

70506-230

7/12/2010

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U.S. ENVIRONMENTAL PROTECTION AGENCY

Office of Pesticide Programs  
Registration Division (7505P)  
1200 Pennsylvania Ave., N.W.  
Washington, D.C. 20460

EPA Reg. Number:

70506-230

Date of Issuance:

JUL 12 2010

NOTICE OF PESTICIDE:

Registration  
 Reregistration  
(under FIFRA, as amended)

Term of Issuance:

Unconditional

Name of Pesticide Product:

UP-END HERBICIDE

Name and Address of Registrant (include ZIP Code):

**United Phosphorus, Inc.**  
**630 Freedom Business Center, Suite 402**  
**King of Prussia, PA 19406**

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered/reregistered under the Federal Insecticide, Fungicide and Rodenticide Act. Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is unconditionally registered in accordance with FIFRA section 3(c)(5) provided that you:

1. Submit and/or cite all data required for registration of your product under FIFRA sec 3(c)(5) when the Agency requires all registrants of similar products to submit such data; and submit acceptable responses required for registration review of your product under FIFRA section 3(g).
2. Within 1 year of the date of this Notice, submit the following data:
  - 830.6317 (one year storage stability) and 830.6320 (corrosion characteristics). The observations must be made at 0, 3, 6, 9, & 12 month intervals. These studies must be conducted under the full GLP requirements in compliance with 40CFR§160

Signature of Approving Official:

James A. Tompkins, Product Manager (25)  
Herbicide Branch, Registration Division (7505P)

Date:

JUL 12 2010

3. Make the following changes to the label:

- a. Change the product registration number to "EPA Reg. No. 70506-230".
  - b. Add the batch number to all products in disposable containers before shipment.
  - c. On page 3, change the word, "General" in "General Information," to "Product."
  - d. On page 3, amend the words, "Examples of such sites include, but are not limited to..." to read, "Such sites include: grounds or lawns.....and sod farms."
  - e. On page 3, remove the word, "General" in "General grounds maintenance."
  - f. On page 20, under "CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY", second paragraph, add "TO THE EXTENT CONSISTENT WITH APPLICABLE LAW," to the beginning of the 3rd sentence starting with "All such risks, etc."
4. A stamped accepted label with comments is enclosed for your files.
5. Submit one copy of the revised final printed label for the record before the product is released for shipment.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6(e). Your release for shipment of the product constitutes acceptance of these conditions.

Please contact Phil Errico at 703-305-6663/ [errico.philip@epa.com](mailto:errico.philip@epa.com) .

Enclosure: Label stamped "Accepted with Comments"

document3



4023

**PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS**

**CAUTION**

Causes moderate eye irritation. Harmful if absorbed through skin. Avoid contact with skin, eyes or clothing.

**Personal Protective Equipment (PPE):**

Some materials that are chemically resistant to these products are listed below. For more options, refer to Category A on an EPA chemical resistance category selection chart.

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves made of any waterproof material such as nitrile, butyl, neoprene, and/or barrier laminate
- Shoes plus socks

Follow manufacturer's instruction for cleaning and 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:

- 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.
- 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.

**ENVIRONMENTAL HAZARDS**

This product is toxic to fish. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Drift and runoff from treated areas may be hazardous to aquatic organisms in adjacent aquatic sites. Do not contaminate water when disposing of equipment washwaters or rinsate.

**DIRECTIONS FOR USE**

It is a violation of federal law to use this product in a manner inconsistent with its labeling. This labeling must be in the possession of the user at time of herbicide application.

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

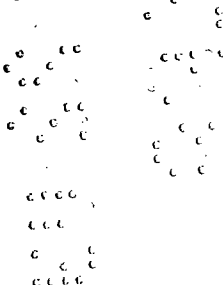
UPI does not authorize the use of this product in manufacturing, processing or preparing custom blends with other products for application to turf or ornamentals.

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 requirements specific to your state or tribe, consult the state or tribal agency responsible for pesticide regulation.

Do not apply UP-END herbicide in greenhouses, shadehouses or other enclosed structures.

Not for use for commercial seed production.



### 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 24 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
- Chemical-resistant gloves made of any waterproof material such as nitrile, butyl, neoprene, and/or barrier laminate
- Shoes plus socks

### NON-AGRICULTURAL 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.

Do not enter treated areas without protective clothing until sprays have dried.

**FAILURE TO FOLLOW THE DIRECTIONS FOR USE AND PRECAUTIONS ON THIS LABEL MAY RESULT IN POOR WEED CONTROL OR CROP INJURY.**

### MODE OF ACTION

UP-End is a meristematic inhibitor that interferes with the plant cellular division or mitosis and cell elongation in the growing points of shoots and roots of susceptible weeds. When susceptible weeds germinate in the treated area, they contact the herbicide and both shoot and root growth stops. Translocation of the herbicide within the plant is limited. Affected weeds die shortly after growth is stopped, usually before emergence from the soil.

### GENERAL INFORMATION

**APPLICATION USE SITES – for preemergence control of grasses and certain broadleaf weed species as they germinate.**

**Turfgrass sites (golf course, lawns, sod farms and other turf areas) and landscape ornamental maintenance areas.** Examples of such sites include, but are not limited to: grounds or lawns around residential and commercial establishments, multifamily dwellings, military and other institutions, parks, airports, roadsides, schools, picnic grounds, athletic fields, houses of worship, cemeteries, golf courses, prairie grass areas and sod farms.

**General grounds maintenance** in areas such as parking lots, driveways and roadsides, alleyways, bike and jogging paths, vacant lots, buildings, stone gardens and gravel yards, markers and fence lines, and mulch beds. It may be used under asphalt or concrete treatments as part of a site preparation program.

**Noncropland areas** such as railroad, utility, highway, and pipeline rights-of-way, highway guardrails, delineators, and sign posts, bridge abutments and approaches, utility substations, petroleum tank farms, pumping installations, storage areas, fence rows, windbreaks and shelterbelts, paved or gravel surfaces, and established wildflower plantings where weed control is desired.

**Bulb plantings, non-bearing fruit and nut tree nurseries, conifer and hardwood seedling nurseries and tree plantations** for site preparation and maintenance. Applications can be made on, but are not limited to, plant species listed on this label such as trees, shrubs, groundcovers, perennials, bulbs, ornamental grasses and bedding plants.

**In and around field, liner and container ornamental production.**

### APPLICATION INSTRUCTIONS

UP-End will not control established weeds. Therefore, areas to be treated should be free of established weeds at the time of treatment, or use UP-End together with herbicides registered for postemergence use in managed turf sites, landscape ornamentals and in other noncropland areas. Consult the labels of those herbicides for suggested treatments, rates to be used and precautions or restrictions for use in these areas. The efficacy of UP-End will be best if the application is followed by one-half inch of rainfall or its equivalent in sprinkler irrigation. If UP-End is not activated by rainfall or irrigation within 30 days, weed control may be erratic.

When applied according to label directions and under normal growing conditions, UP-End or UP-End tank-mix combinations will not cause crop injury. Over-application can cause crop stand loss, crop injury, or soil residues. Uneven application can decrease weed control or cause crop injury.

Seedling diseases, cold weather, excessive moisture, high soil pH, high soil salt concentration, or drought can weaken seedlings and plants, and increase the possibility of plant damage from UP-End.

### MIXING INSTRUCTIONS

UP-End may be applied in a tank mix or a sequential application with other herbicides registered for use in a given crop. Refer to the companion label for weeds controlled in addition to UP-End alone.

When using tank mixtures or sequential applications with UP-End, always read the companion product label(s) to determine the specific use rates by soil types, weed species, and weed or crop growth stage. In addition, follow all precautions and restrictions including state and local use restrictions that may apply to specific products. Always follow the most restrictive label.

#### Mixing Instructions

1. Fill tank 1/2 to 3/4 full with clean water or liquid fertilizer and agitate. Before mixing UP-End or UP-End tank mixtures in liquid fertilizer, refer to appropriate label sections for recommended uses in liquid fertilizer, application instructions, and compatibility determinations.

#### 2. UP-End

When using UP-End alone, add UP-End to the partially filled tank while agitating and then fill the remainder of the tank with water or liquid fertilizer.

#### 3. UP-End Tank Mixes

Add the tank mixture ingredients in the order listed below before adding UP-End:

- (a) **Wettable Powder (WP) formulations** - make a slurry of the WP in water (1:2 ratio). Add the slurry slowly into the partially filled tank while agitating.
- (b) **Dry Flowable (DF)/Water Dispersible Granule (WDG) formulations** - add the granules to the partially filled tank while agitating. Make a slurry of the granules in water before adding to liquid fertilizer.
- (c) **Flowable (F) formulations** - add the F formulation to the partially filled tank while agitating.
- (d) Add UP-End to the partially filled tank while agitating.
- (e) **Water Soluble Concentrate (WSC) formulations** - add the WSC formulation to the partially filled tank while agitating.
- (f) **Emulsifiable Concentrate (EC) formulations** - add the EC formulation to the partially filled tank while agitating.

Fill the remainder of the tank with water or liquid fertilizer while agitating.

4. Maintain continuous agitation while adding herbicides and until spraying is completed. If the spray mixture is allowed to settle for any period of time, agitate thoroughly to resuspend the mixture before spraying is resumed.

#### 5. BACKPACK SPRAYER

Begin with a clean spray tank. Fill the spray tank one-half full with clean water and add the required amount of UP-End. Cap sprayer and agitate to ensure mixing. Uncap sprayer and finish filling tank to desired level. Cap sprayer and agitate again. During application it is desirable to agitate the mixture on occasion to ensure mixing. If the spray mixture is allowed to settle for any period of time, agitate thoroughly before spraying is resumed.

#### 6. LIQUID FERTILIZERS

Before mixing, always test small quantities using a simple jar test. Add the required amount of UP-End to a half filled spray tank while agitating; then add the fertilizer product. Complete filling spray tank to desired level.

### SPRAYING INSTRUCTIONS

#### GROUND APPLICATIONS

Apply with properly calibrated ground equipment in sufficient water per acre to uniformly treat the area, using a spray pressure of 25 to 50 psi. Suggested spray volumes are 20 - 200 gpa for professional turfgrass, landscape and ornamental applications and 10-200 gpa for all other noncrop applications such as roadsides, utility rights-of-way or soft-residual bareground applications. Maintain continuous agitation during spraying with good mechanical or bypass agitation. Avoid overlaps that will increase rates above those listed. Do not apply when winds may cause drift.

Avoid contact of spray solution with driveways, stone, wood, or other porous surfaces. If contact occurs, rinse immediately with water to avoid staining. Do not mechanically scrub until the surface area is thoroughly rinsed. Allow treated turfgrass to dry before entering to avoid staining onto non-treated surfaces.

#### **AERIAL APPLICATIONS**

Apply uniformly in 5 or more gallons of water per acre. Take care to minimize drift. Do not apply during periods of gusty winds or when wind conditions favor drifting. Spray drift can cause injury to sensitive crops. To avoid overlapping and possible crop injury, use a flagman or an automatic mechanical flagging unit on the aircraft.

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment- and weather-related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions. The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops:

1. The distance of the outermost nozzles on the boom must not exceed  $\frac{3}{4}$  the length of the wingspan or rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.

Observe more stringent state regulations. The applicator must be familiar with and take into account the information covered in the Aerial Drift Reduction Advisory Information presented below.

#### **INFORMATION ON DROPLET SIZE:**

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see **WIND, TEMPERATURE AND HUMIDITY**, and **TEMPERATURE INVERSIONS**).

#### **CONTROLLING DROPLET SIZE**

- Volume - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- Pressure - Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types, lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.
- Number of Nozzles - Use the minimum number of nozzles that provide uniform coverage.
- Nozzle Orientation - Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is recommended practice. Significant deflection from the horizontal will reduce droplet size and increase drift potential.
- Nozzle Type - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using lowdrift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

#### **BOOM LENGTH**

For some use patterns, reducing the effective boom length to less than  $\frac{3}{4}$  of the wingspan or rotor length may further reduce drift without reducing swath width.

#### **APPLICATION HEIGHT**

Do not apply at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

#### **SWATH ADJUSTMENT**

When applications are made with a crosswind, the swath will be displaced downward. Therefore, on the upwind and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the

aircraft upwind. Increase swath adjustment distance with increasing drift potential (higher wind, smaller droplets, etc.).

#### **WIND**

Drift potential is lowest between wind speeds of 2-10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. Do not apply when wind is below 2 mph due to variable wind direction and high inversion potential. **NOTE:** Local terrain can influence wind patterns. Every applicator must be familiar with local wind patterns and how they affect spray drift.

#### **TEMPERATURE AND HUMIDITY**

When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

#### **TEMPERATURE INVERSIONS**

Do not apply during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified 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.

#### **SENSITIVE AREAS**

Apply the pesticide only when the potential for drift to adjacent sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, or non-target crops) is minimal (e.g. when wind is blowing away from the sensitive areas).



**Table 1. RESIDENTIAL , GOLF COURSE , COMMERCIAL AND OTHER NON-RESIDENTIAL TURFGRASS USES**

**Application Rates For Preemergence Weed Control**

		UP-END herbicide <sup>1</sup>		Comments
Turfgrass Species	Weeds	fl. oz.	pints	
		Product per 1,000 sq.ft.	Product per acre	
<b>COOL SEASON GRASSES</b>				
Bluegrass, Kentucky Fescue, Fine Fescue, Tall Ryegrass, Perennial	Barnyardgrass Crabgrass Evening Primrose Fall Panicum Foxtail Hop Clover Knotweed Oxalis <i>Poa annua</i> Prostrate Spurge Purslane	<b>All Turf Uses:</b>		Make a repeat application of 2.2 to 3.1 pints/A (0.86 to 1.1 oz/1000 sq. ft.) after 5-8 weeks for extended control or where heavy weed infestations are expected.
		1.1 to 1.6 fl oz	3.1 to 4.2 pints	
		Initial application before weed germination in spring.		
Goosegrass		<b>Residential and Sod Farm Turf Uses Only<sup>2</sup>:</b>		Make a repeat application of 3.1 pints/Acre (1.1 oz/1000 sq. ft.) if the lower rate was used initially or for extended goosegrass control after 5-8 weeks.
		1.1 to 1.6 fl oz	3.1 to 4.2 pints	
		<b>Golf Course, Commercial and Other Non-Residential Turf Uses Only:</b>		
		1.1 to 2.3 oz	3.1 to 6.3 pints	
		Initial application before weed germination in spring.		
Chickweed Corn Speedwell Cudweed Henbit Lawn Burweed <i>Poa annual</i>		<b>All Turf Uses:</b>		Apply in late summer or early fall before weed germination. Apply a repeat application of 3.1 to 4.2 pints (1.1 to 1.6 oz/1,000 sq. ft.) after 5-8 weeks for extended <i>Poa annua</i> control.
		1.1 to 1.6 fl oz	3.1 to 4.2 pints	
Bentgrass or established <i>Poa annua</i> <sup>3</sup> (1/2 inch height or taller)	Barnyardgrass Crabgrass Evening Primrose Fall Panicum Foxtail Hop Clover Knotweed <i>Poa annua</i> Oxalis Prostrate Spurge Purslane	<b>All Turf Uses (Non-Greens and Tees):</b>		Make a repeat application of 2.2 to 3.1 pints/Acre (0.86 to 1.1 oz/1000 sq. ft.) after 5-8 weeks for extended control or where heavy weed infestations are expected.
		1.1 fl oz	3.1 pints	
		Initial application before weed germination in spring.		
Goosegrass		<b>All Turf Uses (Non-Greens and Tees):</b>		Apply a repeat application of 3.1 pnts/Acre (1.1 oz/1000 sq. ft.) for extended goosegrass control after 5-8 weeks.
		1.1 fl oz	3.1 pints	
		Initial application before weed germination in spring.		
Chickweed Corn Speedwell Cudweed Henbit Lawn Burweed <i>Poa annua</i>		<b>All Turf Uses (Non-Greens and Tees):</b>		Apply in late summer or early fall before weed germination.
		1.1 to 1.6 fl oz	3.1 to 4.2 pints	

UP-END herbicide <sup>1</sup>				
Turfgrass Species	Weeds	fl. oz.	pints	Comments
		Product per 1,000 sq.ft.	Product per acre	
<b>WARM SEASON GRASSES</b>				
Bahiagrass Bermudagrass Buffalograss Centipedegrass Fescue, Tall <i>Paspalum</i> , seashore St. Augustinegrass Zoysiagrass	Barnyardgrass Crabgrass Evening Primrose Fall Panicum Foxtail Hop Clover Knotweed <i>Poa annua</i> Oxalis Prostrate Spurge Purslane	<b>Residential and Sod Farm Turf Uses Only:</b>		Make a repeat application of 2.2 to 3.1 pints/Acre (0.86 to 1.1 oz/1000 sq. ft.) after 5-8 weeks if necessary.
		1.1 to 1.6 fl oz	3.1 to 4.2 pints	
		<b>Golf Course, Commercial and Other Non-Residential Turf Uses Only:</b>		
		1.1 to 2.3 fl oz	3.1 to 6.3 pints	
	Initial application before weed germination in spring.			
	Goosegrass	<b>All Turf Uses (Non-Greens and Tees):</b>		An additional application of 3.1 pt/Acre (1.1 oz/1000 sq. ft.) may be made for extended goosegrass control 8 weeks after the second application.
		1.1 fl oz	3.1 pints	
		Apply before weed germination in spring. Make a second application at 3.1 pints (1.1 oz/1000 sq. ft.) 5-8 weeks later.		
	Chickweed Corn Speedwell Cudweed Henbit Lawn Burweed <i>Poa annua</i>	<b>All Turf Uses:</b>		Apply in late summer or early fall before weed germination. Make a repeat application of 3.1 to 4.2 pints (1.1 to 1.6 oz/1,000 sq. ft.) 5-8 weeks for extended <i>Poa annua</i> control.
1.1 to 1.6 fl oz		3.1 to 4.2 pints		

<sup>1</sup> Do not use more than 4.2 pints (2.1 quarts) per acre per application on residential and sod farm turfgrass. Do not use more than 6.3 pints (3.1 quarts) per acre per application on golf course turfgrass, commercial or other non-residential turfgrass.

<sup>2</sup> Residential is defined as turf in any residential situation as well as home lawns, schools, parks and playgrounds.

<sup>3</sup> Not for use on bentgrass or *Poa annua* greens or tees.

The efficacy of UP-End is best if the application is followed by one-half inch of rainfall or its equivalent in sprinkler irrigation. If UP-End is not activated by rainfall or irrigation within 30 days, weed control may be erratic.

To prevent establishment of weeds along the edges of treated area it may be necessary to overlap the spray three to six inches onto sidewalks or driveways, etc., to ensure effective application rates in these especially vulnerable sites. Where temporary discoloration of pavement is undesirable, Do not rub or scrub surface, but rinse area immediately using a heavy spray of water to avoid staining. Allow treated turfgrass to dry before entering to avoid staining non-treated surfaces.

### TURFGRASS TANK MIXES

UP-End can be mixed with postemergence herbicides to control emerged weeds in non-residential turfgrasses. For annual grass control, applications can be made with DRIVE® or MSMA to control emerged weeds.

Broadleaf weeds can be controlled using Trimec, Three Way, 2-4,D and other similar products.

Before tank mixing, perform a simple jar test to insure compatibility of herbicides.

Refer to manufacturers' labels for specific use directions, precautions, and limitations before tank mixing with UP-End and follow those that are most restrictive.

### TURFGRASS RESTRICTIONS

- Use on well established turfgrass with a dense and uniform stand. If turf has been thinned or damaged due to winter injury, excessive moisture, etc., allow turf to recover before application.
- On newly planted areas, do not apply until the turfgrass has filled in and has been mowed at least four times. Applications made to overseeded warm-season turfgrasses may cause thinning or injury of the overseeded species.
- Do not use on bentgrass or *Poa annua* greens and tees or injury may occur.
- Delay reseeding or winter overseeding of treated turfgrass for at least three (3) months following the last UP-END herbicide application.
- Delay sprigging turfgrass for five (5) months after application.

### LANDSCAPE AND GROUNDS MAINTENANCE

UP-End can be incorporated into landscape and grounds maintenance programs to provide extended preemergence control of most annual grasses and certain broadleaf weeds in areas such as mulch beds, parking areas and roadsides, fencelines and borders, and around statuary or monuments. Ensure that these areas are free of emerged weeds before application. To remove emerged weeds either cultivate or tank mix UP-End with a postemergence product labeled for such use.

Not all ornamental species or cultivars of species have been tested for plant safety. Refer to the list of ornamental plant species found in this label. While UP-End may be used on plant species not listed on this label, a small number of plants should be tested at the specified rate to evaluate suitability before a broad-use application is made.

Refer to **Table 2. Application Rates for Weed Control in Ornamental Plantings, Tree Plantations and Other Noncropland Areas**. Avoid contact of spray solution with stone, wood, or other porous surfaces as staining may occur. Rinse surfaces immediately using a heavy spray of water to avoid staining.

### ORNAMENTAL PLANTINGS AND TREE PLANTATIONS INCLUDING NONCROPLAND AREAS

Use UP-End for grounds maintenance in noncropland areas, preemergence control of the weed species listed in and around established tree plantations for site preparation, and maintenance and conifer and hardwood seedling nurseries and pulpwood and fiber farms. UP-End may be used for hardwood and conifer regeneration on conservation reserve program (CRP) land. UP-End can also be used in Christmas trees and non-bearing fruit and nutcrops and vineyards established, or bulb and wildflower field plantings, and in and around established ornamentals planted in noncropland areas such as highway rights-of-way and utility substations. Refer to **Table 2. Application Rates for Weed Control in Ornamentals Plantings, Tree Plantations and Other Noncropland Areas**.

**Applications at planting or to established trees:** When applying at planting, it is important that slit closure be achieved to prevent UP-End from directly contacting the tree roots or being washed into the root zone via the open slit or root stunting may occur. Refer to section on **Instructions and Restrictions in Landscape and Ornamental Plantings** before making an application.

For postemergence control of weeds, use tank-mix combinations of UP-End plus VANTAGE®, Roundup®, Finale®, or other labeled herbicides. Refer to approved labeling for species recommendations. Determine rates for the tank mix compounds from the product labels of both UP-End and partner herbicides before use. Take care to prevent

combination sprays from direct contact with desirable foliage or injury may result. **UP-End** plus diuron or simazine combinations will broaden weed control spectrum, however, use of combinations may restrict **UP-End** usage in sensitive areas. Refer to manufacturers' labels for specific use directions, precautions, and limitations before use and follow those that are most restrictive.

#### **ORNAMENTAL BULBS**

**UP-End** may be applied for control of susceptible annual weeds in ornamental bulbs listed under the Perennial Section on the label (crocus, daffodil [narcissus], gladiolus, lilies, tulip, etc.). Apply **UP-End** before, during or after bulb emergence. If weeds have already germinated add a labeled postemergence herbicide to control emerged weeds.

#### **WILDFLOWERS**

**UP-End** may be applied for control of susceptible annual weeds in plantings of wildflowers listed in the Perennial section on the label. Those perennial species noted (\*Black-eyed Susan, California Poppy, Coreopsis, Oxeye Daisy, etc.) have been evaluated for plant tolerance to applications of **UP-End** at 4.2 pints (2.1 quarts) per acre. **UP-End** may be applied to established perennial wildflowers before emergence of weeds or wildflowers. For wildflowers being established from seed, apply **UP-End** no sooner than 4 weeks after wildflowers have emerged but before weed germination. If weeds have already germinated, add a labeled postemergence product to control emerged weeds. Refer to all label restrictions before making an application.

Due to the diversity of species and varieties which exist in areas where wildflowers are grown, the response to **UP-End** may vary greatly. Test desirable species carefully to determine if area-wide applications can be made.

#### **NON-BEARING FRUIT AND NUTCROPS AND VINEYARDS**

**UP-End** may be applied for preemergence control of most annual grasses and certain broadleaf weeds on the following non-bearing crops:

Almond	Citrus	Olive	Pistachio
Apple	Fig	Peach	Plum
Apricot	Grape	Pear	Prune
Cherry	Nectarine	Pecan	Walnut, English

#### **NON-CROPLAND WEED CONTROL**

Use **UP-End herbicide** for preemergence control of most annual grasses and certain broadleaf weeds as they germinate on noncropland areas such as railroad, utility, highway, and pipeline rights-of-way, highway guardrails, delineators, and sign posts, utility substations, petroleum tank farms, pumping installations, fence rows, storage areas, windbreaks and shelterbelts.

#### **INDUSTRIAL (UNIMPROVED) TURF**

**UP-End** will provide preemergence control of the annual grasses and broadleaf weeds listed in **Weed Species Controlled** section of this label that might germinate in established grasses in rights-of-way, roadsides, construction sites, parks, substations or lots.

Apply before weeds germinate. A postemergence herbicide such as 2,4-D, **DRIVE**<sup>®</sup>, **VANTAGE**<sup>®</sup>, **MSMA**, or similar products may be tank mixed to control established weeds. Apply according to label instructions for the respective products and follow the most restrictive wording.

#### **TOTAL VEGETATION CONTROL**

**UP-End** may be tank mixed with **ARSENAL**<sup>®</sup>, **SAHARA**<sup>®</sup>, **PLATEAU**<sup>®</sup>, **VANTAGE**<sup>®</sup>, **Roundup**<sup>®</sup> **PRO**, **Karmex**<sup>®</sup>, **Finale**<sup>®</sup>, **Oust**<sup>®</sup>, diuron, glyphosate or other products to provide bare ground, or total vegetation control. **UP-End** can be used to provide greater plant selectivity in areas where such action may be desired. Such sites might have roots of landscape vegetation, ornamentals, or desirable trees encroaching into the treated zone. Refer to tank mix partner labels regarding effects on desirable plants. Do not tank mix with **ARSENAL**, **SAHARA** or **PLATEAU** herbicides in California.

Applications may be made to existing weeds controlled by the partner herbicide. Determine rates from the product labels before use. Follow the most restrictive label instructions.

For Kochia control, use a combination of **UP-End** with **ARSENAL** herbicide or diuron if control has been a problem for other herbicides.

**TABLE 2. APPLICATION RATES FOR WEED CONTROL IN LANDSCAPE ORNAMENTALS, TREE PLANTATIONS, AND OTHER NONCROP AREAS\***

For preemergence control of the weed species listed, apply UP-End as follows:

Length of Control	Product per Acre	Product per 1000 sq. ft.
Short Term Control (2-4 months)	2.1 Quarts	1.6 fl. oz.
Long Term Control (6-8 months)	4.2 Quarts	3.2 fl. oz.

\*For all turfgrass weed control rates, refer to Table 1 instructions.

For extended weed control, repeat applications of UP-End can be made.

**INSTRUCTIONS AND RESTRICTIONS**

**LANDSCAPE AND ORNAMENTAL PLANTINGS<sup>1</sup>**

Site	Application Instructions and Restrictions
Landscape Plantings <sup>2</sup>	<ol style="list-style-type: none"> <li>1. Do not apply to newly-transplanted ornamentals until plants have been watered and soil has been thoroughly packed and settled around roots.</li> <li>2. Apply as a directed or over-the-top spray.</li> <li>3. Use the lowest labeled rate when making applications to annuals. Repeat applications can be made for extended landscape weed control.</li> </ol>
Ornamental Bulbs <sup>3</sup>	<ol style="list-style-type: none"> <li>1. UP-End may be applied to bulb species listed on the label.</li> <li>2. Apply before, during or after bulb emergence, but not during bloom.</li> </ol>
Wildflowers <sup>3</sup>	<ol style="list-style-type: none"> <li>1. UP-End may be applied in plantings of wildflowers listed on the label. Refer to specific instructions for rate and plant tolerance.</li> <li>2. For wildflowers being established from seed, apply at 4 weeks after wildflowers have germinated, but before weed seed germination.</li> </ol>

<sup>1</sup> Plant only those desirable plant species listed on this label into soil treated the previous season with UP-End or injury may occur.

<sup>2</sup> Do not treat plants grown for food or feed. Do not use treated plants for food or feed.

<sup>3</sup> Before treating a large number of plants, spray a few plants and observe for 1-2 months for plant damage before full-scale application.

**HAND-HELD SPRAY EQUIPMENT:**

Use table 2 above to determine the amount of UP-End to be applied per 1000 square feet, in sufficient water for thorough coverage without runoff. Calibration of backpack or other hand-held equipment will vary with each operator. Determine the amount of water needed to treat 1000 square feet before mixing the spray solution. Follow information in MIXING INSTRUCTIONS section of this label.

UP-End will not control established weeds. If weeds germinate before activation of herbicide, shallow cultivate to destroy existing weeds or, where practical, remove by hand. Any necessary cultivation must be shallow. UP-End may be used together with herbicides registered for postemergence use (i.e. glyphosate or Finale) for the control of established weeds. Do not apply sprays containing glyphosate or Finale over the top of desirable plants. A UP-End treatment may be followed by any registered herbicide to control weeds not listed on the UP-End label.

The efficacy of UP-End will be best if the application is followed by one-half inch of rainfall or its equivalent in sprinkler irrigation. Erratic weed control may result if UP-End is not activated by rainfall or irrigation within 30 days.

The following grass and broadleaf weeds are controlled by preemergence treatments of UP-End herbicide at the above-specified rates:

**GRASSES CONTROLLED**

Common Name	Scientific Name
Barnyardgrass	<i>Echinochloa crus-galli</i>
Bluegrass, Annual	<i>Poa annua</i>

Crabgrass	<i>Digitaria spp.</i>
Crowfootgrass	<i>Dactyloctenium aegyptium</i>
Foxtail, Giant	<i>Setaria faberi</i>
Foxtail, Green	<i>Setaria viridis</i>
Foxtail, Yellow	<i>Setaria glauca</i>

Goosegrass	<i>Eleusine indica</i>	Clover, Hop	<i>Trifolium procumbens</i>
Itchgrass	<i>Rottboellia exaltata</i>	Cudweed	<i>Gnaphalium</i> spp.
Johnsongrass (from seed)	<i>Sorghum halepense</i>	Evening primrose	<i>Oenothera biennis</i>
Junglerice	<i>Echinochloa colona</i>	Fiddleneck	<i>Amsinckia intermedia</i>
Lovegrass (from seed)	<i>Eragrostis</i> spp.	Filaree	<i>Erodium</i> spp.
Panicum, Browntop	<i>Panicum fasciculatum</i>	Henbit	<i>Lamium amplexicaule</i>
Panicum, Fall	<i>Panicum</i> <i>dichotomiflorum</i>	Knotweed, prostrate	<i>Polygonum aviculare</i>
Panicum, Texas	<i>Panicum texanum</i>	Kochia	<i>Kochia scoparia</i>
Sandbur, Field	<i>Cenchrus incertus</i>	Lambsquarters	<i>Chenopodium album</i>
Signalgrass	<i>Brachiaria</i> <i>platyphylla</i>	Pigweed	<i>Amaranthus</i> spp.
Sprangletop, Mexican	<i>Leptochloa uninervia</i>	Puncturevine	<i>Tribulus terrestris</i>
Sprangletop, Red	<i>Leptochloa filiformis</i>	Purslane	<i>Portulaca oleracea</i>
Witchgrass	<i>Panicum capillare</i>	Pusley, Florida	<i>Richardia scabra</i>
Woolly Cupgrass	<i>Eriochloa villosa</i>	Rocket, London	<i>Sisymbrium irio</i>
<b>BROADLEAF WEEDS CONTROLLED</b>		Shepherdspurse	<i>Capsella bursa-</i> <i>pastoris</i>
<b>Common Name</b>	<b>Scientific Name</b>	Smartweed, Pennsylvania	<i>Polygonum</i> <i>pensylvanicum</i>
Burweed, Lawn	<i>Soliva pterosperma</i>	Speedwell, Corn	<i>Veronica arvensis</i>
Carpetweed	<i>Mollugo verticillata</i>	Spurge, Annual	<i>Euphorbia</i> spp.
Chickweed, Common	<i>Stellaria media</i>	Spurge, Prostrate	<i>Euphorbia humistrata</i>
Chickweed, Mouseear	<i>Cerastium vulgatum</i>	Woodsorrel, Yellow	<i>Oxalis stricta</i>
		Velvetleaf (Buttonweed)	<i>Abutilon theophrasti</i>

## COMMERCIAL ORNAMENTAL PRODUCTION

### GENERAL INFORMATION

**Application Use Sites:** UP-End can be used in and around field, liner and container ornamental production.

UP-End sprays may be used around and over the top of the established plants listed in Table 4 of this label. However, not all varieties or strains of the plant species listed have been tested. Refer to ornamental instructions and restrictions in this label before any application of UP-End. Unintentional consequences such as crop injury may result because of certain environmental or growing conditions, manner of use or application. Therefore, before treating a large number of plants, spray a few plants and observe for plant damage before full-scale application.

### APPLICATION INSTRUCTIONS

UP-End will not control established weeds. Therefore, ensure that areas to be treated are free of established weeds at the time of treatment, or UP-End may be used together with herbicides registered for postemergence use in ornamentals and vegetation control sites. Consult the labels of those herbicides for suggested treatments, rates to be used and precautions or restrictions for use in these areas.

The efficacy of UP-End will be best if the application is followed by one-half inch of rainfall or its equivalent in sprinkler irrigation. If UP-End is not activated by rainfall or irrigation within 30 days, erratic weed control may result.

Applied according to label directions and under normal growing conditions, UP-End or UP-End tank-mix combinations will not cause crop injury. Over-application can result in crop stand loss, crop injury, or soil residues. Uneven application can decrease weed control or cause crop injury.

Seedling diseases, cold weather, excessive moisture, high soil pH, high soil salt concentration, or drought can weaken seedlings and plants, and increase the possibility of plant damage from UP-End.

### SPRAYING INSTRUCTIONS

Apply uniformly with properly calibrated ground equipment in suggested spray volumes of 20-200 gpa for ornamental applications to uniformly treat the area with a spray pressure of 25 to 50 psi. Maintain continuous agitation during spraying with good mechanical or bypass agitation. Avoid overlaps that will increase rates above those specified. Avoid application when winds may cause drift.

Avoid contact of spray solution with driveways, stone, wood, or other porous surfaces. Rinse immediately with water to avoid staining. Avoid mechanically scrubbing until surface area is thoroughly rinsed using a heavy spray of water.

### INSTRUCTIONS AND RESTRICTIONS<sup>1</sup> IN PRODUCTION ORNAMENTALS

Do not apply in greenhouses, shadehouses or other enclosed structures.

Site	Application Instructions and Restrictions
Newly-Transplanted Field-Grown Nursery Stock <sup>2,3</sup>	<ol style="list-style-type: none"> <li>1. Do not make over-the-top applications at time of field transplanting. Use shielded sprayer until plantings have been established for one (1) year or more in the field.</li> <li>2. Do not apply until transplants have been watered and soil has been thoroughly packed and settled around transplants. Take care to ensure there are no cracks in the soil where <b>UP-End herbicide</b> could come into contact with the roots.</li> <li>3. <b>DO NOT</b> apply during bud swell, bud break or at time of first flush of new growth.</li> <li>4. Direct sprays away from graphed or budded tissue on transplants at all times.</li> </ol>
Newly-Transplanted Container-Grown Nursery Stock <sup>2,3</sup>	<ol style="list-style-type: none"> <li>1. Do not apply until transplants have been watered and soil has been thoroughly packed and settled around transplants. Care must be taken to ensure there are no cracks in the soil where <b>UP-End</b> could come into contact with the roots.</li> <li>2. For container grown ornamentals, delay first application of the product to bareroot liners for two (2) weeks after transplanting.</li> <li>3. Do not apply during bud swell, bud break or at time of first flush of new growth.</li> <li>4. Direct sprays away from graphed or budded tissue on transplants at all times.</li> </ol>
Established Container, or Field-Grown Nursery Stock <sup>2,3</sup>	<ol style="list-style-type: none"> <li>1. Do not apply during bud swell, bud break or at time of first flush of new growth.</li> <li>2. Apply as a directed or over-the-top spray.</li> <li>3. If newly budded or graphed rootstock, make an application using a shielded sprayer.</li> <li>4. Take care to ensure there are no cracks in the soil where <b>UP-End</b> could come into contact with the roots.</li> </ol>
Bare Ground for Container Placement	<ol style="list-style-type: none"> <li>1. Apply to soil then water in (including mulch, gravel, wood chips, or other permeable base), replace containerized ornamentals onto pad.</li> </ol>

<sup>1</sup> Plant only those desirable plant species listed on this label into soil treated the previous season with **UP-End** or injury may occur.

<sup>2</sup> Before treating a large number of plants, spray a few plants and observe for 1-2 months for plant damage before full-scale application.

<sup>3</sup> Do not treat plants grown for food or feed. Do not use treated plants for food or feed.

Refer to **Table 3. Application Rates for Weed Control in Production Ornamentals.**

#### ORNAMENTAL TANK MIXES

Emerging weeds in ornamentals can be controlled using tank mixes containing **VANTAGE**<sup>®</sup>, **Roundup**<sup>®</sup>, **Finale**<sup>®</sup>, **Ornamec**<sup>®</sup>, **Gallery**<sup>®</sup>, **Princep**<sup>®</sup>, and other similar products. Do not apply sprays containing Roundup or Finale over the top of ornamental plants.

Before tank mixing, perform a simple jar test to insure compatibility of herbicides.

Refer to manufacturers' labels for specific use directions, precautions, and limitations before tank mixing with **UP-End herbicide** and follow those that are most restrictive.

#### CHRISTMAS TREE PLANTATIONS

**UP-End** may be used in and around Christmas tree plantations. **UP-End** may be applied at planting or to established trees. When making an application at planting, it is important that slit closure be achieved to prevent **UP-End** from directly contacting the tree roots or being washed into the root zone via the open slit or root stunting may occur.

For postemergence control of weeds, use tank-mix combinations of **UP-End** plus **VANTAGE**, **Roundup**, **Finale**, or other labeled herbicides. Refer to approved labeling for species information. Determine rates for the tank-mix compounds from the product labels of both **UP-End** and partner herbicides before use. Precaution must be exercised to prevent combination sprays from direct contact with desirable foliage or injury may result. **UP-End** plus diuron or simazine combinations will broaden weed control spectrum; however, use of combinations may restrict **UP-End** usage in sensitive areas. Refer to manufacturers' labels for specific use directions, precautions, and

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limitations before use and follow those that Refer to **Table 3. Application Rates for Weed Control in Production Ornamentals.**

**VEGETATION CONTROL IN ORNAMENTAL PRODUCTION**

UP-End may be used for preemergence control of most annual grasses and certain broadleaf weeds as they germinate on noncropland areas such as sign posts, pumping installations, fence rows, storage areas, and windbreaks and shelterbelts. UP-End may be tank mixed with VANTAGE, Roundup PRO, Karmex<sup>®3</sup>, Finale<sup>®4</sup>, diuron, glyphosate or other products to provide bare ground or total vegetation control, or can be used to provide greater plant selectivity in areas where such action may be desired. Such sites might have roots of landscape vegetation, ornamentals, or desirable trees encroaching into the treated zone. Refer to tank mix partner labels regarding effects on desirable plants. Applications may be made to existing weeds controlled by the partner herbicide. Determine rates from the product labels before use. Follow the most restrictive label instructions. Refer to **Table 3. Application Rates For Weed Control In Production Ornamentals.**

**Table 3. APPLICATION RATES FOR WEED CONTROL IN PRODUCTION ORNAMENTALS\***

For preemergence control of the weed species listed, apply UP-End at the following rates:

Length of Control	Product per Acre	Product per 1000 sq. ft.
Short Term Control (2-4 months)	2.1 Quarts	1.6 fl. oz.
Long Term Control (6-8 months)	4.2 Quarts	3.2 fl. oz.

\*For extended weed control, repeat applications of UP-End can be made.

**HAND-HELD SPRAY EQUIPMENT:**

Use the table above to determine the amount of UP-End to be applied per 1000 square feet. The amount of water used for the application is not critical but should be sufficient for thorough coverage without runoff. Calibration of backpack or other hand-held equipment will vary with each operator. Determine the amount of water needed to treat 1000 square feet before mixing the spray solution. Follow information in **MIXING INSTRUCTIONS** section of this label.

UP-End will not control established weeds. If weeds germinate before activation of herbicide, shallow cultivate to destroy existing weeds or, where practical, remove by hand. Any cultivation must be shallow. UP-End may be used together with herbicides registered for postemergence use (i.e. Roundup or Finale) for the control of established weeds. Do not apply sprays containing Roundup or Finale over the top of desirable plants. A UP-End treatment may be followed by any registered herbicide to control weeds not listed on the UP-End label.

The efficacy of UP-End will be improved if the application is followed by one-half inch of rainfall or its equivalent in sprinkler irrigation. Erratic weed control may result if UP-End is not activated by rainfall or irrigation within 30 days.

The following grass and broadleaf weeds are controlled by preemergence treatments of UP-End at the above-specified rates:

**GRASSES CONTROLLED**

Common Name	Scientific Name
Barnyardgrass	<i>Echinochloa crus-galli</i>
Bluegrass, Annual	<i>Poa annua</i>
Crabgrass	<i>Digitaria</i> spp.
Crowfootgrass	<i>Dactyloctenium aegyptium</i>
Foxtail, Giant	<i>Setaria faberi</i>
Foxtail, Green	<i>Setaria viridis</i>
Foxtail, Yellow	<i>Setaria glauca</i>
Goosegrass	<i>Eleusine indica</i>
Itchgrass	<i>Rottboellia exaltata</i>

Johnsongrass (from seed)	<i>Sorghum halepense</i>
Junglerice	<i>Echinochloa colona</i>
Lovegrass (from seed)	<i>Eragrostis</i> spp.
Panicum, Browntop	<i>Panicum fasciculatum</i>
Panicum, Fall	<i>Panicum dichotomiflorum</i>
Panicum, Texas	<i>Panicum texanum</i>
Sandbur, Field	<i>Cenchrus incertus</i>
Signalgrass	<i>Brachiaria platyphylla</i>
Sprangletop, Mexican	<i>Leptochloa uninervia</i>
Sprangletop, Red	<i>Leptochloa filiformis</i>
Witchgrass	<i>Panicum capillare</i>
Woolly Cupgrass	<i>Eriochloa villosa</i>



**BROADLEAF WEEDS CONTROLLED**

Common Name	Scientific Name
Burweed, Lawn	<i>Soliva pterosperma</i>
Carpetweed	<i>Mollugo verticillata</i>
Chickweed, Common	<i>Stellaria media</i>
Chickweed, Mouseear	<i>Cerastium vulgatum</i>
Clover, Hop	<i>Trifolium procumbens</i>
Cudweed	<i>Gnaphalium</i> spp.
Eveningprimrose	<i>Oenothera biennis</i>
Fiddleneck	<i>Amsinckia intermedia</i>
Filaree	<i>Erodium</i> spp.
Henbit	<i>Lamium amplexicaule</i>
Knotweed, prostrate	<i>Polygonum aviculare</i>
Kochia	<i>Kochia scoparia</i>
Lambsquarters	<i>Chenopodium album</i>
Pigweed	<i>Amaranthus</i> spp.
Puncturevine	<i>Tribulus terrestris</i>
Purslane	<i>Portulaca oleracea</i>
Pusley, Florida	<i>Richardia scabra</i>
Rocket, London	<i>Sisymbrium irio</i>
Shepherdspurse	<i>Capsella bursa-pastoris</i>
Smartweed, Pennsylvania	<i>Polygonum pennsylvanicum</i>
Speedwell, Corn	<i>Veronica arvensis</i>
Spurge, Annual	<i>Euphorbia</i> spp.
Spurge, Prostrate	<i>Euphorbia humistrata</i>
Woodsorrel, Yellow	<i>Oxalis stricta</i>
Velvetleaf (Buttonweed)	<i>Abutilon theophrasti</i>

**Table 4. ORNAMENTAL SPECIES**

UP-End herbicide sprays may be used around and over the top of the established plants listed below. Refer to Ornamental Instructions and Restrictions before application. Refer to Table 3. Application Rates For Weed Control Production Ornamentals.

**TREES**

Common Name	Scientific Name
Alder, European Black	<i>Alnus glutinosa</i>
Apple	<i>Malus</i> spp.
Arborvitae, American	<i>Thuja occidentalis</i>
Arbutus	<i>Arbutus</i> spp.
Ash, Red	<i>Fraxinus pennsylvanica</i>
Ash, White	<i>Fraxinus americana</i>
Aspen, Bigtooth	<i>Populus grandidentata</i>
Aspen, Quaking	<i>Populus tremuloides</i>
Basswood	<i>Tilia</i> spp.
Birch, European Weeping	<i>Betula pendula</i>
Birch, River	<i>Betula nigra</i>

**TREES (continued)**

Common Name	Scientific Name
Buckeye, Red	<i>Aesculus pavia</i>
Cedar, White	<i>Thuja occidentalis</i>
Chamaecyparis, Boulevard	<i>Chamaecyparis pisifera</i>
Cherry, Black	<i>Prunus serotina</i>
Cherry, Choke	<i>Prunus virginiana</i>
Cherry, Kwanzan	<i>Prunus serrulata</i>
Cherry, Nanking	<i>Prunus tomentosa</i>
Cottonwood	<i>Populus deltoides</i>
Crabapple	<i>Malus</i> spp.
Crepe Myrtle	<i>Lagerstroemia indica</i>
Cryptomeria, Japanese Cedar	<i>Cryptomeria japonica</i>
Cypress, Bald	<i>Taxodium distichum</i>
Cypress, Leyland	<i>Cupressocyparis leylandii</i>
Dogwood, Flowering	<i>Cornus florida</i>
Dogwood, Korean	<i>Cornus kousa</i>
Dogwood, Silky	<i>Cornus amomum</i>
Dogwood, Shrub	<i>Cornus</i> spp.
Elm	<i>Ulmus japonica</i>
Elm, Winged	<i>Ulmus alata</i>
Eucalyptus (Silver-dollar) tree	<i>Eucalyptus cinerea</i>
Fir, Balsam	<i>Abies balsamae</i>
Fir, Douglas	<i>Pseudotsuga menziesii</i>
Fir, Fraser	<i>Abies fraseri</i>
Fir, White	<i>Abies concolor</i>
Franklinia	<i>Franklinia</i> spp.
Fringe tree	<i>Chlonenthus retusus</i>
Ginkgo	<i>Ginkgo biloba</i>
Gum, Black	<i>Nyssa sylvatica</i>
Gum, Sour	<i>Nyssa sylvatica</i>
Haw, Black	<i>Viburnum prunifolium</i>
Hawthorn	<i>Crataegus</i> spp.
Hemlock, Canada	<i>Tsuga canadensis</i>
Hemlock, Eastern	<i>Tsuga canadensis</i>
Holly, American	<i>Ilex opaca</i>
Honeylocust	<i>Gleditsia triacanthos</i>
Lilac, Common	<i>Syringa vulgaris</i>
Lilac, Japanese Tree	<i>Syringa reticulata</i>
Linden	<i>Tilia</i> spp.
Magnolia, Saucer	<i>Magnolia soulangiana</i>
Magnolia, Southern	<i>Magnolia grandiflora</i>
Magnolia, Star	<i>Magnolia stellata</i>
Maidenhair Tree	<i>Ginkgo biloba</i>
Maple, Norway	<i>Acer platanoides</i>
Maple, Japanese	<i>Acer palmatum</i>
Maple, Red	<i>Acer rubrum</i>

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Maple, Sugar	<i>Acer saccharum</i>
<b>TREES (continued)</b>	
Common Name	Scientific Name
Nannyberry, Rusty	<i>Viburnum rufidulum</i>
Oak, Chinquapin	<i>Quercus muehlenbergii</i>
Oak, Live	<i>Quercus virginiana</i>
Oak, Pin	<i>Quercus palustris</i>
Oak, Red	<i>Quercus rubra</i>
Oak, Swamp Chestnut	<i>Quercus michauxii</i>
Oak, Water	<i>Quercus nigra</i>
Oak, White	<i>Quercus alba</i>
Oak, Willow	<i>Quercus phellos</i>
Olive	<i>Olea europaea</i>
Palm, Date	<i>Phoenix</i> spp.
Palm, Fan	<i>Washingtonia</i> spp.
Palm, Pindo	<i>Butia</i> spp.
Palm, Washington	<i>Washingtonia</i> spp.
Peach	<i>Prunus persica</i>
Pear, Bradford	<i>Pyrus calleryana</i> 'Bradford'
Pecan	<i>Carya illinoensis</i>
Pine, Austrian	<i>Pinus nigra</i>
Pine, Italian Stone	<i>Pinus pinea</i>
Pine, Loblolly	<i>Pinus taeda</i>
Pine, Monterey	<i>Pinus radiata</i>
Pine, Red	<i>Pinus resinosa</i>
Pine, Scotch	<i>Pinus sylvestris</i>
Pine, Virginia	<i>Pinus virginiana</i>
Pine, White	<i>Pinus strobus</i>
Plum, Purple Leaf	<i>Prunus cerasifera</i>
Poplar, Black	<i>Populus nigra</i>
Redcedar, Eastern	<i>Juniperus virginiana</i>
Redcedar, Western	<i>Thuja plicata</i>
Red Ironbark	<i>Eucalyptus sideroxylon</i> 'Rosea'
Redwood, Dawn	<i>Metasequoia glyptostroboides</i>
Sequoia, Giant	<i>Sequoiadendron giganteum</i>
Serviceberry	<i>Amelanchier laevis</i>
Sourwood	<i>Oxydendrum arboreum</i>
Spruce, Colorado Blue	<i>Picea pungens</i>
Spruce, Dwarf Alberta	<i>Picea glauca</i> 'albertiana'
Spruce, Norway	<i>Picea abies</i>
Spruce, White	<i>Picea glauca</i>
Sweetgum	<i>Liquidambar styraciflua</i>
Sycamore	<i>Platanus occidentalis</i>
Trachycarpus	<i>Trachycarpus</i> spp.

Tulip tree	<i>Liriodendron tulipifera</i>
<b>TREES (continued)</b>	
Common Name	Scientific Name
Walnut, Black	<i>Juglans nigra</i>
Willow, Weeping	<i>Salix babylonica</i>
Yellowwood	<i>Cladrastis lutea</i>
<b>SHRUBS</b>	
Common Name	Scientific Name
Abelia, Glossy	<i>Abelia grandiflora</i>
Alder, Witch	<i>Fothergilla gardenii</i>
Aucuba, Gold	<i>Aucuba japonica</i>
Azalea	<i>Rhododendron</i> sp.
Bamboo, Heavenly	<i>Nandina domestica</i>
Barberry	<i>Berberis gladwynensis</i>
Barberry, Japanese	<i>Berberis thunbergii</i>
Blue Indigo Bush	<i>Dalea gregii</i>
Bottlebrush, Lemon	<i>Callistemon citrinus</i>
Boxwood, Common	<i>Buxus sempervirens</i>
Boxwood, Japanese	<i>Buxus microphylla</i>
Brittlebush	<i>Encelia farinosa</i>
Buttonbush	<i>Cephalanthus occidentalis</i>
Camellia	<i>Camellia japonica</i>
Cape Jasmine	<i>Gardenia jasminoides</i>
Cassia, Feathery	<i>Cassia artemisioides</i>
Cordyline	<i>Cordyline</i> spp.
Correa	<i>Correa</i> spp.
Cotoneaster	<i>Cotoneaster apiculatus</i>
Cotoneaster, Bayberry	<i>Cotoneaster dammeri</i>
Cotoneaster, Rock	<i>Cotoneaster horizontalis</i>
Cypress, Italian	<i>Cupressus sempervirens</i>
Cypress, Leyland	<i>Cupressocyparis leylandii</i>
Deutzia, Slender	<i>Deutzia gracilis</i>
Dogwood, Red Twig	<i>Cornus sericea</i>
Elaeagnus	<i>Elaeagnus ebbingei</i>
Escallonia	<i>Escallonia fradesii</i>
Euonymus	<i>Euonymus fortunei</i>
Euonymus, Golden	<i>Euonymus japonica</i>
Euonymus, Winged	<i>Euonymus alata</i>
Firethorn	<i>Pyracantha coccinea</i>
Forsythia, Border	<i>Forsythia intermedia</i>
Fragrant Olive	<i>Osmanthus fragrans</i>
Fuschia, California	<i>Zauschneria californica</i>
Gardenia	<i>Gardenia jasminoides</i>

Hawthorne, Indian	<i>Raphiolepis indica</i>
Hibiscus	<i>Hibiscus syriacus</i>
Holly, Chinese	<i>Ilex cornuta</i>

**SHRUBS (continued)**

Common Name	Scientific Name
Holly, Japanese	<i>Ilex crenata</i>
Holly, Fosters	<i>Ilex attenuata</i> 'Fosteri'
Holly, Savannah	<i>Ilex attenuata</i>
Holly, Yaupon	<i>Ilex vomitoria</i>
Honeysuckle, Bush	<i>Diervilla lonicera</i>
Hopseed Bush	<i>Dodonaea viscosa</i>
Hopbush	<i>Dodonaea viscosa</i>
Hydrangea	<i>Hydrangea macrophylla</i>
Juniper	<i>Juniperus</i> sp.
Juniper, Chinese	<i>Juniperus chinensis</i> v. pfitzer
Juniper, Shore	<i>Juniperus conferta</i>
Juniper, Trailing	<i>Juniperus horizontalis</i>
Laurel, Cherry	<i>Prunus laurocerasus</i>
Laurel, Mountain	<i>Kalmia latifolia</i>
Laurel, Otto Luyken	<i>Prunus laurocerasus</i>
Laurel, Schipka	<i>Prunus schipkanensis</i>
Laurustinus	<i>Viburnum tinus</i>
Lavender, English	<i>Lavandula angustifolia</i>
Leucothoe	<i>Leucothoe fontanesiana</i>
Leucothoe, Coast	<i>Leucothoe axillaris</i>
Lilac, Cut-leaf	<i>Syringa laciniata</i>
Lily-of-the-Nile	<i>Agapanthus africanus</i>
Mahonia	<i>Mahonia aquifolium</i>
Mock Orange	<i>Pittosporum tobira</i>
Myrtle, Compact	<i>Myrtus communis</i>
Myrtle, Wax	<i>Myrica cerifera</i>
Nandina	<i>Nandina domestica</i>
Oleander	<i>Nerium oleander</i>
Oregon Grape	<i>Mahonia aquifolium</i>
Osmanthus	<i>Osmanthus fragrans</i>
Palm, European Fan	<i>Chamaerops humilis</i>
Palm, Mediterranean Fan	<i>Chamaerops</i> spp.
Phlox, Prickly	<i>Leptodactylon californicum</i>
Photinia, Fraser	<i>Photinia x Fraseri</i>
Pieris, Japanese	<i>Pieris japonica</i>
Pine, Mugo	<i>Pinus mugo</i>
Plum, Natal	<i>Carissa grandiflora</i>
Privet, California	<i>Ligustrum ovalifolium</i>
Privet, Glossy	<i>Ligustrum lucidum</i>
Privet, Variegated	<i>Ligustrum sinensis</i>
Privet, Waxleaf	<i>Ligustrum japonicum</i>

Pyracantha	<i>Pyracantha coccinea</i>
Quince, Flowering	<i>Chaenomeles japonica</i>
Ranger, Texas	<i>Leucophyllum frutescens</i>

**SHRUBS (continued)**

Common Name	Scientific Name
Redroot	<i>Ceanothus</i> spp.
Rhododendron	<i>Rhododendron</i> spp.
Robira	<i>Pittosporum tobira</i>
Rose	<i>Rosa</i> spp.
Spice Plant	<i>Illicium parviflorum</i>
Spiraea	<i>Spiraea vanhouttei</i>
Spiraea, Anthony Waterer	<i>Spiraea X bumalda</i>
Spiraea, Japanese	<i>Spiraea japonica</i>
Sweet Bay	<i>Laurus nobilis</i>
Trumpet Bush	<i>Tecoma stans</i>
Verbena, Lemon	<i>Aloysia triphylla</i>
Viburnum	<i>Viburnum suspensum</i>
Vitex	<i>Vitex</i> spp.
Weigela	<i>Weigela florida</i>
Wild Lilac	<i>Ceanothus</i> spp.
Wisteria	<i>Wisteria</i> spp.
Xylosma	<i>Xylosma congestum</i>
Yellowbells	<i>Tecoma stans</i>
Yew*	<i>Taxus media</i>
Yew, Japanese*	<i>Taxus cuspidata</i>
Yew, Southern*	<i>Podocarpus macrophyllus</i>
Yucca, Adam's Needle	<i>Yucca filamentosa</i>
Yucca, Weeping	<i>Yucca pendula</i>

\* Do not apply UP-End herbicide during spring growth or injury to terminals may occur.

**GROUND COVERS**

Common Name	Scientific Name
Ajuga	<i>Ajuga reptans</i>
Baby Sun Rose	<i>Aptenia cordifolia</i>
Beach Strawberry	<i>Fragaria chiloensis</i>
Capeweed	<i>Arctotheca calendula</i>
Cinquefoil, Spring	<i>Potentilla verna</i>
Coyotebrush, Dwarf	<i>Baccharis pitularis</i>
Daisy, Trailing African	<i>Osteospermum fruticosum</i>
Dymondia	<i>Dymondia margaretae</i>
Gazania	<i>Gazania splendens</i>
Iceplant, Large Leaf	<i>Carpobrotus edulis</i>
Ivy, English	<i>Hedera helix</i>
Ivy, Geranium	<i>Pelargonium peltatum</i>
Jasmine, Asiatic	<i>Trachelospermum asiaticum</i>

Jasmine, Primrose	<i>Jasminum mesnyi</i>
Jessamine, Carolina	<i>Gelsemium sempervirens</i>
Manzanita, Bearberry	<i>Arctostaphylos uva-ursi</i>

**GROUND COVERS (continued)**

Common Name	Scientific Name
Miscanthus	<i>Miscanthus</i> spp.
Mondograss	<i>Ophiopogon japonica</i>
Morning glory	<i>Convolvulus</i> spp.
Myoporum	<i>Myoporum parvifolium</i>
Pachysandra	<i>Pachysandra terminalis</i>
Potentilla	<i>Potentilla fruticosa</i>
Red Apple	<i>Aptenia cordifolia</i>
Rosemary	<i>Rosemarinus officinalis</i>
Rose-Of-Sharon	<i>Hypericum calycinum</i>
Sand Strawberry	<i>Fragaria chiloensis</i>
Sedum	<i>Sedum spurium</i>
St. Johnswort, Creeping	<i>Hypericum calycinum</i>
Stoncrop	<i>Sedum spurium</i>
Verbena, Peruvian	<i>Verbena peruviana</i>
Vervain	<i>Verbena peruviana</i>
Vetch, Crown	<i>Vicia sativa</i>
Vinca	<i>Vinca minor</i>
Wintercreeper	<i>Euonymus fortunei</i>

**PERENNIALS**

Common Name	Scientific Name
Acacia	<i>Acacia redolens</i>
Asparagus	<i>Asparagus</i> spp.
Aster, New York	<i>Aster novi-belgii</i>
Aster, Stokes	<i>Stokesia laevis</i>
Astilbe (False Spirea)	<i>Astilbe</i> spp.
Avens	<i>Geum triflorum</i>
Baby's Breath	<i>Gypsophila elegans</i>
Baby's Breath	<i>Gypsophila paniculata</i>
Beard-Tongue	<i>Penstemon</i> spp.
Bellflower	<i>Campanula</i> spp.
Bellflower, Willow	<i>Campanula persicifolia</i>
Bird of Paradise	<i>Caesalpinia pulcherrima</i>
Black-eyed Susan†	<i>Rudbeckia hirta</i>
Blanket Flower†	<i>Gaillardia aristata</i>
Blanket Flower†	<i>Gaillardia x grandiflora</i>
Bleeding Heart	<i>Dicentra spectabilis</i>
Butterfly Weed	<i>Asclepias tuberosa</i>

California Poppy	<i>Eschscholzia californica</i>
Calla Lily	<i>Zantedeschia aethiopica</i>
Canna, Common Garden	<i>Canna generalis</i> 'Lucifer'

**PERENNIALS (continued)**

Common Name	Scientific Name
Carex	<i>Carex</i> spp.
Chinchinchee	<i>Ornithogalum thyrsoides</i>
Clover, Crimson†	<i>Trifolium incarnatum</i>
Columbine	<i>Aquilegia</i> 'McKana Giant'
Columbine	<i>Aquilegia x hybrida</i>
Coreopsis (tickseed)†	<i>Coreopsis lanceolata</i>
Crinum Lily	<i>Crinum</i> spp.
Crocus	<i>Crocus</i> spp.
Daffodil	<i>Narcissus</i> spp.
Daylily	<i>Hemerocallis</i> spp.
Fairy Duster	<i>Calliandra eriophylla</i>
Fern, Asparagus	<i>Asparagus officinalis</i>
Fern, Boston	<i>Nephrolepis exaltata</i>
Fern, Hay-scented	<i>Dennstaedtia punctilobula</i>
Fern, Leatherleaf*	<i>Rumohra adiantiformis</i>
Fortnight Lily	<i>Moraea</i> spp.
Foxglove	<i>Digitalis purpurea</i>
Freesia	<i>Freesia x hybrida</i>
Gaillardia	<i>Gaillardia pulchella</i>
Geum	<i>Geum</i> spp.
Gladiolus	<i>Gladiolus</i> spp.
Heather, Dwarf	<i>Calluna vulgaris</i>
Hosta	<i>Hosta</i> spp.
Indian Blanket†	<i>Gaillardia pulchella</i>
Iris, Japanese	<i>Iris kaempferi</i>
Lantana, Weeping	<i>Lantana montevidensis</i>
Leopards Bane	<i>Doronicum cordatum</i>
Lily	<i>Lilium</i> spp.
Liriope, Big Blue	<i>Liriope muscari</i>
Liriope, Creeping	<i>Liriope spicata</i>
Liriope, Variegated	<i>Liriope muscari</i>
Moonbeam	<i>Coreopsis verticillata</i>
Montbretia	<i>Crocasmia crocosmiiflora</i>
Mugwort, Western	<i>Artemisia ludoviciana</i>
Nightshade	<i>Solanum</i> spp.
Orchid, Peacock	<i>Acidanthera bicolor</i>

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Oxeye Daisy†	<i>Chrysanthemum leucanthemum</i>
Palm, Areca	<i>Chrysalidocarpus lutescens</i>
Palm, Pygmy Date	<i>Phoenix roebelenae</i>
Palm, Washington	<i>Washington robusta</i>
Peony, Chinese	<i>Paeonia lactiflora</i>
Purple Coneflower†	<i>Echinacea purpurea</i>

**PERENNIALS (continued)**

Common Name	Scientific Name
Purple Gay-feather	<i>Liatris pycnostachys</i>
Purple Loosestrife	<i>Lythrum virgatum</i>
Rodgersia	<i>Rodgersia henricie</i>
Rosemary	<i>Rosmarinus officinalis</i>
Sedge	<i>Carex</i> spp.
Shasta Daisy†	<i>Chrysanthemum x superbum</i>
Statice	<i>Limonium latifolia</i>
Statice, German	<i>Goniolimon tartaricum</i>
Sweet Flag	<i>Acorus calamus</i>
Tickseed†	<i>Coreopsis lanceolata</i>
Texas Bluebonnet	<i>Lupinus texensis</i>
Tulip	<i>Tulipa</i> spp.
Wonder Flower	<i>Ornithogalum thyrsoides</i>
Yarrow†	<i>Achillea millefolium</i>
Zephyr Lily	<i>Zephyranthes</i> spp.

\* Applications of UP-End herbicide to immature ferns (during periods of new growth of fronds) may result in some injury.

† These plants have shown tolerance to UP-End applications of 4.2 pints (2.1 quarts) in wildflower plantings established from seed.

**ORNAMENTAL GRASSES**

Common Name	Scientific Name
Beach Grass	<i>Ammophila breviligulata</i>
Fescue, Blue	<i>Festuca glauca</i>
Fescue, Sheep	<i>Festuca ovina</i>
Fountain Grass	<i>Pennisetum setaceum</i>
Pampas Grass	<i>Cortaderia selloana</i>
Reed Canary Grass	<i>Phalaris arundinacea</i>
Reed, Giant	<i>Arundo</i> spp.
Ribbon Grass	<i>Phalaris arundinacea</i>
Tufted Hair Grass	<i>Deschampsia caespitosa</i>

**BEDDING PLANTS**

Common Name	Scientific Name
Ageratum	<i>Ageratum houstonianum</i>
Alyssum*	<i>Alyssum saxatile</i>
Anemone, Poppy-flowered	<i>Anemone coronaria</i>
Artemesia	<i>Artemesia</i> spp.
Balloonflower	<i>Platycodon grandiflorum</i>
Begonia*	<i>Begonia</i> spp.
Cabbage, Ornamental	<i>Brassica oleracea</i>

**BEDDING PLANTS (continued)**

Common Name	Scientific Name
Caladium	<i>Caladium</i> spp.
Cast-Iron Plant	<i>Aspidistra elatior</i>
China Aster*	<i>Callistephus chinensis</i>
Crocsmia, Montebretia	<i>Crocsmia x crocosmiiflora</i>
Dahlia*	<i>Dahlia</i> spp.
Dianthus	<i>Dianthus barbatus</i>
Dusty Miller	<i>Senecio cineraria</i>
Gayfeather	<i>Liatris</i> spp.
Gazania, Treasure Flower	<i>Gazania rigens</i>
Gazania, Trailing	<i>Gazania rigens leucolaena</i>
Gloxinia	<i>Gloxinia simningia</i>
Kale, Ornamental	<i>Brassica napus</i>
Marigold, African	<i>Tagetes erecta</i>
Moss Rose*	<i>Portulaca grandiflora</i>
Mum, Garden	<i>Chrysanthemum</i> spp.
Periwinkle*	<i>Vinca major</i>
Periwinkle, Rose	<i>Catharanthus roseus</i>
Petunia*	<i>Petunia</i> spp.
Plumosa Cockscomb	<i>Celosia cristata</i>
Portulaca*	<i>Portulaca grandiflora</i>
Salvia*	<i>Salvia splendens</i>
Snapdragon	<i>Antirrhinum majus</i>
Statice*	<i>Limonium</i> spp.
Sweet William	<i>Dianthus barbatus</i>
Vinca*	<i>Vinca major</i>

\* Do not apply UP-End sooner than four weeks after transplanting for these annuals. Use the lower labeled rate.

UP-End herbicide may be used on plant species not listed on this label. Determine the suitability for such uses by treating a small number of such plants at the specified rate. Evaluate treated plants 1-2 months following treatment for possible injury.

**STORAGE AND DISPOSAL**

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

**PESTICIDE STORAGE:** DO NOT STORE BELOW 15° F. Extended storage at temperatures below 15° F can result in the formation of crystals on the bottom of container. If crystallization does occur, store the container on its side at room temperature (70° F) and rock occasionally until crystals dissolve.

**PESTICIDE DISPOSAL:** Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

**CONTAINER DISPOSAL:** Nonrefillable container. Do not reuse or refill this container. Clean container promptly after emptying. Triple rinse after emptying, then offer for recycling if available or reconditioning if appropriate, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

Containers less than or equal to 5 gallons: 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 rinse 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.

Containers larger than 5 gallons: triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank, or store rinsate for later use or disposal. Repeat this procedure two more times.

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