



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

June 30, 2021

Edward C. Duncan
Regulatory Analyst
Valent U.S.A. LLC
4600 Norris Canyon Road
San Ramon, CA 94583

Subject: Registration Review Label Mitigation for Sulfosulfuron
Product Name: MON 44951 HERBICIDE
EPA Registration Number: 59639-226
Application Date: January 4, 2018
Decision Number: 576090

Dear Mr. Duncan:

The Agency, in accordance with the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended, has completed reviewing all the information submitted with your application to support the Registration Review of the above referenced product in connection with the Sulfonylurea (SU) Herbicides Interim Decision, and has concluded that your submission is acceptable. The label referred to above, submitted in connection with registration under FIFRA, as amended, is acceptable.

Should you wish to add/retain a reference to the company's website on your label, then please be aware that the website becomes labeling under the Federal Insecticide Fungicide and Rodenticide Act and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) list examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product's label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA's Office of Enforcement and Compliance.

A stamped copy of your labeling is enclosed for your records. This labeling supersedes all previously accepted labeling. You must submit one copy of the final printed labeling before you release the product for shipment with the new labeling. In accordance with 40 CFR 152.130(c), you may distribute or sell this product under the previously approved labeling for 12 months from the date of this letter. After 12 months, you may only distribute or sell this product if it bears this new revised labeling or subsequently approved labeling. "To distribute or sell" is defined under FIFRA section 2(gg) and its implementing regulation at 40 CFR 152.3.

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If you have any questions about this letter, please contact Srijana Shrestha by phone at 703-305-6471, or via email at shrestha.srijana@epa.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Linda Arrington', with a stylized flourish at the end.

Linda Arrington, Branch Chief
Risk Management and Implementation Branch 4
Pesticide Re-Evaluation Division
Office of Pesticide Programs

Enclosure: Stamped Label

MASTER LABEL FOR EPA REG. NO. 59639-226

SULFOSULFURON GROUP 2 HERBICIDE

**MON 44951 Herbicide
Certainty® Turf Herbicide**

Bold italicized text is information for the reader and is not part of the label.

[Bracketed Text is Optional]

PRODUCT LOGO

MON 44951 Herbicide is a selective herbicide for control of annual and perennial grass and broadleaf weeds in highly managed turf sites.

Complete Directions For Use

Read the entire label before using this product.

Use only according to label instructions.

Not all products recommended on this label are registered for use in California. Check the registration status of each product in California before using.

Read the "LIMIT OF WARRANTY AND LIABILITY" before buying or using. If terms are not acceptable, return at once unopened.

[THIS IS AN END-USE PRODUCT. VALENT U.S.A. LLC DOES NOT INTEND AND HAS NOT REGISTERED IT FOR REFORMULATION OR REPACKAGING.]

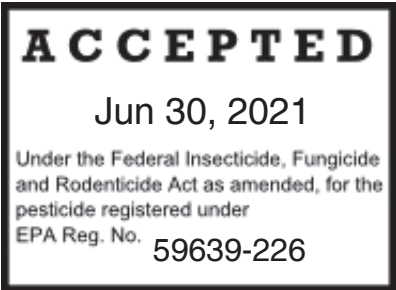
INGREDIENTS

ACTIVE INGREDIENT:	By Wt
Sulfosulfuron*,.....	75.0%
OTHER INGREDIENTS:	25.0%
	100.0%

*N-[(4,6-dimethoxypyrimidin-2-yl)carbamoyl]-2-(ethylsulfonyl)imidazo[1,2-a]pyridine-3-sulfonamide

EPA Reg. No. 59639-226

MON 44951 Herbicide is formulated as a water dispersible granule (WDG).



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LIMIT OF WARRANTY AND LIABILITY

IMPORTANT PHONE NUMBERS

1. FOR PRODUCT INFORMATION OR ASSISTANCE IN USING THIS PRODUCT, CALL TOLL-FREE, **800-89-VALENT (898-2536)**
2. IN CASE OF AN EMERGENCY INVOLVING THIS PRODUCT, OR FOR MEDICAL ASSISTANCE, CALL COLLECT, DAY OR NIGHT, **(800) 892-0099**

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

Keep out of reach of children.

CAUTION!

CAUSES MODERATE EYE IRRITATION.

Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling.

FIRST AID	
IF IN EYES	<ul style="list-style-type: none">• Hold eye open and rinse slowly and gently with water for 15-20 minutes.• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes.• Call a poison control center or physician for treatment advice.
	<ul style="list-style-type: none">• Have the product container or label with you when calling a poison control center or physician or going for treatment.• In case of an emergency involving this product, Call Collect, day or night, (800) 892-0099.• This product is identified as MON 44951 Herbicide, EPA Reg. No. 59639-226.

Personal Protective Equipment (PPE)

Applicators and other handlers must wear: long-sleeved shirt and long pants shoes plus socks, and chemical-resistant gloves made of any waterproof material, for example Barrier Laminate, Butyl Rubber ≥ 14 mils, Nitrile Rubber ≥ 14 mils, Neoprene Rubber ≥ 14 mils, Natural Rubber ≥ 14 mils, Poly-ethylene, Polyvinyl Chloride (PVC) ≥ 14 mils, and Viton ≥ 14 mils.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

For WPS uses only; delete this paragraph when sub-label contains only non-WPS uses:

When handlers use closed systems or enclosed cabs in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

Environmental Hazards

Groundwater Label Advisory

This chemical has properties and characteristics associated with chemicals detected in groundwater. This chemical may leach into groundwater if used in areas where soils are permeable, particularly where the water table is shallow.

Surface Water Label Advisory

This product may impact surface water quality due to runoff of rainwater. This is especially true for poorly draining soils and soils with shallow ground water. This product is classified as having high potential for reaching surface water via runoff for months or more after application. A level, well-maintained vegetative buffer strip between areas to which this product is applied and surface water features such as ponds, streams, and springs will reduce the potential loading of sulfosulfuron from runoff water and sediment. Runoff of this product will be greatly reduced by avoiding applications when rainfall or irrigation is expected to occur with 48 hours.

The use of any pesticide in a manner that may kill or otherwise harm an endangered species or adversely modify their habitat is a violation of Federal Laws.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling. This product can only be used in accordance with the Directions For Use on this label or in separately published Valent Supplemental Labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

NON-TARGET ORGANISM ADVISORY STATEMENT

This product is toxic to plants and may adversely impact the forage and habitat of non-target organisms, including pollinators, in areas adjacent to the treated area. Protect the forage and habitat of non-target organisms by minimizing spray drift. For further guidance and instructions on how to minimize spray drift, refer to the Spray Drift Management section of this label.

WINDBLOWN SOIL PARTICLES

MON 44951 Herbicide has the potential to move off-site due to wind erosion. Soils that are subject to wind erosion usually have a high silt and/or fine to very fine sand fractions and low organic matter content. Other factors which can affect the movement of windblown soil include the intensity and directions of prevailing winds, vegetative cover, site slope, rainfall, and drainage patterns. Avoid applying V-10142 Ag Herbicide if prevailing local conditions may be expected to result in off-site movement.

Agricultural Use Requirements

Agricultural Use Requirements box can be deleted if sub-label contains only non-WPS uses.

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls
- Shoes plus socks
- Chemical-resistant gloves made of any waterproof material, for example Barrier Laminate, Butyl Rubber ≥ 14 mils, Nitrile Rubber ≥ 14 mils, Neoprene Rubber ≥ 14 mils, Natural Rubber ≥ 14 mils, Poly-ethylene, Polyvinyl Chloride (PVC) ≥ 14 mils, and Viton ≥ 14 mils.

Non-Agricultural Use Requirements

Non-Agricultural Use Requirements box can be deleted if sub-label contains only non-WPS uses.

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard (40 CFR Part 170) for agricultural pesticides. The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Keep people and pets off treated areas until spray solution has dried.

[Optional statement for Non-WPS sub-label: Keep people and pets off treated areas until spray solution has dried.]

STORAGE AND DISPOSAL

Do not contaminate water, foodstuffs, feed or seed by storage or disposal.

PESTICIDE STORAGE: Store under cool, dry conditions (below 120°F). Do not store under moist conditions.

PESTICIDE DISPOSAL: Wastes resulting from the use of this product that cannot be used or chemically reprocessed should be disposed of in a landfill approved for pesticide disposal or in accordance with applicable federal, state or local procedures.

See individual container label for DISPOSAL information.

CONTAINER DISPOSAL: Emptied container retains product residue. Observe all labeled safeguards until container is destroyed. Do not reuse container. Triple rinse container, then puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

PRODUCT INFORMATION

Product Description: This product is a postemergence, systemic herbicide with limited soil residual activity. It provides postemergence control of many annual and perennial sedges, grass and broadleaf weeds on highly managed turf, sod farms and native grass sites. It is a selective herbicide that can be used over the top of many perennial warm-season and selected cool-season turfgrasses. Refer to the appropriate sections of this label for approved turf species.

Use Sites: This product may be used for general weed control on highly managed turf and native grasses. This product may be applied to residential and commercial turf sites, including apartment complexes, athletic fields, cemeteries, golf course fairways, golf course roughs, golf course tees, and other golf course areas, hotel properties, office complexes, parks, public turf areas, retail sites, storage facilities, school grounds, sod and turfgrass seed farms, and other highly managed turfgrass sites. **DO NOT apply directly to or within 4 feet of golf course putting greens.**

This product may be applied at recommended rates as a post-directed spray around any established warm-season ornamental grass or established woody ornamental species in landscaped areas. Avoid contact of this product with leaves of desirable plants as foliar injury, discoloration or loss of the plant may result.

When to Spray: Best results are obtained when target weeds are actively growing and not disturbed by mowing for at least 2 days before and 2 days after application.

Time to Symptoms: This product is absorbed by both the roots and the foliage of plants and rapidly inhibits the growth of susceptible weeds. Susceptible weed growth stops within 24 hours of treatment even though visual symptoms are slow to develop. Susceptible weeds usually show yellowing or browning within 2 to 3 weeks. Warm, moist conditions following application will accelerate herbicidal activity. Cold, dry conditions will delay herbicidal activity. Weeds stressed by drought are less susceptible to this product.

Rainfastness: Heavy rainfall or irrigation within 2 hours after application may wash this product off the foliage and a repeat application may be required for adequate control.

Maximum Annual Use Rate: The combined total of all treatments must not exceed 2.66 ounces of this product per acre per year.

IMPORTANT: Avoid contact of this product with the roots or foliage of susceptible non-target vegetation as injury may occur. This includes areas where this product may be washed or moved into contact with roots of desirable vegetation.

Susceptible plants may be injured if seeded or transplanted into treated areas unless otherwise directed in this label.

Weed Resistance Management

For resistance management, MON 44951 Herbicide is a Group 2 herbicide. Any weed population may contain or develop plants naturally resistant to MON 44951 Herbicide and other Group 2 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance, take one or more of the following steps:

- Rotate the use of MON 44951 Herbicide or other Group 2 herbicides within a growing season sequence or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group if such use is permitted; where information on resistance in target weed species is available, use the less resistance-prone partner at a rate that will control the target weed(s) equally as well as the more resistance-prone partner. Consult your local extension service or certified crop advisor if you are unsure as to which active ingredient is currently less prone to resistance.
- Adopt an integrated weed-management program for herbicide use that includes scouting and uses historical information related to herbicide use and crop rotation, and that considers tillage (or other mechanical control methods), cultural (e.g., higher crop seeding rates; precision fertilizer application method and timing to favor the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Scout before and after herbicide application to monitor weed populations for early signs of resistance development. Indicators of possible herbicide resistance include: (1) failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds; (2) a spreading patch of non-controlled plants of a particular weed species; (3) surviving plants mixed with controlled individuals of the same species. If resistance is suspected, prevent weed seed production in the affected area by an alternative herbicide from a different group or by a mechanical method such as hoeing or tillage. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields and planting clean seed.
- If a weed pest population continues to progress after treatment with this product, discontinue use of this product, and switch to another management strategy or herbicide with a different mode of action, if available.
- Contact your local extension specialist or certified crop advisors for additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes or to find out if suspected resistant weeds have been found in their region.
- For further information or to report lack of performance or suspected resistance, contact Valent U.S.A. LLC at 800-898-2536.

MIXING

Thoroughly clean equipment prior to mixing spray solution.

Eliminate any risk of siphoning the contents of the spray or mixing tank back into the carrier source while mixing. Use approved anti-back-siphoning devices where required by State or local regulations.

Mixing with Water

This product mixes readily with water. Mix spray solutions of this product as follows. Fill the spray tank with about three-fourths of the desired final volume. Add the recommended amount of this product. Continue the filling process while maintaining agitation. Add nonionic surfactant near the end of the filling process.

Mixing for Hand-Held Sprayers

Hand-held sprayer applications should be made at a rate of 2 gallons of spray solution per 1000 square feet.

Using the measuring scoop provided in the product packaging, follow the instructions below to prepare the proper spray solution.

Measuring Scoop Instructions

Using the **LARGE SCOOP** (0.8-gram scoop) provided, refer to the following table for the appropriate **Mix Volume** (gallons of water) required to achieve the **Desired Application Rate**.

Desired Application Rate ¹ (ounces of product / acre)	Number of Scoops (large scoop)	Mix Volume (gallons of water)	Spray Rate (gallons/1000 ft ²)
1.25	1	2.0	2
1.00	1	2.5	2
0.75	1	3.3	2
0.50	1	5.0	2
0.25	1	10.0	2

¹ For 2.0 ounces of product (1.5 ounces active ingredient) per acre, use 2 Large Scoops (0.8-gram scoop) in 2.5 gallons of water and apply at 2 gallons per 1000 square feet.

Using the **SMALL SCOOP** (0.16-gram scoop) provided, refer to the following table for the **Number of Scoops** of product required to achieve the **Desired Application Rate** when mixed in 2 gallons of water.

Desired Application Rate (ounces of product / acre)	Number of Scoops (small scoop)	Mix Volume (gallons of water)	Spray Rate (gallons/1000 ft²)
0.25	1	2.0	2
0.50	2	2.0	2
0.75	3	2.0	2
1.00	4	2.0	2
1.25	5	2.0	2

Ensure that product is measured as a level scoop and is not rounded.

Add 2 teaspoons (1/3 fluid ounce) of non-ionic surfactant per gallon of water.

Tank-Mixing Procedure

For tank mixtures, add individual components to the spray tank in the following sequence: water, water dispersible granules (this product), water-soluble bags, dry flowables, emulsifiable concentrates, drift control additive, water-soluble liquids, nonionic surfactants.

Surfactants and Adjuvants

Use a nonionic surfactant at 0.25 to 0.5 percent by volume (1 to 2 quarts per 100 gallons of spray solution). Use only nonionic surfactants that contain at least 90 percent active ingredient. **Do not use nonionic surfactants or other additives that alter the pH of the spray solution below pH 5. Use of surfactants that contain D-Limonene, methylated seed oil, or COC (crop oil concentrate) may cause temporary turf discoloration.**

Colorants and Dyes

Colorants or marking dyes may be added to spray solutions of this product; however, they can reduce product performance. Use colorants and dyes according to the manufacturer's recommendations.

APPLICATION EQUIPMENT AND TECHNIQUES

Apply spray solutions of this product with properly maintained and calibrated equipment capable of delivering desired volumes.

Ground Broadcast Equipment

Apply this product uniformly with properly calibrated ground equipment in 10 to 50 gallons of water per acre. Select spray volumes that ensure thorough and uniform weed coverage. Use equipment that is capable of continuous agitation. Choose nozzles that provide optimum spray distribution and uniform coverage at a spray pressure appropriate for applying postemergence herbicides. Avoid streaking, skips, overlaps and spray drift during application.

Hand-Held Sprayers

Backpack sprayers, pump-up pressure sprayers, and other, similar types of hand-held sprayers may be used to apply this product. Apply to foliage of vegetation to be controlled at a rate of 2 gallons of spray solution per 1000 square feet. Spray coverage should be uniform and complete. Do not spray to the point of runoff.

Equipment Cleaning

Thoroughly clean application equipment with a 1-percent solution of ammonia (1 quart of ammonia for every 25 gallons of rinse water) promptly after using this product. Use a sufficient volume of cleaning solution to thoroughly rinse all surfaces and to flush all hoses. Rinse with water and repeat the cleaning procedure with the ammonia solution. Complete the cleaning procedure by rinsing thoroughly with clean water.

If visible residue is present in the spray tank, use a 1-percent solution of ammonia plus 0.25 percent nonionic surfactant (8 fluid ounces per 25 gallons of water) as the cleaning solution.

Do not apply this product through any type of irrigation system.

Do not apply by air.

MANDATORY SPRAY DRIFT MANAGEMENT

SPRAY DRIFT

Ground Boom Applications

- Apply with the nozzle height recommended by the manufacturer, but no more than 3 feet above the ground or crop canopy.
- For applications prior to the emergence of crops and target weeds, applicators are required to use a Coarse or coarser droplet size (ASABE S572.1).
- For all other applications, applicators are required to use a Medium or coarser droplet size (ASABE S572.1).
- Do not apply when wind speeds exceed 10 miles per hour at the application site.
- Do not apply during temperature inversions.

Boom-less Ground Applications

- Applicators are required to use a Medium or coarser droplet size (ASABE S572.1) for all applications.
- Do not apply when wind speeds exceed 10 miles per hour at the application site.
- Do not apply during temperature inversions.

SPRAY DRIFT ADVISORIES

Boom-less Ground Applications

Setting nozzles at the lowest effective height will help to reduce the potential for spray drift.

Handheld Technology Applications

Take precautions to minimize spray drift.

THE APPLICATOR IS RESPONSIBLE FOR AVOIDING OFF-SITE SPRAY DRIFT.

BE AWARE OF NEARBY NON-TARGET SITES AND ENVIRONMENTAL CONDITIONS.

IMPORTANCE OF DROPLET SIZE

An effective way to reduce spray drift is to apply large droplets. Use the largest droplets that provide target pest control. While applying larger droplets will reduce spray drift, the potential for drift will be greater if applications are made improperly or under unfavorable environmental conditions.

Controlling Droplet Size – Ground Boom

- Volume – Increasing the spray volume so that larger droplets are produced will reduce spray drift. Use the highest practical spray volume for the application. If a greater spray volume is needed, consider using a nozzle with a higher flow rate.
- Pressure – Use the lowest spray pressure recommended for the nozzle to produce the target spray volume and droplet size.
- Spray Nozzle – Use a spray nozzle that is designed for the intended application. Consider using nozzles designed to reduce drift.

BOOM HEIGHT – Ground Boom

Use the lowest boom height that is compatible with the spray nozzles that will provide uniform coverage.

For ground equipment, the boom should remain level with the crop and have minimal bounce.

SHIELDED SPRAYERS

Shielding the boom or individual nozzles can reduce spray drift. Consider using shielded sprayers. Verify that the shields are not interfering with the uniform deposition of the spray on the target area.

TEMPERATURE AND HUMIDITY

When making applications in hot and dry conditions, use larger droplets to reduce effects of evaporation.

TEMPERATURE INVERSIONS

Drift potential is high during a temperature inversion. Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. The presence of an inversion can be indicated by ground fog or by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing. Avoid applications during temperature inversions.

WIND

Drift potential generally increases with wind speed.

AVOID APPLICATIONS DURING GUSTY WIND CONDITIONS.

Applicators need to be familiar with local wind patterns and terrain that could affect spray drift.

WARM-SEASON TURFGRASSES

This product generally has been shown to be safe for use on the warm-season turfgrasses listed in this section.

- Bermudagrass (common or hybrid)
- Bahiagrass
- Buffalograss
- Centipedegrass
- Kikuyugrass
- St. Augustinegrass
- Seashore paspalum
- Zoysiagrass

Use of this product may result in temporary chlorosis and may affect the growth pattern or delay green-up of the desirable turf. St. Augustinegrass and seashore paspalum may be more sensitive to this product than other grasses depending on environmental conditions, cultivar differences and other influential factors. For St. Augustinegrass and seashore paspalum, test this product on a small area prior to wide-scale use to determine if this product is suitable for your management and cultural practices.

Sedge Control

For the selective control of the weeds listed in this section, apply this product at 1.25 ounces (0.9375 ounce active ingredient) per acre after weeds have reached the 3- to 8-leaf stage of growth. A sequential application of 1.25 ounces of product (0.9375 ounce active ingredient) per acre may be made 4 or more weeks after the initial treatment, if needed. Do not apply more than 2.50 oz of product (1.9 ounces active ingredient) per acre per year. Do not apply more than 2 applications per year.

Kyllinga, false green

Kyllinga gracilima

Kyllinga, fragrant

Kyllinga sesquiflorus

Kyllinga, green

Kyllinga brevifolia

Nutsedge, purple

Cyperus rotundus

Nutsedge, yellow

Cyperus esculentus

Sedge, globe

Cyperus croceus

Sedges, annual

Cyperus spp.

Tall Fescue Control

Best control of tall fescue is obtained when this product is applied at 1.25 ounces of product (0.9375 ounce active ingredient) per acre followed by a second application of 1.25 ounces of product (0.9375 ounce active ingredient) per acre at 21 to 28 days after the initial application. If a single application is preferred, apply 2.0 ounces of product (1.5 ounces active ingredient) per acre. Do not apply more than 2.50 oz of product (1.9 ounces active ingredient) per acre per year. Do not make more than 2 applications per year.

Dallisgrass Suppression in Bermudagrass

The following application includes the use of MSMA. MSMA can cause injury to common and hybrid bermudagrass turf. Test the following tank-mix recommendation on a small area prior to wide-scale use to determine if this application is suitable for your bermudagrass management objectives.

For suppression of dallisgrass in bermudagrass turf, apply this product, when dallisgrass is actively growing, at a rate of 1.25 ounces of product (0.9375 ounce active ingredient) per acre in a tank mixture with 2 pounds of MSMA per acre and 0.25 percent by volume nonionic surfactant (1 quart per 100 gallons of spray solution). Reapply this same tank mixture 2 to 4 weeks after initial application.

As an alternative program, apply MSMA at 2 pounds active ingredient per acre with 0.25 percent by volume non-ionic surfactant as an initial treatment, wait two weeks and apply 2.0 ounces of this product (1.5 ounces active ingredient) per acre. Wait an additional two weeks and apply MSMA again at 2 pounds active ingredient per acre with 0.25 percent by volume nonionic surfactant.

Buttonweed Suppression

For suppression of buttonweed apply this product at 1.25 ounces (0.9375 ounce active ingredient) per acre. This application will provide suppression or partial control of buttonweed for 4 to 6 weeks.

For enhanced buttonweed control, tank-mix this product with a broadleaf herbicide labeled for buttonweed control in the desired warm-season turfgrass. Read and follow the label directions, precautionary statements and all other label information of all products used in the tank mixture. Use all products according to labeled rates and apply the tank mixture according to the most restrictive precautionary statements of the products being used.

Annual Bluegrass (*Poa annua*) Control in Non-Overseeded Turf

For selective control of annual bluegrass (*Poa annua*), apply this product at 1.25 to 2.0 ounces (0.9375 to 1.5 ounces active ingredient) per acre. Use the higher rate of this product for control in areas of established, dense weed infestation. Do not apply more than 2.0 ounces of product (1.5 ounces active ingredient) per acre per year.

Best results are obtained when weeds are in the early stage of growth and prior to tillering.

IN DORMANT BERMUDAGRASS ONLY, tank mixtures of this product with Roundup PRO® or QuikPRO® herbicides may be used to increase the spectrum of vegetation controlled. Read and follow the label directions, precautionary statements and all other label information on Roundup PRO or QuikPRO herbicides. Refer to the Roundup PRO or QuikPRO product labels for approved application rates. Always apply tank mixtures according to the most restrictive precautionary statements of the products being used.

Annual Bluegrass (*Poa annua*) Control Prior to Overseeding Turf with Perennial Ryegrass

Apply this product at 2.0 ounces (1.5 ounces active ingredient) per acre to control *Poa annua* prior to overseeding warm-season turf with perennial ryegrass. Begin applications after *Poa annua* germination and 7 to 10 days prior to overseeding.

Removal of Overseeded Perennial Ryegrass (Transition Aid)

Best results are obtained by applying this product at 1.25 ounces (0.9375 ounce active ingredient) per acre followed by a second application of 1.25 ounces (0.9375 ounce active ingredient) per acre at 21 to 28 days after the initial application when daily temperatures are expected to exceed 80° F during the treatment period. If a single application is preferred, apply this product at 2.0 ounces (1.5 ounces active ingredient) per acre.

Additional Weeds Controlled

For selective control or suppression of annual or perennial weeds listed in this section, apply this product at 1.25 to 2.0 ounces (0.9375 to 1.5 ounces active ingredient) per acre. Use the higher rate of this product for control in areas of established, dense weed infestation. If using an initial rate of application of 1.25 ounces (0.9375 ounce active ingredient) per acre, a second application of 1.25 ounces (0.9375 ounce active ingredient) per acre may be made 4 or more weeks after the initial treatment, if needed. Do not apply more than 2 applications per year.

Barley, little

Hordeum pusillum

Bedstraw, catchweed

Galium aparine

Beggarweed, Florida¹

Desmodium tortuosum

Bentgrass, creeping¹

Agrostis stolonifera

Bluegrass, roughstalk

Poa trivialis

Bluegrass, bulbous

Poa bulbosa

Burweed, lawn

Soliva pterosperna

Buttercup

Ranunculus arvensis

Chamber bitter

Phyllanthus urinaria

Chickweed, common

Stellaria media

Clover, white

Trifolium repens

Crowfootgrass

Dactyloctenium aegyptium

Dandelion

Taraxacum officinale

Dichondra, Carolina

Dichondra carolinensis

Garlic, wild

Allium vineale

Geranium, Carolina¹

Geranium carolinianum

Henbit¹

Lamium amplexicaule

Ivy, ground¹

Glechoma hederacea

Johnsongrass

Sorghum halepense

Mustard, wild

Sinapis arvensis

Pennycress, field

Thlaspi arvense

Quackgrass¹

Elytrigia repens

Ryegrass, perennial

Lolium perenne

Shepherd's-purse

Capsella bursa-pastoris

Violet, wild¹

Viola pratensis

Woodsorrell, yellow

Oxalis stricta

¹ Suppression or partial control only

COOL-SEASON TURFGRASSES

[Recommendations in this section are not intended for use in residential turf.]

This product is recommended for use on creeping bentgrass, Kentucky bluegrass and Kentucky bluegrass mixtures with perennial ryegrass and/or fine fescues.

On cool-season turfgrass, apply this product only when turfgrass is actively growing and mowing is required. Applications made in the fall after temperatures have decreased and regular mowing is no longer required may have an increased potential to cause turf injury and may delay spring green-up.

Use of this product may result in temporary chlorosis and discoloration and may temporarily affect the growth pattern of the desirable turf. These symptoms generally appear 7 to 10 days after application and are typically gone within 21 to 28 days. Turf response is more pronounced under extreme environmental conditions. Perennial ryegrass, fine fescues and creeping bentgrass are more sensitive to this product. If undesirable turf response occurs, skip or delay additional applications to allow turf to recover to a desirable quality. Over-application may result in severe turf injury, thinning or loss of turfgrass stands.

Test this product on a small area prior to wide-scale use to determine if this product is suitable for your turf management and cultural practices.

Weed Control in Established Creeping Bentgrass

For use in established creeping bentgrass on golf course fairways, roughs, approaches and tees.

Roughstalk Bluegrass (*Poa trivialis*) Control

For suppression, apply 0.25 ounce of this product (0.1875 ounce active ingredient) per acre. For control, up to two additional applications of 0.25 ounce of this product (0.1875 ounce active ingredient) per acre at 14- to 21-day intervals may be made. Make all applications between June 1 and September 15. Do not make more than 3 applications per year.

For severe *Poa trivialis* infestations, apply a single application of 0.75 ounce of product (0.5625 ounce active ingredient) per acre in late summer, 21 to 28 days prior to overseeding creeping bentgrass in a renovation approach. This treatment will result in temporary chlorosis and discoloration and will temporarily affect the growth pattern of the desirable turf.

As *Poa trivialis* is controlled, bare patches may occur in the turf. Creeping bentgrass can be sodded or slit-seeded into the treated area beginning 14 days after the last application of this product in order to minimize regrowth of *Poa trivialis* and to maintain overall turf quality.

Weed Control in Kentucky Bluegrass

Weed control recommendations in this section are for use ONLY on established pure stands of Kentucky bluegrass.

Sedge Control

For the selective control of the weeds listed in this section, apply this product at 0.75 ounce (0.5625 ounce active ingredient) per acre after weeds have reached the 3- to 8-leaf stage of growth. A sequential application of 0.75 ounce per acre may be made 4 or more weeks after the initial treatment, if needed.

Kyllinga, green

Kyllinga brevifolia

Nutsedge, purple

Cyperus rotundus

Nutsedge, yellow

Cyperus esculentus

Sedge, globe

Cyperus croceus

Sedges, annual

Cyperus spp.

Roughstalk Bluegrass (*Poa trivialis*) Control

Apply this product at 0.5 ounce (0.375 ounce active ingredient) per acre followed by a second application of 0.5 ounce (0.375 ounce active ingredient) per acre at 21 to 28 days after the initial application. If a single application is preferred, apply this product at 0.75 ounce (0.5625 ounce active ingredient) per acre. Do not make more than 2 applications per year.

As *Poa trivialis* is controlled, bare patches may occur in the turf. Kentucky bluegrass can be sodded or slit-seeded into the treated area beginning 14 days after the last application of this product in order to minimize regrowth of *Poa trivialis* and to maintain overall turf quality.

Tall Fescue Control

Apply this product at 0.75 ounce (0.5625 ounce active ingredient) per acre followed by a second application of 0.75 ounce (0.5625 ounce active ingredient) per acre at 21 to 28 days after the initial application. Do not make more than 2 applications per year.

Additional Weeds Controlled

For selective control or suppression of annual or perennial weeds listed in this section, apply this product at 0.75 ounce (0.5625 ounce active ingredient) per acre. A sequential application of 0.75 ounce (0.5625 ounce active ingredient) per acre may be made 4 or more weeks after the initial treatment, if needed. Do not make more than 2 applications per year.

Barley, little

Hordeum pusillum

Bedstraw, catchweed

Galium aparine

Bluegrass, annual

Poa annua

Bluegrass, bulbous

Poa bulbosa

Burweed, lawn

Soliva pterosperna

Buttercup

Ranunculus arvensis

Chamber bitter

Phyllanthus urinaria

Chamomile, mayweed

Anthemus cotula

Chickweed, common

Stellaria media

Clover, white

Trifolium repens

Dandelion

Taraxacum officinale

Garlic, wild¹

Allium vineale

Henbit¹

Lamium amplexicaule

Ivy, ground¹

Glechoma hederacea

Johnsongrass

Sorghum halepense

Mustard, tumble

Sisymbrium altissimum

Mustard, wild

Sinapis arvensis

Pennycress, field

Thlaspi arvense

Quackgrass¹

Elytrigia repens

Shepherd's-purse

Capsella bursa-pastoris

Violet, wild

Viola pratensis

Woodsorrell, yellow

Oxalis stricta

¹ Suppression or partial control only

Weed Control in Mixed Stands of Kentucky Bluegrass

This product is recommended for use only on established stands of Kentucky bluegrass that include perennial ryegrass and/or fine fescues.

Avoid application of this product on stands with a high percentage of perennial ryegrass or fine fescue.

Perennial ryegrass and fine fescues are more sensitive to this product, therefore, as the percentage of these grasses increase in the mix, occurrence of undesirable turf response will also increase. If undesirable turf response occurs, skip or delay additional applications to allow turf to recover to a desirable quality.

Over-application may result in severe turf injury, thinning or loss of turfgrass stands.

Sedge Suppression

For the selective suppression of the weeds listed below apply this product at 0.5 ounce (0.375 ounce active ingredient) per acre after weeds have reached the 3- to 8-leaf stage of growth. A sequential application of 0.5 ounce (0.375 ounce active ingredient) per acre may be made 28 or more days after the initial treatment, if needed. Do not make more than 2 applications per year.

[*Optional Statement:* Alternatively, for suppression of the weeds listed below, apply 0.25 ounce of this product per acre. For additional control, up to three additional applications of 0.25 ounce of this product per acre at 28-day intervals may be made, if needed.]

Nutsedge, purple

Cyperus rotundus

Nutsedge, yellow

Cyperus esculentus

Sedge, globe

Cyperus croceus

Sedges, annual

Cyperus spp.

Roughstalk Bluegrass (*Poa trivialis*) Control

For suppression, apply 0.25 ounce of this product (0.1875 ounce active ingredient) per acre. For control, up to two additional applications of 0.25 ounce of this product (0.1875 ounce active ingredient) per acre at 14- to 21-day intervals may be made. Make all applications between June 1 and September 15. Do not make more than 3 applications per year.

For severe *Poa trivialis* infestations, apply a single application of 0.5 ounce of product (0.375 ounce active ingredient) per acre in late summer, 21 to 28 days prior to overseeding turfgrass in a renovation approach.

As *Poa trivialis* is controlled, bare patches may occur in the turf. Kentucky bluegrass, perennial ryegrass or fine fescues can be sodded or slit-seeded into the treated area beginning 14 days after the last application of this product in order to minimize regrowth of *Poa trivialis* and to maintain overall turf quality.

Additional Weeds Controlled

For selective control or suppression of annual or perennial weeds listed in this section, apply this product at 0.5 ounce (0.375 ounce active ingredient) per acre. A sequential application of product 0.5 ounce (0.375 ounce active ingredient) per acre may be made 4 or more weeks after the initial treatment, if needed.

[*Optional Statement:* Alternatively, for suppression of the weeds listed in this section, apply 0.25 ounce of this product (0.1875 ounce active ingredient) per acre. For additional control, up to three additional applications of 0.25 ounce of this product (0.1875 ounce active ingredient) per acre at 28-day intervals may be made, if needed. Do not make more than 2 applications per year.]

Bedstraw, catchweed¹

Galium aparine

Bluegrass, annual¹

Poa annua

Bluegrass, bulbous¹

Poa bulbosa

Chamber bitter¹

Phyllanthus urinaria

Chamomile, mayweed¹

Anthemus cotula

Chickweed, common

Stellaria media

Clover, white¹

Trifolium repens

Dandelion¹

Taraxacum officinale

Fescue, tall¹

Festuca arundinacea

Garlic, wild¹

Allium vineale

Henbit¹

Lamium amplexicaule

Ivy, ground¹

Glechoma hederacea

Johnsongrass¹

Sorghum halepense

Mustard, tumble

Sisymbrium altissimum

Mustard, wild

Sinapis arvensis

Pennycress, field

Thlaspi arvense

Quackgrass¹

Elytrigia repens

Shepherd's-purse

Capsella bursa-pastoris

Woodsorrell, yellow¹

Oxalis stricta

¹ Suppression or partial control only

NATIVE GRASSES

This product generally has been shown to be safe for use on the warm-season native grasses listed in this section.

- Big bluestem
- Little bluestem
- Bushy bluestem
- Blue oats grama
- Buffalograss
- Indiangrass
- Lovegrass
- Switchgrass

Use of this product may result in temporary chlorosis or temporarily affect the growth pattern of these native grasses. If discoloration or excessive thinning of the native grasses occurs, skip or delay additional applications to allow the native grasses to recover to a desirable quality.

Test this product on a small area prior to wide-scale use to determine if this product is suitable for your management and cultural practices.

Sedge Control

For the selective control of the weeds listed in this section, apply this product at 1.25 ounces (0.9375 ounce active ingredient) per acre after weeds have reached the 3- to 8-leaf stage of growth. A sequential application of 1.25 ounces (0.9375 ounce active ingredient) per acre may be made 4 or more weeks after the initial treatment, if needed. Do not apply more than 2 applications per year.

Kyllinga, false green

Kyllinga gracilima

Kyllinga, fragrant

Kyllinga sesquiflorus

Kyllinga, green

Kyllinga brevifolia

Nutsedge, purple

Cyperus rotundus

Nutsedge, yellow

Cyperus esculentus

Sedge, globe

Cyperus croceus

Sedges, annual

Cyperus spp.

Tall Fescue Control

Best control of tall fescue is obtained when this product is applied at 1.25 ounces (0.9375 ounce active ingredient) per acre followed by a second application of 1.25 ounces (0.9375 ounce active ingredient) per acre at 21 to 28 days after the initial application. If a single application is preferred, apply this product at 2.0 ounces (1.5 ounce active ingredient) per acre.

Additional Weeds Controlled

For selective control or suppression of annual or perennial weeds listed in this section, apply this product at 1.25 ounces (0.9375 ounce active ingredient) per acre. A sequential application of 1.25 ounces (0.9375 ounce active ingredient) per acre may be made 4 or more weeks after the initial treatment, if needed. Do not apply more than 2 applications per year.

Barley, little

Hordeum pusillum

Bedstraw, catchweed

Galium aparine

Beggarweed, Florida¹

Desmodium tortuosum

Bentgrass, creeping

Agrostis stolonifera

Bluegrass, annual¹

Poa annua

Bluegrass, roughstalk

Poa trivialis

Bluegrass, bulbous

Poa bulbosa

Burweed, lawn

Soliva pterosperna

Buttercup

Ranunculus arvensis

Buttonweed¹

Diodia virginiana

Chamber bitter

Phyllanthus urinaria

Chickweed, common

Stellaria media

Clover, white

Trifolium repens

Crowfootgrass

Dactyloctenium aegyptium

Dallisgrass¹

Paspalum dilatatum

Dandelion

Taraxacum officinale

Dichondra, Carolina

Dichondra carolinensis

Garlic, wild

Allium vineale

Geranium, Carolina¹

Geranium carolinianum

Henbit¹

Lamium amplexicaule

Ivy, ground

Glechoma hederacea

Johnsongrass

Sorghum halepense

Mustard, wild

Sinapis arvensis

Pennycress, field

Thlaspi arvense

Quackgrass¹

Elytrigia repens

Ryegrass, perennial

Lolium perenne

Shepherd's-purse

Capsella bursa-pastoris

Violet, wild¹

Viola pratensis

Woodsorrell, yellow

Oxalis stricta

¹ Suppression or partial control only

[Optional Section

WEEDS CONTROLLED

Chamber bitter

Phyllanthus urinaria

Chamomile, mayweed

Anthemus cotula

Chickweed, common

Stellaria media

Clover, white

Trifolium repens

Crowfootgrass

Dactyloctenium aegyptium

Dallisgrass¹

Paspalum dilatatum

Dandelion

Taraxacum officinale

Dichondra, Carolina

Dichondra carolinensis

Fescue, tall

Festuca arundinacea

Garlic, wild

Allium vineale

Geranium, Carolina

Geranium carolinianum

Henbit¹

Lamium amplexicaule

Ivy, ground

Glechoma hederacea

Johnsongrass

Sorghum halepense

Kyllinga, false green

Kyllinga gracilima

Kyllinga, fragrant

Kyllinga sesquiflorus

Kyllinga, green

Kyllinga brevifolia

Mustard, tumble

Sisymbrium altissimum

Mustard, wild

Sinapis arvensis

Nutsedge, purple

Cyperus rotundus

Nutsedge, yellow

Cyperus esculentus

Pennycress, field

Thlaspi arvense

Pennywort, lawn¹

Hydrocotyle sibthorpioides

Quackgrass¹

Elytrigia repens

Ryegrass, perennial

Lolium perenne

Sedge, globe

Cyperus croceus

Sedges, annual

Cyperus spp.

Shepherd's-purse

Capsella bursa-pastoris

Violet, wild

Viola pratensis

Woodsorrell, yellow

Oxalis stricta

¹ Suppression or partial control only]

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