

Preplant and Preemergence Herbicides for Soybean Production

The following herbicides are used to control weeds as they emerge. Certain products require mechanical incorporation prior to planting, while others may be applied before, during, or after planting. Incorporation may reduce the need for timely rainfall after application and may improve control of certain weeds. Adjust rate to soil type as specified on label. In no-till, an additional burndown herbicide may be required to control emerged weeds. Many herbicides used primarily for pre-emergence weed control may also be applied following crop emergence. Recommendations for post applications of these products are included in this section rather than in the postemergence section.

Trade Name	Common Name	Formulation	Rate/Range
Authority	sulfentrazone	75 DG	4.0 to 5.3 oz/A
Spartan	sulfentrazone	75D DF	5.3 to 8.0 oz/A

Mode of Action

PPO

Application Timing

Early preplant—Apply up to 30 days prior to planting.

Preplant incorporated—Apply and uniformly incorporate no deeper than the top 1 to 2 inches of soil. May be applied up to 30 days prior to planting.

Preemergence—Apply before soybeans emerge.

Comments

- For use in a planned program to be followed by a postemergence application such as Classic, Classic + Roundup Ultra (RR soybean varieties), or Synchrony STS.
- Soybean stunting may occur if excessive rainfall occurs after application and before soybean emergence.
- Do not apply if there are visible signs of cracking due to soybean emergence.
- Thoroughly clean application equipment after use to avoid crop injury. Refer to label for cleaning instructions.
- Do not apply aerially.
- Do not apply through any type of irrigation system.
- Some soybean varieties demonstrate less tolerance to sulfentrazone. Refer to the label for a list of these varieties.

Trade Name	Common Name	Rate/Range
Axiom 68 DF	flufenacet 54.4% + metribuzin 13.6%	7 to 13 oz/A

Mode of Action

Unknown + PSII

Application Timing

Preplant surface—Applications may be made up to 14 days before planting.

Preplant incorporated—Apply and incorporate into the top 1 to 2 inches of soil up to 14 days before planting.

Preemergence—Apply after planting but prior to soybean or weed emergence.

Comments—Axiom 68DF

- Axiom cannot be mixed or loaded within 50 feet of any well, lake, river, stream, reservoir, or sinkhole. This does not apply to properly capped or plugged wells, impervious pads, or properly diked mixing and loading areas.
- Do not apply aerially or with irrigation systems.
- Soybeans should be planted a minimum of 1 to 1½ inches deep.
- Axiom is labeled at lower rates in soybeans than corn due to residue limits rather than to lower tolerance. The labeled rates will only provide early season weed control.

Trade Name	Common Name	Rate/Range
Boundary 7.8EC	6.3 lb S-metolachlor + 1.5 lb metribuzin	1 to 2.5 pt/A

Mode of Action

Unknown + PSII

Application Timing

Preplant surface or incorporated—Apply up to 14 days before planting. If incorporating, mix into the upper 1 to 2 inches of soil.

Preemergence—Apply after planting but prior to soybean or weed emergence.

Comments

- Intended for use with a planned postemergence program. Boundary will provide 4 to 6 weeks residual control.
- On soils with pH above 7.0, use the 1.25 pt/A rate only.
- 1.25 pt/A Boundary provides the equivalent of 1 pt/A Dual II MAGNUM plus 4.9 oz/A Sencor 75DF.
- Refer to label for other comments relative to postemergence products following Boundary and burndown of existing vegetation at the time of planting.
- Do not use on sand soils. On coarse textured soils, do not use on loamy sands with less than 2% organic matter.

Trade Name	Common Name	Rate/Range
Canopy XL 56.3 DF	46.9% sulfentrazone + 9.4% chlorimuron ethyl	2.5 to 7.9 oz/A

Mode of Action

PPO + ALS

Application Timing

Fall applications—Apply 2.5 oz after fall harvest but before ground freeze to control winter annual weeds.

Early preplant—Apply up to 30 days prior to planting. Will provide some burndown of existing weeds.

Preplant incorporated—Apply and uniformly incorporate no deeper than 1 to 2 inches deep in the soil. May be applied up to 30 days prior to planting.

Preemergence—Apply before soybeans emerge.

Comments

- Do not apply on fields with a pH greater than 6.8.
- Chlorimuron has a long soil residual and may carry over and injure corn. Carryover of chlorimuron is greater on soils with a high pH. Refer to label for rotational restrictions. Chlorimuron may interact with ALS herbicides applied to corn the following year, thus increasing the potential for injury to corn.
- Consider potential for localized areas in field that may have a high pH resulting in carryover. Composite soil samples taken for fertility testing may not reveal these areas.
- Do not plant field corn for 10 months after application or Clearfield field corn for 8 months.
- Soybean injury may occur if excessive rainfall occurs after application.

Comments—Canopy, continued

- Canopy XL may interact with other ALS herbicides applied to soybeans, thus increasing the potential for crop injury.
- Fall applications intended for controlling winter annuals. Will provide limited activity on spring-germinating weeds.
- Apply in a minimum of 10 gallons of water per acre.
- Do not apply aerially.
- Thoroughly clean sprayer following use to avoid crop injury. Refer to label for cleaning instructions.
- Do not graze treated fields or harvest for forage or hay.
- When used for burndown, add 1% v/v crop oil concentrate. Assure II or Roundup Ultra may be included to improve grass control. Substitute 0.5% NIS for the COC when mixing with Roundup Ultra.

Trade Name	Common Name	Formulation	Rate/Range
Command 4EC	clomazone	4 EC	1 to 2 pt/A
Command 3ME		3ME	1½ to 2½ pt/A

Mode of Action

Bleacher

Application Timing—Command 4EC

Early preplant—Apply Command 4EC prior to field green-up (trees or shrubs bordering the treatment site have broken dormancy and are showing green leaf tissue) but no later than April 1 south of I-80 and April 10 north of I-80.

Preplant incorporated—Apply Command 4EC and incorporate immediately unless the soil is dry. On dry soils, incorporation must be completed within 8 hours of application. Shallow incorporation generally results in better weed control than deep incorporation.

Preemergence—Apply Command 3ME before soybeans emerge. May be applied up to 30 days before planting.

Comments

- Off-site movement of spray drift or vapors of Command can cause foliar whitening or yellowing of nontarget plants. Prior to making applications, read and strictly follow all precautions and instructions on the label.
- Command 3ME is an encapsulated formulation. Encapsulation reduces volatilization from the soil surface, thereby reducing the likelihood of off-target movement and injury to susceptible plants in adjacent areas.
- Do not apply within 1,200 ft of towns, subdivisions, commercial fruit and vegetable production, nurseries, or greenhouses. Refer to label for other restrictions.
- Command may carry over and cause early season injury to rotational crops.
- Do not plant wheat, oats, barley, rye, or alfalfa in the fall of the year of application or in the spring of the following year.
- Thoroughly clean sprayer following use to avoid crop injury. Refer to label for cleaning instructions.
- May be applied with fluid fertilizer; do not apply aerially.
- Do not allow livestock to graze on treated soybean vines or harvest vines for forage.

Trade Name	Common Name	Rate/Range
Command Xtra	39.6% sulfentrazone + 31.4% clomazone	8 to 12 oz/A + 21.3 to 32 oz/A

Mode of Action

PPO + bleacher

Application Timing

Early preplant—Apply up to 30 days prior to planting. May provide some burndown of existing weeds.

Preemergence—Apply before soybeans emerge.

Comments–Command

- Do not apply on fields with soils classified as sand with less than 1% organic matter.
- Do not apply more than once per season.
- Do not allow livestock to graze on treated soybean vines, or feed treated soybean vines or vine trash to livestock.
- Command Xtra is a co-pack containing 3 quarts Command Xtra B and 2 gallons Command Xtra G.
- Each Command Xtra co-pack will treat 8 to 12 acres depending on the soil type.

Trade Name	Common Name	Rate/Range
Domain 60DF	24% flufenacet + 36% metribuzin	9 to 16 oz/A

Mode of Action

unknown + PSII

Application Timing

Preplant surface or incorporated—Apply up to 14 days prior to planting. If incorporating, mix into upper 1 to 2 inches of soil.

Preemergence—Apply following planting but before crop or weed emergence.

Comments

- Intended for use with planned postemergence program. Domain will provide only early season (from 3 to 6 weeks) residual control.
- Crop injury may occur when 1) soils have a calcareous surface area or a pH of 7.5 or greater, 2) a soil-applied OP insecticide is used, or 3) the product is applied or incorporated unevenly.
 - Sixteen oz/A Domain provides the equivalent of 0.5 lb Sencor 75DF/A.
- Flufenacet is similar in activity to metolachlor, acetochlor, and other amide herbicides.

Trade Name	Common Name	Formulation	Rate/Range
Dual II MAGNUM	s-metolachlor	7.64 EC	1.0 to 2.0 pt/A
Dual II MAGNUM G	s-metolachlor	16G	6 to 15 lb/A
Parallel	metolachlor	7.8 EC	1.0 to 2.0 pt/A
Parallel PCS	metolachlor	8 EC	1.0 to 2.75 pt/A
Stalwart	metolachlor	8 EC	1.0 to 2.0 pt/A

Mode of Action

Unknown

Application Timing

Fall application—Apply 1.67 to 2.0 pt/A of s-metolachlor or metolachlor after September 30 north of U.S. 30 or after October 15 south of U.S. 30 when soil temperature at a 4-inch depth is less than 50°F. Do not apply to frozen soil.

Early preplant—Apply up to 30 days ahead of planting as a single application or up to 45 days ahead of planting as a split application.

Preplant incorporated—Apply and incorporate into the top 2 inches within 14 days before planting.

Preemergence—Apply during or after planting but before weeds or crops emerge.

Comments—Dual II MAGNUM

- The higher rates are required on soils with high organic matter or for control of black nightshade.
- May be applied with liquid or dry fertilizers, through center pivot irrigation, or aerially.
- Treated areas may be grazed or used for forage.
- Iowa State University research has found that fall applications increase the likelihood of late-season weed breakthroughs due to early degradation of s-metolachlor and metolachlor.
- Parallel, Parallel PCS, and Stalwart are formulated with the unresolved isomers of metolachlor and will have less of the isomer primarily responsible for weed control as found in s-metolachlor.

Trade Name	Common Name	Formulation	Rate range
Express	tribenuron	75% DF	1/6 to 1/3 oz

Mode of Action

ALS

Application Timing

Fall application — Apply in the fall after harvest but before ground freeze.

Comments

- Do not plant corn or soybean within 45 days of application.
- Express will provide control of chickweed and certain other winter annuals.

Trade Name	Common Name	Formulation	Rate/Range
FirstRate/Amplify	cloransulam-methyl	84% WDS	0.6 to 0.75 oz/A

Mode of Action

ALS

Application Timing

Preplant incorporated—Apply and incorporate into the top 1 to 3 inches of soil up to 4 weeks prior to planting.

Preplant surface—Apply up to 4 weeks prior to planting.

Preemergence—Apply after planting but before crop emergence.

Comments

- FirstRate can be applied postemergence. Refer to the label to determine the proper application rate.
- A post-application of 0.3 oz/A FirstRate may follow a soil application of 0.75 oz/A or less.
- Do not apply more than 1.05 oz/A FirstRate per growing season.
- FirstRate may interact with other ALS herbicides applied to soybeans, thus increasing the potential for crop injury.
- Giant ragweed populations resistant to FirstRate have been identified in Iowa and some adjacent states.
- Refer to the FirstRate label for specific rotational information.
- Cloransulam occasionally has injured corn the year following application. Late applications, below average precipitation after application, and interactions with other ALS herbicides increase the potential for adverse crop response.

Trade Name	Common Name	Formulation	Rate/Range
Frontier	dimethenamid	6.0 EC	16 to 32 oz/A
Outlook	dimethenamid-P	6.0 EC	12 to 21 oz/A

Mode of Action

Unknown

Application Timing

Early preplant—Use split applications made 30 to 45 days before planting. Treatments made 30 days or less before planting may be made as a single application. Use the highest rate recommended for the soil type.

Preplant incorporated—Incorporate 1 to 2 inches deep up to two weeks before planting.

Preemergence—Apply after planting and before crop emergence.

Early postemergence—May be applied up to the third trifoliolate stage.

Comments

- Do not graze or feed forage, hay, or straw to livestock.
- If conditions of high rainfall and water-saturated soil occur during soybean germination or seedling development, Frontier may suppress soybean development.
- Frontier may be applied at reduced rates of 15 to 20 oz/A when used in postemergence tank mixes with Pursuit.
- Temporary soybean burn and stunting may occur if applied to emerged soybeans.
- Outlook contains the resolved isomer of dimethenamid.

Trade Name	Common Name	Formulation	Rate/Range
Gangster	51% flumioxazin +	84% cloransulam-methyl	1.5 to 3 oz/A + 0.3 to 0.6 oz/A

Mode of Action

PPO + ALS

Application Timing

Early preplant—Apply up to 30 days prior to planting.

Preemergence—Apply before soybeans emerge.

Comments

- Do not apply Gangster to soils classified as sandy that contain less than 1% organic matter.
- If applied after soybean emergence, soybean injury will occur.
- Do not apply Gangster when weather conditions favor spray drift.
- Do not graze treated fields or feed forage or hay to livestock.

Trade Name	Common Name	Rate/Range
Gauntlet	75% sulfentrazone + 84% cloransulam-methyl	5.33 to 6.67 oz/A + 0.6 to 0.75 oz/A

Mode of Action

PPO + ALS

Application Timing—Gauntlet

Early preplant—Apply up to 30 days prior to planting. May provide some burndown of existing weeds.

Preplant incorporated—Apply up to 30 days prior to planting and incorporate in the top 1 to 3 inches of soil.

Preemergence—Apply before soybeans emerge.

Comments

- Do not apply if soybeans have begun to emerge, as injury may result.
- Do not apply by air or through any type of irrigation system.
- Do not make more than one application per season.
- Do not feed treated soybean forage or soybean hay to livestock.
- Do not harvest soybeans for 65 days after Gauntlet application.
- Do not apply to soils classified as sands containing less than 1% organic matter.
- Gauntlet is a co-pack containing 26.5 oz sulfentrazone and five water-soluble packets, each containing 0.6 oz FirstRate (8:1).
- Cloransulam occasionally has injured corn the year following application. Late applications, below average precipitation after application, and interactions with other ALS herbicides increase the potential for adverse crop response.

Trade Name	Common Name	Formulation	Rate/Range
Lasso EC, MicroTech	alachlor	4 EC, ME	2 to 3.0 qt/A
Intrro		4 EC	2 to 3.0 qt/A

Mode of Action

Unknown

Application Timing

Early preplant—MicroTech may be applied up to 30 days ahead of planting as a single application, or up to 45 days ahead of planting as a split application.

Preplant incorporated—Apply within 7 days of planting and incorporate into the top 2 inches of soil.

Preemergence—Apply after planting, before weed and crop emergence, and within 5 days of last preplant tillage operation.

Comments

- All products containing alachlor are restricted-use pesticides and contain a groundwater protection statement.
- MicroTech and Partner are encapsulated formulations of alachlor.
- The higher rates are required on soils with high organic matter or for control of black nightshade.
- Lasso and MicroTech may be applied in fluid fertilizer.
- Do not apply by air; do not graze treated area or feed treated forage to livestock.
- Refer to specific alachlor label for tank mixing and application instructions.

Trade Name	Common Name	Formulation	Rate/Range
Lorox DF	linuron	50 DF	1 to 5 lb/A
Lorox		4 L	1 to 5 pt/A

Mode of Action

PSII

Application Timing

Preemergence—Apply after planting but before crop emerges.

Comments–Lorox

- Soybeans should be planted at least 1¾ inches deep to reduce risk of injury. Injury from Lorox appears as yellowing (chlorosis) followed by necrosis of lower leaves.
- Heavy rainfall following application on a poorly prepared seedbed may result in severe injury.
- Lorox is not effective on many of the high organic matter soils found in the Clarion-Nicollet-Webster soil association.
- Do not apply in liquid fertilizer; may be applied aerially.

Trade Name	Common Name	Formulation	Rate/Range
Prowl	pendimethalin	3.3 EC	1.2 to 3.6 pt/A
Pendimax		3.3 EC	1.2 to 3.6 pt/A
Pentagon		60 DG	0.85 to 2.5 lb/A
Prowl H ₂ O		3.8 ACS	1.5 to 3.0 pt/A

Mode of Action

Microtubule

Application Timing

Preplant incorporated—Incorporate 1.2 to 3.6 pt EC or equivalent/A into the soil within 7 days after application, and plant soybeans within 60 days after application. Prowl H₂O may be applied up to 60 days prior to planting and incorporated.

Preplant surface—May be surface applied up to 45 days before planting. Prowl at 1.2 to 3.6 pt/A applied alone should be followed by a postemergence application of Pursuit.

Preemergence—Apply 1.2 to 3.0 pt/A at planting or up to 2 days after planting.

Fall application—May be applied following harvest but before soil freeze-up.

Comments

- Do not apply preemergence north of I-80 due to increased potential for crop injury.
- Prowl H₂O is a water-based encapsulated formulation. Encapsulation may reduce volatilization losses associated with surface applications and allow easier cleaning of equipment after spraying compared to the EC formulation.
- At label rates, Prowl may occasionally carry over and injure rotational crops. Carryover is most likely in areas of overlaps or other areas of misapplication.
- May be applied in the fall when followed with an early postemergence application of Pursuit. Iowa State University does not recommend fall applications.

Trade Name	Common Name	Rate/Range
Pursuit Plus	2.7 lb pendimethalin + 0.2 lb imazethapyr/gal	2.5 pt/A

Mode of Action

Microtubule + ALS

Application Timing

Preplant surface applications—May be surface applied up to 45 days prior to soybean planting. Mechanical incorporation is recommended if sufficient rainfall to activate herbicide does not occur prior to planting.

Preplant incorporated—Apply following land preparation and thoroughly incorporate to a depth of 1 to 2 inches within 7 days of application.

Preemergence—May be surface applied up to 2 days after soybean planting south of I-80 only. Do not apply after soybean planting north of I-80.

Comments—Pursuit Plus

- The components of Pursuit Plus have long soil residual characteristics and may carry over. Refer to label for specific rotational restrictions.
- Mechanically incorporated treatments have provided more consistent control than surface-applied treatments.
- Do not apply aerially. Do not graze or feed treated forage. Do not apply products containing chlorimuron ethyl, imazaquin, or imazethapyr the same year as Pursuit Plus.
- Pursuit Plus may interact with other ALS herbicides applied to soybeans, thus increasing the potential for crop injury.
- See remarks under Pursuit and Prowl.
- Imazethapyr may interact with ALS herbicides applied to corn the following year, thus increasing the potential for injury to corn.

Trade Name	Common Name	Formulation	Rate/Range
Python	flumetsulam	80 WDG	0.8 to 1.33 oz/A

Mode of Action

ALS

Application Timing

Preplant incorporated and preemergence—Apply from 30 days prior to planting until before the cracking stage.

Comments

- Do not harvest within 85 days of application.
- Do not use on soils with pH greater than 7.8.
- Do not use on soils with more than 5% organic matter if the soil pH is less than 5.9.
- Do not use on peat or muck soils.
- Do not graze or feed treated soybean forage, hay, or straw to livestock.
- Python may interact with other ALS herbicides applied to soybeans, thus increasing the potential for crop injury.
- Do not apply aerially.

Trade Name	Common Name	Formulation	Rate/Range
Sencor	metribuzin	75 DF	1/3 to 2/3 lb/A
Sencor		4 F	3/4 to 1 3/4 pt/A

Mode of Action

PSII

Application Timing

Preplant incorporated—Metribuzin may be applied between 7 and 21 days ahead of planting, depending upon tank mix partner. Refer to label for specific restrictions.

Preemergence—Apply at or after planting but prior to soybean emergence.

Comments

- Injury potential is greater on soils with a pH greater than 7. Do not use on soils with a pH greater than 7.5.
- Injury appears as yellowing or bronzing of lower leaves, followed by necrosis and sometimes stand reductions.
- Plant seed at least 1 1/2 inches deep to reduce risk of crop injury.
- Treated vines may be grazed or fed to livestock 40 days after application.

Trade Name	Common Name	Formulation	Rate/Range
Sonalan	ethalfluralin	3 HFP	1.5 to 3.5 pt/A

Mode of Action

Microtubule

Application Timing

Preplant incorporated—Incorporate into the top 2 to 3 inches of soil within 2 days after application. May be applied up to 3 weeks prior to planting.

Comments

- Sonalan is similar to Treflan in performance but has reduced risk of carryover. Soybeans have slightly less tolerance to Sonalan than to Treflan.
- Will provide partial control of black nightshade when using higher rates (up to 3½ pt/A) and two-pass incorporation. Higher rates increase risk of crop injury.
- Do not graze or forage soybean vines treated with Sonalan.
- Do not use Sencor combinations on coarse-textured soils with less than 1% organic matter.
- Refer to all labels when applying tank mix combinations.

Trade Name	Common Name	Rate/Range
Squadron	2.0 lb pendimethalin + 0.33 lb imazaquin/gal	3.0 pt/A

Mode of Action

Microtubule + ALS

Application Timing

Preplant incorporated—Incorporate into the top 1 to 2 inches of soil immediately before or up to 45 days before planting. Incorporate within 7 days of application.

Preemergence—Apply up to 45 days before, during, or after planting but prior to soybean emergence.

Comments

- Do not apply postemergence to soybeans.
- Do not plant corn the year following Squadron application.
- Incorporate Squadron + Prowl combinations north of I-80.
- Do not apply through chemigation systems.
- Do not graze or feed treated soybean forage, hay, or straw to livestock.
- Apply Squadron only once during the growing season.
- Iowa State University does not recommend the use of 2,4-D amine formulations.
- Iowa State University does not recommend the use of 2,4-DB.
- Squadron may interact with other ALS herbicides applied to soybeans, thus increasing the potential for crop injury.
- Imazaquin has long soil residual characteristics and has demonstrated carryover to rotational corn.
- Refer to Squadron label for specific rotational recommendations.
- Do not use products containing chlorimuron ethyl, flumetsulam, imazethapyr, or imazaquin the same year as Scepter application, unless labeled otherwise, due to carryover to rotational corn.
- There is a 90-day interval between Squadron application and soybean harvest.

Trade Name	Common Name	Formulation	Rate/Range
Treflan HFP	trifluralin	4 EC	1 to 2 pt/A
Treflan TR-10/Trust 10G		10% granule	5 to 10 lb/A
Trifluralin, Trust 4EC, generic brands		4 EC	1 to 2 pt/A

Mode of Action

Microtubule

Application Timing

Preplant incorporated—Treflan must be incorporated one time within 24 hours after application; a second pass should be made any time prior to planting. Incorporate into the top 2 to 3 inches of soil.

Comments

- May be applied aerially or with liquid or dry fertilizer.
- At labeled rates, trifluralin may occasionally carry over and injure rotational crops. Carryover is most likely in areas of overlaps or other areas of misapplication.
- There are no limitations on crop use following trifluralin application.
- Treflan may be applied in the fall from October 15 to December 31; however, ISU does not recommend this application.
- Refer to all labels when applying a tank mix.

Postemergence Herbicides for Soybean Production

The following herbicides are used to control established weeds following soybean emergence. Some products are labeled for both preemergence and postemergence applications.

Trade Name	Common Name	Formulation	Rate/Range
Aim/Avalanche	carfentazone-ethyl	2EW	0.25 – 1.6 oz/A

Mode of Action

PPO

Application Timing

Apply up to 30 days before planting until soybeans reach the third trifoliolate. Weeds should be emerged and actively growing but no more than 4 inches tall or rosettes are less than 3 inches in diameter. Apply Aim at 0.25 oz/A broadcast for velvetleaf control. Aim/Avalanche may be applied at 0.5 to 1.6 oz/A as a post-directed treatment.

Comments

- Aim/Avalanche can be applied broadcast only at a rate of 0.25 oz/A. Apply higher rates as a post-directed application.
- Do not apply when wind speed is greater than 10 MPH.
- Do not tank mix with EC formulations or use crop oil concentrate.
- If spray contacts soybean foliage, severe injury can occur.

Trade Name	Common Name	Formulation	Rate/Range
Assure II	quizalofop-p-ethyl	0.8 EC	5 to 10 oz/A

Mode of Action

ACCase

Application Timing

Apply to young, actively growing grasses with size range listed on label. Apply prior to 80 days before harvest. Do not apply after soybean pod set.

Recommended Spray Additives

Crop oil concentrate-1% v/v; or nonionic surfactant-0.125-0.25% v/v.

Comments

- Refer to the label for specific additive recommendations.
- Use lower rate of surfactant with Pinnacle tank mixes.
- Tank mixing with broadleaf herbicides may reduce grass control. Rates may be increased by 2 oz when used in tank mixes to overcome antagonism for some grass species.
- May be applied aerially.
- Do not graze treated fields or harvest for foliage or hay.
- Do not tank mix Assure II with other herbicides when treating yellow foxtail, woolly cupgrass, barnyardgrass, crabgrass, quackgrass, or wirestem muhly.
- When making a sequential application, apply Assure II and delay application of broadleaf herbicide 24 hours, or apply the broadleaf herbicide and delay Assure II application 7 days.
- Do not use vegetable-based oils as adjuvants with Assure II.
- Do not cultivate within 7 days prior to or after Assure II application.
- Assure II is rainfast within 1 hour of application.
- Do not apply more than 18 oz/A Assure II per season.
- Do not apply Assure II within 80 days of harvest or after pod set has begun.
- May be applied early preplant as a burndown tank-mix with Authority, Canopy XL and/or 2,4-D. Refer to the specific labels for restrictions.

Trade Name	Common Name	Formulation	Rate/Range
Basagran	bentazon	4 L	1 to 2 pt/A

Mode of Action

PSII

Application Timing

Apply when weeds are small and actively growing and before weeds reach maximum size listed on label.

Recommended Spray Additives

Crop oil concentrate-1 to 2 pt/A; UAN-0.5 to 1 gal/A; or ammonium sulfate-2.5 lb/A or 3 qt/A.

Comments–Basagran

- Additive selection should be based on weed species present. Do not use both COC and UAN.
- Thorough coverage of foliage required for adequate control. Apply in a minimum of 20 gal of water/A and a minimum of 40 PSI.
- Do not cultivate within 5 days before or after application.

Trade Name	Common Name	Formulation	Rate/Range
Blazer, Ultra Blazer	acifluorfen	2 L	0.5 to 1.5 pt/A

Mode of Action

PPO

Application Timing

Apply early when weeds are small and actively growing and before weeds reach maximum size listed on label. Do not apply within 50 days of harvest.

Recommended Spray Additives

Nonionic surfactant-1 pt per 100 gal water; higher rates may be used for specific weeds. UAN-0.5 to 1 gal/A. Crop oil concentrate-1 to 2 pts/A.

Comments

- Soybean leaves may exhibit burning, crinkling, and bronzing, particularly on young foliage. Injury is normally short lived.
- Do not cultivate within 5 days before or 3 to 7 days after application.
- Thorough coverage of foliage required for adequate control. Use a minimum of 20 gal water and 40 PSI.
- Additive selection based upon target species and tank mix partner.
- Do not use flood, whirl chamber, or CDA nozzles.
- Do not use treated plants for feed or forage.

Trade Name	Common Name	Formulation	Rate/Range
Classic	chlorimuron ethyl	25 DF	0.25 to 0.75 oz/A

Mode of Action

ALS

Application Timing

Should be applied to young, actively growing weeds. Can be applied after first trifoliolate until 60 days before harvest.

Recommended Spray Additives

Nonionic surfactant-0.25% v/v; or crop oil concentrate-1% v/v. UAN (2-4 qt/A), 10-34-0 (1-2 qt/A) or ammonium sulfate (2-4 lb/A) should be used in combination with a surfactant or COC for velvetleaf control. Use only 0.5% (v/v) COC with Cobra tank mixes and NIS with Roundup Ultra tank mixes.

Comments

- Apply in a minimum of 10 gal water. Use flat fan or hollow cone nozzles.
- Cultivation before, during, or within 7 days after application is not recommended.
- Follow label directions for cleaning sprayer after use.
- Do not graze treated fields or harvest for forage or hay.
- Classic may be aerially applied.

Comments—Classic, continued

- Classic may interact with other ALS herbicides applied to soybeans, thus increasing the potential for crop injury.
- Classic may interact with ALS herbicides applied to corn the following year, thus increasing the potential for injury to corn.
- Do not apply to plants under stress.
- There is a 60-day interval between application and harvest.
- High soil pH (greater than 7.0) increases the persistence of Classic. Refer to the Classic label for specific restrictions.
- Do not use Dash adjuvant with Classic + Pinnacle combinations.
- ISU does not recommend 2,4-DB.
- Apply Classic + Roundup Ultra on RR soybean varieties only.

Trade Name	Common Name	Formulation	Rate/Range
Cobra	lactofen	2 EC	6 to 12.5 oz/A
Phoenix	lactofen	2 EC	8 to 12.5 oz/A

Mode of Action

PPO

Application Timing

Apply to small, actively growing weeds that are not larger than listed on label.

Recommended Spray Additives

Cobra -COC-Use 0.25 to 1% (v/v); or NIS-Use 0.25% (v/v) when soil moisture is good and weeds are actively growing; or AMS-4 lb when weeds are actively growing. Additive recommendations are based upon weed size and environmental conditions. See label for specific recommendations.

Phoenix – Add NIS at 0.125 to 0.25% v/v COC is recommended when weeds are stressed due to hot and dry conditions.

Under these conditions, use COC at 1 pt/A or use COC at 0.125 to 0.5% v/v plus NIS at 0.125 to 0.25% v/v. When Phoenix is applied in combination with glyphosate, use AMS at 2 to 4 lb/A only.

Comments

- Soybean injury is likely, although plants usually recover with no impact on yield potential.
- Apply in 20 to 30 gal water at 40-60 PSI. Do not use flood nozzles.
- Do not graze or harvest for feed or bedding.
- Do not apply after growth stage R6 (full seed) or within 45 days of harvest.
- Multiple applications may be made. Do not exceed 25 oz/A/season.
- Do not make band applications while cultivating or create excessive dust while spraying.

Trade Name	Common Name	Formulation	Rate/Range
Extreme	1.8% imazethapyr 22% glyphosate	2.17 E	3 pt/A

Mode of Action

ALS + EPSPS

Application Timing

Apply to actively growing weeds within the recommended stage of growth on label.

Recommended Spray Additives

Use a non-ionic surfactant (0.125% v/v) and fertilizer such as a spray grade ammonium sulfate (2.5 lb/A) or a nitrogen-based liquid fertilizer such as 28% UAN (1. to 2 qt/A).

Comments–Extreme

- 2,4-D may be added to improve perennial weed control when Extreme is applied as a burndown in no-tillage systems.
- Do not apply postemergence to non-glyphosate-resistant soybeans.
- Do not graze or feed treated soybean forage, hay, or straw to livestock.

Trade Name	Common Name	Formulation	Rate/Range
FirstRate/Amplify	cloransulam-methyl	84% WDS	0.3 oz/A

Mode of Action

ALS

Application Timing

Apply from soybean emergence until soybeans reach 50% flowering.

Recommended Spray Additives

Nonionic surfactant (0.125 to 0.25%) plus UAN (2.5%), or crop oil concentrate or methylated seed oil (1.2%), or crop oil concentrate or methylated seed oil (1.2%) plus UAN (2.5%).

Comments

- FirstRate can be applied preplant incorporated and preemergence. Refer to the label to determine the proper application rate.
- A post application of 0.3 oz/A FirstRate may follow a soil application of 0.75 oz/A or less.
- Do not apply more than 1.05 oz/A FirstRate per growing season.
- FirstRate may interact with other ALS herbicides applied to soybeans, thus increasing the potential for crop injury.
- Application prior to full emergence of the first soybean trifoliolate may cause temporary chlorosis.
- Giant ragweed populations resistant to FirstRate have been identified in Iowa and some adjacent states.
- Refer to the FirstRate label for specific rotational information.
- Cloransulam occasionally has injured corn the year following application. Late applications, below average precipitation after application, and interactions with other ALS herbicides increase the potential for adverse crop response.

Trade Name	Common Name	Formulation	Rate/Range
Flexstar	fomesafen	1.88 ME	1 to 1.25 pt/A
Reflex	fomesafen	2 LC	0.75 to 1.25 pt/A

Mode of Action

PPO

Application Timing

Apply to actively growing weeds within recommended growth stages. Apply before soybeans bloom.

Recommended Spray Additives**Flexstar**

MSO or COC-0.5 to 1.0% v/v. Include a minimum of 2.5% v/v UAN or a minimum of 10 lb AMS/100 gal water.

Reflex

Nonionic surfactant-0.25% v/v; or crop oil concentrate-0.5% to 1% v/v. UAN (1 gal/A), DAP (2 pt/A), or AMS may be used in addition to the NIS or COC.

Comments–Flextar, Reflex

- Do not apply fomesafen to any field more than once every two years. Refer to label for rotational restrictions.
- Apply in a minimum of 15 gal water with 30-60 PSI. Do not use flood nozzles.
- Do not graze treated areas or harvest for hay or forage.
- May be aerially applied.

Trade Name	Common Name	Formulation	Rate/Range
Fusilade DX	fluazifop-p-butyl	2 EC	6 to 12 oz/A

Mode of Action

ACCase

Application Timing

Apply to actively growing grasses at recommended growth stages on label. Apply to soybeans prior to bloom.

Recommended Spray Additives

Crop oil concentrate-0.5 to 1% v/v; or nonionic surfactant-0.25 to 0.5% v/v. UAN (1 gal/A) or ammonium sulfate may be used in combination with either the COC or surfactant.

Comments

- Tank mixing may reduce grass control. Refer to label for directions regarding tank mixes.
- Apply in 5 to 40 gal water with pressure of 40-60 PSI. Do not use flood tips. May be applied aerially.
- Cultivation is not recommended within 7 days prior to or 7 days after application.
- Do not graze or harvest for forage or hay.

Trade Name	Common Name	Rate/Range
Fusion 2.66 EC	2.0 lb fluazifop-p-butyl + 0.66 lb fenoxaprop-ethyl/gal	6 to 14 oz/A

Mode of Action

ACCase + ACCase

Application Timing–Fusion 2.66 EC

Apply to actively growing grasses within the stage of growth recommended on the label. Apply prior to soybean bloom.

Recommended Spray Additives

Crop oil concentrate-0.5 to 1% v/v; or nonionic surfactant-0.25 to 0.5% v/v. In addition to COC or NIS, UAN or ammonium sulfate may be added to the spray mixture. The fertilizer additives should not be a substitute for the COC or NIS.

Comments

- Tank mixtures with broadleaf herbicides may reduce grass control. Refer to the Fusion label for tank mix and sequential recommendations.
- Apply in 5 to 40 gal water/A with 40-60 PSI. Do not use flood tips.
- May be aerially applied.
- Cultivation is not recommended 7 days prior to or 7 days after application.
- Do not graze or harvest soybeans for forage or hay.
- May be tank mixed with 2,4-D (LVE) and applied preplant. Refer to label for directions.

Trade Name	Common Name	Formulation	Rate/Range
Harmony GT	thifensulfuron methyl	75 DF	1/12 oz/A

Mode of Action

ALS

Application Timing

Apply to weeds that are young but before they exceed size indicated on label. May be applied after first trifoliolate has fully expanded but no later than 60 days before harvest.

Recommended Spray Additives

Nonionic surfactant-0.125 to 0.25% v/v; or crop oil concentrate-0.5% v/v. UAN (2 to 4 qt/A), 10-34-0 (1-2 qt/A) or ammonium sulfate (2-4 lb/A) in addition to a surfactant is required for control of velvetleaf.

Comments

- Harmony GT is a concentrated formulation of thifensulfuron, previously marketed as Pinnacle.
- May cause soybean injury under hot and humid weather conditions. Use of crop oil concentrate increases injury potential. Injury appears as yellowing of leaves, shortened internodes, red veins, and occasionally death of apical growing point.
- Do not tank mix with Poast Plus.
- Do not make more than one application of Harmony per growing season.
- Apply no later than 60 days before harvest.
- Apply after the first trifoliolate has fully expanded.
- Do not use Dash unless specified on other DuPont supplemental labeling.
- Harmony may interact with other ALS herbicides applied to soybeans, thus increasing the potential for crop injury.
- Do not cultivate before, during, or within 7 days after Harmony application.
- Do not graze or feed forage, hay, or straw from treated areas to livestock.
- Do not apply through chemigation systems.
- Do not tank mix Harmony with any other herbicide unless specifically labeled due to potential for excessive crop injury.

Trade Name	Common Name	Formulation	Rate/Range
Poast Plus	sethoxydim	1 EC	18 to 36 oz/A

Mode of Action

ACCase

Application Timing

Apply to actively growing grasses within the recommended stage of growth on label.

Recommended Spray Additives

Crop oil concentrate-2 pt/A; or Dash HC-1pt/A. May include AMS (2.5 lb/A) or UAN (4 to 8 pt/A). Use a silicon-based surfactant with the Galaxy tank mix (0.25% v/v).

Comments

- Application in tank mixes may reduce grass control.
- Treated fields may be used for hay but not for grazing or forage.
- Do not apply to soybeans within 75 days of harvest.
- Do not apply if rainfall is expected within one hour following application.

Trade Name	Common Name	Formulation	Rate/Range
Pursuit	imazethapyr	2 AS	4 oz/A
Pursuit EcoPak		70 DG	1.44 oz/A (1 bag/5A)

Mode of Action

ALS

Application Timing

Apply when weeds are actively growing and before weeds exceed maximum size specified on label. For most species, maximum size is 3 inches.

Recommended Spray Additives

Nonionic surfactant-1 qt/100 gal, or crop oil concentrate-1% (v/v), or methylated seed oil-1% (v/v), and include 1 to 2 qt/A nitrogen-based liquid fertilizer or 2.5 lb/A ammonium sulfate.

Comments

- Pursuit may be applied preplant incorporated or preemergence up to 45 days ahead of planting. Incorporation improves consistency of soil-applied treatments.
- Pursuit has long soil residual characteristics and may occasionally carry over. Refer to label for specific restrictions.
- Do not apply products containing chlorimuron ethyl, flumetsulam, imazaquin, or imazethapyr the same year as Pursuit.
- Do not graze or feed treated soybean forage, hay, or straw to livestock.
- Pursuit may interact with other ALS herbicides applied to soybeans, thus increasing the potential for crop injury.
- Pursuit may interact with ALS herbicides applied to corn the following year, increasing potential for injury to corn.
- Do not tank mix Pursuit with clomazone products.
- Do not apply Pursuit within 85 days of harvest.
- Apply prior to soybean bloom.
- Apply combination of Pursuit plus Roundup Ultra to RR soybean varieties.

Trade Name	Common Name	Formulation	Rate/Range
Raptor	imazamox	1 AS	4 to 5 oz/A

Mode of Action

ALS

Application Timing

Apply postemergence when weeds and soybeans are actively growing and before the weeds exceed a height of 5 inches in height but prior to soybeans reaching the bloom stage of development.

Recommended Spray Additives

Crop oil concentrate-1% (v/v); or nonionic surfactant-0.25% (v/v); or methylated seed oil-1%(v/v). Nitrogen fertilizer solution-Always include a nitrogen-based fertilizer at 1 to 2 qt/A with either a COC or NIS. AMS at 2.5 lb/A may be substituted for 28% N or 10-34-0.

Rates for Combinations with Raptor

Raptor	Combination Product	Rate/Range
4 to 5 oz/A	Blazer	8 to 20 oz/A
4 to 5 oz/A	FirstRate	0.15 to 0.3 oz/A
4 to 5 oz/A	Flexstar HL	10 to 20 oz/A
4 to 5 oz/A	Roundup Ultra	16 to 32 oz/A

Comments–Raptor

- Use a soil-applied herbicide for grass control if a heavy infestation of annual grasses is present.
- Allow at least 85 days between application and soybean harvest.
- Raptor provides shorter residual control than Scepter or Pursuit.
- Do not apply after soybeans have initiated flowering.
- Raptor may interact with other ALS herbicides applied to soybeans, thus increasing the potential for crop injury.
- Do not make more than one application per year.
- Do not graze or feed treated soybean forage, hay, or straw to livestock.
- Tank mixing Raptor with selective postemergence grass and broadleaf herbicides may reduce grass control. A sequential program is recommended.
- Do not use liquid fertilizer as a carrier.
- Do not apply through any type of irrigation system.
- For maximum weed control, cultivate 7 to 10 days following application.

Trade Name	Common Name	Formulation	Rate/Range
Resource	flumiclorac	0.86 EC	4 to 12 oz/A

Mode of Action

PPO

Application Timing

Apply postemergence to actively growing weeds within size recommendations.

Recommended Spray Additives

COC-1 qt/A; 28% N or AMS may be used in addition to COC for control of tall velvetleaf.

Comments

- Use 12 oz rate for late control of large velvetleaf.
- Do not apply within 60 days of harvest or after pod set.
- Do not graze treated fields or harvest for forage or hay.

Trade Name	Common Name	Rate/Range
Rezult	Rezult B (bentazon 4 lb/gal) Rezult G (sethoxydim 1 lb/gal)	3.2 pt/A

Mode of Action

PSII + ACCase

Application Timing

Apply when weeds are small and actively growing. Refer to the label for specific size restrictions.

Recommended Spray Additives

UAN (1 to 2 qt/A); COC (1 pt/A); DASH (1 pt/A); or ammonium sulfate (1 to 2 lb/A).

Comments–Result

- Registered for aerial application.
- Do not apply if rainfall is expected within one hour following application.
- Do not apply to weeds or crops that are under stress.
- Do not apply within 75 days of harvest.
- Do not graze or cut treated soybean fields for hay for at least 30 days after application.

Trade Name	Common Name	Formulation	Rate/Range
Roundup Ultra	glyphosate	3SL	24 to 48 oz/A
Roundup UltraMax		4SL	20 to 40 oz/A
Roundup UltraDry		65DG	9.5 to 28.8 oz/A
Roundup WeatherMAX		5.5L	16 to 32 oz/A
Roundup WeatherMax		4.5 SL	22 to 44 oz/A
Many others		3SL	24 to 48 oz/A
Touchdown IQ		3SL	1 to 4 pt
Touchdown HiTech			
Touchdown Total			

Mode of Action

EPSPS

Application Timing–Roundup

Postemergence - Glyphosate may be applied from cracking through full flowering stage.

Recommended Spray Additives

AMS may be included if weeds are under stress or hard water is used as carrier. Certain glyphosate products recommend the use of a nonionic surfactant.

Comments

- Use only on Roundup Ready® soybean varieties.
- Refer to label of product being used to determine specific recommendations for rates, spray additives, and restrictions.
- Multiple applications can be made during the growing season. Do not exceed 2 qt/A Roundup Ultra with postemergence applications. A total of 8 qt/A may be applied during the growing season, including preplant, preemergence, postemergence, and preharvest applications.
- Do not apply aerially.
- Take appropriate precautions to minimize off-target movement of spray droplets.
- The timing and rates of glyphosate used for annual weeds will not be optimal for most perennial weeds.
- Equivalent rates of different concentration formulations of glyphosate

Roundup Original (3 lb ae/gal)	Roundup Ultramax (4 lb ae/gal)	Roundup WeatherMax (4.5 lb ae/gal)
24 oz	20 oz	16 oz
32 oz	26 oz	22 oz
40 oz	32 oz	27 oz

Trade Name	Common Name	Formulation	Rate/Range
Scepter	imazaquin	70DG	1.4 to 2.8 oz/A

Mode of Action

ALS

Application Timing

Postemergence—Apply postemergence to actively growing weeds within size recommendations.

Preplant incorporated—Apply preplant incorporated before planting and incorporate into the top 1 to 2 inches of soil. May be applied up to 45 days prior to planting. Incorporate within 7 days of application.

Preemergence—Apply preemergence up to 45 days before, during, or after planting but before the crop emerges.

Postemergence—Apply postemergence to actively growing weeds within size recommendations.

Recommended Spray Additives

When used alone, apply with COC, nonionic surfactant, or organo-silicone surfactant. See label for specific recommendations.

Comments

- Scepter has long soil residual characteristics and has demonstrated carryover to rotational corn.
- Do not graze or feed treated soybean forage, hay, or straw to livestock.
- Do not apply the Scepter + Prowl combination if soybeans have emerged.
- Iowa State University does not recommend combinations with 2,4-DB or 2,4-D amine.
- Iowa State University recommends the use of Clearfield hybrids following a postemergence application of Scepter.
- Refer to Scepter label for specific rotational recommendations.
- IMI corn may be planted after 9.5 months following application of Scepter + Pursuit applications.
- Scepter may interact with other ALS herbicides applied to soybeans, thus increasing the potential for crop injury.
- Do not use products containing chlorimuron ethyl, flumetsulam, imazethapyr, or imazaquin the same year as Scepter application, unless labeled otherwise, due to carryover to rotational corn.
- There is an 18-month rotational period for non-Clearfield hybrids following a 2.8 oz/A Scepter application.

Trade Name	Common Name	Formulation	Rate/Range
Select/Arrow	clethodim	2 EC	4 to 16 oz/A

Mode of Action

ACCase

Application Timing

Apply postemergence to actively growing grasses according to the Select label. Do not cultivate 7 days prior to or within 7 days after application. Apply prior to 60 days before harvest.

Recommended Spray Additives

Crop oil concentrate-1% (v/v) (but not less than 1 pt/A); 28% N (1 to 2 qt) or AMS (2.5 lb/A) may be used in combination with the COC.

Comments

- Do not apply more than 32 oz/A per season.
- Do not apply with flood nozzles.
- Do not graze treated fields or feed forage or hay to livestock.
- Do not apply if rain is expected within 1 hour of application.
- Apply 4 to 6 oz/A Select with glyphosate to control RR volunteer corn.

Trade Name	Common Name	Formulation	Rate/Range
Stellar	0.7 lb/gal flumiclorac + 2.4 lb/gal lactofen	3.1 EC	5 to 7 oz/A

Mode of Action

PPO + PPO

Application Timing

Apply postemergence to actively growing weeds within size restrictions on label.

Recommended Spray Additives

COC or methylated seed oil (1 to 2 pts/A); 28%N (1 to 2 qts/A); or AMS (2.5 lbs/A) may be used in combination with the COC or MSO to enhance weed control.

Comments

- Do not apply aerially.
- Do not apply after pod set or within 60 days of harvest.
- Do not use hay or straw for feed or bedding.
- Use RR soybean varieties for Stellar plus glyphosate applications.
- The addition of 28% N or AMS with Stellar will increase the potential for crop injury.

Trade Name	Common Name	Formulation	Rate/Range
Synchrony STS	31.8% chlorimuron ethyl 10.2% thifensulfuron methyl	42 DF	0.5 oz/A

Mode of Action

ALS + ALS

Application Timing– Synchrony STS

Apply to actively growing weeds within the recommended growth stage. Apply after the first trifoliolate has fully expanded but no later than 60 days before harvest.

Recommended Spray Additives

Crop oil concentrate-1% (v/v) plus UAN (2 to 4 qt/A); 10-34-0 (1 to 2 qt/A) or ammonium sulfate (2 to 4 lb/A); NIS - 0.25% (v/v) with Blazer and 0.5% (v/v) with Cobra tank mixes; include UAN (2 to 4 qt/A) or ammonium sulfate (2 to 4 lb/A).

Comments

- Can be used on soybean varieties designated as STS in the variety name and non-STS varieties.
- Synchrony STS can be applied to non-STS soybean varieties. Use 0.25 oz/A and NIS at 0.25% (v/v) with UAN or AMS.
- Refer to label for soil pH and rotation restrictions.
- Apply in a minimum of 10 gal. water and use flat fan nozzles.
- Do not graze treated fields or harvest for forage or hay.
- Synchrony may interact with other ALS herbicides applied to soybeans, thus increasing the potential for crop injury.
- Chlorimuron may interact with ALS herbicides applied to corn the following year, increasing potential for injury to corn.
- Iowa State University does not recommend 2,4-DB.
- Apply prior to 60 days before soybean maturity.
- Make only one application per growing season.
- Apply after the first trifoliolate has fully expanded.
- Do not apply with chemigation systems.

Comments—Synchrony STS, continued

- Cobra may be applied in combination with Synchrony STS at a rate of 8 to 12.5 oz/A.
- Use the 4 to 6 oz/A Cobra rate for control of ALS-resistant common waterhemp and black nightshade; use 0.5% COC.
- Apply when common waterhemp is actively growing and less than 4 inches tall.
- Chlorimuron has a long soil residual life in soils with a high pH (7.0 or greater); refer to the label for specific restrictions concerning crop rotational intervals.
- Soils of concern for carryover are those in the Clarion-Nicollet-Webster and Hamburg-Ida-Monona associations, and soils in the Missouri River flood plain. Also, fields near limestone gravel roads may have a higher pH than typically anticipated.

Preplant and Preemergence Herbicides for Corn Production

The following herbicides are used to control weeds as they emerge. Certain products require mechanical incorporation prior to planting, while others may be applied before, at, or after planting. Incorporation reduces the need for timely rainfall after application and may improve control of certain weeds. Adjust rate to soil type as specified on label. In no-till, an additional burndown herbicide may be required to control emerged weeds. Many herbicides used primarily for preemergence weed control may also be applied following crop emergence. Recommendations for post applications of these products are included in this section rather than in the postemergence section.

Trade Name	Common Name	Formulation	Rate/Range
AAtrex, atrazine	atrazine	4 L	2 to 4 pt/A
AAtrex, atrazine		90 DF	1.8 to 2.2 lb/A

Mode of Action

PSII

Application Timing—AAtrex, atrazine

Early preplant—Atrazine may be applied as a single application up to 30 days ahead of planting or as a split application up to 45 days ahead of planting.

Preplant incorporated—For best results, apply within 2 weeks prior to planting.

Preemergence—Apply during or shortly after planting before weed emergence.

Postemergence—Apply before broadleaf weeds exceed 4 inches, grasses exceed 1.5 inches, and corn 12 inches in height. Include crop oil concentrate or crop oil.

Comments

- All products containing atrazine are restricted-use pesticides.
- Products containing atrazine include a groundwater advisory statement on the label.
- Atrazine residues may persist and cause damage to susceptible crops the following growing season. See label for rotation restrictions. Carryover is greatest on soils with alkaline pH.
- May be used on ear corn, silage corn, sweet corn, and popcorn.
- Maximum annual rate for preemergence application on highly erodible soils is 2.0 lb a.i./A on fields with 30% or more crop residue and 1.6 lb a.i./A on fields with less than 30% crop residue.
- Maximum annual preemergence rate on soils not highly erodible is 2.0 lb a.i./A.
- Maximum annual postemergence rate where no soil-applied atrazine was used is 2.0 lb a.i./A, and where soil-applied atrazine was used, the total amount of atrazine may not exceed 2.5 lb a.i./A.
- Do not mix or load within 50 feet of any well, sinkhole, intermittent streams and rivers, or natural or impounded lakes and reservoirs.
- No application within 66 feet of the points where field surface water runoff enters perennial or intermittent streams and rivers.