Weeds Controlled:** Barnyardgrass, black nightshade, broadleaf signalgrass, burcucumber, cocklebur, common ragweed, crabgrass, fall panicum, foxtails, giant ragweed, johnsongrass (seed and rhizomes), lambsquarters, pigweed, shattercane, sicklepod, smartweed, velvetleaf, volunteer corn.

**Crop Stage:** Before bloom and prior to 85 days of harvest.

**General Comments:** Apply EXTREME only OVER-THE-TOP OF SOYBEAN VARIETIES DESIGNATED AS "ROUNDUP READY" (glyphosate resistant). Follow label directions for maximum stages of weed growth. EXTREME may also be applied preplant or preemergence for burndown weed control.

**Environmental Statements:** The EXTREME label has GROUNDWATER ADVISORY statements.

**Rain Delay:** 1 hour.

**Rotation Restrictions:** Rotational crops that may be planted include wheat after 3 months; alfalfa, barley, or rye after 4 months; or susceptible field corn hybrids after 8.5 months; or tobacco after 9.5 months; or popcorn, sweet corn, sorghum, and oats after 18 months following EXTREME application. Other crops may require a minimum of 40 months and a successful field bioassay before planting. Over application may result in injury to rotational crops.

**Harvest & Forage Restrictions:** Do not harvest within 85 days after application. Do not use treated plants for feed or forage.

**Tank Mixtures:** None.

**FIRSTRATE**

<b>FIRSTRATE</b> 84 WDG 0.3 oz/A or	(cloransulam 0.016 lb ai/A)
[one 0.6 oz water soluble packet per 2 acres.]	
+	+
SURFACTANT (NON-IONIC 1 to 2 pt/100 gal or	(additive)
+	+
28% UAN 2.5 gal/100 gal or	(additive)
AMS 2 lb/A (8.5 to 17 lb/100gal)	
[consult label for use of crop oil conc.(1.2 gal/100 gal)	
with UAN]	

**Weeds Controlled:** Cocklebur, morningglory, common ragweed, giant ragweed, smartweed, velvetleaf.

**Crop Stage:** Before 50% flowering stage. Application prior to emergence of first trifoliate leaf may cause temporary yellowing.

**General Comments:** Consult label for optimum stages of weed growth. FIRSTRATE may be applied postemergence up to 0.6 oz/A for heavy weed infestations or added residual control. The maximum cumulative rate for preplant, preemergence and postemergence applications of cloransulam is 0.055 lb ai/A (1.05 oz FIRSTRATE/A) in a single growing season.

**Environmental Statements:** FIRSTRATE should not be mixed or loaded within 50 feet of any wells, sink holes, perennial or intermittent streams and rivers, and natural or impounded lakes and reservoirs, unless an impervious pad is used.

**Rain Delay:** 2 hours.

**Rotation Restrictions:** Rotational crops that may be planted are wheat after 3 months; or alfalfa, field corn, popcorn, or sorghum after 9 months following treatment. For transplanted tobacco allow 30 months and conduct a field bioassay if herbicide rate > 0.3 oz/A and allow 10 months if herbicide rate ≤ 0.3 oz/A. For other crops allow a 30-month rotational interval and conduct a successful field bioassay.

**Harvest & Forage Restrictions:** Do not apply FIRSTRATE within 65 days of harvest. Do not harvest for forage or hay for 14 days after treatment. When FIRSTRATE postemergence rate exceeds 0.3 oz/A, the preharvest interval is 70 days for soybean harvest, and 25 days for forage or hay.

**Tank Mixtures:** Assure II, Basagran, Blazer, Classic, Cobra, Flexstar, Fusion, Poast Plus, Pursuit, Raptor, Resource, Select. Also, glyphosate (glyphosate tolerant soybeans), or Synchrony (STS soybeans only).

# 100 Soybean

## GLYPHOSATE

**GLYPHOSATE** is available in various formulations. The concentration of glyphosate may be expressed as acid equivalent which is based on the parent acid of glyphosate or expressed as active ingredient which is based on the acid plus the salt. Comparing glyphosate rates based on acid equivalents is a common method for evaluating products on equal terms. Some of the different types of formulations of glyphosate available and their application rates in a single application are shown below. Examples of specific glyphosate products are listed on **page 20**.

GLYPHOSATE FORMULATION	PRODUCT RATE / A	ACID EQUIVALENT / A
GLYPHOSATE (3 lb ae/gal formulation)	2 to 4 pt/A (32 to 64 fl oz/A)	(0.75 to 1.5 lb ae/A)
<b>Example of products:</b> Roundup Original and other glyphosate products		
GLYPHOSATE (3.75 lb ae/gal formulation)	1.6 to 3.2 pt/A (26 to 51.2 fl oz/A)	(0.76 to 1.5 lb ae/A)
<b>Example of products:</b> Buccaneer 5		
GLYPHOSATE (4 lb ae/gal formulation)	1.5 to 3 pt/A (24 to 48 fl oz/A)	(0.75 to 1.5 lb ae/A)
<b>Example of products:</b> Duramax, Durango DMA		
GLYPHOSATE (4.17 lb ae/gal formulation)	1.5 to 3 pt/A (24 to 48 fl oz/A)	(0.78 to 1.56 lb ae/A)
<b>Example of products:</b> Touchdown Total		
GLYPHOSATE (4.5 lb ae/gal formulation)	1.38 to 2.75 pt/A (22 to 44 fl oz/A)	(0.77 to 1.55 lb ae/A)
<b>Example of products:</b> Roundup Power MAX, Roundup WeatherMAX		
GLYPHOSATE (5 lb ae/gal formulation)	1.25 to 2.5 pt/A (20 to 40 fl oz/A)	(0.78 to 1.56 lb ae/A)
<b>Example of products:</b> Touchdown Hi-Tech		

**Additives:** For products that require a surfactant, a non-ionic surfactant at 0.25% v/v is often used. Consult the herbicide product label to verify if a surfactant is needed and the type and rate of surfactant to include. Certain surfactants may cause necrosis, chlorosis, or speckling of leaves. Dry Ammonium Sulfate at 1 to 2% by weight (8.5 to 17 lb/100 gal) or an equivalent amount of AMS in liquid formulation may improve glyphosate activity during dry weather, or when mixed in hard water or with certain herbicides, or applied to certain weed species.

**Weeds Controlled:** Barnyardgrass, black nightshade, broadleaf signalgrass, burcucumber, cocklebur, crabgrass, fall panicum, foxtails, giant ragweed, johnsongrass (seed and rhizomes), lambsquarters, pigweed, shattercane, sicklepod, smartweed, velvetleaf, volunteer corn (except glyphosate tolerant). Consult label for specific troublesome weed species and growth stages.

**Crop Stage:** Applications may be made to soybeans from the cracking stage through full flowering stage (R2). R2 ends when a pod 5 millimeters (3/16") long appears at one of the four uppermost nodes on the main stem with a fully expanded leaf.

**General Comments:** Apply glyphosate only OVER-THE-TOP OF SOYBEAN VARIETIES DESIGNATED WITH THE "ROUNDUP READY" GENE. For optimum control of most weed species, plant soybeans in narrow rows ( $\leq 15$  inches). The general recommended rates for glyphosate are 0.75 lb ae/A for annuals and 0.75 to 1.5 lb ae/A for perennials. A sequential application may be needed to control regrowth or new weed flushes. For optimum control of perennials, apply when broadleaf plants are in the early bud to flowering stage and when grasses are in the boot to seedhead stage. Consult label for rate for specific weeds. The repeated use of glyphosate alone without other herbicides may lead to selection of glyphosate-resistant populations of weeds. The following table summarizes the maximum rate of product for various glyphosate formulations for different applications for weed management in soybeans. Consult label for total combined rate when applied during flowering.

Glyphosate Formulation (acid equivalent)	Maximum Rate Preplant Before Crop Emergence	Maximum Rate For Single In-crop Application*	Combined Total of Multiple In-crop Applications	Maximum Use Rate Preharvest Application	Combined Season Total for All Applications
Roundup Original (3 lb ae/gal)	5 qt/A	2 qt/A	3 qt/A	1 qt/A	8 qt/A
Buccaneer 5 (3.75 lb ae/gal)	4 qt/A	1.6 qt/A	2.4 qt/A	0.8 qt/A	6.5 qt/A
Duramax (4 lb ae/gal)	3.75 qt/A	1.5 qt/A	2.25 qt/A	24 oz/A	6 qt/A
Touchdown Total (4.17 lb ae/gal)	3.6 qt/A	48 oz/A	2.2 qt/A	24 oz/A	5.8 qt/A
Roundup WeatherMAX (4.5 lb ae/gal)	3.3 qt/A	44 oz/A	64 oz/A	22 oz/A	5.3 qt/A
Touchdown Hi-Tech (5 lb ae/gal)	3 qt/A	40 oz/A	1.8 qt/A	20 oz/A	4.8 qt/A

\*Some product labels require a reduced rate of glyphosate when applied during flowering. Consult label.

**Environmental Statements:** Take precautions to avoid spray drift to desirable plants.

**Rain Delay:** Rainfall soon after application may reduce effectiveness. Some labels indicate 6 hrs.

**Rotation Restrictions:** There are no rotational restrictions following normal use of glyphosate. Wait at least 30 days before planting of crops not listed on the label.

**Harvest & Forage Restrictions:** Do not harvest within 14 days after treatment. Consult label for use of treated plants for feed or forage.

**Tank Mixtures:** Consult specific glyphosate label.

## FLEXSTAR

**FLEXSTAR** 1.88L 1 to 1.5 pt/A (fomesafen 0.235 to 0.35 lb ai/A)  
 +  
 SURFACTANT (NON-IONIC 80%) 0.5 to 1 pt/25 gal (additive)  
 or CROP OIL CONCENTRATE 1 to 2 pt/25 gal  
 [28% liquid N may be included with surfactant or crop oil]

**Weeds Controlled:** Black nightshade, cocklebur, common ragweed, giant ragweed, hophornbeam copperleaf, morningglories, smartweed, pigweeds.

**Crop Stage:** Prior to 45 days before harvest.

**General Comments:** Follow label directions for herbicide rates and optimum stages of weed growth. Do not exceed a maximum of 0.375 lb ai of fomesafen in alternate years.

**Environmental Statements:** Contamination of groundwater may occur when used on permeable soils.

**Rain Delay:** 1 hour.

**Rotation Restrictions:** Rotational crops that may be planted are wheat or barley after 4 months; or corn after 10 months (12 months for popcorn) following treatment. Other crops may be planted 18 months after treatment.

**Harvest & Forage Restrictions:** Do not apply within 45 days of harvest. Treated soybean plants or rotated small grain crops should not be grazed or harvested for forage or straw.

**Tank Mixtures for FLEXSTAR:** Assure II, Basagran, Butyrac 200, Classic, FirstRate, Fusion, Harmony GT, Poast, Poast Plus, Pursuit, Raptor, Resource, Scepter, or Select. Also, glyphosate in Roundup Ready soybeans or Synchrony STS in STS soybeans only.

## 102 Soybean

### FUSION

**FUSION 2.56E** 6 to 12 oz/A

[fluazifop-P-butyl:fenoxaprop-P- ethyl]  
[(0.09:0.026 lb ai/A) to (0.188:0.053) lb ai/A]

+  
CROP OIL CONCENTRATE 1 to 2 pt/25 gal  
or SURFACTANT (NIS 75%) 0.5 to 1 pt/25 gal  
[28% UAN (4 qt/25 gal) or AMS (4 lb/A) may be  
included with surfactant or crop oil]

+  
(additive)

**Weeds Controlled:** Barnyardgrass, broadleaf signalgrass, crabgrass, fall panicum, foxtails, johnsongrass, shattercane, volunteer corn.

**Crop Stage:** Before bloom stage.

**General Comments:** Follow label directions for herbicide rate and stages of weed growth for optimum results.

**Environmental Statements:** None.

**Rain Delay:** 1 hour.

**Rotation Restrictions:** Do not plant rotational grass crops such as corn, sorghum, or small grains within 60 days after last application.

**Harvest & Forage Restrictions:** Apply FUSION before soybean bloom. Do not graze or harvest treated fields for forage or hay.

**Tank Mixtures:** Basagran, Blazer, Classic, Cobra, FirstRate, Flexstar, Pursuit, Scepter, Storm. Also Touchdown 5 for RR soybeans or Synchrony in STS soybeans only. When using FUSION in tank mixtures or as a sequential application with other herbicides, follow specific directions on the labels.

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### HARMONY SG (with TotalSol)

**HARMONY SG 50DF** 0.125 oz/A (1/8 oz/A)

(thifensulfuron 0.0039 lb ai/A)

+  
SURFACTANT (NONIONIC 50%) 1 to 2 pt/100gal

+  
(additive)

+  
28% UAN (4 to 8 pt/A) or AMS (2 to 4 lb/A)  
(Consult label for use of oil concentrate)

+  
(additive)

**Weeds Controlled:** Lambsquarters, pigweed, smartweed, velvetleaf.

**Crop Stage:** After first trifoliolate has expanded and until 60 days before harvest.

**General Comments:** HARASS and UNITY are similar products applied at the rate of 0.83 oz/A. HARMONY SG at 0.5 oz/A; or HARASS or UNITY at 0.33 oz/A may be used only in soybeans with STS trait.

**Environmental Statements:** None.

**Rain Delay:** Several hours of dry weather are needed for absorption.

**Rotation Restrictions:** Wheat, barley, oats, soybean, field corn, or grain sorghum may be replanted anytime after application. Other crops may be planted 45 days after HARMONY SG application.

**Harvest & Forage Restrictions:** Apply no later than 60 days before harvest. Do not use treated soybean plants for feed or forage. Harvested straw may be used for bedding and/or feed.

**Tank Mixtures with Harmony SG:** Assure II, Basagran. Also, glyphosate in RR soybean. Do not mix with Poast Plus.

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**IGNITE 280 SL**  
**(Liberty Link Varieties ONLY)**

**IGNITE 2.34L:** 22 oz/A or (glufosinate ammonium 0.4 lb ai/A)

**Weeds Controlled:** Black nightshade, cocklebur, common ragweed, fall panicum, foxtails, giant ragweed, johnsongrass (seedling), lambsquarters, morningglories, pigweeds, prickly sida, shattercane, smartweed, velvetleaf. Consult label for weed size.

**Crop Stage:** Apply from emergence up to but not including bloom growth stage.

**General Comments:** Apply only overtop soybean varieties designated as "Liberty Link". A second application of IGNITE or a tank mix application with a residual herbicide will be needed to control weeds not yet emerged at time of application. Do not exceed 44oz/A per season. Sequential sprays should be 10-14 days apart. If IGNITE was applied in the burndown application, no postemergence application may be applied to the crop. Applications should be made between dawn and 2 hours before sunset to avoid reduced control of lambsquarters and velvetleaf.

**Environmental Statements:** Use precautions to avoid drift of spray to nearby crops or sensitive plants.

**Rain Delay:** 4 hrs

**Rotation Restrictions:** Corn or soybean may be planted anytime. Allow a minimum interval of 70 days after application for wheat, barley, and oats and 180 days for other crops.

**Harvest & Forage Restrictions:** Do not apply within 70 days of harvest. Do not graze or cut for hay.

**Tank Mixtures:** Assure II, Classic, clethodim, Cobra, FirstRate, Flexstar, Fusion, Phoenix, Poast Plus, Pursuit, Raptor, Reflex, Resource, SelectMax, Synchrony XP and Ultra Blazer.

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**POAST or POAST PLUS**

**POAST 1.5E** 1.0 to 1.5 pt/A or (sethoxydim 0.18 to 0.28 lb ai/A)

**POAST PLUS 1E** 1.5 to 2.25 pt/A

+

+

**CROP OIL CONCENTRATE** 2 pt/A or

(additive)

**DASH HC** 1 pt/A

[28% UAN (2 to 4 qt/A) or AMS (2.5 lb/A) may also be included to improve control of certain species.]

**Weeds Controlled:** Barnyardgrass, broadleaf signalgrass, crabgrass, fall panicum, foxtails, johnsongrass, shattercane, volunteer corn.

**Crop Stage:** Do not apply within 75 days of harvest.

**General Comments:** Follow label directions for rates and stages of weed growth for optimum results.

**Environmental Statements:** None.

**Rain Delay:** 1 hour.

**Rotation Restrictions:** Do not plant any other crop to be harvested for 30 days after application unless POAST or POAST PLUS are registered for that crop.

**Harvest & Forage Restrictions:** Do not apply within 75 days of harvest. Do not graze or feed ensilage from treated soybean plants to livestock. Soybean hay may be fed.

**Tank Mixtures:** Basagran, Blazer, Classic, Cobra, FirstRate, Flexstar, Pursuit, Raptor, Resource, or Storm. Also, glyphosate (e.g. Roundup) in Roundup Ready soybeans only or Synchrony in STS soybeans only. When using POAST or POAST PLUS in tank mixes or sequential applications with other herbicides, follow specific directions on label.

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## 104 Soybean

### PURSUIT

<b>PURSUIT 2S</b> 4 oz/A or <b>PURSUIT 70 DG</b> 1.44 oz/A [One 2.8 oz soluble bag per 2 acres]	(imazethapyr 0.063 lb ai/A)
+	+
SURFACTANT (NON-IONIC 80%) 1 qt/100 gal or CROP OIL CONCENTRATE 1.25 gal/100 gal or METHYLATED SEED OIL 1 gal/100 gal	(additive)
+	+
FERTILIZER SOLUTION [28 to 32% NITROGEN or 10-34-0 at 1.25 to 2.5 gal/100 gal or AMS 12 to 15 lb/100 gal]	(additive)

**Weeds Controlled:** Black nightshade, cocklebur, foxtails, giant ragweed, johnsongrass (seedling), pigweeds, shattercane, smartweed, velvetleaf.

**Crop Stage:** Apply PURSUIT any time prior to soybean bloom and 85 days before harvest.

**General Comments:** Follow label directions for optimum stages of weed growth. Make only one PURSUIT application per growing season.

**Environmental Statements:** PURSUIT has GROUND WATER advisory statements on the label. It should not be mixed or loaded within 50 feet of any wells, sink holes, perennial or intermittent streams, rivers, and natural or impounded lakes and reservoirs, unless an impervious pad is used.

**Rain Delay:** 1 hour.

**Rotation Restrictions:** Rotational crops that may be planted include wheat after 3 months, alfalfa, barley, or rye after 4 months; susceptible field corn hybrids after 8.5 months (Clearfield corn may be planted immediately); tobacco after 9.5 months; or popcorn, sweet corn, sorghum, and oats after 18 months following PURSUIT application. Other crops may require a minimum of 40 months and a successful field bioassay before planting. Consult label for rotation restrictions when other long-residual herbicides are used during the same season. Only rotational crops harvested at maturity may be used for feed or food.

**Harvest & Forage Restrictions:** Do not harvest within 85 days after PURSUIT application. Do not use treated plants for feed or forage.

**Tank Mixtures:** Basagran, Ultra Blazer, Cobra, FirstRate, Flexstar, Glyphosate, Harmony GT, Poast Plus, Scepter, or Storm.

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### RAPTOR

<b>RAPTOR 1S</b> 5 oz/A	(imazamox 0.039 lb ai/A)
+	+
METHYLATED SEED OIL 1 to 2 gal/100 gal or CROP OIL CONCENTRATE 1 to 2 gal/100 gal or SURFACTANT (NON-IONIC 80%) 1 qt/100 gal	(additive)
+	+
FERTILIZER SOLUTION [28 to 32% NITROGEN or 10-34-0 at 2.5 gal/100gal or AMS at 12 to 15 lb/100gal]	(additive)

**Weeds Controlled:** Barnyardgrass, black nightshade, cocklebur, foxtails, giant ragweed, johnsongrass (seedling), lambsquarters, morningglories, pigweeds, shattercane, smartweed, velvetleaf.

**Crop Stage:** Before bloom stage.

**General Comments:** Follow label for herbicide rates and optimum stages of weed growth. Do not apply RAPTOR more than once per season.

**Environmental Statements:** None.

**Rain Delay:** 1 hour.

**Rotation Restrictions:** Rotational crops that may be planted are Clearfield wheat anytime; alfalfa and non-Clearfield wheat after 3 months; barley or rye after 4 months; or Clearfield and susceptible corn (field or pop) after 8.5 months; or grain sorghum, or tobacco 9 months following treatment. Other crops may be planted 18 months after treatment. Consult label if certain long-residual herbicides have been used.

**Harvest & Forage Restrictions:** Apply before soybean bloom.

**Tank Mixtures:** Ultra Blazer, Classic, FirstRate. Also, glyphosate (for RR soybeans only). Do not tank mix with Extreme.

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## RESOURCE

<b>RESOURCE</b> 0.86E 4 to 8 oz/A	flumiclorac pentyl 0.027 to 0.054 lb ai/A)
+	+
CROP OIL CONCENTRATE (1 qt/A) (Consult labels for using non-ionic surfactant for certain tank mixes)	(additive)
+	+
[28% UAN (1 to 2 qt/A) or AMS (2.5 lb/A) may included with crop oil or surfactant.]	(additive)

**Weeds Controlled:** Common ragweed, velvetleaf.

**Crop Stage:** Within 60 days of harvest.

**General Comments:** Follow label directions for herbicide rates and optimum stages of weed growth. Soybean leaves open at the time of application may show some burn or spotting. Do not exceed 12 oz/A in a single application or a cumulative amount of 16 oz/A in a season.

**Environmental Statements:** Do not allow spray drift to food or forage crops that might be damaged and rendered unfit for sale or use for consumption.

**Rain Delay:** 1 hour.

**Rotation Restrictions:** Do not rotate to crops other than soybeans or field corn within 30 days after the last application

**Harvest & Forage Restrictions:** Do not apply within 60 days of harvest. Do not feed treated forage.

**Tank Mixtures:** Assure II, Basagran, Blazer, Classic, Cobra, FirstRate, Flexstar, Fusion, Harmony GT, Poast, Poast Plus, Pursuit, Raptor, Scepter, Select, Storm. Also, glyphosate in Roundup Ready soybeans or Synchrony in STS soybeans only.

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## SCEPTER

<b>SCEPTER</b> 70DG 1.4 to 2.8 oz/A [One 5.6 oz soluble bag per 4 to 2 acres]	(imazaquin 0.061 to 0.123 lb ai/A)
+	+
SURFACTANT (NON-IONIC 80%) (2 pt/100 gal) or	(additive) or
CROP OIL CONCENTRATE (Consult COC label for rate)	(additive)

**Weeds Controlled:** Cocklebur, pigweeds.

**Crop Stage:** From emergence until 90 days before harvest.

**General Comments:** When applied POSTEMERGENCE consult label for optimum stages of weed growth. Internode shortening of soybean plants may occur.

**Environmental Statements:** The use of SCEPTER on permeable soils may result in ground water contamination.

**Rain Delay:** None indicated on SCEPTER label.

**Rotation Restrictions:** Rotational crops which may be planted include wheat after 3 months; field corn, or tobacco after 9.5 months; or barley, or grain sorghum 11 months following treatment. Do not plant other rotational crops within 18 months after application. Consult label for rotation restrictions when other long-residual herbicides are used during the same season, for sequential SCEPTER applications, or when soil conditions are dry after application.

**Harvest & Forage Restrictions:** Do not harvest within 90 days after application. Do not use treated plants for feed or forage.

**Tank Mixtures:** None.

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## 106 Soybean

### SELECT MAX

**SELECT MAX 0.97 EC** 9 to 32 oz/A (clethodim 0.068 to 0.24)  
or  
NONIONIC SURFACTANT 0.25% v/v or (additive)  
CROP OIL CONCENTRATE 1 qt/A

[Consult label for use of AMS for certain weeds such as rhizome johnsongrass or volunteer corn and use of non-ionic surfactant with glyphosate combinations.]

**Weeds Controlled:** Barnyardgrass, broadleaf signalgrass, crabgrass, fall panicum, foxtails, johnsongrass, shattercane, volunteer corn.

**Crop Stage:** Do not apply within 60 days of harvest.

**General Comments:** When using SELECT MAX for volunteer corn apply at 6 to 12 oz/A for plants up to 12 inches tall; use 9 to 14 oz/A when plants are up to 24 inches tall; use 12 to 16 oz/A when plants are up to 36 inches tall.

**Environmental Statements:** None.

**Rain Delay:** 1 hour.

**Rotation Restrictions:** Do not plant for 30 days after applying SELECT MAX, unless clethodim is registered for that crop.

**Harvest & Forage Restrictions:** Apply no later than 60 days before harvest. Do not use treated soybean plants for feed or forage.

**Tank Mixtures for Select MAX:** COBRA, FIRSTRATE, FLEXSTAR, HARMONY GT, PHOENIX, PURSUIT, RAPTOR, RESOURCE. Also glyphosate for RR soybean or SYNCHRONY (STS soybeans only). Consult other clethodim containing products for approved tank mix combinations.

**Generic Formulations:** Other clethodim containing products include ARROW, INTENSITY, INTENSITY ONE, SECTION, SHADOW, TRIGGER, VOLUNTEER. Consult label for rate and recommended additive.

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### SEQUENCE

**SEQUENCE 5.25L** 2.5 to 3.5 pt/A (glyphosate:S-metolachlor)  
(0.7:0.94 to 1.:1.3 lb ai/A)

Dry Ammonium Sulfate at 1 to 2% by weight (8.5 to 17 lb/100 gal) may be used as an additive to improve glyphosate activity during dry weather, when mixed in hard water or with certain herbicides, or for certain weed species.

**Annual Weeds Controlled:** Annual fleabane, barnyardgrass, brome spp., chickweed, common ragweed, crabgrass, fall panicum, giant foxtail, giant ragweed, henbit, johnsongrass (seedlings), lambsquarters, mustards, prickly lettuce, rye, smartweed, volunteer corn (except glyphosate resistant), wheat

**Perennials:** FOR SPECIFIC PERENNIAL WEED SPECIES CONSULT LABEL. Best control of perennials is usually achieved at late growth stages approaching maturity and when soil moisture is adequate for active plant growth. Perennial weeds may not be at the proper growth stage during normal application times for no-till soybeans. Control may be reduced if plants are mowed or grazed and not allowed to regrow to recommended growth stage. Perennial weeds may require multiple applications of glyphosate for optimum control.

**Crop Stage:** Applications may be made preplant, preemergence, all soybeans or postemergence to Roundup Ready soybeans from the cracking stage through third trifoliolate.

**General Comments:** Apply SEQUENCE only OVER-THE-TOP OF SOYBEAN VARIETIES DESIGNATED WITH THE "ROUNDUP READY" GENE. Glyphosate is a translocated herbicide that controls emerged weeds, whereas, S-metolachlor is a soil-residual herbicide that controls weeds prior to emergence. For optimum control of most weed species, plant soybeans in narrow rows ( $\leq 15$  inches). Consult label for rate for specific weeds. When applied postemergence, do not exceed 3.5 pt/A per season. Do not apply products with S-metolachlor or metolachlor after soybean emergence if SEQUENCE is applied preemergence.

**Environmental Statements:** SEQUENCE has GROUND and SURFACE WATER ADVISORY statements on the label. This product should not be mixed or loaded within 50 feet of any wells, sink holes, perennial or intermittent streams, rivers, and natural or impounded lakes and reservoirs, unless an impervious pad is used. Avoid drift of spray as this can result in injury to non-target plants.

**Rain Delay:** Rainfall soon after application may reduce control of emerged weeds.

**Rotation Restrictions:** Rotational crops that may be planted include corn or sorghum (with Concep treated seed) immediately; alfalfa after 4 months; wheat, barley, rye, or oats after 4.5 months; clover after 9 months; and tobacco in the spring following treatment.

**Harvest & Forage Restrictions:** For preplant or preemergence applications, do not feed for forage or hay for 30 days after treatment. For post applications in RR soybean, do not harvest grain for 90 days after treatment and do not graze or feed forage or hay.

**Tank Mixtures:** Dual Magnum, Fusion, Touchdown Hi-Tech, Touchdown Total.

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**STORM**

<b>STORM 4S</b> 1.5 pt/A	(bentazon:acifluorfen 0.5:0.25 lb ai/A)
+	+
OIL CONCENTRATE 1 to 2 pt/A or	
28 % UAN (4 to 8 pt/A) or	(additive)
AMS (2.5 lb/A) or	
SURFACTANT (NON-IONIC 80%) 1 to 2 pt/100 gal	

**Weeds Controlled:** Cocklebur, common ragweed, giant ragweed, hophornbeam copperleaf, pigweeds, smartweed.

**Crop Stage:** Do not apply within 50 days of harvest.

**General Comments:** Best results are obtained when weeds are 2 to 6 inches in height. Follow label directions for herbicide rates and stage of weed growth for optimum results. Do not exceed 1.5 pt/A per application or total of 3 pt/A per season.

**Environmental Statements:** STORM has a GROUND WATER advisory statement on the label.

**Rain Delay:** 4 hours

**Rotation Restrictions:** In case of crop failure only soybean may be immediately replanted. Allow a minimum rotational interval of 40 days for small grains and 100 days for other crops.

**Harvest & Forage Restrictions:** Do not apply within 50 days of harvest. Do not use treated plants for feed or forage.

**Tank Mixtures:** Assure II, Basagran, Classic, 2,4-DB, FirsRate, Fusion, Poast, Pursuit, Raptor, Resource, Scepter, or Select. Also, glyphosate for Roundup Ready soybeans, or Synchrony for STS soybeans.

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**SYNCHRONY XP**

<b>SYNCHRONY XP</b> 0.75 oz/A	(chlorimuron:thifensulfuron 0.01:0.003 lb ai/A)
+	+
CROP OIL CONCENTRATE 8 pt/100 gal	(additive)
[Consult label for using nonionic surfactant]	
+	+
28% UAN 4 to 8 pt/A or	(additive)
AMS 2 to 4 lb/A	

**Weeds Controlled:** Burcucumber, cocklebur, lambsquarters, pigweeds, sicklepod, smartweed, velvetleaf.

**Crop Stage:** Postemergence after first trifoliolate has expanded until 60 days before harvest. May also be applied PRE, PPI or Burndown prior to soybean emergence.

**General Comments:** SYNCHRONY XP at 0.75 oz/A must be applied only to STS soybeans purchased from an authorized seed dealer; otherwise, severe crop injury and/or yield loss may occur. Applications may be made to non-STs soybeans when using the reduced rate of SYNCHRONY XP is 0.375 oz/A. Follow label directions for herbicide rate and stage of weed growth for optimum results.

**Environmental Statements:** None.

**Rain Delay:** 1 hour.

**Rotation Restrictions:** When SYNCHRONY is applied at 0.75 oz/A and soil pH is < 7.0, rotational crops which may be planted include wheat, barley, fescue, or ryegrass after 3 months; field corn or alfalfa after 9 months; and popcorn, sorghum or tobacco, after 15 months following treatment. Consult label when maximum rate for SYNCHRONY XP is 0.375 oz/A; or when SYNCHRONY XP is applied alone or followed by Classic after August 1. Follow the most restrictive label when SYNCHRONY is used the same season with other long-residual herbicides.

**Harvest & Forage Restrictions:** Apply no later than 60 days before soybean maturity. Do not use treated plants for feed or forage.

**Tank Mixtures:** Assure II, Ultra Blazer, Cobra, FirstRate, Flexstar, Harmony GT. Also, glyphosate for Roundup Ready soybean.

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# 108 Soybean

## ULTRA BLAZER

ULTRA BLAZER 2L 1.5 pt/A

(acifluorfen 0.38 lb ai/A)

+  
SURFACTANT (NON-IONIC 80%) 1 to 2 pt/100 gal  
[Consult label for using 28% UAN (4 to 8 pt/A),  
AMS (2.5 lb/A) or Crop Oil Concentrate (1 to 2 pt/A).]

+  
(additive)

**Weeds Controlled:** Black nightshade, common ragweed, hophornbeam copperleaf, giant ragweed, morningglories, pigweeds, smartweed.

**Crop Stage:** Do not apply within 50 days of harvest.

**General Comments:** Follow label directions for optimum stages of weed growth

**Environmental Statements:** ULTRA BLAZER has a GROUND WATER advisory statement on the label.

**Rain Delay:** 4 hours.

**Rotation Restrictions:** In case of crop failure only soybean may be immediately replanted. Allow a minimum rotational interval of 40 days for small grains and 100 days for other crops.

**Harvest & Forage Restrictions:** Do not apply within 50 days of harvest. Do not use treated soybean plants for feed or forage.

**Tank Mixtures:** Assure II, Basagran, Classic, 2,4-DB, FirstRate, Fusion, Poast, Poast Plus, Pursuit, Raptor, Resource, Scepter, Select, (glyphosate for Roundup Ready Soybean), or (Synchrony for STS soybean).

### SPOT-TREATMENTS FOR SOYBEANS

AMOUNT OF PRODUCT PER GALLON OF SPRAY MIXTURE					
<b>GRAMINICIDES</b>					
PRODUCT	RATE	ADDITIVES			COMMENTS
		COC.	NIS		
ARROW <sup>1</sup>	0.65 oz +	1.3 oz	or	0.3 oz	<sup>1</sup> Label directions for application timing; restrictions for preharvest interval; and use of forage for spot treatments are the same as those for broadcast applications for ARROW, ASSURE II, FUSION, SECTION, SELECT, and SELECT MAX.  <sup>2</sup> Do not apply spot treatments of POAST or POAST PLUS in addition to broadcast treatments.
ASSURE II <sup>1</sup>	0.5 oz +	1.25 oz	or	0.3oz	
FUSION <sup>1</sup>	0.75 oz +	1.5 oz	or	0.5oz	
POAST <sup>2</sup>	1.9 oz +	1.3 oz		-----	
POAST PLUS <sup>2</sup>	2.9 oz +	1.3 oz		-----	
SECTION <sup>1</sup>	0.65 oz +	1.3 oz	or	0.3 oz	
SELECT <sup>1</sup>	0.65 oz +	1.3 oz	or	0.3 oz	
SELECT MAX <sup>1</sup>	0.85 oz +	1.3 oz	or	0.3 oz	
VOLUNTEER <sup>1</sup>	0.65 oz +	1.3 oz	or	0.3 oz	
<b>GLYPHOSATE</b>					
GLYPHOSATE FORMULATION <sup>3</sup>	RATE			COMMENTS	
3 lb ae /gal	0.64 to 2.56 oz			<sup>3</sup> Apply GLYPHOSATE products as a spot-treatment before initial pod set of soybean. Susceptible plants in the treated area may be killed or injured. Do not treat more than 10% of the total area to be harvested. Mix the low rate for annuals <6" tall and the high rate for certain hard-to-control perennials. Higher rates may be warranted for certain weeds. Consult label for rates for specific weeds. See Page 20 for list of glyphosate products.	
3.75 lb ae/gal	0.51 to 2.05 oz				
4 lb ae /gal	0.48 to 1.92 oz				
4.17 lb ae/gal	0.46 to 1.84 oz				
4.5 lb ae/gal	0.42 to 1.7 fl oz				
5 lb ae/gal	0.38 to 1.53 oz				
<b>PARAQUAT</b>					
PRODUCT	RATE	SURFACTANT		COMMENTS	
GRAMOXONE INTEON	0.33 to 0.67 oz	0.33 to 0.5 oz		Thoroughly wet foliage but not to the point of runoff. Do not use around home gardens, schools, recreational areas, golf courses, or playgrounds.	
FIRESTORM	0.33 to 0.67 oz	0.33 to 0.5 oz			
PARAZONE	0.33 to 0.67 oz	0.33 to 0.5 oz			

## PREHARVEST

### PARAQUAT

<b>FIRESTORM 3S</b> or <b>PARAZONE 3S</b>	5.4 to 10.7 oz/A	(paraquat 0.126 to 0.25 lb ai/A)
	or	
<b>GRAMOXONE INTEON 2 S</b>	8 to 16 oz/A	
	+	+
<b>NONIONIC SURFACTANT</b>	1 to 2 pt/100 gal	(additive)
	or	
<b>CROP OIL CONCENTRATE</b>	4 qt /100 gal	

**Weeds Controlled:** For harvest aid and desiccation of green weed foliage.

**Crop Stage:** Apply to indeterminate varieties when at least 65% of seed pods have a mature brown color or when seed moisture is 30% or less. Apply to determinate varieties when seed are fully developed, at least half of the leaves have dropped, and remaining leaves are turning yellow. Immature soybean will be injured.

**General Comments:** Mature cocklebur, especially drought stressed plants, may not be completely desiccated

**Environmental Statements:** Drift of spray can desiccate green tissue and result in injury to non-target plants and render them unfit for sale, use, or consumption.

**Rain Delay:** 30 minutes for FIRESTORM; 15-30 minutes for GRAMMOOXNE INTEON.

**Rotation Restrictions:** All rotational crops may be planted after last application.

**Harvest & Forage Restrictions:** Do not apply within 15 days of harvest. Do not use treated plants for forage or hay.

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### GLYPHOSATE

<b>GLYPHOSATE</b>	3 lb ae/gal	Up to 5 or 6 qt/A depending on specific product (for Non Roundup Ready soybean)	(3.75 or 4.5 lb ae/A)
		1qt/A (for Roundup Ready soybean)	(0.75 lb ae/A)

The above rates are based on 3 lb ae/gal formulation. See page 20 when comparing rates for other formulations. Consult specific label.

**Additives:** For products that require a surfactant, a non-ionic surfactant at 0.25% v/v is often used. Consult the herbicide product label to verify if a surfactant is needed and the type and rate of surfactant to include. Dry Ammonium Sulfate at 1 to 2% by weight (8.5 to 17 lb/100 gal) may improve glyphosate activity during dry weather, or when mixed in hard water or with certain herbicides, or applied to certain weed species. The equivalent amount of AMS in a liquid formulation may be used.

**Weeds Controlled:** To suppress growth or kill certain perennial weeds.

**Crop Stage:** Apply after pods have set and lost all green color.

**General Comments:** Do not apply to soybean grown for seed production due to potential for reducing germination or seed vigor. Care should be taken to avoid excessive seed shatter loss caused by ground application equipment. Consult label for applications with airplane

**Environmental Statements:** Take precautions to prevent spray drift to desirable plants.

**Rain Delay:** Rainfall soon after application may reduce effectiveness. Some labels indicate 6 hrs.

**Rotation Restrictions:** There are no rotational restrictions following normal use of glyphosate. Wait at least 30 days before planting of crops not listed on the label.

**Harvest & Forage Restrictions:** Consult specific product label for preharvest intervals.

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