

# Herbicides for Soybean

This publication primarily concerns chemical weed control. It is not intended to imply that cultivation or other non-chemical weed management techniques, particularly in row crops, are undesirable. One or two cultivations can greatly improve weed control.

## Weed Response to Selected Soybean Herbicides When Applied According to Label Directions<sup>1</sup>

Herbicide(s)	Crop tolerance	Annual grasses							Annual broadleaf weeds													Perennials		
		Barnyardgrass	Crabgrass	Fall panicum	Foxtail	Longspine sandbur	Shattercane	Witchgrass	Eastern black nightshade	Cocklebur	Devilsclaw	Horseweed/Marestail	Kochia	Lambsquarters	Morningglory	Pigweed <sup>2</sup>	Prickly sida	Common ragweed	Pennsylvania smartweed	Sunflower	Velvetleaf	Venice mallow	Rhizome johnsongrass	Yellow nutsedge
<b>PREPLANT INCORPORATED</b>																								
Trifluralin, Sonalan	G-E	G-E	E	G-E	E	E	G-E	G-E	F	—	—	—	F-G	F-G	—	G	—	P	P	—	—	—	F	—
<b>PREPLANT OR PREEMERGENCE</b>																								
Alite 27	E	G	G	G	G	F-G	F	—	G	F	—	G	E	G	F-G	E	—	G	G	—	E	G	—	—
Authority Assist	G-E	F-G	F-G	F-G	G	F	F-G	F-G	E	G	—	—	E	E	E	E	G	F	E	F-G <sup>3</sup>	G-E	G	F	G
Authority Elite	G-E	G-E	G-E	G-E	G-E	—	—	G-E	E	—	—	—	E	E	G-E	E	G	—	G	—	—	—	—	G
Authority First, Sonic	G-E	F	F	F	F	—	—	—	E	G-E	—	G <sup>3</sup>	E	E	E	E	G	E <sup>3</sup>	G	G-E <sup>3</sup>	E	E	—	G
Authority Maxx	G-E	F	F	F	F	—	—	—	G-E	G	—	G <sup>3</sup>	E	E	E	E	E	—	G	G <sup>3</sup>	G	—	—	G
Authority MTZ	G	F	F	F	F	—	—	F	G-E	G	—	F <sup>3</sup>	E	E	E	E	G	G	G-E	F	F-G	E	—	G
Authority Supreme	G	G-E	E	G-E	E	F-G	F	G-E	E	—	—	F	E	E	E	E	G	F	G	—	F-G	—	—	G
Authority XL	G-E	F	F	F	F-G	—	—	—	G-E	G-E	—	G <sup>3</sup>	E	E	E	E	E	G-E	G-E	G	G	G	—	G
Boundary, Moccasin MTZ	G	G	G	G	G	—	—	G	G	—	—	F	—	G	—	G	G	F	G	—	—	—	—	F
Command	E	E	G-E	E	E	F	F-G	—	P	F	—	—	G	E	P	P	E	G	G	P	E	E	—	—
Dual II Magnum and other S-metolachlor	E	G	G-E	G	G-E	F-G	—	G-E	G	—	—	—	—	—	—	G	—	—	—	—	—	—	—	F
Envive, Enlite	G	F	F	F	F	—	—	—	E	G-E	—	G	G	E	E	E	G	G	G	E	G-E	G-E	—	—
Fierce (EZ)	G	G-E	E	G-E	E	—	—	—	E	—	—	G	F-G	E	G	E	E	G	F	—	G-E	E	—	—
Fierce MTZ, Kyber	G	G-E	E	G-E	E	—	—	—	E	—	—	G-E	G	E	G	E	E	G	F	—	G-E	E	—	—
Fierce XLT	G	G-E	E	G-E	E	F	F	E	E	G <sup>3</sup>	—	G-E	G	E	G	E	E	E	G	G <sup>3</sup>	G-E	E	—	—
FirstRate	E	—	—	—	—	—	—	—	—	E	—	G <sup>3</sup>	—	E	G	E <sup>3</sup>	G	G	G	E <sup>3</sup>	G-E	E	—	—
Metribuzin	F-G	P-F	P-F	P-F	—	—	—	—	P-F	G	—	—	G	E	—	G	G-E	G	G	G	G	G	—	—
Outlook	E	G	G-E	G-E	G-E	—	P-F	G-E	G	—	—	—	—	G	—	G	—	—	—	—	—	—	—	F
Pendimethalin	G	G-E	G-E	G-E	G-E	G	G	G	—	—	—	—	F-G	F-G	—	F-G	—	—	F	—	F	—	—	—
Prefix	E	G	G-E	G	G-E	F-G	F	G-E	E	P-F	—	—	—	E	P	E	P	G	G	F	F	—	—	F
Preview	G-E	F	F	F	F	—	—	F	G-E	G	—	F	E	E	E	E	G	G	G-E	F	F-G	F	—	G
Pursuit	E	F	F	F	G	—	F	—	E	F <sup>3</sup>	—	—	G <sup>3</sup>	G	F	E <sup>3</sup>	G	F	G	G	G	F	—	—
Python	E	—	—	—	—	—	—	—	G	F-G <sup>3</sup>	—	F <sup>3</sup>	G <sup>3</sup>	G	F	G <sup>3</sup>	G	G	G	G	G-E	E	—	—
Reviton	G	F	P	F	G	—	F	—	G	G	—	G	G	G	G	G	G	G	G	G	G	G	—	—
Scepter	G-E	F	—	—	G	—	F	—	E	E <sup>3</sup>	—	—	—	G	F	E <sup>3</sup>	G	G	G	E	G	G	—	—
Sharpen <sup>4</sup>	G	—	—	—	—	—	—	—	E	E	—	E	G	G-E	G-E	E	G-E	G-E	G-E	E	E	E	—	—
Spartan and other sulfentrazone	G-E	—	—	—	—	—	—	—	E	—	—	—	G	G	E	E	G	—	F	—	F	F	—	G
Surveil	G-E	F	F	F	F	—	—	—	E	E	—	G	E	E	E	E	G	E	G	E <sup>3</sup>	E	E	—	G
Trivence	G	F	F	F	F	—	—	—	G	G-E	—	G-E	G	E	E	E	G-E	E	G	E	G-E	G-E	—	—
Tripzin ZC	F-G	G-E	G-E	G-E	G-E	G	F	G	—	F-G	—	F	G	E	F	G	G-E	G	G	G	G	G	—	—

<sup>1</sup> Weed response ratings refer to application according to label directions and with favorable growing conditions:

E = Excellent, G = Good, F = Fair, P = Poor, and — = weed not listed on the herbicide label.

<sup>2</sup> Pigweed species may vary in response to herbicides. Waterhemp and Palmer amaranth tend to be less susceptible than other pigweeds to postemergence herbicides.

<sup>3</sup> Except where resistant weed populations have developed.

<sup>4</sup> Primarily burndown weed control with only a short period of residual activity.

# Herbicides for Soybean

This publication primarily concerns chemical weed control. It is not intended to imply that cultivation or other non-chemical weed management techniques, particularly in row crops, are undesirable. One or two cultivations can greatly improve weed control.

## Weed Response to Selected Soybean Herbicides When Applied According to Label Directions<sup>1</sup>

Herbicide(s)	Crop tolerance	Annual grasses							Annual broadleaf weeds														Perennials		
		Barnyardgrass	Crabgrass	Fall panicum	Foxtail	Longspine sandbur	Shattercane	Witchgrass	Eastern black nightshade	Cocklebur	Devilsclaw	Horseweed/Marestail	Kochia	Lambsquarters	Morningglory	Pigweed <sup>2</sup>	Prickly sida	Common ragweed	Pennsylvania smartweed	Sunflower	Velvetleaf	Venice mallow	Rhizome johnsongrass	Yellow nutsedge	
<b>PREPLANT OR PREEMERGENCE</b>																									
Valor, Encompass, Outflank	G	F	F	F	F	—	—	—	E	—	F	G	F	E	G	E	G	G	F	—	G-E	G-E	—	—	
Valor XLT	G	F	F	F	F	—	—	—	E	G	—	G	F	E	E	E	G-E	G-E	G	E	G-E	E	—	—	
Warrant	E	G	G-E	G-E	E	F	F	G	G	—	—	—	—	G	—	G	—	—	—	—	—	—	—	F	
Zidua, Anthem Maxx	G-E	G-E	E	G-E	E	F-G	F	G-E	G	—	—	—	F	F-G	F	G-E	G	F	—	—	F	—	—	F	
Zidua Pro	G	G-E	E	G-E	E	F-G	G	—	G	G	—	—	G	G-E	G	G-E	G-E	G	G-E	G-E	G-E	G-E	—	F	
<b>POSTEMERGENCE</b>																									
Acifluorfen, UltraBlazer	G	—	—	F	F	—	F	—	G-E	F	F-G	—	—	F-G	G	G-E	—	F	G-E	—	—	—	—	—	
Assure II, Targa	E	G-E	G-E	E	E	G-E	E	G-E	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	G-E	—
Basagran	G-E	—	—	—	—	—	—	—	—	E	G-E	—	—	F	P	—	F-G	F	G-E	G-E	G-E	G-E	—	G	
Basagran + Blazer (Storm)	G	—	—	—	—	—	—	—	G-E	G-E	G-E	—	—	F-G	G	G-E	G	G-E	G-E	G	G-E	G	—	F	
Beyond Xtra	G-E	G	G	—	G	—	E	—	E	E <sup>3</sup>	—	—	G <sup>3</sup>	G	G	E <sup>3</sup>	—	G	E	E <sup>3</sup>	G-E	—	F	—	
Cadet	G	—	—	—	—	—	—	—	F	—	—	—	F	F-G	F-G	F	—	—	F	—	E	—	—	—	
Classic	G-E	—	—	—	—	—	—	—	—	E	—	G <sup>3</sup>	—	—	G	G <sup>3</sup>	—	G	G	E	F	—	—	G	
Clethodim	E	G-E	G-E	G-E	E	G-E	E	G-E	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	G-E	—
Cobra, Phoenix	G	—	—	—	—	—	—	—	E	F-G	G-E	—	F-P	F-P	G	E	G	E	F	F	F	F-G	—	—	
Enlist One (resistant soybean only)	E	—	—	—	—	—	—	—	F	E	E	G	F	E	E	G-E	—	E	G-E	E	G-E	G-E	—	—	
FirstRate	E	—	—	—	—	—	—	—	—	E <sup>3</sup>	—	G <sup>3</sup>	—	—	G	—	—	G	G	E	E	E	—	—	
Fomesafen, Flexstar	G	—	—	—	—	—	—	—	G-E	F	F-G	—	—	F	G	G-E	—	F	G-E	—	—	—	—	—	
Fusilade DX	E	G-E	G-E	G-E	G	G-E	E	G-E	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	G-E	—
Fusion	E	G-E	G-E	E	E	G-E	E	G-E	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	G	—
Glyphosate (resistant soybean only)	E	E	E	E	E	E	E	E	G	E	G	G <sup>3</sup>	G <sup>3</sup>	G	G	E <sup>3</sup>	E	G <sup>3</sup>	E	E	G	E	E	F	
Harmony SG	G	—	—	—	—	—	—	—	—	F	—	—	—	G	—	E <sup>3</sup>	—	—	E	F	G	—	—	—	
InterMoc (resistant soybean only)	E	G	G	G	G	F-G	G	G	G	E	—	G-E	G	G	G	G	G	E	E	G	G	E	F	F	
Liberty and other glufosinate (resistant soybean only)	E	G	G	G	E	F-G	G	G	G	E	—	G-E	G	G	G	G	G	E	E	G	G	E	F	F	
Marvel	G	—	—	—	—	—	—	—	E	F	—	—	F	G	G	G-E	F	F	G-E	—	E	G-E	—	—	
Poast Plus	E	G-E	G-E	G-E	E	G-E	E	G-E	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	G-E	—
Pursuit	E	G	F	—	G	—	E	—	E	E <sup>3</sup>	—	—	G <sup>3</sup>	F	G	E <sup>3</sup>	—	F	G	G <sup>3</sup>	G	—	F	—	
Resource	G	—	—	—	—	—	—	—	—	F	—	—	—	F-G	—	F	G	G	—	—	E	—	—	—	
Synchrony XP	E	—	—	—	—	—	—	—	—	E <sup>3</sup>	—	G <sup>3</sup>	—	G-E	G-E	E <sup>3</sup>	—	G	E	E <sup>3</sup>	E	—	—	G	
Torment	G	F	F	F	F-G	—	G	—	E	E <sup>3</sup>	—	F	—	F	G	G-E	G	G	G	G <sup>3</sup>	G	—	F	F	
XtendiMax, Engenia (resistant soybean only)	E	—	—	—	—	—	—	—	G	E	—	E	E	G	E	G-E	G	E	E	E	E	G	G	—	—

<sup>1</sup> Weed response ratings refer to application according to label directions and with favorable growing conditions:

E = Excellent, G = Good, F = Fair, P = Poor, and — = weed not listed on the herbicide label.

<sup>2</sup> Pigweed species may vary in response to herbicides. Waterhemp and Palmer amaranth tend to be less susceptible than other pigweeds to postemergence herbicides.

<sup>3</sup> Except where resistant weed populations have developed.

<sup>4</sup> Primarily burndown weed control with only a short period of residual activity.

# Herbicides for Soybean

Formulated product/acre*	Herbicide and lb active ingredient needed/acre	Comments and limitations
<b>BURNDOWN, PREPLANT, AND/OR PREEMERGENCE</b>		
0.75 to 2 pt of 4 lb/gal <b>2,4-D</b>	2,4-D (4) 0.38 to 1	Apply 0.75 to 1 pt/a ester formulations 7 or more days before planting, 0.75 to 1 pt/a amine formulations or 1-2 pt ester formulations 15 days or more before planting, or 1 to 2 pt/a amine formulations 30 days or more before planting for control of emerged broadleaf weeds. Ester formulations generally provide better weed control with less risk of carryover injury to soybean than amine formulations. Often tank-mixed with other herbicides for enhanced broadleaf weed control. May be especially cost-effective as a fall treatment for control of winter annual broadleaf weeds ahead of no-till soybean planted the following spring.
2.75 to 3.75 oz <b>Afforia</b>	Flumioxazin (14) + Thifensulfuron (2) + Tribenuron (2) 0.07 to 0.096 + 0.0086 to 0.012 + 0.0086 to 0.012	Afforia is a premix containing 40.8% flumioxazin (Valor), 5% thifensulfuron (Harmony), and 5% tribenuron (Express) for burndown and residual control of broadleaf weeds. Can be applied from fall through spring prior to soybean emergence. Do not apply more than 2.75 oz/a less than 7 days prior to planting soybeans. Apply with oil concentrate or NIS for control of emerged weeds. Often applied as a tank-mix with 2,4-D, glyphosate, or other herbicides for enhanced control of certain weed species. Do not apply in fields also treated preemergence with products containing metolachlor or dimethenamid. Refer to label for crop rotation guidelines.
0.5 to 1.5 oz <b>Aim EC</b> or <b>Longbow EC</b>	Carfentrazone (14) 0.0074 to 0.023 or 2 lb/gallon	Apply as part of a burndown application prior to emergence of soybeans for improved control of certain broadleaf weeds including velvetleaf, pigweeds, and kochia. Always apply with COC or MSO for optimal weed control. Generally tank-mixed with other herbicides for broader spectrum weed control.
1.5 to 3 fl oz <b>Alite 27</b>	Isoxaflutole (27) 0.047 to 0.094	Alite 27 may be applied as part of a preplant surface, preplant incorporated, preplant/premerge burndown or premerge application for broader spectrum of residual control of broadleaves and grass species. Alite 27 may be tank-mixed with many grass and broadleaf herbicides. For burndown activity, COC or MSO is required. Use rates range from 1.5 fl oz to 3 fl oz depending on soil texture, organic matter, and timing of application. Rotation interval is 0 months to corn, 4 months to wheat, 6 months to non-GT27 soybeans and grain sorghum, and 10 months to cotton and alfalfa. Alite 27 is a restricted use pesticide. Apply only where Liberty Link GT27 or GT27 soybeans. Additionally, use is prohibited on soils where the water table is less than 25 feet below the ground surface and where the following criteria are met: the surface soil texture is loamy sand or sand, the subsoil texture is loamy sand or sand, the average organic matter in the upper 12 inches is less than 2% by weight. Use is prohibited on 24 Kansas soil series [see 24(c) label for list]. See the specimen label for the list of Kansas counties where Alite 27 may be used.
2.25 to 6.4 oz/a <b>Anthem Flex</b>	Pyroxasulfone (15) + Carfentrazone-ethyl (14) 0.66 to 0.187 + 0.005 to 0.013	Apply preplant or preemergence for residual grass and broadleaf weed control and burndown of some grass and broadleaf weeds. Apply lower rates on coarser-textured soils with lower organic matter and higher rates on finer-textured soils with more organic matter. Use higher rates for application more than 14 days before planting. Can be tank-mixed with other herbicides to increase spectrum of activity. Plant soybean at least 1 inch deep. Do not plant cotton for 1 to 4 months, grain sorghum for 6 to 10 months, alfalfa for 10 months, small grains (other than wheat) for 11 months, or canola for 12 to 15 months.
2 to 5.5 oz <b>Anthem Maxx</b>	Pyroxasulfone (15) + Fluthiacet (14) 0.065 to 0.18 + 0.002 to 0.005	Apply preplant or preemergence for residual grass and broadleaf weed control and burndown of some small broadleaf weeds. Use lower rates on coarse textured low organic matter soils and higher rates on fine texture high organic matter soils. Do not plant wheat for 1 to 6 months; sunflower for 4 months; sorghum for 6 to 10 months; alfalfa for 10 months; canola for 12 to 18 months; or other crops not listed on the label for 18 months after application.
4 to 12 oz <b>Authority Assist</b>	Sulfentrazone (14) + Imazethapyr (2) 0.10 to 0.31 + 0.02 to 0.063	Authority Assist is a premix containing 3.33 lb sulfentrazone and 0.67 lb imazethapyr/gal. Can be applied preplant in the fall or spring or preemergence until 3 days after planting. Provides more grass control or suppression than Authority First or Authority MTZ. Higher rates are recommended for use on conventional soybean or where herbicide-resistant weeds are present. Do not rotate to wheat for 4 months; corn for 10 months; alfalfa for 12 months; oat, cotton, sorghum, or sunflower for 18 months; or canola for 40 months after application. Do not feed soybean forage, hay, or straw to livestock.

\* Numbers in parentheses indicate herbicide site of action; see p. 3 for more information. Products often are available in several formulations or brand names, and label information may vary. Refer to the Names, Toxicities, and Persistence table, p. 12.

# Herbicides for Soybean

Formulated product/acre*	Herbicide and lb active ingredient needed/acre	Comments and limitations
<b>BURNDOWN, PREPLANT, AND/OR PREEMERGENCE</b>		
5.9 to 15.7 oz/a <b>Authority Edge</b>	Sulfentrazone (14) + Pyroxasulfone (15) 0.13 to 0.33 + 0.024 to 0.05	Can be applied preplant in the fall or spring, or preemergence until 3 days after planting. Use lower rates on coarse-textured soils and higher rates on fine-textured soils. Provides residual control of broadleaf weeds and grasses, including pigweeds, kochia, and morningglories. Can be tank-mixed with other herbicides for burndown activity. Plant seeds at least 1 inch deep. Only use on varieties tolerant of metribuzin. Do not plant wheat or corn for 4 to 10 months; sorghum for 10 to 18 months; alfalfa for 12 months; cotton or oats for 12 to 18 months; and canola for 24 months.
19 to 32 oz <b>Authority Elite</b> or <b>Broadaxe XL</b>	Sulfentrazone (14) + S-metolachlor (15) 0.10 to 0.17 + 0.99 to 1.67	Authority Elite is a premix containing 0.7 lb sulfentrazone and 6.3 lb S-metolachlor/gal. Can be applied in the spring as a preplant or preemergence treatment up to 3 days after planting for residual control of grass and small seeded broadleaf weeds. The lower rates are for coarse-textured soils with low organic matter, and higher rates are needed on fine-textured soils with higher organic matter content. Do not use on sandy soils with less than 1% organic matter. Do not rotate to field corn for 4 months; wheat, barley, or triticale for 4.5 months; oats or alfalfa for 12 months; or cotton for 12 to 18 months after application. Do not graze or feed treated soybean forage, hay, or straw to livestock for 30 days after application.
3 to 8 oz <b>Authority First</b> or <b>Sonic</b> , or 6 to 12 oz <b>Antares Prime</b>	Cloransulam (2) + Sulfentrazone (14) 0.015 to 0.04 + 0.12 to 0.31	Authority First and Sonic are premixes of 7.9% cloransulam and 62.1% sulfentrazone. Can be applied preplant or preemergence until 3 days after planting. Primarily controls yellow nutsedge and broadleaf weeds, including waterhemp, Palmer amaranth, morningglory, velvetleaf, and black nightshade. The low rates are recommended primarily as a foundation treatment ahead of glyphosate in glyphosate-resistant soybean unless glyphosate-resistant weeds are present. Higher rates are recommended for use on conventional soybean varieties or where glyphosate-resistant weeds are present. Do not use on sandy soils with less than 1% organic matter. Do not rotate to wheat for 4 months; corn for 10 months; alfalfa or sorghum for 12 months; cotton for 12 to 18 months; canola for 24 months; or sunflower for 30 months after application.
5 to 9.6 oz <b>Authority Maxx</b> or <b>Zone Maxx</b>	Sulfentrazone (14) + Chlorimuron (2) 0.19 to 0.37 + 0.012 to 0.023	Authority Maxx is a premix containing 62% sulfentrazone and 3.9% chlorimuron that is more suitable for some areas than Authority XL. Can be applied preplant in the fall or spring, or preemergence until 3 days after planting for residual broadleaf weed control and some grass suppression. The lower rates are for coarse-textured soils with low organic matter, and higher rates are needed on fine-textured soils with higher organic matter content. Do not apply to soils with a pH > 7.6. Do not rotate to wheat or barley for 4 months; field corn for 10 months; oats or alfalfa for 12 months; sorghum for 10 to 18 months; cotton for 12 to 18 months; sunflower for 18 months; of canola for 36 months after application. Do not feed treated soybean forage or hay to livestock
12 to 20 oz <b>Authority MTZ</b>	Sulfentrazone (14) + Metribuzin (5) 0.135 to 0.225 + 0.20 to 0.34	Authority MTZ is a premix of 27% metribuzin and 18% sulfentrazone. Can be applied preplant in the fall or spring or preemergence until 3 days after planting. Primarily controls yellow nutsedge and broadleaf weeds including kochia, waterhemp, Palmer amaranth, morningglory, velvetleaf, and black nightshade. Do not use on coarse-textured soils or soils with less than 1% organic matter. Do not rotate to wheat for 4 months; corn for 4 to 10 months; alfalfa, sorghum, or sunflower for 12 months; cotton for 18 months; or canola for 24 months after application.
6 to 11.5 oz <b>Authority Supreme</b>	Sulfentrazone (14) + Pyroxasulfone (15) 0.098 to 0.187 + 0.098 to 0.187	Authority Supreme is a premix containing 2.08 lb of sulfentrazone + 2.08 lb of pyroxasulfone/gal. It may be applied in the fall before planting or spring up to 3 days after planting as a preemergence residual treatment for control of annual grasses and many broadleaf weeds including pigweeds, kochia, morningglory, and lambsquarters. The lower rates are for coarser textured soils with low organic matter, and the higher rates are needed on fine-textured soils with higher organic matter content. Do not apply more than 6.9 oz per year on coarse textured soils. Do not use on sand soils with less than 1% organic matter. Do not plant wheat or corn for 4 months; sorghum for 10 months; triticale rye, or barley for 11 months; alfalfa or oats for 12 months; cotton for 12 to 18 months; or canola for 24 months after application.

\* Numbers in parentheses indicate herbicide site of action; see p. 3 for more information. Products often are available in several formulations or brand names, and label information may vary. Refer to the Names, Toxicities, and Persistence table, p. 12.

# Herbicides for Soybean

Formulated product/acre*	Herbicide and lb active ingredient needed/acre	Comments and limitations
<b>BURNDOWN, PREPLANT, AND/OR PREEMERGENCE</b>		
3 to 9.6 oz <b>Authority XL</b>	Sulfentrazone (14) + Chlorimuron (2) 0.12 to 0.37 + 0.015 to 0.047	Authority XL is a premix containing 62% sulfentrazone and 7.8% chlorimuron. Can be applied preplant in the fall or spring or preemergence until 3 days after planting for residual broadleaf control and some grass suppression. The low rates are recommended primarily as a foundation treatment ahead of a broad-spectrum postemergence treatment in herbicide-resistant soybean. Higher rates are recommended for use on conventional soybean or where herbicide-resistant weeds are present. Do not use on soils with greater than 7.6 pH. If soil pH is less than 7.2, or low rates are used, do not rotate to wheat for 4 months; sorghum or corn for 10 months; oats or alfalfa for 12 months; cotton or sunflower for 18 months; or canola for 36 months after application. If soil pH is 7.2 to 7.6 and higher rates are used, do not rotate to wheat for 4 months; sorghum, corn, oats, alfalfa, cotton, or sunflower for 18 months; or canola for 36 months after application.
0.3 oz <b>Autumn Super</b>	Iodosulfuron (2) + Thiencarbazono (2) 0.001 to 0.0019 + 0.0084 to 0.014	Apply after fall harvest and at least 60 days prior to soybean planting in the spring for burndown control of broadleaf weeds. Generally tank-mixed with 2,4-D, dicamba, or glyphosate for improved weed control. Apply to actively growing weeds. Apply with 1% v/v COC or MSO plus 28% nitrogen fertilizer at 1 to 2 qt/a or 1.5 to 3 lb/a AMS. Do not apply to frozen ground. Do not rotate to alfalfa, canola, or sunflower for 18 months after application. Do not use if soil pH is greater than 8.0.
1.5 to 2.75 pt <b>Boundary 6.5E,</b> <b>Helmet MTZ</b> or <b>Tailwind</b> or 1.75 to 3.8 pt <b>Moccasin MTZ</b>	S-metolachlor (15) + Metribuzin (5) 0.98 to 1.94 + 0.24 to 0.5	Boundary 6.5E is a premix of 5.25 lb S-metolachlor (Dual II Magnum) and 1.25 lb metribuzin/gal. Tailwind contains metolachlor instead of S-metolachlor. Moccasin MTZ+ is a premix of 3.35 lb S-metolachlor and 1.1 lb metribuzin/gal. Apply preplant within 14 days ahead of planting or preemergence. Lower use rates are effective in a two-pass planned program ahead of a postemergence treatment. May be tank-mixed with glyphosate, paraquat, or 2,4-D for enhanced burndown control in no-till. Do not use on soils with pH above 7.5 or less than 0.5% organic matter. Follow directions regarding rates, cropping limitations, and precautions on product labels.
2.25 to 7 oz <b>Cloak</b>	Chlorimuron (2) + Metribuzin (5) 0.015 to 0.047 + 0.09 to 0.28	Cloak is a premix of 10.7% chlorimuron (Classic) and 64.3% metribuzin (Sencor) recommended mainly for eastern Kansas. Can be applied in the fall, early preplant, preplant, or preemergence. Provides residual and burndown control of many broadleaf weeds. If emerged weeds are present at treatment time, add COC to enhance foliar activity. Can be tank-mixed with various herbicides for enhanced burndown and residual weed control. See product label to determine appropriate rate for your soil based on texture, organic matter, and pH. Treated soybeans may be grazed or fed 40 days after application. Wheat can be planted after 4 months; alfalfa, field corn, or cotton after 10 months; sorghum after 12 months; sunflower or canola after 18 months.
1.1 to 3.3 oz <b>Cloak EX</b>	Chlorimuron (2) + Tribenuron (2) 0.0156 to 0.046 + 0.0046 to 0.014	Cloak EX is a premix of 22.7% chlorimuron (Classic) and 6.8% tribenuron (Express) for fall and early preplant application up to 45 days before planting soybean. Provides foliar and residual control of certain broadleaf weeds including chickweed, field pansy, henbit, and most winter annual mustard species. Apply with COC at 1% v/v or NIS at 0.25% v/v. Only use the 1.1 oz rate on soils with pH > 7. The addition of 2,4-D at 1 pt/a is required to control marestail and certain other weeds. Can be tank-mixed with various herbicides for enhanced burndown and residual weed control. Do not allow grazing in treated fields or harvest for forage or hay for 14 days after application. See product label for crop rotation restriction base on soil characteristics and herbicide rate.
4 to 16 oz <b>Clarity, Sterling Blue,</b> or <b>Vision</b>	Dicamba (4) 0.125 to 0.5	Apply as a fall or spring application with the appropriate preplant interval to control emerged broadleaf weeds. Following application and accumulation of 1 inch of rain or overhead irrigation, a minimum waiting interval of 14 days is required before planting soybeans for rates up to 8 oz/acre, and a minimum waiting interval of 28 days is required before planting soybeans for rates between 8 and 16 oz/acre. Do not make preplant applications to soybeans in geographic areas with less than 25 inches of annual precipitation. Other dicamba products also can be used, but they may have different waiting intervals.

\* Numbers in parentheses indicate herbicide site of action; see p. 3 for more information. Products often are available in several formulations or brand names, and label information may vary. Refer to the Names, Toxicities, and Persistence table, p. 12.

# Herbicides for Soybean

Formulated product/acre*	Herbicide and lb active ingredient needed/acre	Comments and limitations
<b>BURNDOWN, PREPLANT, AND/OR PREEMERGENCE</b>		
1.33 to 2 pt <b>Command</b>	Clomazone (13) 0.5 to 0.75	Controls velvetleaf, many annual grasses, and some broadleaf weeds. Can be applied preemergence or incorporated with one or two passes to a maximum depth of 3 inches. Can be tank-mixed with trifluralin, Scepter, Sencor, pendimethalin, or Dual II Magnum. Susceptible nearby plants can show symptoms of foliar whitening or yellowing from spray or vapor drift of Command. Rotation to soybean, corn, and sorghum can be done after 9 months, to wheat after 12 months, and to other crops after 16 months. Do not allow grazing or feed soybean plants from treated fields. See label restrictions for preemergence use.
12 to 18 oz <b>Dimetric Charged</b> or <b>Panther MTZ</b>	Flumioxazin (15) + Metribuzin (5) 0.063 to 0.0094 + 0.28 to 0.42	Dimetric Charged is a premix containing 3 lb metribuzin and 0.67 lb flumioxazin/gal. Apply preplant or preemergence for residual and burndown weed control. Apply with COC or NIS for burndown of existing weeds. Do not use on coarse textured soils with less than 2% organic matter. Do not rotate to wheat for 4 months, alfalfa for 5 (tilled) to 12 (not tilled) months, or peas for 8 months after application.
1 to 2 pt <b>Dual II Magnum,</b> <b>EverpreX, Charger</b> <b>Max, or Moccasin II</b> <b>Plus</b> or 1 to 2 pt <b>Helmet</b>	S-metolachlor (15) 0.95 to 1.91 Metolachlor (15) 0.98 to 1.915	Controls grasses more effectively than broadleaf weeds. Apply preplant up to 30 days before planting or preemergence. Often tank-mixed with other herbicides for enhanced broadleaf weed control. Small grains can be planted 4.5 months after treatment.
1 oz <b>Elevore</b>	Halauxifen (4) 0.0045	Apply at least 14 days prior to planting soybeans for control of emerged marestalk, henbit, wild garlic, and other broadleaf weeds listed on the label. Often tank-mixed with other herbicides for broader spectrum weed control. Apply with COC or MSO at 0.5 to 1% v/v. Do not plant corn for 3 days, sorghum, sunflowers, wheat or canola for 14 days; cotton for 30 days; alfalfa for 8 months; or other crops not listed on the label for 15 months after application.
3.5 to 4.75 pt <b>Enlist Duo</b>	2,4-D choline (4) + Glyphosate (9) 0.7 to 0.95 + 0.75 to 1	Apply preplant or preemergence to Enlist soybean or at least 30 days prior to planting non-Enlist soybean for control of emerged grass and broadleaf weeds less than 6 inches tall. Some crops such as non-Enlist cotton and soybean are extremely susceptible to off-site movement of 2,4-D, so follow label guidelines for downwind buffers, and use restrictions near susceptible crops and sensitive areas. Do not spray if wind is blowing in the direction of adjacent susceptible crops. Do not apply aerially or during temperature inversions. Consult the label and website for approved spray tips, maximum spray pressures, acceptable wind speeds and approved tank-mixes: <a href="https://www.enlist.com/en/application-guide.html">https://www.enlist.com/en/application-guide.html</a> .
1.5 to 2 pt <b>Enlist One</b>	2,4-D choline (4) 0.72 to 0.95	Apply preplant or preemergence to Enlist soybean or at least 7 days for 1 pt or 14 days for 1 to 2 pt prior to planting non-Enlist soybean for control of emerged broadleaf weeds less than 6 inches tall. Some crops such as non-Enlist cotton and soybean are extremely susceptible to off-site movement of 2,4-D, so follow label guidelines for downwind buffers, and use restrictions near susceptible crops and sensitive areas. Do not spray if wind is blowing in the direction of adjacent susceptible crops. Do not apply aerially or during temperature inversions. Consult the label and website for approved spray tips, maximum spray pressures, acceptable wind speeds and approved tank-mixes: <a href="https://www.enlist.com/en/application-guide.html">https://www.enlist.com/en/application-guide.html</a> .

\* Numbers in parentheses indicate herbicide site of action; see p. 3 for more information. Products often are available in several formulations or brand names, and label information may vary. Refer to the Names, Toxicities, and Persistence table, p. 12.

# Herbicides for Soybean

Formulated product/acre*	Herbicide and lb active ingredient needed/acre	Comments and limitations
<b>BURNDOWN, PREPLANT, AND/OR PREEMERGENCE</b>		
2.5 to 5.3 oz <b>Envive</b> or 2.8 oz <b>Enlite</b>	Chlorimuron (2) + Flumioxazin (14) + Thifensulfuron (2) 0.014 to 0.03 + 0.046 to 0.097 + 0.0045 to 0.0094 or 0.005 + 0.064 + 0.015	Envive is a premix of 9.2% chlorimuron (Classic), 29.2% flumioxazin (Valor), and 2.9% thifensulfuron (Harmony SG) for residual and burndown control of many broadleaf weeds. Enlite is a premix of 2.85% chlorimuron, 36.2% flumioxazin, and 8.8% thifensulfuron. Enlite is a better option than Envive on high pH soils. Can be applied preplant in the fall or spring or preemergence until 3 days after planting. If emerged weeds are present at the time of treatment, add COC or NIS to enhance foliar activity. The addition of glyphosate, 2,4-D, and/or dicamba is recommended for more broad-spectrum burndown weed control. If the soil pH is greater than 7.0, do not use more than 2.5 oz/a of Envive. Do not apply Envive in fields treated with products containing flufenacet, alachlor, metolachlor, or dimethenamid. Do not allow grazing in treated fields or harvest for hay or forage. Do not rotate to wheat for 4 months; field corn, cotton, or sorghum for 10 months; alfalfa for 12 months; sunflower for 18 months; or canola for 30 months after Envive application. Do not rotate to wheat for 4 months; field corn, cotton, or sorghum for 9 months; alfalfa for 12 months; or sunflower or canola for 18 months after Enlite application.
3 to 3.75 oz <b>Fierce</b> or 6 to 7.5 oz <b>Fierce EZ</b>	Flumioxazin (14) + Pyroxasulfone (15) 0.063 to 0.079 + 0.08 to 0.1	Fierce is a premix containing flumioxazin (Valor) and pyroxasulfone (Zidua) for partial burndown and residual control of grass and broadleaf weeds. Can be applied in the fall, preplant, or preemergence to soybeans, but the best in-crop residual control of summer annual weeds will occur with application close to planting time. Apply with COC and tank mix with glyphosate or other herbicides for enhanced burndown control in no-till. Do not apply in conjunction with products containing dimethenamid or metolachlor or severe soybean injury may occur. Do not plant field corn for 7 to 30 days; wheat or cotton for 1 to 2 months; sunflower for 4 months; alfalfa for 10 months; oats or barley for 11 to 12 months; or any other crops for 18 months after Fierce application.
1 to 1.5 pt <b>Fierce MTZ</b>	Flumioxazin (14) + Pyroxasulfone (15) + Metribuzin (5) 0.063 to 0.094 + 0.08 to 0.12 + 0.19 to 0.28	A premix of Fierce and metribuzin for partial burndown and residual control of many grass and broadleaf weeds. Can be applied in the fall, preplant, or preemergence to soybeans, but the best in-crop residual control of summer annual weeds will occur with application close to planting time. Apply with COC and tank mix with glyphosate or other herbicides for enhanced burndown control in no-till. Do not apply in conjunction with products containing dimethenamid or metolachlor or severe soybean injury may occur. Do not plant field corn or wheat for 4 months; alfalfa for 10 months; or any other crop not listed on the label for 18 months after application.
3.75 to 5.25 oz <b>Fierce XLT</b>	Flumioxazin (14) + Pyroxasulfone (15) + Chlorimuron (2) 0.058 to 0.081 + 0.073 to 0.1 + 0.0156 to 0.022	Fierce XLT is a premix containing 24.6% flumioxazin (Valor), 31.2% pyroxasulfone (Zidua), and 6.7% chlorimuron (Classic) for partial burndown and residual control of grass and broadleaf weeds. Can be applied in the fall, preplant, or preemergence to soybeans, but the best in-crop residual control of summer annual weeds will occur with application close to planting time. Apply with COC and tank-mix with glyphosate or other herbicides for enhanced burndown control in no-till. Do not apply in conjunction with products containing dimethenamid or metolachlor, or severe soybean injury may occur. Do not plant field corn or wheat for 10 months; alfalfa, cotton or sorghum for 18 months; or canola or any other crops not listed on the label for 30 months after Fierce XLT application.
0.6 to 0.75 oz <b>FirstRate,</b> 1 to 1.25 oz <b>Traject</b> or 2 to 2.5 oz <b>Provonis</b>	Cloransulam (2) 0.032 to 0.04	Controls many broadleaf weeds as a preplant incorporated, preplant, or preemergence treatment. Can be applied up to 30 days before planting. Apply with NIS, MSO, or COC plus UAN fertilizer solution for control of emerged weeds in no-till. Wheat can be planted after 4 months; alfalfa, corn, sorghum, or cotton can be planted 9 months; and sunflowers 30 months after application. Do not plant any other crop not listed on the label until 18 months after application and completion of a field bioassay. Do not apply through a chemigation system. Refer to supplemental label for aerial application.

\* Numbers in parentheses indicate herbicide site of action; see p. 3 for more information. Products often are available in several formulations or brand names, and label information may vary. Refer to the Names, Toxicities, and Persistence table, p. 12.

# Herbicides for Soybean

Formulated product/acre*	Herbicide and lb active ingredient needed/acre	Comments and limitations
<b>BURNDOWN, PREPLANT, AND/OR PREEMERGENCE</b>		
1 to 3 pt of 3 lb ae/gal <b>Glyphosate</b> (see glyphosate table)	Glyphosate (9) 0.38 to 1.12 lb ae	Apply to control emerged weeds before or after soybean planting but before crop emergence. Glyphosate products differ in concentration and adjuvant requirements. Refer to specific product labels for rate and adjuvant recommendations. Condition spray solution with 1 to 2% spray-grade AMS by weight (8.5 to 17 lb/100 gal water) before adding glyphosate to the tank. Can be tank-mixed with residual herbicides for extended weed control. Follow label directions. Fall treatments can be especially effective for control of emerged winter annual weeds and reduce the need for intensive spring burndown treatments.
2 to 4 pt <b>Gramoxone SL 2.0</b> or 1.3 to 2.7 pt <b>Gramoxone SL 3.0</b>	Paraquat (22) 0.5 to 1	Paraquat can only be handled and applied by a certified individual. Apply to control emerged weeds before or after soybean planting but before crop emergence. Always apply with NIS. Dust on plants can inactivate Gramoxone SL. Can be tank-mixed with 2,4-D or various residual herbicides. Tank mixes with Sencor will increase burndown by Gramoxone SL.
0.45 to 0.9 oz <b>Harmony SG</b> or 0.3 to 0.6 oz <b>Treaty</b>	Thifensulfuron (2) 0.014 to 0.028	Apply preplant until prior to soybean emergence for burndown of certain broadleaf weeds. Generally applied as a tank mix with other burndown herbicides such as 2,4-D or glyphosate for broader spectrum weed control. Apply with NIS or COC plus ammonium nitrogen fertilizer additives.
29 to 43 oz <b>Liberty, Interline, Cheetah, Forfeit, Refer, or Surmise</b>	Glufosinate (10) 0.53 to 0.79	A broad-spectrum herbicide for burndown control of emerged weeds prior to crop emergence. Provides no residual weed control. Always condition spray water with AMS at 3 lb/a before adding Liberty to the spray solution. Liberty is most effective with warm temperatures, high relative humidity, and bright sunlight. Application to large or stressed plants or late in the day may result in reduced weed control. Do not apply more than 87 oz/a of Liberty per growing season. Do not graze or harvest the treated crop for hay.
0.5 to 1 lb <b>Metribuzin 75DF</b> or 12 to 24 oz <b>Metribuzin 4F</b>	Metribuzin (5) 0.38 to 0.75	Apply preplant up to 30 days before planting or preemergence to soybean. A sequential or "split-shot" treatment with one application up to 30 days preplant followed by a preemergence application often provides the best results. Add COC to enhance burndown of emerged weeds in no-till. Controls broadleaf weeds more effectively than grasses. Metribuzin (Sencor) has a narrow margin of safety. Plant seed at least 1.5 inches deep. Do not use on loamy sand or sandy loam with less than 2% organic matter. Do not allow grazing or feed forage from treated fields within 40 days. Can be tank-mixed with other burndown or residual herbicides for broader spectrum weed control.
12 to 21 oz <b>Outlook</b>	Dimethenamid-P (15) 0.5 to 0.98	For preemergence control of weeds, apply to soybean preplant, preplant incorporated into the surface 1 to 2 inches, preemergence, or postemergence. Controls grasses and small seeded broadleaf weeds. Rate depends on soil texture and organic matter. Often tank-mixed with other herbicides for enhanced broadleaf weed control. Fall cereals can be planted 4 months after application, and any crop can be planted in the following season.
12 to 15 oz <b>Panther Pro</b>	Flumioxazin (14) + Metribuzin (5) + Imazethapyr (2) 0.063 to 0.079 + 0.28 to 0.35 + 0.053 to 0.066	Panther Pro is a premix containing 0.67 lb flumioxazin, 3 lb metribuzin, and 0.56 lb imazethapyr/gal. Apply preplant or preemergence for burndown and residual control of broadleaf and certain grass weeds. Apply with COC, MSO, or NIS plus a spray grade nitrogen source for enhanced control of emerged weeds. Do not apply to sand soils or sandy loam soils with less than 2% organic matter. Do not tank-mix with acetochlor, metolachlor or dimethenamid products within 14 day of planting soybeans, unless no-till planted. Do plant wheat for 4 months; alfalfa for 4 to 8 months; corn for 8.5 months; or cotton, sorghum, sunflower, canola, or oats for 18 months after application.
1.2 to 3.6 pt <b>Pendimethalin 3.3</b> or 1.5 to 3 pt <b>Prowl H<sub>2</sub>O, Satellite, Hydrocap or Satellite Flex</b>	Pendimethalin (3) 0.5 to 1.5	Controls grasses more effectively than broadleaf weeds. Apply preplant incorporated up to 60 days before planting, preplant surface up to 45 days before planting, or preemergence. Can be surface applied or incorporated. Often tank-mixed with other herbicides for enhanced broadleaf weed control. Use the lower rates on coarse-textured, lower-organic matter soils and the higher rates on fine-textured, high-organic matter soils.

\* Numbers in parentheses indicate herbicide site of action; see p. 3 for more information. Products often are available in several formulations or brand names, and label information may vary. Refer to the Names, Toxicities, and Persistence table, p. 12.



# Herbicides for Soybean

Formulated product/acre*	Herbicide and lb active ingredient needed/acre	Comments and limitations
<b>BURNDOWN, PREPLANT, AND/OR PREEMERGENCE</b>		
2 pt <b>Prefix, Vise,</b> or <b>Statement</b>	S-metolachlor (15) + Fomesafen (14) 0.98 + 0.25	Prefix is a premix of 4.34 lb S-metolachlor (Dual Magnum) and 0.95 lb fomesafen (Reflex)/gal. Vise and Statement contain metolachlor instead of S-metolachlor. Apply preplant up to 14 days before planting through preemergence for control of small-seeded grasses and pigweeds. Weak on large-seeded broadleaf weeds. May be tank-mixed with glyphosate, paraquat, or 2,4-D for enhanced burndown control in no-till. Do not apply in counties west of U.S. Highway 281. Do not rotate to wheat for 4.5 months; corn for 10 months; or alfalfa, canola, sunflower, or sorghum for 18 months after application. Do not apply additional fomesafen product in the same season and only use in alternate years.
11 to 26 fl oz <b>Preview</b>	Metribuzin (5) + Sulfentrazone (14)	May be applied as part of a preplant or preemergence application for increased spectrum and residual control of troublesome broadleaf weeds. Rate dependent on soil texture and organic matter. Do not apply to soils with less than 1% organic matter. Do not use on soybean varieties known to be sensitive metribuzin or sulfentrazone. For increased grass control, tank-mix with S-metolachlor. See product label for full rotational guidelines.
4 oz <b>Pursuit, Thunder</b>	Imazethapyr (2) 0.063	Controls many annual weeds. Apply up to 45 days before planting and incorporate with two passes into the top 1 to 2 inches of soil. Preemergence application can be effective if enough rainfall to wet the soil to a depth of 2 inches is received within 7 days of planting. Do not rotate to alfalfa or wheat for 4 months; cotton, oat, sorghum, or sunflower for 18 months; or canola for 40 months after application. Do not allow grazing or feed treated soybean forage, hay, or straw.
0.8 to 1.33 oz <b>Python</b>	Flumetsulam (2) 0.04 to 0.07	Controls annual broadleaf weeds as a preplant incorporated or preemergence application. Preemergence treatments can be tank-mixed with glyphosate, Gramoxone SL, or 2,4-D to help control emerged weeds in no-till. Do not apply if soil pH is greater than 7.8. Corn and soybean can be planted anytime after application. Do not rotate to alfalfa for 4 months; wheat and oat for 4.5 months; grain sorghum for 12 months; sunflower for 18 months; or any other crop until a field bioassay has been completed. Do not apply aerially or through a chemigation system.
1 pt <b>Reflex</b> or <b>FlexStar,</b> or 0.7 pt <b>Sinister</b>	Fomesafen (14) 0.25	Primarily for residual and burndown of small pigweeds. Weak on large seeded broadleaf weeds and grasses. May be tank-mixed with other herbicides for additional burndown and residual weed control. Do not apply in counties west of highway 281. Do not apply Reflex or Flexstar after June 20 in counties west of highway 281. Do not rotate to wheat for 4 months; corn for 10 months; or alfalfa, canola, sorghum, or sunflower for 18 months after application. Do not apply any additional fomesafen products to soybeans in the same season and use only in alternate years.
1 to 3 fl oz <b>Reviton</b>	Tiafenacil (14) 0.022 to 0.066	Provides burndown of broadleaf and several grass weed species. Can be applied up to 3 fl oz per acre for control fall emerging weeds as part of a program to control emerging winter annual weeds. Reviton can be applied preemergence application up to 1.5 fl oz per acre on medium and fine textured soils. Rates of 2.0 to 3.0 fl oz per acre require 7 days from application. When soils are coarse, sandy clay loam soils, or less than 2% organic matter you must wait 7 days for all rates. Total use per season should not exceed 6.0 fl oz per acre. Do not apply after soybean emergence. For the most effective control apply with MSO at 1% v/v but not less than 1 pt per acre. UAN at 1.25 to 2% v/v or AMS at 8.5 to 17 lb/100 gal spray solution can be added to improve control. Reviton may be applied in combination with many other herbicides, including clethodim, 2,4-D, dicamba, metribuzin, glyphosate, glufosinate, sulfentrazone, flumioxazin, fomesafen, and metolachlor.
2.8 oz <b>Scouter DG</b>	Imazaquin (2) 0.125	Controls many annual weeds in soybean in and east of Jewell, Mitchell, Lincoln, Ellsworth, McPherson, Harvey, Sedgwick, and Sumner counties. Apply preplant (up to 45 days before planting) and incorporate with two passes in top 2 inches of soil. Preemergence application can be effective if enough rainfall to wet the soil to a depth of 2 inches is received within 7 days of planting. Wheat can be planted after 4 months. Field corn can be planted after 9.5 months if 15 inches of rainfall were received from 2 weeks before application through November 15. Do not allow grazing and do not feed treated soybean forage.

\* Numbers in parentheses indicate herbicide site of action; see p. 3 for more information. Products often are available in several formulations or brand names, and label information may vary. Refer to the Names, Toxicities, and Persistence table, p. 12.

# Herbicides for Soybean

Formulated product/acre*	Herbicide and lb active ingredient needed/acre	Comments and limitations
<b>BURNDOWN, PREPLANT, AND/OR PREEMERGENCE</b>		
2.5 to 3 pt <b>Sequence</b>	Glyphosate (9) + <i>S</i> -metolachlor (15) 0.68 to 0.87 lb ae + 1 to 1.2	Sequence is a premix of 2.25 lb glyphosate and 3 lb <i>S</i> -metolachlor (Dual Magnum)/gal. Apply preplant up to 14 days before planting or preemergence. Provides burndown control of most existing weeds and early season residual control of small-seeded grasses and some small-seeded broadleaf weeds. The addition of 2% AMS by weight or 17 lb/100 gal water can improve control of emerged weeds.
1 to 2 oz (fall) 1 to 1.5 oz (spring) <b>Sharpen</b>	Saflufencil (14) 0.022 to 0.044	Provides burndown and a short period of residual control of many broadleaf weeds, including marehail and pigweed species. Can be applied up to 2 oz/a as a fall treatment to control marehail and winter annual mustards. Can be applied at 1.5 oz/a at least 14 days prior to planting on medium and fine textured soils, but should be applied at least 30 days prior to planting on coarse-textured soils with less than 2 percent organic matter. Can be applied at 1 oz/a in the spring preplant or preemergence on most soils, but should be applied at least 30 days before planting on coarse-textured soils with less than 2% organic matter. Separate sequential applications by at least 30 days. Total seasonal use should not exceed 4 oz/acre. Do not apply after soybean begins to break through the soil surface. Apply with MSO at 1% v/v but not less than 1 pt/a, plus 1.25 to 2% v/v liquid UAN fertilizer, or AMS at 8.5 to 17 lb/100 gal spray solution. Do not apply as a tank mix or sequentially with other PPO-inhibiting herbicides such as sulfentrazone, flumioxazin, or fomesafen within 14 days of soybean planting on medium- and fine-textured soils and 30 days of planting on coarse-textured soils with less than 2% organic matter. Postemergence PPO-inhibiting herbicides such as Flexstar, Cobra, and Ultra Blazer can be applied 14 days after soybean emergence.
1.5 to 3 pt <b>Sonalan</b>	Ethalfuralin (3) 0.56 to 1.125	Apply up to 3 weeks before planting and incorporate uniformly into the top 2 to 3 inches of soil for partial control of black nightshade. Often tank-mixed with other herbicides for enhanced broadleaf weed control. Do not allow grazing or cut hay.
4.5 to 12 oz <b>Spartan, Blanket, Shutdown, Sulfin, Antares, or Zone4F</b>	Sulfentrazone (14) 0.14 to 0.375	Apply preplant or preplant incorporated up to 60 days before planting or preemergence to soybean. Add COC for enhanced burndown of existing weeds in no-till. Controls yellow nutsedge and several broadleaf weeds including pigweeds, morningglory, and black nightshade. Do not rotate to wheat for 4 months; field corn for 10 months; sorghum for 10 to 18 months; or alfalfa for 12 to 18 months after application.
5.75 to 8.5 oz <b>Spartan Charge</b>	Sulfentrazone (14) + Carfentrazone (14) 0.14 to 0.21 + 0.016 to 0.023	Apply in the fall, preplant, or preemergence to soybean for burndown and residual control of pigweeds, kochia, and other broadleaf weeds. The lower rates are for coarse-textured soils with low organic matter, and the higher rates are needed on fine-textured soils with higher organic matter content. May be tank-mixed with glyphosate for improved grass burndown activity, or with 2, 4-D or dicamba for improved broadleaf control.
3.5 to 4.2 oz <b>Surveil</b>	Cloransulam (2) + Flumioxazin (14) 0.026 to 0.032 + 0.079 to 0.095	Surveil is a premix containing 12% cloransulam (FirstRate) and 36% flumioxazin (Valor). Can be applied in the fall or spring from prior to 3 days after soybean planting. Apply with oil concentrate for enhanced burndown control of emerged weeds in no-till. Do not tank mix Surveil with Group 15 herbicides such as acetochlor, dimethenamid-P, or pyroxasulfone within 14 days of planting soybeans unless planted no-till on wheat or corn stubble. Do not rotate to wheat for 3 months; corn, cotton, sorghum, or oats for 9 months; alfalfa for 10 months; sunflowers for 30 months; or alfalfa, canola, or other crops not listed on the label until successful completion of a field bioassay.
1 to 3 oz <b>Synchrony XP</b>	Thifensulfuron (2) + Chlorimuron (2) 0.004 to 0.013 0.013 to 0.04	Provides preplant burndown and/or residual control of small broadleaf weeds depending on the rate of application. Rates less than 1 oz/a are generally recommended only for tank mixes with glyphosate and will provide minimal residual weed control. Do not use rates higher than 1 oz/acre on soils with a pH > 7.0. Generally tank-mixed with 2,4-D for enhanced broadleaf weed control and/or with glyphosate for enhanced grass and broadleaf weed control. Apply with COC plus nitrogen fertilizer solution additives when applied alone or with 2,4-D. Apply with NIS plus AMS when tank-mixed with glyphosate. Do not rotate to wheat for 4 months; corn for 9 to 12 months; or sunflower for 18 months after treatment. Consult the herbicide label for more specific crop rotation and use guidelines.

\* Numbers in parentheses indicate herbicide site of action; see p. 3 for more information. Products often are available in several formulations or brand names, and label information may vary. Refer to the Names, Toxicities, and Persistence table, p. 12.

# Herbicides for Soybean

Formulated product/acre*	Herbicide and lb active ingredient needed/acre	Comments and limitations
<b>BURNDOWN, PREPLANT, AND/OR PREEMERGENCE</b>		
56.5 fl oz <b>Tavium</b>	Dicamba (4) + S-metolachlor (15) 0.5 + 1	A restricted use pesticide. Tavium is a premix of dicamba and S-metolachlor that can provide burndown of broadleaf weeds less than 4 inches tall and residual control of grasses and some broadleaf weeds. Can be applied preplant or preemergence to Xtend soybeans. A waiting period of 28 days is required after application and accumulation of 1 inch of precipitation or irrigation before planting non-Xtend soybeans. Refer to the XtendiMax entry for use guidelines and restrictions. Consult the product label and website for additional application guidelines: <a href="http://www.syngenta-us.com/herbicides/tavium-application-stewardship">http://www.syngenta-us.com/herbicides/tavium-application-stewardship</a> .
1.2 to 2.35 qt <b>Tendovo</b>	S-metolachlor (15) + Metribuzin (5) + Cloransulam (2) 1.0 to 2.1 + 0.19 to 0.38 + 0.019 to 0.038	Apply preplant or preemergence to control some broadleaf and most annual grass weeds. Use higher rates on fine soil, if organic matter is greater than 3%, if heavy crop residue is present, or if it will be more than 30 days to the next herbicide application. Do not make more than one application per production year. May be tank-mixed with 2,4-D, dicamba, paraquat, glyphosate, and glufosinate plus NIS or COC for control of emerged weeds. If activating rainfall does not occur, ¼ to ½ inch of irrigation should be applied. Crop injury may occur if applied to soil with less than 0.5% organic matter, if heavy rains occur soon after application, and if soybeans are planted less than 1.5 inches deep. Iron chlorosis may be more severe when Tendovo is applied. Do not rotate to winter wheat for 4.5 months; alfalfa or corn for 9 months; cotton or sorghum for 12 months; or sunflower for 30 months.
3 pt <b>Thunder Master</b>	Imazethapyr (2) + Glyphosate (9) 0.063 to 0.56 lb ae	Thunder Master is a premix of 0.17 lb imazethapyr (Pursuit) and 1.5 lb ae glyphosate/gal. Can be applied in the fall or spring to provide burndown and residual grass and broadleaf weed control prior to planting soybeans. Apply with NIS plus AMS. Do not apply Pursuit or other imazethapyr products in the same crop season. Do not rotate to alfalfa or wheat for 4 months; field corn for 8.5 months; cotton, oat, sorghum, or sunflower for 18 months; or canola for 40 months after applications.
0.063 + 0.25 1 pt <b>Torment</b>	Imazethapyr (2) + Fomesafen (14) 0.063 + 0.25	Torment is a premix containing 0.5 lb imazethapyr (Pursuit) and 2 lb fomesafen (Reflex)/gal. Apply preplant up to 45 days before planting through preemergence for control of broadleaf weeds and suppression of certain grasses. Subsequent applications of imazethapyr or fomesafen are not allowed. Do not use in counties west of U.S. Highway 281. Do not plant wheat for 4 months; corn for 10 months; alfalfa, cotton, oat, sorghum, or sunflower for 18 months; or canola for 40 months after application. Do not graze treated areas or harvest for forage or hay.
1 to 2 pt <b>Trifluralin 4E</b>	Trifluralin (3) 0.5 to 1	Controls grasses more effectively than broadleaf weeds. Apply before planting and incorporate into the top 2 to 3 inches of soil within 24 hours. Usually controls shattercane. Can be applied through chemigation system when followed by 0.5 to 1 inch of irrigation to incorporate.
29 to 44 oz <b>Tripzin ZC</b>	Pendimethalin (3) + Metribuzin (5) 0.66 to 1 + 0.25 to 0.38	Tripzin ZC is a premix of 2.9 lb pendimethalin and 1.1 lb metribuzin/gal. Can be applied preplant incorporated through preemergence for residual grass and broadleaf weed control. Do not use on sand soils. Do not use on loamy sand or sandy loam soils with less than 1% organic matter. Do not use on soils with pH > 7.5 or less than 0.5% organic matter. Follow directions regarding rates, cropping limitations, and precaution on product label.
6 to 10 oz <b>Trivence</b>	Chlorimuron (2) + Flumioxazin (14) + Metribuzin (5) 0.015 to 0.024 + 0.048 to 0.08 + 0.17 to 0.28	Trivence is a premix containing 3.9% chlorimuron (Classic), 12.8% flumioxazin (Valor), and 44.6% metribuzin for burndown and residual control of broadleaf weeds. Recommended mainly for eastern Kansas; can be applied preplant in the fall or spring or preemergence until 3 days after planting. Do not apply more than 6 oz/a if soil pH is greater than 7.0. Apply with oil concentrate or NIS for control of emerged weeds. Often applied as a tank-mix with 2,4-D, glyphosate, or other herbicides for enhanced control of certain weed species. Do not apply in fields also treated preemergence with products containing flufenacet, alachlor, metolachlor, or dimethenamid. Do not rotate to wheat for 4 months; alfalfa or field corn for 10 months; sunflower, cotton, sorghum, or oats for 18 months; or canola for 30 months after application. Refer to label for crop rotation guidelines.

\* Numbers in parentheses indicate herbicide site of action; see p. 3 for more information. Products often are available in several formulations or brand names, and label information may vary. Refer to the Names, Toxicities, and Persistence table, p. 12.

# Herbicides for Soybean

Formulated product/acre*	Herbicide and lb active ingredient needed/acre	Comments and limitations
<b>BURNDOWN, PREPLANT, AND/OR PREEMERGENCE</b>		
2 to 3 oz <b>Valor SX</b> or <b>EZ</b> , <b>Encompass</b> , <b>Outflank</b> , or <b>Panther SC</b>	Flumioxazin (14) 0.064 to 0.096	Apply in the fall, preplant, or preemergence to soybean. Add COC to enhance burndown activity on emerged weeds in no-till. Controls several broadleaf weeds, including pigweeds and black nightshade. Tank mixes of Valor with flufenacet, metolachlor, dimethenamid, or alachlor products may result in severe soybean injury. Do not rotate to wheat for 1 month, or to alfalfa or oat for 8 months after application.
3 to 5 oz <b>Valor XLT</b>	Chlorimuron (2) + Flumioxazin (14) 0.0194 to 0.033 + 0.0561 to 0.0935	Valor XLT is a premix of 10.3% chlorimuron (Classic) and 30% flumioxazin (Valor). Recommended mainly for eastern Kansas. Provides residual and burndown control of many broadleaf weeds. Can be applied preplant in the fall or spring or preemergence until 3 days after planting. If emerged weeds are present at the time of treatment, add COC to enhance foliar activity. The addition of glyphosate and/or 2,4-D is recommended for more broad-spectrum burndown weed control. If the soil pH is greater than 6.8, do not use more than 2.5 oz/a of Valor XLT. Do not apply Valor XLT in fields treated with products containing flufenacet, alachlor, metolachlor, or dimethenamid. Do not allow grazing in treated fields or harvest for hay or forage. Do not rotate to wheat for 4 months; field corn, cotton, or sorghum for 10 months; alfalfa for 12 months; sunflower for 18 months; or canola for 30 months after application.
5 to 10 oz (fall) 5 to 7.5 oz (spring) <b>Verdict</b>	Saflufencil (14) + Dimethenamid-P (15) 0.022 to 0.044 + 0.195 to 0.39	Provides burndown and a short period of residual control of many broadleaf weeds, including marehail and pigweed species. Also provides a very short period of residual grass control, but does not control emerged grasses. Can be applied up to 10 oz/a as a fall treatment for control of marehail and winter annual mustards. Spring application at 7.5 oz should be made at least 30 days prior to planting on coarse-textured soils with less than 2% organic matter and at least 14 days prior to planting on other soils. Can be applied at 5 oz/a in the spring preplant or preemergence on most soils, but should be applied at least 30 days before planting on coarse-textured soils with less than 2% organic matter. Sequential applications must be separated by at least 30 days. Do not apply more than 0.089 lb of saflufenacil per acre (cumulative) per cropping season from all product sources, including Sharpen. Do not apply after soybean begins to break through the soil surface. For optimum burndown control, apply with MSO at 1% v/v but not less than 1 pt/a, plus 1.25 to 2% v/v liquid UAN fertilizer, or AMS at 8.5 to 17 lb/100 gal spray solution. Do not apply as a tank mix or sequentially with other PPO-inhibiting herbicides such as sulfentrazone, flumioxazin, or fomesafen within 14 days of soybean planting on medium- and fine-textured soils and 44 days of planting on coarse-textured soils with less than 2% organic matter. Postemergence PPO-inhibiting herbicides such as Flexstar, Cobra, and Ultra Blazer can be applied 14 days after soybean emergence.
2.5 to 4 pt <b>Warrant</b>	Acetochlor (15) 0.94 to 1.5	Warrant is an encapsulated formulation of acetochlor. It provides early season residual control of small seeded grasses and some small seeded broadleaf weeds, but it does not control emerged weeds. Do not graze or feed treated forage to livestock.
3 pt <b>Warrant Ultra</b>	Acetochlor (15) + Fomesafen (14) 1.06 to .24	Warrant Ultra is a premix of 2.82 lb acetochlor (Warrant) and 0.63 lb fomesafen (Reflex)/gal. Apply preplant or preemergence for residual control of small-seeded grasses and pigweeds. Apply with oil concentrate or NIS for control of emerged broadleaf weeds. Weak on large-seeded broadleaf weeds. May be tank-mixed with glyphosate, paraquat, or 2,4-D for enhanced burndown control in no-till. Do not apply in counties west of U.S. Highway 281. Do not rotate to wheat for 4 months; corn for 10 months; or alfalfa, grain sorghum, or sunflower for 18 months after application.
22 to 44 oz <b>XtendiMax</b> or 12.8 oz <b>Engenia</b>	Dicamba (4) 0.5 to 1	Restricted use pesticides. Apply only where Xtend soybeans will be planted if applied within 28 days prior to planting or preemergence. Provides burndown and some residual control of susceptible broadleaf weeds. Follow label guidelines near susceptible crops and sensitive areas. Do not spray when wind is blowing in direction of susceptible crops, including non-Xtend soybeans, and observe buffer guidelines. Only spray between 1 hour after sunrise and 2 hours before sunset when wind speed is between 3 and 10 mph. Do not spray during a temperature inversion. Do not apply with ammonium sulfate. Use approved drift reduction adjuvant and volatility reduction agent. Consult labels and respective websites for additional application guidelines, approved nozzles, and tank-mix combinations: <a href="http://xtendimaxapplicationrequirements.com">xtendimaxapplicationrequirements.com</a> for XtendiMax; or <a href="http://engeniatankmix.com">engeniatankmix.com</a> for Engenia.

\* Numbers in parentheses indicate herbicide site of action; see p. 3 for more information. Products often are available in several formulations or brand names, and label information may vary. Refer to the Names, Toxicities, and Persistence table, p. 12.

# Herbicides for Soybean

Formulated product/acre*	Herbicide and lb active ingredient needed/acre	Comments and limitations
<b>BURNDOWN, PREPLANT, AND/OR PREEMERGENCE</b>		
2.5 to 5.75 oz <b>Zidua SC</b>	Pyroxasulfone (15) 0.08 to 0.19	Provides residual control of grasses and certain broadleaf weeds. Apply preplant up to 45 days before planting or preemergence. Use the lower rates on coarse-textured soils and the higher rates on fine textured soils. Early preplant applications more than 15 days before planting are not recommended on coarse-textured soils or in higher-rainfall areas. Do not apply more than 3.5 oz Zidua SC on coarse-textured soils, 5.0 oz Zidua SC on medium-textured soils, or 5.75 oz Zidua SC on fine-textured soils per crop season. Does not provide control of emerged weeds. Soybean and corn can be replanted any time after Zidua application. Do not plant wheat or cotton for 4 months; sorghum for 6 to 12 months; alfalfa for 10 months; small grains other than wheat for 11 months; or any other crop for 18 months after Zidua application.
6 oz <b>Zidua PRO</b>	Pyroxasulfone (15) + Saflufenacil (14) + Imazethapyr (2) 0.11 + 0.023 + 0.063	Zidua PRO is a pre-mix containing 2.38 lb pyroxasulfone, 0.048 lb saflufenacil, and 0.33 lb imazethapyr per gallon. Provides burndown and residual control of grass and broadleaf weeds. Can be applied in the fall, preplant or preemergence on most soils, but should be applied at least 30 days prior to planting on coarse-textured soils with less than 2% organic matter. Do not apply after soybean begins to break through the surface of the soil. For burndown activity, apply with MSO at 1% v/v, but not less than 1 pt/a, plus 1.25 to 2.5% v/v liquid UAN fertilizer, or AMS at 8.5 to 17 lb/100 gal of spray solution. Do not apply Pursuit or other imazethapyr products for the remainder of the growing season. Do not apply as a tank mix or sequentially with other PPO-inhibiting herbicides such as sulfentrazone, flumioxazin, or fomesafen within 30 days of soybean planting. Postemergence PPO-inhibiting herbicides such as FlexStar, Cobra, or Ultra Blazer can be applied 14 days after soybean emergence. Do not plant wheat for 4 months; corn for 8.5 months; Clearfield sunflower for 9.5 months; alfalfa for 10 months; Clearfield canola for 12 months; cotton, oats, sorghum, or sunflower for 18 months, or other crops for 40 months and a successful field bioassay following application. Refer to the herbicide label for maximum cumulative rates of saflufenacil and pyroxasulfone per cropping season.
3.5 to 6.6 fl oz/a <b>Zone Defense</b>	Sulfentrazone (14) + flumioxazin (14) 0.17 to 0.32 + 0.0041 to 0.0077	May be applied burndown or preemergence to control pigweeds, velvetleaf, nightshade, and morningglories. See label to determine rate based on soil texture and organic matter. Severe crop injury will occur in applied after soybeans have begun to crack. Apply with NIS, COC, or MSO to control emerged weeds. Can be tank-mixed with metribuzin, Command, FirstRate, Pursuit, Prowl, Python, or Scepter for additional residual control. May be tank-mixed with metolachlor when applied less than 5 fl oz/acre are applied. Severe crop injury may occur if prolonged periods of cool wet weather occur after application with dimethenamid or flufenacet. Unacceptable crop injury may occur when used on soils that exceed pH 6.8. Do not plant wheat for 4 months; corn or sorghum for 10 months; cotton for 18 months; canola for 24 months.
<b>POSTEMERGENCE</b>		
2 to 5.5 oz <b>Anthem Maxx</b>	Pyroxasulfone (15) + Fluthiacet (14) 0.065 to 0.18 + 0.002 to 0.005	Apply postemergence to soybeans through the 6 trifoliolate stage for residual grass and broadleaf weed control and control of some small broadleaf weeds. Use lower rates on coarse textured low organic matter soils and higher rates on fine texture high organic matter soils. Do not plant wheat for 1 to 6 months; sunflower for 4 months; sorghum for 6 to 10 months; alfalfa for 10 months; canola for 12 to 18 months; or other crops not listed on the label for 18 months after application.
5 to 12 oz <b>Assure II, Quiz</b> or <b>Targa</b>	Quizalofop (1) 0.03 to 0.075	Controls many annual and perennial grasses including shattercane, volunteer corn and wheat, and rhizome johnsongrass. Apply with 1% v/v COC (preferred) or 0.25% v/v NIS. Slightly higher rates are recommended west of I-135. Tank mixing with broadleaf herbicides can reduce grass control. Use 12 fl oz/acre when mixing with Group 4 herbicides.
1 to 2 pt <b>Basagran</b> or 0.8 to 1.6 pt <b>Basagran 5L</b>	Bentazon (6) 0.5 to 1.0	Controls many broadleaf weeds. Apply when weeds are small and actively growing but before they reach size limits listed on the label. Apply with COC (preferred) or MSO at 1% v/v and AMS at 8.5 to 17 lb/100 gal water or UAN at 1.25 to 2.5 gal/100 gal water.

\* Numbers in parentheses indicate herbicide site of action; see p. 3 for more information. Products often are available in several formulations or brand names, and label information may vary. Refer to the Names, Toxicities, and Persistence table, p. 12.

# Herbicides for Soybean

Formulated product/acre*	Herbicide and lb active ingredient needed/acre	Comments and limitations
<b>POSTEMERGENCE</b>		
4 to 5 oz <b>Beyond Xtra</b> or <b>ImiFlex</b>	Imazamox (2) 0.031 to 0.039	Controls many annual grasses and broadleaf weeds. Apply to small, actively growing weeds before they reach size limits listed on the label. Apply with NIS, COC, or MSO plus fertilizer solutions. Some weed species, such as Palmer amaranth, have developed resistance to Beyond Xtra and other herbicides having the same mode of action. Management strategies such as alternative control methods, crop rotation, and using herbicides with a different mode of action need to be considered in areas that may have resistant weed biotypes. Do not rotate to wheat for 3 months or to corn; grain sorghum, and sunflower for 9 months after application. Beyond Xtra has no preharvest interval.
2 oz <b>Butyrac 200</b> or <b>2,4-DB 200</b>	2,4-DB (4) + tank mix partner 0.03	Applied as a tank mix partner with other broadleaf herbicides to enhance control of morningglory, cocklebur, and other broadleaf weeds, particularly with late applications.
0.4 to 0.9 oz <b>Cadet</b>	Fluthiacet (14) 0.003 to 0.006	Primarily for velvetleaf control and suppression of certain other small broadleaf weeds. The low rate is primarily to enhance velvetleaf control in tank mixes with other herbicides. Apply to soybean from emergence through the full flower stage of growth to control or suppress labeled weeds less than 2 inches tall. Large velvetleaf can be controlled with the higher use rates. Always use in combination with 0.25% v/v NIS or 1 to 2 pt/a COC. Cadet is a contact herbicide and can cause temporary leaf burning or speckling, but new soybean growth is unaffected.
0.5 to 0.75 oz <b>Classic</b>	Chlorimuron (2) 0.008 to 0.012	Controls annual broadleaf weeds. Apply to small, actively growing weeds through the 3 trifoliolate-leaf stage of soybean. Apply with surfactant. Wheat or barley can be planted after 3 months; and corn or sorghum after 9 months, except where Classic is applied after Cloak (15 months). Can be tank-mixed with 2,4-DB to increase morningglory control or with glyphosate (Roundup Ready soybean only) for broad-spectrum weed control. Some pigweed species, such as waterhemp and Palmer amaranth, have developed resistance to Classic and other herbicides having the same mode of action. Management strategies such as alternative control methods, crop rotation, and using herbicides with a different mode of action to replace or supplement Classic in a tank mix need to be considered in areas that may have resistant weed biotypes. Do not allow grazing or harvest for forage.
10 to 12.5 oz <b>Cobra</b> or 10 to 12.5 oz <b>Phoenix</b>	Lactofen (14) 0.16 to 0.2	A contact herbicide that controls many broadleaf weeds. Apply to small, actively growing weeds before they reach size limits listed on the labels (normally 2 to 3 weeks after planting). Apply with 1 pt/a COC when soybean is at the first or second trifoliolate leaf stage. AMS or liquid nitrogen fertilizer can also be added for enhanced performance. Cobra can cause speckling, discoloration, cupping, or crinkling of leaves. Phoenix generally causes less soybean response than Cobra but also may be slightly less effective on certain weeds. Soybean outgrows these conditions, and new growth develops normally. Cobra can be especially helpful in controlling pigweed species. Palmer amaranth is more difficult to control and may require the high use rate and perhaps sequential applications, especially for larger plants. Do not use treated plants for feed or forage.
1 to 1.3 pt <b>Dual II Magnum,</b> <b>EverpreX, Charger</b> <b>Max, or Moccasin II</b> <b>Plus</b> or 1 to 2 pt <b>Helmet</b>	S-metolachlor (15) 0.96 to 1.27 Metolachlor (15) 0.98 to 1.95	Generally applied as a tank-mix with other postemergence herbicides to provide residual control of later-germinating grass and broadleaf weeds. Does not provide control of emerged weeds. Can be applied to soybeans from emergence through the third trifoliolate leaf stage. If sequential applications are used, the maximum combined rate of Dual II Magnum that may be applied in a cropping season is 2 qt/a. Do not plant alfalfa for 4 months or wheat or rye for 4.5 months after Dual II Magnum application. Do not graze or feed treated forage or hay to livestock within 30 days following application.

\* Numbers in parentheses indicate herbicide site of action; see p. 3 for more information. Products often are available in several formulations or brand names, and label information may vary. Refer to the Names, Toxicities, and Persistence table, p. 12.

# Herbicides for Soybean

Formulated product/acre*	Herbicide and lb active ingredient needed/acre	Comments and limitations
<b>POSTEMERGENCE</b>		
3.5 to 4.75 pt <b>Enlist Duo</b>	2,4-D choline (4) + Glyphosate (9) 0.7 to 0.95 + 0.75 to 1	Apply postemergence to Enlist soybean only from emergence through the R2 growth stage for control of emerged grass and broadleaf weeds less than 6 inches tall. Should be part of a planned weed control program following residual preemergence herbicides. Some crops such as non-Enlist cotton and soybean are extremely susceptible to off-site movement of 2,4-D, so follow label guidelines for downwind buffers, and use restrictions near susceptible crops and sensitive areas. Do not spray if wind is blowing in the direction of adjacent susceptible crops. Do not apply aerially or during temperature inversions. Consult the label and website for approved spray tips, maximum spray pressures, acceptable wind speeds, and approved tank-mixes: <a href="https://www.enlist.com/en/application-guide.html">https://www.enlist.com/en/application-guide.html</a> .
2 pt <b>Enlist One</b>	2,4-D choline (4) 0.95	Apply postemergence to Enlist soybean only from emergence through the R2 stage for control of emerged broadleaf weeds less than 6 inches tall. Should be part of a planned weed control program following residual preemergence herbicides. Some crops such as non-Enlist cotton and soybean are extremely susceptible to off-site movement of 2,4-D, so follow label guidelines for downwind buffers, and use restrictions near susceptible crops and sensitive areas. Do not spray if wind is blowing in the direction of adjacent susceptible crops. Do not apply aerially or during temperature inversions. Consult the label and website for approved spray tips, maximum spray pressures, acceptable wind speeds and approved tank-mixes: <a href="https://www.enlist.com/en/application-guide.html">https://www.enlist.com/en/application-guide.html</a> .
0.3 to 0.6 oz <b>FirstRate</b> , 0.5 to 1 oz <b>Traject</b> or 1 to 2 oz <b>Provonis</b>	Cloransulam (2) 0.016 to 0.032	Controls certain broadleaf weeds. Apply with NIS, COC, or MSO plus UAN fertilizer solution when weeds are at the 2- to 4-leaf stage and actively growing. Can be tank-mixed with Basagran, Ultra Blazer, Cobra, Reflex, Pursuit, Assure II, Fusion, Poast Plus, Select, or glyphosate (Roundup Ready soybean only). Wheat can be planted after 4 months; and alfalfa, corn, sorghum, or cotton can be planted 9 months after application. Do not plant any other crop until 30 months after application and completion of a field bioassay. Do not apply through a chemigation system. Refer to supplemental label for aerial application.
3.5 pt <b>Flexstar GT 3.5</b>	Fomesafen (14) + Glyphosate (9) 0.25 + 1 lb ae	Apply only to Roundup Ready soybean. Application to other soybean will result in severe injury or death of the crop. Flexstar GT 3.5 is a premix of 0.66 lb fomesafen (Flexstar) and 2.63 lb ae glyphosate/gal. Flexstar GT 3.5 provides broad-spectrum control of emerged weeds and residual control of certain broadleaf weeds, including pigweeds. Condition spray solution by adding 1 to 2% AMS (8.5 to 17 lb/100 gal water) before adding Flexstar GT 3.5 to the spray tank. Under adverse growing conditions or if a known population of glyphosate-resistant broadleaf weeds is present, add 1% v/v COC or MSO to the spray solution. Do not apply in counties west of U.S. Highway 281 or to fields previously treated with Prefix herbicide. Do not rotate to wheat for 4 months; corn for 10 months; or alfalfa, canola, grain sorghum, or sunflowers for 18 months after application.
4 to 12 oz <b>Fusilade DX</b>	Fluazifop-P (1) 0.06 to 0.19	Controls many annual and perennial grasses including shattercane, volunteer corn, and rhizome johnsongrass. Apply with COC or NIS. Repeat treatment for regrowth of rhizome johnsongrass. Apply when grasses are small and growing actively but before they reach size limits listed on the label. Make last application before soybean bloom. Do not harvest plants for forage or hay. Tank mixing with broadleaf herbicides can reduce grass control.
4 to 14 oz <b>Fusion</b>	Fluazifop-P (1) + Fenoxaprop (1) 0.06 to 0.22 + 0.02 to 0.07	Controls many annual grasses including foxtails, shattercane, and volunteer corn. Apply with COC or NIS. Apply when grasses are small and growing actively but before they reach size limits listed on the label. Make last application before soybean begins to bloom. Tank mixing with broadleaf herbicides can reduce grass control. Do not harvest plants for forage or hay.
1.5 to 4 pt of 3 lb ae/gal <b>Glyphosate</b> (see glyphosate table)	Glyphosate (9) 0.63 to 1.5 lb ae	Apply only to Roundup Ready soybean from emergence through the R2 stage of growth. Application to other soybean varieties will result in severe injury or death of the crop. Glyphosate products differ in concentration and adjuvant requirements. Refer to specific product labels for rate and adjuvant recommendations. Controls most annual and perennial weeds at the rates suggested on the label. To reduce selection pressure for glyphosate-resistant weeds, a foundation treatment with a residual herbicide is recommended. Glyphosate has no residual activity, so sequential applications or cultivation may be required for season-long control, especially in wide-row soybean. Condition spray solution with 1 to 2% spray-grade AMS by weight (8.5 to 17 lb/100 gal water) before adding glyphosate to the tank.

\* Numbers in parentheses indicate herbicide site of action; see p. 3 for more information. Products often are available in several formulations or brand names, and label information may vary. Refer to the Names, Toxicities, and Persistence table, p. 12.

# Herbicides for Soybean

Formulated product/acre*	Herbicide and lb active ingredient needed/acre	Comments and limitations
<b>POSTEMERGENCE</b>		
0.125 to 0.5 oz <b>Harmony SG</b> or 0.083 to 0.33 oz <b>Unity</b>	Thifensulfuron (2) 0.004 to 0.016	Use only the lowest rate on non-STS soybean; higher rates should be used only on STS soybean. Primarily for control of lambsquarters, annual smartweeds, and velvetleaf at the 3- to 4-leaf stage. May be tank-mixed with glyphosate in Roundup Ready soybean. Always apply with NIS and nitrogen fertilizer additives. Do not apply by chemigation. Do not feed forage from treated areas or allow livestock grazing within 7 days of application. Allow 30 days between application and feeding hay from treated areas to livestock.
64 oz <b>InterMoc</b>	Glufosinate (10) + <i>S</i> -metolachlor (15) 0.54 + 1.25	InterMoc is a premix containing 1.07 lb glufosinate and 2.5 lb <i>S</i> -metolachlor/gal. Apply only to soybean designated as Liberty Link or glufosinate resistant from emergence to the R1 stage of soybean development. Application to other soybean varieties will result in severe injury or death of the crop. Provides broad-spectrum postemergence control of small emerged weeds and residual control of certain grasses and small seeded broadleaf weeds. Add AMS at 8.5 to 17 lb/100 gal of water for enhanced weed control. InterMoc is most effective on emerged weeds with warm temperatures, high relative humidity, bright sunlight, and thorough spray coverage. Do not graze or feed treated forage, hay, or straw.
32 to 43 oz <b>Liberty, Chectah,</b> <b>Interline, Scout,</b> and others	Glufosinate (10) 0.59 to 0.79	A nonselective herbicide for use only on soybean designated as glufosinate resistant. Application to other soybean varieties will result in severe injury or death of the crop. Apply to soybean from emergence until the bloom stage of growth for control of small, actively growing weeds less than 4 inches tall. Always condition spray water with spray-grade AMS before adding glufosinate to the spray solution. AMS rates range from 1.5 to 3 lb/a, depending on the product. Most effective with warm temperatures, high relative humidity, and bright sunlight. Application to stressed plants or late in the day may result in reduced weed control. Has no residual activity, so two-pass weed control programs including a preemergence herbicide and postemergence tank-mix treatments with residual generally are required to achieve good weed control and minimize weed competition. Do not apply more than two applications of Liberty to Liberty Link soybean. If a new flush of weeds emerges or existing weeds are not adequately controlled, a second application can be applied 5 to 10 days after the first application. Do not apply more than 87 oz/a of Liberty per growing season. Do not graze or harvest the treated crop for hay.
6 to 7.25 oz <b>Marvel</b>	Fluthiacet (14) + Fomesafen (14) 0.0055 to 0.066 + 0.14 to 0.16	Marvel is a premix containing 0.12 lb fluthiacet and 2.88 lb of fomesafen/gal for postemergence broadleaf weed control. Can be applied to soybeans up to the R3 stage for control of actively growing weeds less than 4 inches tall. Apply with NIS, COC, or MSO for optimal weed control. Do not use in counties west of U.S. Highway 281. Do not rotate to wheat, barley, rye, oats, or triticale for 4 months; field corn for 10 months; or sunflower, alfalfa, sorghum, cotton, or canola for 18 months after Marvel application. Do not feed treated soybean forage or hay to livestock.
12 to 21 oz <b>Outlook</b>	Dimethenamid-P (15) 0.56 to 0.98	Generally applied as a tank mix with other postemergence herbicides to provide residual control of later-germinating small seeded grass and broadleaf weeds. Does not provide control of emerged weeds. Use the lower rates on coarse-textured soils and the higher rates on medium- and finer-textured soils. Can be applied anytime between soybean emergence and the 5-trifoliolate growth stage. Do not graze or feed treated forage, hay, or straw to livestock. Outlook can be applied sequentially after preplant/preemerge applications of dimethenamid-P containing herbicides Outlook or Verdict. If sequential applications are separated by 14 or more days, 24 fl oz Outlook can be applied per season.
6 to 10 fl oz <b>Perpetuo</b>	Flumiclorac (14) + Pyroxasulfone (15) 0.028 to 0.046 + 0.080 to 0.134	Controls emerged broadleaf weeds, including pigweeds residual activity on annual grasses and broadleaves. Temporary leaf burn is expected. Do not apply after V6 soybeans. Maximum rate on coarse soils is 8 fl oz/acre. Apply with 1 pt/acre COC or MSO. NIS may be needed for some tank mixes. Spray grade AMS or UAN may be added. Do not plant wheat for 1 to 4 months; grain sorghum for 6 to 8 months; alfalfa for 10 months; canola for 12 to 15 months; cotton for 2 to 4 months.

\* Numbers in parentheses indicate herbicide site of action; see p. 3 for more information. Products often are available in several formulations or brand names, and label information may vary. Refer to the Names, Toxicities, and Persistence table, p. 12.



# Herbicides for Soybean

Formulated product/acre*	Herbicide and lb active ingredient needed/acre	Comments and limitations
<b>POSTEMERGENCE</b>		
0.75 to 2.25 pt <b>Poast Plus</b>	Sethoxydim (1) 0.1 to 0.28	Controls annual and perennial grasses. Apply when grasses are growing actively but before they reach size limits listed on the label. Apply to annual grasses up to 8 inches, volunteer corn up to 20 inches, shattercane from 6 to 18 inches, and rhizome johnsongrass from 15 to 25 inches tall. Apply with COC. For improved control of volunteer corn, crabgrass, and rhizome johnsongrass, also apply with AMS at 2.5 lb/a or 28% UAN at 2 to 4 qt/acre. Do not apply within 75 days of harvest. Do not use treated plants for feed or forage. Tank mixing with broadleaf herbicides can reduce grass control.
1 qt <b>Prefix</b>	Fomesafen (14) + S-metolachlor (15) 0.24 + 1	Prefix is a premix containing 4.34 lb S-metolachlor (Dual Magnum) and 0.95 lb fomesafen (Reflex)/gal that provides residual grass control and foliar and residual control of certain broadleaf weeds such as waterhemp. May be applied postemergence in soybean up to 90 days prior to harvest. Prefix may be tank-mixed with glyphosate to provide residual weed control along with enhanced control of waterhemp. Add NIS at 0.25% v/v if the glyphosate brand does not contain a built-in adjuvant. Always add AMS at 8.5 to 17 lb/100 gal to the Prefix + glyphosate tank mix in glyphosate-resistant soybean. Necrotic spotting, leaf bronzing, leaf crinkling, or curling of soybean leaves may occur after a postemergence application. Do not use COC with the Prefix + glyphosate tank mix, or increased soybean injury may occur. Do not apply in counties west of U.S. Highway 281 in Kansas. Do not rotate to wheat for 4.5 months; corn for 10 months; or alfalfa, canola, grain sorghum, or sunflowers for 18 months after application.
4 oz <b>Pursuit</b>	Imazethapyr (2) 0.063	Controls annual broadleaf weeds and grasses. Apply to small, actively growing weeds before they reach size limits listed on the label. Apply with NIS, COC, or MSO plus fertilizer solutions. Weed control with Pursuit has been enhanced more by MSO than by NIS or COC in research conducted at K-State. Some pigweed species, such as Palmer amaranth, developed resistance to Pursuit and other herbicides having the same mode of action. Management strategies such as alternative control methods, crop rotation, and using herbicides with a different mode of action to replace or supplement Pursuit in a tank mix need to be considered in areas that may have resistant weed biotypes. A tank mix with Cobra or Ultra Blazer improves control of pigweeds, ragweed, prickly sida, venice mallow, and copperleaf. Do not use other imazethapyr-containing products in the same crop season. Do not rotate to alfalfa or wheat for 4 months; field corn for 8.5 months; cotton, oat, sorghum, or sunflower for 18 months; or canola for 40 months after application. Do not allow grazing or feed treated soybean forage, hay, or straw.
0.75 to 1 pt <b>Reflex, Flexstar, Dawn, or Rhythm, Sinister</b>	Fomesafen (14) 0.19 to 0.25	A contact herbicide that controls many broadleaf weeds. Apply to small, actively growing weeds before they reach size limits listed on the labels (normally 2 to 3 weeks after planting). Apply with oil concentrate or NIS plus UAN or AMS. Fomesafen can cause temporary leaf speckling and burning, but new soybean growth is unaffected. Do not use Dawn, Rhythm, or Sinister in counties west of U.S. Highway 281. Do not apply Reflex or Flexstar after June 20 in counties west of highway 281. Do not rotate wheat for 4 months; corn for 10 months; or alfalfa, canola, sorghum or sunflowers within 18 months of application. Do not allow grazing or harvest treated soybean for forage or hay. Do not use if fomesafen was applied earlier in the season and use only in alternate years.
2 to 12 oz <b>Resource</b>	Flumiclorac (14) 0.013 to 0.081	Controls velvetleaf and certain other broadleaf weeds. Apply to small, actively growing weeds before they reach the size limits listed on the label. The 2 oz rate is primarily to enhance velvetleaf control in tank mixes with other broadleaf herbicides. Large velvetleaf can be controlled with the higher use rates. Always apply with COC and AMS. Resource is a contact herbicide and can cause temporary leaf burning or speckling, but new soybean growth is unaffected. Do not allow grazing or use treated soybean plants for feed or animal bedding.

\* Numbers in parentheses indicate herbicide site of action; see p. 3 for more information. Products often are available in several formulations or brand names, and label information may vary. Refer to the Names, Toxicities, and Persistence table, p. 12.

# Herbicides for Soybean

Formulated product/acre*	Herbicide and lb active ingredient needed/acre	Comments and limitations
<b>POSTEMERGENCE</b>		
4 to 16 oz <b>Select, Arrow, Tapout, or Trizenta</b> or 6 to 16 oz <b>Select Max</b> or 2.67 to 10.67 oz <b>Section Three or Trizenta 3EC</b>	Clethodim (1) 0.05 to 0.25	Controls many annual and perennial grasses. Apply when grasses are growing actively but before they reach size limits listed on the label. The lowest application rates are primarily for control of volunteer Roundup Ready corn less than 12 inches tall. Apply Select and comparable products with COC at 1% v/v. Apply Select Max with COC at 1% v/v or NIS at 0.25% v/v plus AMS at 2.5 to 4 lb/acre. Tank mixing with broadleaf herbicides can reduce grass control, which can be compensated for by increasing the rate by 2 oz/acre. Do not apply within 60 days of harvest. Do not allow grazing or use treated plants for feed or forage.
2.5 to 3.5 pt <b>Sequence</b>	Glyphosate (9) + <i>S</i> -metolachlor (15) 0.68 to 0.95 lb ae + 1 to 1.4	Apply only to Roundup Ready soybean. Application to other soybean varieties will result in severe injury or death of the crop. Sequence is a premix of 2.25 lb glyphosate and 3 lb <i>S</i> -metolachlor (Dual Magnum)/gal. Can be applied to soybean from emergence through the 3 trifoliolate-leaf stage. Provides control of most emerged weeds and residual control of small-seeded grasses and some small-seeded broadleaf weeds. The addition of 2% AMS by weight or 17 lb/100 gal water can improve control of emerged weeds.
0.375 to 1.125 oz <b>Synchrony XP</b>	Thifensulfuron (2) + Chlorimuron (2) 0.0016 to 0.0049 + 0.005 to 0.015	Use only the 0.375 oz rate on non-STS soybean. Rates greater than 0.375 should be used only on STS soybean. Controls several broadleaf weeds. Apply to small, actively growing weeds before they reach size limits listed on the label. Apply with COC plus nitrogen fertilizer solution. Some pigweed species, such as waterhemp and Palmer amaranth, have developed resistance to Synchrony and other herbicides with the same mode of action. Management strategies such as alternative control methods, crop rotation, and using herbicides with a different mode of action to replace or supplement Synchrony in a tank mix need to be considered in areas that may have resistant weed biotypes. Do not plant wheat for 3 months; corn, sorghum, or cotton for 9 months; alfalfa for 12 months; or sunflower or canola for 18 months after treatment.
56.5 oz <b>Tavium</b>	Dicamba (4) + <i>S</i> -metolachlor 0.5 (15) + 1	A restricted use pesticide. Apply only to Xtend soybeans from emergence through the V <sub>4</sub> stage of growth or June 30, whichever comes first, for control of emerged broadleaf weeds less than 4 inches tall and residual control of grasses and some broadleaf weeds. Refer to the XtendiMax entry for use guidelines and restrictions. Consult the label and following website for additional application guidelines: <a href="http://www.syngenta-us.com/herbicides/tavium-tank-mixes">http://www.syngenta-us.com/herbicides/tavium-tank-mixes</a> .
3 pt <b>Thunder Master</b>	Imazethapyr (2) + Glyphosate (9) 0.063 + 0.56 lb ae or 0.031 + 0.75 lb ae	Apply only to Roundup Ready soybean. Thunder Master is a premix of 0.17 lb imazethapyr (Pursuit) and 1.5 lb ae glyphosate/gal. Provides foliar and residual control of many grass and broadleaf weeds. Apply with NIS plus AMS. Do not use other imazethapyr-containing products in the same crop season. Do not rotate to alfalfa or wheat for 4 months; field corn for 8.5 months; cotton, oat, sorghum, or sunflower for 18 months; or canola for 40 months after application. Do not allow grazing or feed treated soybean forage, hay, or straw.
0.75 to 1 pt <b>Torment</b>	Imazethapyr (2) + Fomesafen (14) 0.047 to 0.063 + 0.19 to 0.25	Torment is a premix containing 0.5 lb imazethapyr (Pursuit) and 2 lb fomesafen (Reflex)/gal. Apply early postemergence for control of actively growing weeds less than 3 inches tall. Apply with NIS or oil concentrate plus nitrogen fertilizer additives. Do not use in counties west of U.S. Highway 281. Cannot be used in fields previously treated with imazethapyr or fomesafen. Do not plant wheat for 4 months; corn for 10 months; alfalfa, cotton, oat, sorghum, or sunflower for 18 months; or canola for 40 months after application. Do not graze treated areas or harvest for forage or hay.
1 to 1.5 pt <b>Ultra Blazer</b> and others	Acifluorfen (14) 0.25 to 0.38	A contact herbicide that controls many broadleaf weeds. Apply when seedling weeds are in the 4- to 6-leaf stage and growing actively. Apply with NIS. Ultra Blazer can burn, bronze, or crinkle some soybean leaves. Soybean outgrows this condition, and new growth develops normally. Do not apply within 50 days of harvest. Do not use treated plants for feed or forage.

\* Numbers in parentheses indicate herbicide site of action; see p. 3 for more information. Products often are available in several formulations or brand names, and label information may vary. Refer to the Names, Toxicities, and Persistence table, p. 12.

# Herbicides for Soybean

Formulated product/acre*	Herbicide and lb active ingredient needed/acre	Comments and limitations
<b>POSTEMERGENCE</b>		
1 pt <b>Ultra Blazer</b> + 1 to 2 pt <b>Basagran 5L</b> , or 1.5 pt <b>Storm</b>	Acifluorfen (14) + Bentazon (6) 0.25 + 0.8 to 1.6	A combination of Ultra Blazer and Basagran can be used for control of annual broadleaf weeds. Storm is a premix of 2.67 lb bentazon and 1.33 lb acifluorfen/gal. Apply before seedling weeds reach size limits listed on the label. Apply with NIS. For improved velvetleaf control, apply with COC or with 1 gal 28% nitrogen solution/acre.
1.25 to 2 qt <b>Warrant</b>	Acetochlor (15) 0.94 to 1.5	Warrant is an encapsulated formulation of acetochlor. Used primarily as a tank mix with postemergence herbicides to provide residual control of certain annual grass and broadleaf weeds. Does not control emerged weeds. Apply after emergence but before the R2 stage of soybean. Do not graze or feed treated forage to livestock.
3 pt <b>Warrant Ultra</b>	Acetochlor (15) + Fomesafen (14) 1.06 to 0.24	Warrant Ultra is a premix of 2.82 lb acetochlor (Warrant) and 0.63 lb fomesafen (Reflex)/gal. Apply postemergence up to the R2 stage of soybeans for residual control of small-seeded grasses and broadleaf weeds and foliar control of certain small broadleaf weeds. Apply with oil concentrate or NIS for control of emerged broadleaf weeds. Do not apply in counties west of US Highway 281. Do not rotate to wheat for 4 months; corn for 10 months; or alfalfa, grain sorghum, or sunflower for 18 months after application.
22 oz <b>XtendiMax</b> or 12.8 oz <b>Engenia</b>	Dicamba (4) 0.5	Restricted use pesticides. Apply only to Xtend soybeans from emergence through the R1 growth stage or June 30 for control of susceptible broadleaf weeds less than 4 inches tall. Non-Xtend soybeans will be severely injured or killed. Should be part of a planned weed control program following residual preemergence herbicides. Follow label guidelines near susceptible crops and sensitive areas. Do not spray when wind is blowing in direction of neighboring susceptible crops, including non-Xtend soybeans, and observe buffer guidelines. Only spray between 1 hour after sunrise and 2 hours before sunset when wind speed is between 3 and 10 mph. Do not spray during a temperature inversion. Do not apply with ammonium sulfate. Use approved drift reduction adjuvant and volatility reduction agent. Consult labels and respective websites for additional application guidelines, approved nozzles, and approved tank-mix combinations: <a href="http://xtendimaxapplicationrequirements.com">xtendimaxapplicationrequirements.com</a> for XtendiMax; or <a href="http://engeniatankmix.com">engeniatankmix.com</a> for Engenia. Always read the label on the herbicide package you are using.
1.75 to 5.57 oz <b>Zidua SC</b>	Pyroxasulfone (15) 0.08 to 0.19	Generally applied as a tank-mix with other postemergence herbicides to provide residual control of later germinating grass and broadleaf weeds. Does not provide control of emerged weeds. Use the lower rates on coarse-textured soils and the higher rates on medium- and finer-textured soils. Can be applied to soybeans from emergence to sixth trifoliolate leaf stage. If sequential applications are used, the maximum combined rate of Zidua that may be applied in a cropping season is 3.5 oz Zidua SC on coarse soils or 5.0 oz Zidua SC on medium-textured soils or 5.75 oz Zidua SC on fine-textured soils. Soybean and corn can be replanted anytime after Zidua application. Do not plant wheat or cotton for 4 months; alfalfa for 10 months; small grains other than wheat for 11 months; or any other crop for 18 months after Zidua application.
<b>DIRECTED POSTEMERGENCE</b>		
1 to 2 pt <b>Gramoxone SL 2.0</b> or 0.7 to 1.3 pt <b>Gramoxone SL 3.0</b> or <b>Helmquat</b>	Paraquat (22) 0.125 to 0.5	Paraquat can only be handled and applied by licensed individuals. Apply spray between the rows with a hooded or shielded sprayer to prevent spray contact with soybean plants. Severe crop injury can occur if spray is allowed to come in direct contact with soybean plants. Apply with NIS at 0.5% v/v. Use the higher labeled rates on larger or hard-to-control weed species. Do not graze or harvest for forage or hay.
<b>FOR SPOT TREATMENT ONLY</b>		
3 pt <b>Assure II</b> , or <b>Quiz</b> /100 gal water	Quizalofop (1)	Use as a spot treatment to control annual species like volunteer corn and perennials such as rhizome johnsongrass. Always apply with COC or NIS. Apply on a "spray to wet" basis.

\* Numbers in parentheses indicate herbicide site of action; see p. 3 for more information. Products often are available in several formulations or brand names, and label information may vary. Refer to the Names, Toxicities, and Persistence table, p. 12.

# Herbicides for Soybean

Formulated product/acre*	Herbicide and lb active ingredient needed/acre	Comments and limitations
<b>FOR SPOT TREATMENT ONLY</b>		
2 qt <b>Fusilade DX</b> or <b>Quiz</b> /100 gal	Fluazifop-P (1)	Apply as spot treatment before bloom for control of annual and perennial grasses, including shattercane and rhizome johnsongrass. Treat again if necessary. Always apply with COC or NIS. Do not allow grazing of treated area or harvest for hay. Do not plant crops such as corn, sorghum, or cereals within 60 days after last application.
1 to 2 gal <b>Glyphosate</b> /100 gal or 1.33 to 2.67 oz <b>Glyphosate</b> /gal spray solution	Glyphosate (9)	Apply as spot treatment to control annual and perennial grasses, including shattercane and rhizome johnsongrass. Non-Roundup Ready soybean treated with glyphosate will be severely injured. Use the lower rates for control of small annual weeds and the higher rates for control of perennial weeds. Do not allow grazing of treated area or harvest for hay. Do not plant crops such as corn, sorghum, or cereals within 60 days after last application.
1.5 to 2.25 gal <b>Poast Plus</b> /100 gal water	Sethoxydim (1)	Apply 1.5 to 2.25% solution as a spot treatment to control annual and perennial grasses. Always apply with COC or MSO. Apply spray for complete and uniform coverage but not to the point of runoff. Do not make more than one spot treatment in a given area per season. Do not apply broadcast and spot treatments in the same area in the same season.
2 qt <b>Select</b> and others/100 gal	Clethodim (1)	For control of annual and perennial grasses, apply as a spot treatment until vegetation is uniformly wet but not to the point of spray runoff. Always apply with COC.

## RECIRCULATING, ROLLER, AND ROPE-WICK APPLICATIONS

Apply glyphosate in an applicator to actively growing, susceptible weeds after they are a minimum of 6 inches above soybean. Better results may be obtained if two applications are made in opposite directions. Operate equipment at ground speeds of less than 5 mph. Follow all label directions, warnings, and precautions.

Applicator	Gallons Glyphosate*:Water	Comments
Recirculating sprayer	0.5:20	Controls volunteer corn and shattercane.
Recirculating sprayer	0.75:20	Controls volunteer corn, shattercane, cocklebur, pigweed, sunflower, and johnsongrass.
Recirculating sprayer	1:20	Controls weeds listed above and suppresses milkweed and hemp dogbane.
Roller	1:19	A 5% solution for control of volunteer corn and shattercane.
Roller	1:9	A 10% solution for control of volunteer corn and shattercane. Suppresses johnsongrass, pigweed, giant ragweed, sunflower, velvetleaf, milkweed, and hemp dogbane.
Rope wick	1:2	This 33% solution in a rope wick should provide similar weed control to a 10% solution in the roller.

## APPLICATION THROUGH SPOT SPRAYERS

Apply glyphosate with a directed stream to actively growing weeds. Applications in soybean must be made before pod set. Best results are obtained when at least three leaves of the weeds are contacted with the directed spray. Apply glyphosate:water at 1:20 gal. Controls cocklebur, velvetleaf, sunflower, shattercane, and other weeds. Non-Roundup Ready soybean treated with glyphosate will be severely injured. Follow label directions.

## HARVEST AIDS

1 to 1.5 oz <b>Aim EC</b> or <b>Longbow EC</b>	Carfentrazone (14) 0.016 to 0.023 or 2 lb/gallon	For desiccation of susceptible broadleaf weeds. Apply after soybean reaches maturity but at least 3 days before harvest. Always apply with 1% v/v COC in a minimum spray volume of 5 gal/a for aerial application or 10 gal/a for ground application. Do not exceed a total of 1.5 oz/a during the growing season.
--	--	--

\* Numbers in parentheses indicate herbicide site of action; see p. 3 for more information. Products often are available in several formulations or brand names, and label information may vary. Refer to the Names, Toxicities, and Persistence table, p. 12.

# Herbicides for Soybean

Formulated product/acre*	Herbicide and lb active ingredient needed/acre	Comments and limitations
<b>HARVEST AIDS</b>		
1 to 2 qt of 3 lb ae/gal <b>Glyphosate</b> (see glyphosate table)	Glyphosate (9) 0.75 to 1.5 lb ae	For control of broadleaf and grass weeds that can interfere with harvest, apply with ground or aerial equipment after soybean pods have lost all green color and at least 7 days before harvest. Glyphosate products vary in concentration and adjuvant requirements. Refer to specific product labels for rate and adjuvant recommendations. Do not allow grazing or feed treated crop to livestock within 25 days of treatment. Do not apply to soybean being harvested for use as seed.
8 to 16 oz <b>Gramoxone SL</b> or <b>Helmquat</b>	Paraquat (22) 0.125 to 0.25	For desiccation of crop and weed foliage to help facilitate harvest. Apply after soybean reaches physiological maturity and seed moisture is 30% or less and at least 15 days prior to harvest. Always apply with 0.25% v/v NIS or a 1% v/v COC. Do not graze or harvest treated fields for forage or hay.
1 to 2 oz <b>Sharpen</b>	Saflufenacil (14) 0.022 + 0.063 + 0.47	Apply by ground or aerial application to desiccate soybeans and/or weeds to help facilitate earlier harvest. Apply when soybeans have 65% brown pods, 70% leaf drop, and seed moisture is below 30%. Always apply with MSO at 1 pt/a and 1 to 2% ammonium sulfate by weight (8.5 to 17 lb/100 gal water). Use a minimum spray volume of 5 gpa for aerial application and 10 gpa for ground application. Allow a minimum of 3 days between application and soybean harvest, and up to 10 days for optimum desiccation effect.

\* Numbers in parentheses indicate herbicide site of action; see p. 3 for more information. Products often are available in several formulations or brand names, and label information may vary. Refer to the Names, Toxicities, and Persistence table, p. 12.