

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

| 2,4-D ESTER | Rate/A | (2,4-D) |
|---------------|---------------|-----------------------|
| 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 (marestalk), lambsquarters, mustards, prickly lettuce.

Timing: A restrictive interval between application of 2,4-D and soybean planting is required. The interval for most 2,4-D Ester formulations is 7 days for rates up to 0.5 lb ai/A, and 15 to 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 vary for some 2,4-D ester products (examples of products include 2,4-D LV4, Weedone 650, E-99, and Salvo). Consult specific product label for details.

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 (marestalk). 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.

CLARITY 4S

4 to 16 oz/A

dicamba 0.125 to 0.5 lb ae/A

Weeds Controlled: Annual fleabane, marestail (horseweed), prickly lettuce, musk thistle, giant ragweed, vetch.

Additives: Although not required, adjuvants such as nonionic surfactant, crop oil concentrate, or sprayable fluid fertilizer may improve control of emerged weeds. Use of fertilizer additives such as Ammonium Sulfate may not be recommended when CLARITY is tank mixed with some products (consult all labels).

Timing: *Apply only as an early preplant treatment in the spring.* Following application of dicamba and a minimum accumulation of 1 inch of rain or irrigation, allow a waiting interval of 14 days for <8 fluid oz/A and 28 days for 16 fluid oz/A. Do not exceed 16 fl oz of Clarity/A in spring applications prior to planting soybeans.

Spray Volume: Keep spray volume at or above 20 GPA and pressure at or below 20 psi. Use coarse sprays to limit the risk of drift to nearby sensitive species.

General Comments: Consult label for specific guidelines when used as a preplant treatment on soybean.

Rain Delay: 4 hours

Tank Mixtures for Clarity: Glyphosate, 2,4-D, Outlook, Dual Magnum.

Generic Formulations: Clash, Detonate, Sterling Blue, Strut, Vision

| DICAMBA | Herbicide Rate Based on Soybean Trait | |
|---|---|--|
| | Non-Dicamba Tolerant | Roundup Ready 2 Xtend (Dicamba Tolerant) |
| Xtendimax with VaporGrip Technology (http://www.xtendimaxapplicationrequirements.com) | 11 to 22 fl oz/A (0.25 to 0.5 lb ae/A) | 22 to 44 fl oz/A (0.5 to 1 lb ae/A) |
| FeXapan plus Vapor Grip Technology (http://www.fexapanapplicationrequirements.dupont.com) | 11 to 22 fl oz/A (0.25 to 0.5 lb ae/A) | 22 to 44 fl oz/A (0.5 to 1 lb ae/A) |
| Engenia (http://www.engeniatankmix.com) | 3.2 to 12.8 fl oz/A (0.125 to 0.5 lb ae/A) | 12.8 fl oz/A (0.5 lb ae/A) |

Additives: DO NOT apply with ammonium sulfate (AMS) or any ammonium containing products. The addition of AMS even in small amounts increases the volatility of these products. Refer to the application requirement websites for allowed and/or required adjuvants and drift reduction agents.

Weeds Controlled: Annual fleabane, marestail (horseweed), prickly lettuce, musk thistle, giant ragweed, vetch.

Timing: Xtendimax, FeXapan, and Engenia may be applied preplant, preemergence, and postemergence up to 45 days after soybean planting in dicamba tolerant soybean systems. For non-dicamba tolerant soybean a minimum of 1 inch of rain and 14 days is required prior to planting for applications of 0.25 lb ae or less of dicamba and 1" of rain and 28 days for applications of 0.5 lb dicamba.

Spray Volume: Minimum 15 GPA

General Comments: RESTRICTED USE HERBICIDES that require certification and dicamba specific training to purchase and apply. Refer to label for specific record keeping requirements. KENTUCKY SPECIFIC GUIDELINES MAY BE MORE RESTRICTIVE, REFER TO STATE SPECIFIC LABELING FOR FURTHER DETAILS.

Environmental Statements: Drift of dicamba spray or vapor can cause injury on nearby sensitive crops including non-DT soybean and tobacco. The following parameters must be followed to assure off-site movement does not occur.

- Do not apply if wind is blowing toward a sensitive crop, which includes non dicamba tolerant soybean
- Maintain a 110 ft (0.5 lb ae) or 220 ft (1 lb ae) downwind buffer (Refer to the label when additional buffer restrictions are required in counties where endangered species may exist).
- Do Not apply if wind is less than 3 mph or greater than 10 mph
- Use only approved nozzles that can be found on the application requirement websites of each product
- Do Not exceed 15 MPH spray ground speed
- Do Not exceed a boom height of 24"
- Only apply between 1 hour after sunrise and 2 hours prior to sunset
- Avoid applications into a temperature inversion (See label for further descriptions of temperature inversions)

Rain Delay: 24 hours

Tank Mixtures : Refer to application requirement websites for all allowed tank mixtures.

76 Soybean

ELEVORE

1 fl oz/A

halauxifen-methyl 0.004 lb ae/A

Weeds Controlled: marestalk (horseweed), lambsquarters, common ragweed,

Additives: Crop oil Concentrate (COC) or Methylated seed oil (MSO) at 0.5 to 1% v/v

Timing: Apply preplant at least 14 days prior to soybean planting

General Comments: ELEVORE is recommended for burndown control of herbicide resistant horseweed, other burndown products should be tankmixed with Elevore for control of other weeds present at time of burndown application.

Rotation Restrictions: Corn, Wheat, and Barely can be planted 14 days after application.

Tank Mixtures: Check ElevoreTankMix.com for tankmix restrictions.

| ENLIST DUO with Colex D Technology (3.3 L) | Rate/A | (2,4-D Choline : glyphosate) |
|--|-----------|------------------------------|
| Small Annuals | 3.5 pt/A | (0.7 lb ae/A : 0.75 lb ae/A) |
| Large Annuals | 4.75 pt/A | (0.95 lb ae/A : 1 lb ae/A) |

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

Timing: Apply no less than 30 days preplant prior to soybean planting.

Spray Volume: Apply in a minimum of 10 to 15 gal of water per acre. Do not apply with nitrogen fertilizer as a carrier

General Comments: Unacceptable crop injury may occur when Enlist Duo is applied as a pre-plant treatment to non-ENLIST soybean. Plant soybean seed at least 1 to 2 inches deep. Adjust planter press wheels to ensure that soybean seed are completely covered with soil. Do not disturb soil with tillage between application and soybean planting.

Do not make more than one application of Enlist Duo per growing season; do not exceed 4.75 pt/A per season.

Environmental Statements: Drift of Enlist Duo spray or vapor can injure nearby susceptible plants. The following parameters must be followed to assure off-site movement does not occur.

-Applications must be made with approved broadcast nozzles and pressures (See label for details)

-Do Not apply if winds are greater than 15 mph

-Do Not apply during a low level temperature inversion

-Must maintain a 30 ft buffer on the downwind edge of the field to any sensitive areas (See label for details)

Rain Delay: 24 hours

Rotation Restrictions: Do not replant fields treated with Enlist Duo in the same growing season with crops other than those labeled for use with 2,4-D and glyphosate

Harvest & Forage Restrictions: Do not cut soybeans for feed or graze fields treated with a Enlist Duo for 8 weeks following application.

| ENLIST ONE with Colex D Technology (3.8 L) | Rate/A | (2,4-D Choline) |
|--|----------|-----------------|
| Small Annuals | 1.5 pt/A | (0.7 lb ae/A) |
| Large Annuals | 2 pt/A | (0.95 lb ae/A) |

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

Timing: Apply no less than 15 days preplant prior to soybean planting for the 1 pt/A rate and 30 days preplant for the 2 pt/A rate.

Spray Volume: Apply in a minimum of 10 to 15 gal of water per acre. Do not apply with nitrogen fertilizer as a carrier.

General Comments: Unacceptable crop injury may occur when Enlist One is applied as a pre-plant treatment to non-ELIST soybean. Plant soybean seed at least 1 to 2 inches deep. Adjust planter press wheels to ensure that soybean seed are completely covered with soil. Do not disturb soil with tillage between application and soybean planting.

Do not make more than one application of Enlist One per growing season; do not exceed 2.0 pt/A per season.

Environmental Statements: Drift of Enlist One spray or vapor can injure nearby susceptible plants. The following parameters must be followed to assure off-site movement does not occur.

-Applications must be made with approved broadcast nozzles and pressures (See label for details)

-Do Not apply if winds are greater than 15 mph

-Do Not apply during a low level temperature inversion

-Must maintain a 30 ft buffer on the downwind edge of the field to any sensitive areas (See label for details)

Rain Delay: 24 hours

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

Harvest & Forage Restrictions: Do not cut soybeans for feed or graze fields treated with a Enlist One for 8 weeks following application.

GLYPHOSATE

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.

| Glyphosate formulation¹ | Annuals <6" tall | Annuals >6" tall |
|--|---|--|
| 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) |
| 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) |

¹ For a detailed list of glyphosate products see page 21

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.

78 Soybean

LIBERTY 280 SL

32 to 43 fl oz/A

glufosinate 0.59 to 0.79 lb ai/A

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

Additives: If foaming occurs a silicone-anifoam based agent may be added. Ammonium sulfate may improve control of weeds that are stressed.

Timing: Apply preplant or prior to crop emergence of any conventional or transgenic soybean varieties. When LIBERTY is used as a burndown, an additional application LIBERTY may be used as an in-season application at 22 to 29 fl oz/A overtop soybean varieties designated as "LibertyLink".

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. Heavy dew or fog may reduce weed control. Also, applications should be made between dawn and 2 hours before sunset to avoid potential reduction in control of lambsquarters and velvetleaf. The cumulative rate over the total season rate should not exceed 65 oz/A for soybean.

Rain Delay: 4 hours.

Rotation Restrictions: Rotational crops that may be planted are corn or soybeans anytime, small grains 70 days, and other crops 180 days after application.

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: LIBERTY may be tank mixed with labeled rates of other herbicides provided other products are labeled for burndown applications. No specific products are listed for burndown tank mixes.

Generic Formulations: CHEETAH, FORFEIT 280, IGNITE, INTERLINE, SURMISE are other products labeled for burndown before planting conventional or transgenic varieties. These products may also be applied overtop Liberty Link Soybeans.

| PARAQUAT | Herbicide Rate Based on Height of Annual Weeds | | |
|---|--|--|--------------------------------------|
| | 1 to 3" weeds | 3 to 6" weeds | 6" weeds |
| GRAMOXONE SL 2.0 or FIRESTORM 3S, PARAZONE 3S, PARAQUAT CONCENTRATE 3S | 2 to 2.5 pt/A or 1.3 to 1.7 pt/A | 2.5 to 3 pt/A or 1.7 to 2.0 pt/A | 3 to 4 pt/A or 2.0 to 2.7 pt/A |
| <i>(paraquat cation lb/A)</i> | <i>(0.5 to 0.63 lb ai/A)</i> | <i>(0.63 to 0.75 lb ai/A)</i> | <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 marestalk, 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(marestalk). 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 SL or 4 pt/A of FIRESTORM, PARAZONE, or PARAQUAT CONCENTRATE 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 SL; 30 minutes for FIRESTORM, PARAZONE, or PARAQUAT CONCENTRATE..

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 SL: Canopy, Command, Dual Magnum, Dual II Magnum, FirstRate, Harmony Extra, Prowl, Scepter, Turbo, 2,4-D ester (7 to 30 days EPP).

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

80 Soybean

FLEXSTAR GT 3.5 (2.8L) 3.5 to 5.3 pt/A (fomesafen: glyphosate)
[(0.25 lb ai/A:0.99lb ae/A) to (0.371 lb ai/A:1.48 lb ae/A)]

Additives: An adjuvant is already included with FLEXSTAR GT and minimizes the need for additional adjuvants. Under certain conditions the addition of one or more of the following may improve control: AMS at 8.5 to 17 lb/100 gal; Crop Oil Concentrate or Methylated Seed oil at 2 to 4 qt/100 gal; or Non Ionic Surfactant at 1 to 2 pt/100 gal.

Weeds Controlled: Burndown control of barnyardgrass, chickweed, common ragweed, crabgrass, fall panicum, giant foxtail, giant ragweed, henbit, johnsongrass (seedling), lambsquarters, mustards, Palmer amaranth, rye, smartweed, volunteer corn (except glyphosate resistant), waterhemp, wheat. Preemergence control of lambsquarters, black nightshade, pigweed, common ragweed.

Timing: Apply as a preplant or preemergence burndown or postemergence over-the-top in glyphosate tolerant soybean.

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: Heavy rainfall after application may reduce performance.

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. Do not apply within 45 days of harvest. Treated soybean plants should not be grazed or harvested for forage or hay.

Tank Mixtures for Preplant or Preemergence Applications: 2,4-D, and glyphosate.

LEADOFF 1.5 oz [rimsulfuron:thifensulfuron]
(0.0156 : 0.0156 lb ai/A)

Weeds Controlled: Common chickweed, curly dock, dandelion, henbit, wild garlic, lambsquarters. The addition of 2,4-D ester, glyphosate, paraquat, or glufosinate with LEADOFF will enhance burndown control of such weeds as marehail (horseweed).

Additives: Apply with a nonionic surfactant at 0.25 % v/v (1 qt/100 gal spray solution); or with a petroleum based crop oil concentrate at 1-2% v/v (1-2 gal/100 gal of spray solution); or MSO at 0.5% v/v (0.5 gal/100 gal). An ammonium nitrogen fertilizer or a high quality, sprayable grade of ammonium sulfate may be added to enhance weed control. When mixing with glyphosate or glufosinate that contain a built-in adjuvant system, no additional surfactant is needed.

Timing: When using soybeans without BOLT technology, apply LEADOFF at 1.5 oz/A early preplant in the fall or spring but no later than 30 days before planting soybean. Allow 60 days when applying >1.5 to 2 oz/A. When planting soybeans with BOLT technology, LEADOFF may be at 1.5 to 2.7 oz/A 0 days or more prior to planting.

Spray Volume: A minimum of 10 to 15 GPA.

General Comments: Crop injury may occur during periods of cold weather and/or wet soils, LEADOFF will not control weeds that are resistant to ALS-inhibitor herbicides.

Rotation Restrictions: When LEADOFF is applied at 1.5 oz/A, the rotational interval is 1 month for soybean, 3 months for winter cereals, 10 months for alfalfa, sorghum, and tobacco. Corn may be planted anytime.

Harvest & Forage Restrictions: Do not graze, feed forage, or grain within 30 days of application.

Tank Mixtures: LEADOFF tank mixtures include 2,4-D ester, glyphosate, paraquat, and glufosinate. Consult other labels for approved tankmix partners.

SEQUENCE 5.25 L 3.5 to 4 pt/A (glyphosate:S-metolachlor)
[(1:1.3) to (1.13:1.5 lb /A)]

Additives: Dry Ammonium Sulfate (AMS) at 1 to 2% by weight (8.5 to 17 lb/100 gal) may improve activity during 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 (seedlings), lambsquarters, mustards, prickly lettuce, rye, smartweed, volunteer corn (except glyphosate resistant), wheat

Perennials: CONSULT LABEL FOR SPECIFIC PERENNIAL WEED SPECIES. Best control of perennial weeds 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 control.

SEQUENCE (continued)

Timing: Apply up to 30 days before, during, or after planting but before crop emergence. Can also be applied postemergence overtop Roundup Ready soybean from cracking up through third trifoliolate.

Spray Volume: Apply in 10 to 40 gallons of clean water/A

General Comments: Glyphosate is a translocated herbicide that controls emerged weeds, whereas, S-metolachlor is a soil-residual herbicide that controls weeds prior to emergence. Rainfall soon after application may reduce control of emerged weeds. Management programs that rely on repeated use of glyphosate alone for burndown control without herbicides of other modes of action may lead to the development of populations of glyphosate-resistant biotypes of weeds. Do not apply products with S-metolachlor or metolachlor after soybean emergence if SEQUENCE is applied preemergence. Do not exceed 4 pt/A of SEQUENCE per year.

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 and 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 effectiveness.

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: Authority, Boundary, Canopy, Command, Dual II Magnum, FirstRate, Prowl, Scepter, 2,4-D.

SHARPEN 2.85S 1 fl oz/A –0 Days Pre Plant (saflufenacil 0.022 to 0.033 lb ai/A)
 1.5 fl oz/A – 14 Days Pre Plant

Additives: For optimum burndown activity use a Methylated Seed Oil (MSO) at 1 gal/100 gal. Also include Ammonium Sulfate (AMS) 8.5 to 17 lb/100gal or Urea Ammonium Nitrate (UAN) at 1.25 to 2.5 gal/100 gal. Use AMS when mixing with glyphosate containing herbicides. Do not use surfactants as a substitute for MSO or poor broadleaf control will occur.

Weeds Controlled: Burndown control of common chickweed, horseweed (marestail), prickly lettuce, giant ragweed. Suppression of established dandelion. Soil-residual control of common chickweed, pigweed, and giant ragweed, and prickly sida.

Crop Stage: SHARPEN may be applied in the fall or spring.

General Comments: Applications may be made as an early preplant or preemergence when Sharpen is used at a rate of 1 oz/A. Allow a minimum preplant interval of 14 days for 1.5 oz/A rate and 30 days for 2 oz/A rate. A more restrictive preplant interval will be required if Sharpen is applied with other Group 14 (PPO Inhibitor) herbicides (such as sulentrazone or flumioxazin) or when applied to coarse textured soils with $\leq 2\%$ organic matter. Cover seed with soil to avoid washing and concentration of herbicide in seed zone. Do not apply when soybean reach cracking stage. Group 14 herbicides labeled for post treatments may be used 14 days after soybean emergence. Do not exceed a maximum cumulative rate of 4 oz/A (0.089 lb ai/A of saflufenacil). Sequential applications of Sharpen must be separated by at least 30 days.

Environmental Statements: SHARPEN has GROUND and SURFACE WATER ADVISORY statements on the label.

Rain Delay: 1 hour.

Rotation Restrictions: When SHARPEN is applied at 1 oz/A field corn, popcorn, grain sorghum, small grains and soybean may be planted anytime (allow 30 days for soybean with coarse soil texture and $\leq 2\%$ OM.) Allow a 4-month rotational interval for other crops.

Harvest & Forage Restrictions: Do not harvest forage or graze for at least 65 days after application.

Tank Mixtures: Extreme, Prowl, Pursuit, Scepter, Verdict, Zidua, glyphosate.

82 Soybean

VERDICT 5.57EC 5 fl oz/A – 0 Days PrePlant (saflufenacil: dimethenamid -P
7.5 fl oz/A – 14 Days PrePlant 0.022:0.195 lb ai/A to 0.033:0.29 lb ai/A)

Additives: For optimum burndown activity use a Methylated Seed Oil (MSO) 1 gal/100 gal. Also include Ammonium Sulfate (AMS) 8.5 to 17 lb/100gal or Urea Ammonium Nitrate (UAN) at 1.25 to 2.5 gal/100 gal. Use AMS when mixing with glyphosate containing herbicides. Do not use surfactants as a substitute for MSO or poor broadleaf control will occur.

Weeds Controlled: Burndown control of common chickweed, horseweed (marestail), lambsquarters, prickly lettuce, giant ragweed. Soil-residual control of common chickweed, smooth pigweed, and prickly sida.

Crop Stage: VERDICT may be applied in the spring at 5 oz/A as an early preplant or preemergence treatment. Allow a minimum of 14 days preplant for 7.5 oz/A rate. Allow a minimum of 30 days preplant for 10 oz/A rate. Verdict may be applied in the fall at 5 to 15 oz/A.

General Comments: When applying 5 to 7.5 oz/A rate to coarse texture soils with $\leq 2\%$ organic matter, allow a minimum interval of 30 days after applications before planting soybean. Cover seed with soil to avoid washing and concentration of herbicide in seed zone. Do not apply VERDICT as a tank mix or sequential application within 30 days (44 days for Verdict at 10 oz/A rate) of other PPO inhibitor herbicides (e.g. sulfentrazone or flumioxazin) because crop injury may occur. PPO inhibitor herbicides labeled for postemergence treatments may be applied 14 days after soybean emergence. Do not exceed a maximum cumulative rate of 20 oz/A (0.089 lb ai/A of saflufenacil)

Environmental Statements: Verdict has GROUND and SURFACE WATER ADVISORY statements on the label.

Rain Delay: 1 hour.

Rotation Restrictions: When VERDICT is applied at 5 oz/A, field corn, popcorn, grain sorghum, or soybean may be replanted immediately after crop failure (allow 30 days for soybean with coarse soil texture and $\leq 2\%$ OM). Observe the label when the Verdict rate exceeds 5 oz/A. Fall seeded cereal crops may be planted 4 months after treatment. There are no rotational crop restrictions the spring following the previous year's application.

Harvest & Forage Restrictions: Do not harvest forage or graze treated plants to livestock.

Tank Mixtures: Optill, Sharpen, glyphosate.

ZIDUA PRO (4.09SL) 6 fl oz/A (saflufenacil:imazethapyr:pyroxasulfone
0.022:0.062:0.107 lb ai/A)

Additives: For optimum burndown activity use a Methylated Seed Oil (MSO) 1 gal/100 gal. Also include Ammonium Sulfate (AMS) 8.5 to 17 lb/100gal or Urea Ammonium Nitrate (UAN) at 1.25 to 2.5 gal/100 gal. The use of AMS is highly recommended when mixing with glyphosate-based herbicides. Do not use surfactants as a substitute for MSO or poor broadleaf control will occur.

Weeds Controlled: Burndown control of common chickweed, horseweed (marestail), lambsquarters, prickly lettuce, giant ragweed. Soil-residual control of barnyardgrass, broadleaf signalgrass, crabgrass, fall panicum, foxtails, black nightshade, lambsquarters, smooth pigweed, and smartweed.

Crop Stage: ZIDUA PRO may be applied in the spring as an early preplant through preemergence treatment for burndown and/or residual control prior to crop emergence. May be applied in the fall prior to first killing frost.

General Comments: Do not apply after soybean emergence. When applying on coarse texture soils with $\leq 2\%$ organic matter, allow a minimum interval of 30 days after applications before planting soybean. Cover seed with soil to avoid washing and concentration of herbicide in seed zone. Do not apply ZIDUA PRO with other PPO inhibiting [Group 14] herbicides (e.g. sulfentrazone or flumioxazin) as a tank mix or sequential application within 30 days of planting because crop injury may result (consult label). Other PPO inhibitor herbicides [Group 14] labeled for postemergence treatments may be applied 14 days after soybean emergence. Do not exceed a maximum amount of 0.089 lb ai/A of saflufenacil or 0.186 lb ai/A of pyroxasulfone per season.

Environmental Statements: ZIDUA PRO has GROUND and SURFACE water advisory statements on the label.

Rain Delay: 1 hour.

Rotation Restrictions: Soybean may be replanted immediately after crop failure (allow 30 days for soybean with coarse soil texture and $\leq 2\%$ OM). For wheat wait 4 months following application; for field corn wait 8.5 months; for alfalfa wait 10 months; for barley and rye wait 11 months; for clover, oats, popcorn, sorghum, sweet corn, and tobacco wait 18 months. Consult label for other rotational crops which may require waiting 40 months plus a successful field bioassay.

Harvest & Forage Restrictions: Do not graze or feed treated soybean forage, hay or straw to livestock.

Tank Mixtures: Clarity, Outlook, Prowl H2O, Sharpen, Zidua, glyphosate.
