



PYRAFLUFEN-ETHYL	GROUP	14	HERBICIDE
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# Octane<sup>®</sup> 2% SC

Herbicide

**A NONSELECTIVE CONTACT HERBICIDE FOR BROADLEAF WEED CONTROL AND FOR CONTROL OF SILVERY THREAD MOSS FOR USE IN NURSERIES AND ORNAMENTAL PLANTINGS; SOD FARMS; CHRISTMAS TREES; AND ESTABLISHED ORNAMENTAL TURF**

**Active Ingredient:**

Pyraflufen-ethyl: Acetic acid, [2-chloro-5-(4-chloro-5-(difluoromethoxy)-1-methyl-1H-pyrazol-3-yl)-4-fluorophenoxy]-, ethyl ester.....2.0%

**Other Ingredients:**.....98.0%

**TOTAL:**.....100.0%

Contains 0.17 lbs. pyraflufen-ethyl per gallon

## KEEP OUT OF REACH OF CHILDREN CAUTION

FIRST AID	
<b>If on skin or clothing</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
HOTLINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. For additional information on this pesticide product, including human health concerns and medical emergencies call <b>INFOTRAC 1-800-535-5053</b> . In case of fire or spills, information may be obtained by calling <b>INFOTRAC 1-800-535-5053</b> .	

### PRECAUTIONARY STATEMENTS

#### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

**CAUTION.** Harmful if absorbed through skin. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet.

## PERSONAL PROTECTIVE EQUIPMENT (PPE)

### Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks
- Chemical-resistant gloves (including barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, polyvinyl chloride (PVC), and/or Viton™)

### User Safety Requirements

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

## ENGINEERING CONTROLS

When handlers use closed systems, enclosed cabs, or aircraft 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:

- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

## ENVIRONMENTAL HAZARDS

This product is toxic to fish and aquatic invertebrates. This product may contaminate water through drift of spray in wind or via runoff events. Use care when applying in areas adjacent to any body of water. **DO NOT** apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. **DO NOT** contaminate water when disposing of equipment washwater or rinsate. **DO NOT** apply when weather conditions favor drift from treated areas.

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## DIRECTIONS FOR USE

**It is a violation of Federal law to use this product in a manner inconsistent with its 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 State or Tribal agency responsible for pesticide regulation.

### **AGRICULTURAL USE REQUIREMENTS**

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.

For early entry into treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, including plants, soil, or water, wear:

- Coveralls
- Chemical resistant gloves
- Shoes plus socks

### **NONAGRICULTURAL USE REQUIREMENTS**

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses. For other uses, including interiorscapes and other nonagricultural uses, **DO NOT** enter treated areas without protective clothing until sprays have dried.

### **USE INFORMATION**

OCTANE 2% SC Herbicide is a contact herbicide, and requires thorough coverage for complete broadleaf and bryophytic weed control.

OCTANE 2% SC Herbicide must be tank mixed with another foliar active broadleaf herbicide for complete control of most broadleaf weeds.

**DO NOT** apply OCTANE 2% SC Herbicide through any type of irrigation system.

OCTANE 2% SC Herbicide is rainfast one hour after application.

## ROTATIONAL CROP RESTRICTIONS

Crop/Crop Group	Rotational/Plantback Intervals
<ul style="list-style-type: none"> <li>• Corn</li> <li>• Cottonseed Subgroup (Crop Subgroup 20C)</li> <li>• Hops</li> <li>• Pome Fruit Group (Crop Group 11-10)</li> <li>• Pomegranate</li> <li>• Small Fruit Vine Climbing Subgroup Except Fuzzy Kiwifruit (Crop Group 13-07F)</li> <li>• Soybean</li> <li>• Stone Fruit Group (Crop Group 12-12)</li> <li>• Tree Nut Group (Crop Group 14-12)</li> <li>• Triticale; Wheat</li> <li>• Tropical and Subtropical, Small Fruit, Edible Peel Subgroup (Crop Subgroup 23A)</li> <li>• Tuberous and Corm Vegetable Subgroup (Crop Subgroup 1C)</li> </ul>	<p>0 days following application</p>
<ul style="list-style-type: none"> <li>• Brassica (Cole) Leafy Vegetables (Crop Group 5)</li> <li>• Bulb Vegetable Group (Crop Group 3)</li> <li>• Cereal Grains Group (Crop Group 15) (except Corn, Triticale, Wheat; see 0-day plantback interval above)</li> <li>• Cucurbit Vegetables (Crop Group 9)</li> <li>• Fruiting Vegetable (Except Cucurbits) (Crop Group 8)</li> <li>• Leafy Vegetables (Except Brassica Vegetables) Group (Crop Group 4)</li> <li>• Legume Vegetables (Succulent or Dried) (Crop Group 6) (except Soybean; see 0-day plantback interval above)</li> <li>• Oilseed Group (Crop Group 20) (except Cottonseed Subgroup 20C; see 0-day plantback interval above)</li> <li>• Root and Tuber Vegetables (Crop Group 1) (except Crop Subgroup 1C - see 0-day plantback interval above)</li> <li>• Sugarcane</li> </ul>	<p>1 day following preplant burndown application</p>
<ul style="list-style-type: none"> <li>• All other rotational crops</li> </ul>	<p><b>DO NOT</b> plant for 30 days following the last application of OCTANE 2% SC Herbicide.</p>

## WEEDS CONTROLLED

The following broadleaf weed species can be controlled or suppressed up to 4 inches in height or less or rosettes of 3 inches in diameter or less. Tank mixtures of OCTANE 2% SC Herbicide with other labeled broadleaf herbicides may be needed for control of some weed species. Control may be reduced with weeds larger than 4 inches in height or 3 inches in diameter.

Alkaliweed*	Ladysthumb	Redmaid
Amaranth, Palmer*	Lambsquarters, common	Rocket, London
Bedstraw	Lettuce, prickly	Sesbania, hemp
Beggartick, hairy	Mallow, common	Smartweed, Pennsylvania
Beggarweed, Florida	Malva spp.	Smellmelon
Bindweed, field	Marestail*	Sowthistle, annual
Buckwheat, wild	Milkthistle	Spurge, leafy
Canola	Morningglory, species	Sunflower, common
Carpetweed	Mustard, wild*	Tansymustard, western
Celery, wild	Nettle, stinging	Thistle, Canada
Chickweed	Nightshade, black	Thistle, Russian
Clover, white	Nightshade, silverleaf	Toadflax, Dalmatian
Cocklebur	Panicle willowweed	Velvetleaf
Cotton, volunteer (conventional, GMO varieties)	Pigweed, redroot	Virginia-creeper
Dandelion, common	Pigweed, smooth	Waterhemp, common
Dock, curly	Pineapple-weed	Waterhemp, tall
Dollarweed	Poinsettia, wild	
Eclipta	Poison-ivy	
Eveningprimrose, cutleaf	Potato, volunteer	
Fleabane*	Prickly sida (teaweed)	
Geranium, Carolina	Purslane, common	
Henbit	Radish, wild	
Horsenettle*	Ragweed, common	
Kochia	Ragweed, giant	

\*suppression

## BRYOPHYTIC WEEDS CONTROLLED

Silvery thread moss (non-vascular plant)

## WEED RESISTANCE-MANAGEMENT

For resistance management, Octane 2% SC Herbicide is a Group 14 herbicide. Any weed population may contain or develop plants naturally resistant to Octane 2% SC Herbicide and other Group 14 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.

Proactively implement diversified weed control strategies to minimize selection for weed populations resistant to one or more herbicides. A diversified weed management program may include the use of multiple herbicides with different modes of action and overlapping weed spectrum with or without tillage operations and/or other cultural practices. Research has demonstrated that using the labeled rate and application instructions is important to delay the selection for resistance. Scouting after a herbicide application is important because it can facilitate the early identification of weed shifts and/or weed resistance and thus provide direction on future weed management practices. One of the best ways to contain resistant populations is to implement measures to avoid allowing weeds to reproduce by seed or to proliferate vegetatively. Cleaning equipment between sites and avoiding movement of plant material between sites will greatly aid in retarding the spread of resistant weed seed.

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

- Always apply Octane 2% SC Herbicide at a minimum of 0.7 fl oz (0.0009 lb active ingredient) formulated product per acre.
- Rotate the use of Octane 2% SC Herbicide or other Group 14 herbicides within a growing season sequence or among growing seasons with different herbicide groups that control the same weeds in an area.
- 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 that considers tillage (or other mechanical control methods), cultural (e.g., higher plant seeding rates; precision fertilizer application method and timing to favor desirable plants and not the weeds), biological (weed-competitive plant varieties) and other management practices.
- Scout 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. Prevent movement of resistant weed seeds to other areas by cleaning equipment when moving between areas 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 pest control advisors for additional pesticide resistance-management and/or integrated weed-management recommendations for specific types of plants and weed biotypes.
- Report lack of performance to registrant or their representative

Suspected herbicide-resistant weeds may be identified by these indicators:

- Failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds;
- A spreading patch of non-controlled plants of a particular weed species; and
- Surviving plants mixed with controlled individuals of the same species.

Contact your local sales representative, pest control advisor, or extension agent to find out if suspected resistant weeds to this MOA have been found in your region. If resistant biotypes of target weeds have been reported, use the application rates of this product specified for your local conditions. Tank mix products so that there are multiple effective mechanisms of actions for each target weed.

## **TANK MIXTURES**

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and application instructions on all product

labels involved in tank mixing. Users must follow the most restrictive application instructions and precautionary statements of each product in the tank mixture.

OCTANE 2% SC Herbicide may be applied as a tankmix or in sequential application with other [harvest aid,] herbicide, fungicide, or insecticide products. Weather, crop conditions, or the presence of certain weeds, crop damaging insects, or diseases will indicate the inclusion of other pesticides in the application.

**Note:** Test compatibility of OCTANE 2% SC Herbicide in any tankmix combination before use. To determine the physical compatibility with other products, use a jar test, as described below:

Using a quart jar, add the proportionate amounts of the products to 1 qt. of water. Add wettable powders and water-dispersible granular products first, then liquid flowables, and emulsifiable concentrates last. After thoroughly mixing, let stand for at least 5 minutes. If the combination remains mixed or can be remixed readily, it is physically compatible. Once compatibility has been proven, use the same procedure for adding required ingredients to the spray tank.

**Read and follow all label directions for each tankmix product. Always use in accordance with the most restrictive of label precautions and limitations.**

## **MIXING DIRECTIONS**

**OCTANE 2% SC Herbicide Alone:** Fill spray tank with  $\frac{3}{4}$  of the amount of water needed for the intended application and then turn on agitation. Pour the specified amount of product on the surface of the water in the spray tank. Add the remaining water volume to the spray tank with agitation running. Keep agitation running during filling and spraying operations. If spraying must be stopped before emptying the sprayer, resume agitation before spraying the remainder of the load. Mix only as much spray solution as can be sprayed within four hours. Storage and use of the previous day's spray mix may result in reduced activity.

**OCTANE 2% SC Herbicide in Tank Mixtures:** Begin with clean equipment. Fill spray tank with  $\frac{3}{4}$  of the amount of water needed for the intended application and turn on agitation. If using a buffering agent, add after filling the tank with  $\frac{3}{4}$  amount of water. Add the specified amount of tankmix products in the following order while maintaining agitation:

- 1) products in water-soluble packets
- 2) wettable powders
- 3) water-dispersible granulars and/or soluble powders
- 4) flowable liquids (including OCTANE 2% SC Herbicide)
- 5) emulsifiable concentrates
- 6) adjuvants and/or oils
- 7) remaining amount of water to achieve the desired level

Always follow the labeled mixing instructions of any partner products. Keep agitation running during filling and spraying operations. If spraying must be stopped before emptying the sprayer, resume agitation before spraying the remainder of the load. Mix only as much spray solution as can be sprayed within four hours. Storage and use of the previous day's spray mix may result in reduced activity.

Use an approved agricultural buffering agent, buffering to pH 7.5 or less if using OCTANE 2% SC Herbicide in a water source greater than or equal to pH 7.5. Always buffer the water source BEFORE adding OCTANE 2% SC Herbicide to the spray tank.

## **MANDATORY SPRAY DRIFT DIRECTIONS**

### **Ground Applications**

- Apply with the nozzle height recommended by the manufacturer, but no more than 3 feet above the ground or crop canopy.
- For all applications, applicators are required to use fine or coarser spray quality (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 fine or coarser spray quality (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**

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.

## 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.

## EQUIPMENT CLEANING

**DO NOT** allow the spray solution to dry in the application equipment. After application and before using the sprayer equipment for any other applications, the sprayer must be thoroughly cleaned. Applicators must ensure proper equipment clean-out for any other products mixed with OCTANE 2% SC Herbicide as provided on the other product label(s). Immediately following application, clean all equipment thoroughly with detergent or a spray tank cleaner and water as described below. Residues of OCTANE 2% SC Herbicide remaining in inadequately cleaned equipment and released in subsequent applications can cause injury to crops.

1. Drain sprayer tank, hoses, and spray boom, and thoroughly rinse with clean water the inside of the spray tank, sprayer hoses, boom, and nozzles to remove any sediment or residues.
2. Fill the tank  $\frac{1}{2}$  full with clean water, add the appropriate detergent (follow manufacturer's directions for use). Fill tank to capacity and operate the sprayer with agitation for 15 minutes to flush hoses, boom, and nozzles.
3. Drain the sprayer tank, lines, and booms. Rinse the tank with clean water and flush through the hoses, boom, and nozzles. Remove and clean spray nozzles, tips, and screens.
4. Dispose of all cleaning solutions, rinsate, and washwaters in accordance with federal, state, and local regulations.

## CROP USE DIRECTIONS

### Spot Treatment

For spot treatment to listed broadleaf weeds or for sucker management, refer to the information below to determine the amount of OCTANE 2% SC Herbicide to add to a tank. Spray using a pressure (pump-up) sprayer (or similar application equipment) until wet but prior to runoff. Use information for rates, concentrations, water volumes, and timing and frequency of application can be found in the Rate/Acre and Application Instructions columns in the CROP USE DIRECTIONS tables. Please refer to and follow all precautions and restrictions under Application Instructions for the crop to be treated.

### Fluid oz of OCTANE 2% SC Herbicide to add to sprayer tank

Sprayer tank capacity (gallons)	Spray volume (gallons/A)	Fluid oz OCTANE 2% SC Herbicide to add per tank for a rate of 1.0 fl. oz./A (0.0013 lb ai/A)	Fluid oz OCTANE 2% SC Herbicide to add per tank for a rate of 4.0 fl. oz./A (0.0053 lb ai/A)
1	20	0.05	0.20
	30	0.03	0.13
	40	0.03	0.10
3	20	0.15	0.60
	30	0.10	0.40
	40	0.08	0.30
5	20	0.25	1.00
	30	0.17	0.67
	40	0.13	0.50
10	20	0.50	2.00
	30	0.33	1.33
	40	0.25	1.00

#### Formula

$$\text{Fluid oz OCTANE 2\% SC to add to sprayer tank} = \frac{\text{Application rate} \times \text{Sprayer tank capacity}}{\text{Spray volume}}$$

#### Example Calculation for 1 gallon sprayer tank capacity

$$\begin{aligned} \text{Fluid oz OCTANE 2\% SC to add to sprayer tank} &= \frac{4.0 \text{ fl. oz./A} \times 1 \text{ gallon}}{40 \text{ gallons/A}} \\ &= 0.10 \text{ fl. oz.} \end{aligned}$$

where:      Application rate                      = 4.0 fl. oz./A  
                  Sprayer tank capacity                      = 1 gallon  
                  Spray volume                                      = 40 gallons/A

#### Example Calculation for 5 gallon sprayer tank capacity

$$\begin{aligned} \text{Fluid oz OCTANE 2\% SC to add to sprayer tank} &= \frac{4.0 \text{ fl. oz./A} \times 5 \text{ gallons}}{40 \text{ gallons/A}} \\ &= 0.50 \text{ fl. oz.} \end{aligned}$$

where:      Application rate                      = 4.0 fl. oz./A  
                  Sprayer tank capacity                      = 5 gallons  
                  Spray volume                                      = 40 gallons/A

**Established Ornamental Turf Lawns (Residential, Industrial, And Institutional), Parks, Cemeteries, Athletic Fields, Golf Courses (Fairways, Aprons, Greens, Tees, and Roughs), and Sod Farms**

**DO NOT** allow people (other than the applicator) or pets on treatment area during the application and until sprays have dried.

<b>Pest</b>	<b>Rate/Acre</b>	<b>Application Instructions</b>
Silvery Thread Moss	2.0 to 6.8 fl. oz./acre (0.046 to 0.156 fl. oz./1000 ft <sup>2</sup> )  (0.0027 to 0.009 lb ai/acre)	<ul style="list-style-type: none"> <li>• For ground application, use a minimum of 40 gallons of water per acre.</li> <li>• Multiple applications will be required for complete control.</li> </ul> <p><b>USE RESTRICTIONS</b></p> <ul style="list-style-type: none"> <li>• Allow at least 14 days between applications.</li> <li>• <b>DO NOT</b> exceed 6.8 fl oz (0.009 lb ai) per acre in a single application for this use.</li> </ul>
Broadleaf weeds	1.0 to 4.0 fl. oz./ acre (0.023 to 0.092 fl/1000 ft <sup>2</sup> )  (0.0013 to 0.0053 lb ai/acre)	<ul style="list-style-type: none"> <li>• For ground application, use a minimum of 20 gallons of water per acre.</li> </ul> <p><b>USE RESTRICTIONS</b></p> <ul style="list-style-type: none"> <li>• Allow at least 30 days between applications for control of broadleaf weeds.</li> <li>• <b>DO NOT</b> exceed 4.0 fl oz (0.0053 lb ai) per acre in a single application for this use.</li> </ul>
Turf Areas (all uses)		<ul style="list-style-type: none"> <li>• Use of a non-ionic surfactant at a rate of 0.25% v/v is directed to obtain best results.</li> </ul> <p><b>USE RESTRICTIONS</b></p> <ul style="list-style-type: none"> <li>• <b>DO NOT</b> apply by air.</li> <li>• <b>DO NOT</b> exceed 13.6 fl. oz. (0.018 lb a.i.) per acre per year.</li> </ul>

**Spray Concentrate**

Make an appropriate amount of spray concentrate for the area to be treated by adding 10 fl. oz. of Octane 2% SC Herbicide to 120 fl. oz. of water (e.g., 1.25 fl. oz. Octane 2% SC Herbicide to 15 fl. oz. water). Use the appropriate amount of concentrate as specified in the dosage tables below for application by pressure (pump-up) sprayer, hose-end sprayer, or similar application equipment.

**Spot treatment: Pressure sprayer (Pump-up Sprayer)**

Adjust spray nozzle to give coarse spray. Aim at center of weed and spray to wet. A repeat application may be required for hard-to-kill weeds. **DO NOT** use a hose-end sprayer for spot treatments.

Turf Species	Rate/Acre	Amount of Spray Concentrate (fluid ounces)	Amount of water to be applied (gallons)	Area treated (square feet)
<b>Cool-season grasses:</b> bentgrass <sup>†</sup> , bluegrass, fescue, ryegrass	3.4 fl. oz./acre  (0.0045 lb ai/acre)	1.0	4	1000
<b>Warm-season grasses:</b> bahia grass, common bermudagrass, centipedegrass, St. Augustine grass, zoysia grass		0.5	2	500
<sup>†</sup> Not tested on colonial bentgrass in California.				

### Formula

*Amount of Spray Concentrate, fl. oz.*  
= (Application Rate) × (Spray Concentrate Dilution) × (Area to Treat)  
× (Conversion Factor)

#### **Example Calculation: Amount of Spray Concentrate to treat 1000 sq. ft.**

$$\begin{aligned}
& \text{Amount of Spray Concentrate, fl. oz.} \\
& = \frac{3.4 \text{ fl oz}}{A} \times \left( \frac{130 \text{ fl oz Spray Concentrate}}{10 \text{ fl oz OCTANE 2\% SC}} \right) \times 1000 \text{ sq. ft.} \times \frac{1 \text{ acre}}{43560 \text{ sq ft}} \\
& = \frac{3.4 \times 13 \times 1000}{43560} \\
& = 1.0 \text{ fl oz spray concentrate to treat 1000 sq. ft.}
\end{aligned}$$

where:

Application rate	= 3.4 fl. oz./A
Spray Concentrate Dilution:	= 130 fl. oz. Spray Concentrate/ 10 fl. oz. OCTANE
2% SC	
Area to Treat:	= 1000 sq. ft.
Conversion Factor:	= 1 acre/43560 sq. ft.

### **Entire lawn: Dial Type Hose-End Sprayer**

Spray lawn using coarse spray. Apply evenly over area to be treated. Effects begin to show after 24 to 48 hours with plant death occurring within 7 to 14 days.

- 1) Measure the total square footage area to be sprayed. To determine the total square foot area, multiply the length by the width of the lawn area to be treated. Subtract square footage of non-treatment areas including flower beds, shrub beds, driveways and sidewalks.

- 2) The application rate of this product is indicated in the following table. Add the appropriate amount of spray concentrate to the reservoir, as indicated in the table depending on the lawn area to be treated.
- 3) Set the dial to the correct fluid ounce setting mix rate indicated in the following table.
- 4) Connect the hose, turn on water and spray evenly over the lawn treatment area. One gallon of mixed spray solution will cover approximately 2000 square feet.
- 5) Monitor the spray solution level in the reservoir, to gauge coverage.

Turf Species	Application Rate	Area to Treat (square feet)	Amount of Spray Concentrate (fluid ounces)	Dial-type Hose-end sprayer mix setting (fl. oz. per gallon)
<b>Cool-season grasses:</b> bentgrass <sup>†</sup> , bluegrass, fescue, ryegrass	3.4 fl. oz./acre  (0.0045 lb a.i./acre)	1000	1.0	2.0 fl. oz.
		5000	5.0	
		8000	8.0	
<sup>†</sup> Not tested on colonial bentgrass in California.				

### Formula

*Amount of Spray Concentrate, fl. oz.*  
 = (Application Rate) × (Spray Concentrate Dilution) × (Area to Treat)  
 × (Conversion Factor)

#### **Example Calculation: fl. oz. Spray Concentrate to treat 5000 sq. ft.**

*Amount of Spray Concentrate, fl. oz.*  
 =  $\frac{3.4 \text{ fl oz}}{A} \times \left( \frac{130 \text{ fl oz Spray Concentrate}}{10 \text{ fl oz OCTANE 2\% SC}} \right) \times 5000 \text{ sq. ft.} \times \frac{1 \text{ acre}}{43560 \text{ sq ft}}$   
 = 5.0 fl oz spray concentrate to treat 5000 sq ft

where:

Application rate	= 3.4 fl. oz./A
Spray Concentrate Dilution:	= 130 fl. oz. spray concentrate/10 fl. oz. OCTANE 2% SC
Area to Treat:	= 5000 sq. ft.
Conversion Factor:	= 1 acre/43560 sq. ft.

## Broadcast Application

Spray using coarse spray. Apply evenly over area to be treated.

Turf Species	Application Rate	Amount of Spray Concentrate (fluid ounces)	Area to Treat (square feet)
<b>Cool-season grasses:</b> bentgrass <sup>†</sup> , bluegrass, fescue, ryegrass;	3.4 fl. oz./acre	1.0	1000
		5.0	5000
<b>Warm-season grasses:</b> bahia grass, common bermudagrass, centipedegrass, St Augustine grass, zoysia grass	(0.0045 lb a.i./acre)	8.0	8000

<sup>†</sup>Not tested on colonial bentgrass in California.

### Formula

*Amount of Spray Concentrate, fl. oz.*

$$= (\text{Application Rate}) \times (\text{Spray Concentrate Dilution}) \times (\text{Area to Treat}) \times (\text{Conversion Factor})$$

#### **Example Calculation: fl. oz. Spray Concentrate to treat 8000 sq. ft.**

*Amount of Spray Concentrate, fl. oz.*

$$= \frac{3.4 \text{ fl oz}}{A} \times \left( \frac{130 \text{ fl oz Spray Concentrate}}{10 \text{ fl oz OCTANE 2\% SC}} \right) \times 8000 \text{ sq. ft.} \times \frac{1 \text{ acre}}{43560 \text{ sq ft}}$$

$$= 8.0 \text{ fl oz spray concentrate to treat } 8000 \text{ sq ft}$$

where:

Application rate = 3.4 fl. oz./A

Spray Concentrate Dilution: = 130 fl. oz. spray concentrate/10 fl. oz. OCTANE 2% SC

Area to Treat: = 8000 sq. ft.

Conversion Factor: = 1 acre/43560 sq. ft.

## **PRECAUTIONS FOR USE IN NURSERIES AND ORNAMENTAL PLANTINGS; SOD FARMS; CHRISTMAS TREES AND CONIFER PLANTATION SITE PREPARATION; ESTABLISHED TURF AREAS**

### **Turfgrass Tolerance**

Established turfgrasses tolerant to application of OCTANE 2% SC Herbicide at labeled rates are listed below. For turfgrass species not listed on this label, apply OCTANE 2% SC Herbicide to a small test area to assure tolerance. A slight transitory yellowing or discoloration may occur on some sensitive

turfgrass species under stress 3 to 5 days following application of OCTANE 2% SC Herbicide at labeled rates. Recovery is typically 4 to 7 days from application.

**Cool Season Turfgrasses (bentgrass, Kentucky bluegrass, rough bluegrass, tall fescue, perennial ryegrass).**

Assure tolerance of both newly seeded and established cool season grasses by applying OCTANE 2% SC Herbicide at labeled rates to a small test area before treating large areas. Be aware and observe all label restrictions regarding turfgrass tolerance when OCTANE 2% SC Herbicide is tank mixed with another product.

**Warm Season Turfgrasses (common and hybrid bermudagrass, centipedegrass, St. Augustinegrass, zoysiagrass).**

Assure tolerance to warm season turfgrasses listed above by applying OCTANE 2% SC Herbicide at labeled rates to a small test area before treating large areas. Centipedegrass may exhibit a slight yellowing 3 to 7 days after application, however complete recovery is expected. Be aware and observe all label restrictions regarding turfgrass tolerance when OCTANE 2% SC Herbicide is tank mixed with another product.

**Newly Seeded, Sodded, or Sprigged Turfgrass**

OCTANE 2% SC Herbicide may be applied to newly seeded, sodded, or sprigged turfgrass that is established and not subject to impending stress due to moisture, temperature, or other cultural practices. Areas treated with OCTANE 2% SC Herbicide may be seeded or overseeded one day following application.

**Dormant Turfgrass**

Applications of OCTANE 2% SC Herbicide to dormant warm season turfgrasses are permitted. Avoid applications when warm season turfgrasses are transitioning into or out of dormancy.

Apply OCTANE 2% SC Herbicide at rates specified in the dosage table below for control of broadleaf weeds. OCTANE 2% SC Herbicide is a broadleaf contact herbicide. OCTANE 2% SC Herbicide may be tank mixed with other registered grass herbicides for control of grassy weeds. **Avoid contact with desirable vegetation. DO NOT** apply to lawns or turf where clovers and carpetgrass are desirable.

**Spray Volume**

OCTANE 2% SC Herbicide is a contact herbicide that causes herbicidal symptoms only to plant parts that come into contact with spray applications. Therefore, proper spray volume and uniform coverage are important to maximize efficacy of OCTANE 2% SC Herbicide. Apply uniform sprays at 20 to 200 gallons/A (0.5 to 4.5 gallons per 1000 sq. ft). Use higher spray volumes to target high weed populations and/or weeds contained in dense turfgrass canopies.

**Use of Adjuvants**

Addition of surfactants (spreaders/stickers) to the spray solution will improve efficacy and contact activity of OCTANE 2% SC Herbicide. Follow manufacturer's recommended use rates for specific sites.

Use	Rate/Acre	Application instructions
Nursery and ornamental plantings	<p><b>When not tank mixing with other herbicides:</b> Apply OCTANE 2% SC Herbicide at rates of 1.0 to 4.0 fl oz (0.0013 to 0.0053 lb ai) per acre in 20 to 40 GPA for control of seedling, non-mature winter and summer annual weeds and/or for temporary burndown of weeds listed in <i>Broadleaf Weeds Controlled</i>. Tank mixes including other broadleaf herbicides with OCTANE 2% SC Herbicide may be needed for control of larger winter and summer annual broadleaf weeds.</p>	<p><b>USE RESTRICTIONS</b></p> <ul style="list-style-type: none"> <li>• Allow a minimum of 30 days between applications for control of broadleaf weeds.</li> <li>• <b>DO NOT</b> apply by air.</li> <li>• <b>DO NOT</b> exceed 4.0 fl oz (0.0053 lb ai) per acre in a single application for this use when <b>not</b> tank mixed with other herbicides.</li> <li>• <b>DO NOT</b> exceed 1.5 fl oz (0.0020 lb ai) per acre in a single application for this use when tank mixed with other herbicides.</li> <li>• <b>DO NOT</b> exceed 13.6 fl. oz. (0.0181 lb ai) per acre per year using ground equipment.</li> </ul>
Sod farms	<p><b>When tank mixing with other herbicides:</b> Apply OCTANE 2% SC Herbicide at rates of 0.7 to 1.5 fl oz (0.0009 to 0.0020 lb ai) per acre in tank mix combinations with herbicides registered for use including amines, esters, and salts of 2,4-D, chloroprop, dicamba, mecoprop, MCPA, triclopyr, fluroxypyr, and various combination of these products for control of broadleaf annual weeds and perennial weeds listed in <i>Broadleaf Weeds Controlled</i>. Residual, long-term control of the target weeds is as defined by the labeling of the companion product. For tank mixing with herbicides follow the tank mix directions.</p>	
Christmas trees and conifer plantation site preparation		
Established Ornamental turf		

### Backpack Sprayer Dosage Chart

For use in backpack sprayers having tank capacity of 3 to 5 gallons, accurate calibration and measurement of the appropriate amount of product is important to deliver the desired rate of OCTANE 2% SC Herbicide. Use the chart below to determine the quantity of OCTANE 2% SC Herbicide to be added to a backpack sprayer having a capacity of 3 to 5 gallons to equal a 1.5 fl. oz. (0.0020 lb ai) per acre rate.



Backpack tank capacity (gallons)	Spray volume (gallons/A)	Fluid oz Octane 2% SC per tank for 1.5 fl. oz./A	mL Octane 2% SC per tank for 1.5 fl. oz./A
3	20	0.23	6.6
	30	0.15	4.4
	40	0.11	3.3
4	20	0.30	8.9
	30	0.20	5.9
	40	0.15	4.4
5	20	0.38	11.1
	30	0.25	7.4
	40	0.19	5.5

### Formula

$$\text{Fluid oz OCTANE 2\% SC to add to sprayer tank} = \frac{\text{Application rate} \times \text{Sprayer tank capacity}}{\text{Spray volume}}$$

### Example Calculation for 4 gallon sprayer tank capacity

$$\begin{aligned} \text{Fluid oz OCTANE 2\% SC to add to sprayer tank} &= \frac{(1.5 \text{ fl. oz./A}) \times 4 \text{ gallon}}{30 \text{ gallons/A}} \\ &= 0.20 \text{ fl. oz.} \end{aligned}$$

where: Application rate = 1.5 fl. oz./A  
Sprayer tank capacity = 4 gallon  
Spray volume = 30 gallons/A

For smaller volume sprayers less than three (3) gallons in size, measure 0.03 to 0.07 fl. oz. (1 to 2.1 ml) of OCTANE 2% SC Herbicide per one (1) gallon of water when tank mixing with other herbicides to equal a 1.5 fl oz (0.0020 lb ai) per acre rate. For specific measurements based on spray volume (gallons/A), see the table below.

Spray Volume (gallons/A)	Fluid oz Octane 2% SC per gallon water for 1.5 fl. oz./A	mL Octane 2% SC per gallon water for 1.5 fl. oz./A
20	0.07	2.1
30	0.05	1.4
40	0.03	1.0

## Formula

$$\text{Fluid oz OCTANE 2\% SC per gallon for 1.5 fl. oz./A} = \frac{\text{Application rate} \times \text{Sprayer tank capacity}}{\text{Spray volume}}$$

### Example Calculation for 1 gallon sprayer tank capacity

$$\begin{aligned} \text{Fluid oz OCTANE 2\% SC to add to sprayer tank} &= \frac{(1.5 \text{ fl. oz./A}) \times 1 \text{ gallon}}{30 \text{ gallons/A}} \\ &= 0.05 \text{ fl. oz.} \end{aligned}$$

where: Application rate                   = 1.5 fl. oz./A  
Sprayer tank capacity               = 1 gallon  
Spray volume                               = 30 gallons/A

#### **STORAGE AND DISPOSAL**

**Do not contaminate water, food, or feed by storage or disposal.**

**Storage:** Store in original container, and keep tightly closed when not in use. Store in a cool, dry place.

**Pesticide Disposal:** Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

**Container Handling:**

**Nonrefillable plastic container (Less than 5 gallons)**

**Nonrefillable container. Do not reuse or refill this container.** Clean container promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or reconditioning if appropriate or puncture and dispose of in a sanitary landfill or by other procedures approved by state and local authorities.

#### **IMPORTANT: READ BEFORE USE**

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