

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY AND POLLUTION PREVENTION

April 12, 2021

Luz G Chan Registration Manager Drexel Chemical Company P.O. Box 13327 Memphis, TN 38113-0327

Subject: Registration Review Label Mitigation for Pendimethalin

Product Name: Drexel PIN-DEE 3.3 T&O EPA Registration Number: 19713-590

Application Dates: 06/01/2018 Decision Numbers: 550818

Dear Ms. Chan:

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

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

A copy of your label stamped "Accepted" is enclosed. Products shipped after 12 months from the date of this amendment must bear the new revised label. Your release for shipment of the product bearing the amended label constitutes acceptance of these conditions. If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6.

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If you have any questions about this letter, please contact Quinn Gavin by phone at 703-347-0325, or via email at gavin.quinn@epa.gov.

Sincerely,

Linda Arrington, Branch Chief

Risk Management and Implementation Branch 4

Pesticide Re-Evaluation Division

Office of Pesticide Programs

Enclosure

ACCEPTED

Apr 12, 2021

Under the Federal Insecticide, Fungicide and Rodenticide Act as amended, for the pesticide registered under EPA Reg. No. 19713-590

PENDIMETHALIN GROUP 3 HERBICIDE



Drexel. PIN-DEE 3.3 T & O

Herbicide

For use in Turfgrasses, Ornamentals, Landscape or Grounds Maintenance, Non-bearing Fruit and Nut Crops and Vineyards and Noncropland.

ACTIVE INGREDIENT:

This product contains 3.3 pounds of pendimethalin per gallon.

KEEP OUT OF REACH OF CHILDREN **CAUTION**

See FIRST AID Below

[See Side (Back) Panel for FIRST AID]

[See Attached Booklet for Complete Directions for Use]

EPA Reg. No. 19713-590 **EPA Est. No. 19713-XX-XXX**

Net Content:

Gals. (

FIRST AID

IF SWALLOWED:

- Call a poison control center or doctor immediately for treatment advice.
- Do not give any liquid to the person.
- Do not induce vomiting unless told to do so by a poison control center or doctor.
- Do not give anything by mouth to an unconscious or convulsing person.

IF IN EYES:

- Hold eye open and rinse slowly and gently with water for 15 to 20 minutes.
- Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.
- Call a poison control center or doctor for treatment advice.

IF ON SKIN OR CLOTHING:

- · Take off contaminated clothing.
- Rinse skin immediately with plenty of water for 15 to 20 minutes.
- Call a poison control center or doctor for treatment advice.

IF INHALED:

- · Move person to fresh air.
- If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if
- Call a poison control center or doctor for further treatment advice.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also call CHEMTREC at 800-424-9300 for emergency medical treatment information.

Note To Physician: Contains aromatic naphtha - vomiting may cause aspiration pneumonia. Because of increased risk of chemical pneumonia or pulmonary edema caused by aspiration of the hydrocarbon solvent, vomiting should be induced only under professional supervision.

590SP-0519*P

^{*} Contains aromatic naphtha.

PRECAUTIONARY STATEMENTS

Hazards To Humans And Domestic Animals

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

PERSONAL PROTECTIVE EQUIPMENT (PPE):

NON-WPS USES:

Applicators and other handlers (except Mixers/Loaders) who handle this pesticide for any use not covered by the Worker Protection Standard (WPS), 40 CFR Part 170 C in general, only agricultural plant uses are covered by the WPS - must wear: Long-sleeved shirt and long pants, chemical-resistant gloves such as nitrile rubber ≥ 8 mils, shoes plus socks.

Mixers and Loaders must wear: Long-sleeved shirt and long pants, or coveralls, chemical-resistant gloves such as barrier laminate, butyl rubber ≥ 14 mils, neoprene rubber ≥ 14 mils or viton ≥ 14 mils, shoes plus socks.

WPS USES:

Applicators and other handlers who handle this pesticide for any use covered by the WPS, 40 CFR part 170 - in general, agricultural-plant uses are covered - must wear: Long-sleeved shirt and long pants, chemical-resistant gloves such as barrier laminate, butyl rubber \geq 14 mils, neoprene rubber \geq 14 mils, shoes plus socks.

Follow 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.

USER SAFETY RECOMMENDATIONS

Users should: 1) Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. 2) Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. 3) 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 or to areas where surface water is present or to intertidal areas below the mean high water mark. Drift or runoff from treated areas may be hazardous to aquatic organisms in adjacent aquatic sites. Do not contaminate water when disposing of equipment washwater or rinsate.

NON-TARGET ORGANISM ADVISORY STATEMENT

This product is toxic to plants and may adversely impact forage and habitat of non-target organisms, including pollinators, in areas adjacent to the treated site. Protect the forage and habitat of non-target organisms by following label directions intended to minimize spray drift.

INFORMATION AND USE PRECAUTIONS

Apply PIN-DEE 3.3 T & O only as specified on this label.

This product is formulated as an emulsifiable concentrate containing 3.3 pounds of active Pendimethalin per gallon. This product is a selective soil applied herbicide for pre-emergence control of most annual grasses and certain broadleaf weeds as they germinate, in any Turfgrass sites (lawns, sod, turf areas) such as grounds or lawns around residential and commercial establishments, airports, athletic fields, cemeteries, golf courses, houses of worship, military and other institutions, multifamily dwellings, parks, picnic grounds, prairiegrass areas, roadsides, schools, and sod farms. This product can also be used in and around field, liner, and container grown ornamental nurseries; established landscape ornamentals and ornamental gardens; listed groundcovers; nonbearing fruit and nut trees; conifers and hardwood seedling nurseries; and for tree plantation site preparation and maintenance. Also, this product can be applied for general grounds maintenance around areas such as alleyways, bike and jogging paths, buildings, driveways and roadsides, markers and fence lines, mulch beds, parking lots, stone gardens and gravel yards, vacant lots and other similar areas. It may be used under asphalt or concrete treatments as part of a site preparation program. This product is also used for pre-emergence control of most annual grasses and certain broadleaf weeds as they germinate in any noncropland area such as bridge abutments and approaches, delineators, fence rows, highway guardrails, highway and pipeline rights-of-way, paved or gravel surfaces, petroleum tank farms, pumping installations, railroad, sign posts, storage

areas, utility, utility substations, and windbreaks and shelterbelts; and other similar areas where weed control is desired.

This product will not control established weeds. Established weeds should be controlled before applying this product or by using this product in conjunction with an appropriate post-emergence herbicide. Unusually cold, excessively wet, or hot and dry conditions that delay germination or extend germination over a long period of time can reduce weed control.

One-half inch of rainfall or its equivalent in sprinkler irrigation following application of this product or tank mix combinations of this product improves weed control. Erratic weed control may result in the absence of rainfall or irrigation within 30 days of application of this product.

Follow label directions of this product or tank mix combinations of this product carefully to avoid crop injury. Over-application can result in crop stand loss, crop injury, or excessive soil residues. Uneven application, improper soil incorporation, or soil incorporation deeper than what is directed can decrease weed control and/or cause crop injury. Seedling diseases, cold weather, excessive moisture, shallow or deep planting, low or high soil pH, high soil salt concentration, or drought can weaken seedlings and plants and increase the possibility of crop damage and/or reduce crop yields from this product.

This product may cause temporary discoloration of sprayed surfaces. Rinse immediately to avoid staining. Spray colorants or dyes can be added to alter the color of the spray solution to match the treated surfaces.

Uses with Other Products (Tank Mixes): When tank mixing this product with other herbicides, all applicable directions, restrictions, and precautions for the additional herbicides must be followed. Use the most restrictive limitations stated on the product labels. Before initiating full tank mix application, the physical compatibility of the proposed mixture should be evaluated on a small scale of recommended spray mixture concentrations. Also, such mixtures should be evaluated for vegetation control before expanding commercial use.

WEED RESISTANCE MANAGEMENT

PENDIMETHALIN GROUP 3 HERBICIDE

For resistance management, this product is a Group 3 mode of action herbicide. Any weed population may contain or develop plants naturally resistant to this product and other Group 3 mode of action herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Appropriate resistance management strategies should be followed.

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

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

- Contact your local extension specialist or certified crop advisors for additional pesticide resistancemanagement and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Drexel Chemical Company representatives at (901) 774-4370.

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 agency responsible for pesticide regulation.

DO NOT apply this product through any type of irrigation system.

DO NOT apply this product in greenhouses, shadehouses or other enclosed structures.

Drexel Chemical Company does not recommend or authorize the use of this product in manufacturing, processing or preparing custom blends with other products for application to Turf or Ornamentals.

Observe all use precautions and limitations in this label and the labels of products used in combinations with this product. The use of this product not consistent with this label can result in injury to crops, or may result in poor weed control.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard (WPS), 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, 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 (REI). The requirements in this box only apply to uses of this product that are covered by the WPS. Do not enter or allow worker entry into treated areas during the REI of 24 hours.

PPE required for early entry to treated areas that is permitted under the WPS and that involves contact with anything that has been treated, such as plants, soil or water is: Long-sleeved shirt and long pants, chemical-resistant gloves such as barrier laminate, butyl rubber \geq 14 mils, neoprene rubber \geq 14 mils or viton \geq 14 mils and 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 WPS 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 or allow others to enter the treated area until sprays have dried.

MIXING INSTRUCTIONS

Ground Driven Sprayer:

- 1. Fill tank one-half to three-quarters full with clean water.
- 2. Add this product to the partially filled tank while agitating and then fill the remainder of the tank with water.
- 3. Maintain continuous agitation while adding this product and until spraying is completed. If the spray mixture is allowed to settle for any period of time, thorough agitation is essential before spraying is resumed. Continue agitation while spraying.
- 4. If this product is to be used in tank mixtures with other registered herbicides, then follow directions on the labels of those products which recommend tank mixing.

Backpack Sprayer:

- 1. Begin with a clean spray tank.
- 2. Fill the spray tank one-half full with clean water and add the required amount of this product to the sprayer.
- 3. Cap sprayer and agitate to ensure mixing.
- 4. Uncap sprayer and finish filling tank to desired level.
- 5. Cap sprayer and agitate once 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, thorough agitation is essential before spraying is resumed.

Liquid Fertilizers: Small quantities should always be tested using a simple jar test. Prior to mixing, add the required amount of this product to half filled spray tank while agitating then add the fertilizer product. Complete filling spray tank to desired level.

Dry Bulk Fertilizers: This product may be impregnated on dry bulk fertilizers. This product/Dry Bulk Fertilizer mixtures will provide weed control equal to that provided by the same rates of this product applied in water, when applied as directed.

SPRAYING INSTRUCTIONS

Apply with properly calibrated ground equipment in at least 40 gallons of water per acre to provide uniform spray distribution. Low pressure (i.e. 20 to 40 psi) sprayers are recommended. Maintain continuous agitation during spraying with good mechanical or bypass agitation. Check sprayer routinely for proper calibration. Avoid overlaps that will increase rates above those recommended. Avoid application when winds may cause drift. Avoid unintentional contact of spray solution with driveways, stone, wood or other porous surfaces. Rinse immediately to avoid staining.

SPRAY DRIFT

Aerial Applications:

- Do not release spray at a height greater than 10 ft above the crop canopy, unless a greater application height is necessary for pilot safety.
- Applicators are required to use a medium or coarser droplet size (ASABE S572.1).
- Do not apply when wind speeds exceed 15 mph at the application site. If the wind speed is greater than 10 mph, the boom length must not exceed 65% of the wingspan for fixed wing aircraft or 75% of the rotor diameter for helicopters. Otherwise, the boom length must not exceed 75% of the wingspan for fixed wing aircraft or 90% of the rotor diameter for helicopters.
- · Applicators must use one-half swath displacement upwind at the downwind edge of the field.
- Nozzles must be oriented so the spray is directed toward the back of the aircraft.
- Do not apply during temperature inversions."

Ground Boom Applications:

- Applicators must only apply with the nozzle height recommended by the manufacturer, but no more than 3 feet above the ground or crop canopy.
- Applicators are required to use a medium or coarser droplet size (ASABE S572.1).
- Do not apply when wind speeds exceed 15 miles per hour at the application site.
- Do not apply during temperature inversions.

Boom-less Ground Applications:

- Applicators are required to use a medium or coarser droplet size (ASABE S572.1) for all applications.
- Do not apply when wind speeds exceed 15 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.

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.

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 – Aircraft

Adjust Nozzles - Follow nozzle manufacturer's recommendations for setting up nozzles. Generally, to reduce fine droplets, nozzles should be oriented parallel with the airflow in flight.

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

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

RELEASE HEIGHT - Aircraft

Higher release heights increase the potential for spray drift.

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."

TURFGRASSES

		RATES OF TH	IIS PRODUCT
TYPES OF TURFGRASSES	WEEDS CONTROLLED	Pints/Acre	Ounces/1000 sq. ft.
Cool Season Grasses: Fescue (fine) Fescue (tall) Kentucky bluegrass	Barnyardgrass, Crabgrass, Evening primrose, Fall panicum, Foxtail, Hop clover, Knotweed, Oxalis, <i>Poa annua</i> , Prostrate spurge, Purslane	3.6 to 4.8	1.3 to 1.8
Perennial ryegrass	USE INSTRUCTIONS: Use as initial applications of spring. For extended weed control or whe heavy, repeat application using 2.5 to 3.6 sq. ft.) after 5 to 8 weeks.	re weed infestation	is expected to be
	For Residential Turf* Uses Only: Goosegrass	3.6 to 4.8	1.3 to 1.8
	USE INSTRUCTIONS: Use as initial application at 3.6 pts./acre (1.3 ozs./1000 of 4.8 pts./acre per application for use on *Note: Residential turf is defined as turf is schools, parks and playgrounds.	ally or for extende sq. ft.). Do not ex residential Turfgras	d control, repeat ceed a maximum ss.
	For Commercial or Other Non- Residential Turf: Goosegrass	3.6 to 7.2	1.3 to 2.6
	USE INSTRUCTIONS: Use as initial application at 3.6 pts./acre (1.3 ozs./1000 of 7.2 pts./acre per application for use on Turfgrass.	ally or for extende sq. ft.). Do not ex	d control, repeat ceed a maximum
	Chickweed, Corn speedwell, Cudweed, Henbit, Lawn burweed, <i>Poa annua</i>	3.6 to 4.8	1.3 to 1.8
	USE INSTRUCTIONS: Apply in late Sugermination.	ummer or early Fa	all prior to weed
Warm Season Grasses: Bahiagrass Bermudagrass Buffalograss Centipedegrass Fescue (tall)	For Residential Turf* Uses Only: Barnyardgrass, Crabgrass, Evening primrose, Fall panicum, Foxtail, Hop clover, Knotweed, Oxalis, Poa annua, Prostrate spurge, Purslane	3.6 to 4.8	1.3 to 1.8
St. Augustinegrass Zoysiagrass	USE INSTRUCTIONS: Use as initial application prior to weed germination in Spring. Repeat application at 2.5 to 3.6 pints per acre (1 to 1.3 ozs. per 1000 sq. ft.) after 5 to 8 weeks if necessary. Do not exceed a maximum of 4.8 pts./acre per application for use on residential Turfgrass. *Note: Residential turf is defined as turf in any residential situation as well as schools, parks and playgrounds.		
	Goosegrass	3.6	1.3
	USE INSTRUCTIONS: Apply prior to weed germination in Spring. Make a second application 6 to 8 weeks later. For extended control, an additional application of 3.6 pts./acre (1.3 ozs./1000 sq. ft.) may be made 8 weeks after the second application.		
	Chickweed, Corn speedwell, Cudweed, Henbit, Lawn burweed, <i>Poa annua</i>	2.6 to 4.8	1.3 to 1.8
	USE INSTRUCTIONS: Apply in late Sugermination.	ummer or early Fa	all prior to weed

Efficacy of this product will be improved if application is followed by one-half inch of rainfall or its equivalent in sprinkler irrigation. Erratic weed control may result if this product is not activated by rainfall or irrigation within 30 days.

To prevent establishment of weeds along the edges of lawns, it may be necessary to overlap the spray 3 to 6 inches onto sidewalks or driveways, etc. Rinse pavement immediately to avoid temporary discoloration.

THIS PRODUCT IN TANK MIXTURE

To control emerged weeds in Turfgrasses, this product can be mixed with post-emergence herbicides. To control emerged annual grass, this product can be mixed with Acclaim[®] Extra or MSMA whereas broadleaved weeds can be controlled using Trimec[®], Three-Way[™], 2,4-D, and other similar products. Before tank mixing, a simple jar test is recommended to insure compatibility of herbicides. Always read the companion product label. Follow all use precautions and restrictions that apply to each product used. Always follow the most restrictive label.

USE PRECAUTIONS FOR TURFGRASS

- 1. Use on well established Turfgrass with a dense and uniform stand.
- 2. On newly planted areas, application should not be made until the Turfgrass has filled in and has been mowed at least four times.
- 3. On Turf that has been thinned or damaged due to Winter injury, excessive moisture, etc., allow Turf to recover prior to application.
- 4. Applications made to overseeded warm-season Turfgrasses may cause thinning or injury of the overseeded species.
- 5. Do not use on greens or injury may occur.
- 6. Delay reseeding or Winter overseeding of treated Turfgrass for at least 3 months following the last application of this product
- 7. Delay sprigging Turfgrass for 5 months after application of this product.

INDUSTRIAL (UNIMPROVED) TURF

(Rights-of-Way, Roadsides, Construction Sites, Parks, Substations, Lots, or Similar Areas)

Industrial, or unimproved turf areas often have a different spectrum of weeds to be controlled than those found in fine Turf. This product will control annual grasses and broadleaf weeds mentioned in "TURFGRASSES" section of this label as well as the following weeds that might germinate in established grasses.

London rocket Annual spurge Browntop panicum Lovegrass Carpetweed Mexican sprangletop Crowfootgrass Pennsylvania smartweed Fiddleneck Pigweed Field sandbur Puncturevine Filaree Red sprangletop Florida puslev Shepherdspurse Signalgrass Itchgrass Johnsongrass (from seed) Texas panicum Junalerice Velvetleaf Kochia Witchgrass Lambsquarters Woolly cupgrass

Apply before weeds germinate. To control established weeds, 2,4-D, MSMA, or similar post-emergence herbicides may be tankmixed with this product. Apply according to label instructions for the respective products and follow the most restrictive label.

ORNAMENTALS

This product can be applied for pre-emergence weed control around and over the top of the established plants listed below. However, not all varieties or strains of the plants listed have been tested. 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 prior to full scale application.

GROUNDCOVERS		
Common Name Scientific Name		
Ajuga	Ajuga reptans	
Capeweed	Arctotheca calendula	
Cinquefoil, Spring	Potentilla verna	
Daisy, Trailing African	Osteospermum fruticosum	
Gazania	Gazania splendens	
Iceplant, Large Leaf	Carpobrotus edulis	
Ivy, English	Hedera helix	
Ivy, Geranium	Pelargonium peltatum	
Jasmine, Asiatic	Trachelospermum asiaticum	
Jasmine, Primrose	Jasminum mesnyn	
Mondograss	Ophiopogon japonica	
Myoporum	Myoporum parviflolium	
Pachysandra	Pachysandra terminalis	
Potentilla	Potentilla fruticosa	
Rose-of-Sharon	Hypericum calycinum	
Wintercreeper	Euonymous fortunei	

ORNAMENTAL GRASSES		
Common Name Scientific Name		
Beach grass	Ammophila breviligulata	
Fescue, blue	Festuca ovina	
Fescue, sheep	Festuca ovina	
Fountain grass	Pennisetum setaceum	
Pampas grass	Cortaderia selloana	
Reed canary grass	Phalaris arundinacea	
Reed, giant	Arundo spp.	
Ribbon grass	Phalaris arundinacea	
Tufted hair grass	Deschampsia caespitosa	

ORNAMENTAL SHRUBS		
Common Name	Scientific Name	
Abelia, glossy	Abelia grandiflora	
Aucuba, gold	Aucuba japonica	
Azalea	Rhododendron spp.	
Bamboo, heavenly	Nandina domestica	
Barberry	Berberis gladwynensis	
Barberry, Japanese	Berberis thunbergii	
Blue indigo bush	Dalea gregii	
Bottlebrush, lemon	Callistemon citrinus	
Boxwood, common	Buxus sempervirens	
Boxwood, Japanese	Buxus microphylla	
Camellia	Camellia japonica	
Cape jasmine	Gardenia jasminoides	
Cordyline	Cordyline spp.	
Correa	Correa spp.	
Cotoneaster	Cotoneaster apiculatus	
Cotoneaster, bearberry	Cotoneaster dammeri	
Cotoneaster, rock	Cotoneaster horizontalis	
Cypress, Italian	Cupressus sempervirens	
	(continued)	

(continuation)
Cypress, leyland
Deutzia, slender
Dogwood, red twig

Elaeagnus Escallonia Euonymus

Euonymus, golden Euonymus, winged

Firethorn

Forsythia, border Fragrant olive Fuschia, California

Gardenia

Hawthorne, Indian

Hibiscus Holly, Chinese Holly, Japanese Holly, Fosters Holly, savannah Holly, yaupon Honeysuckle, bush

Juniper

Juniper, Chinese Juniper, shore Juniper, trailing Laurel, cherry Laurel, Mountain Laurel, otto luyken Laurel, schipka Laurustinus Lavender, English

Leucothoe
Leucothoe, coast
Lilac, cut-leaf
Lily-of-the-Nile
Mahonia
Mock orange
Myrtle, compact
Myrtle, wax
Nandina
Oleander
Oregon grape
Osmanthus

Palm, European fan Palm, Mediterranean fan

Phlox, prickly Photinia, fraser Pieris, Japanese Pine, mugo Plum, natal Privet, California Privet, glossy Privet, variegated

Pyracantha Quince, flowering Ranger, Texas Redroot

Rhododendron

Privet, waxleaf

Cupressocyparis leylandii

Deutzia gracilis
Cornus sericea
Elaeagnus ebbingei
Escallonia fradesii
Euonymus fortunei
Euonymus japonica
Euonymus alata
Pyracantha coccinea
Forsythia intermedia
Osmanthus fragrans
Zauschineria californica
Gardenia jasminoides
Raphiolepis indica

Hibiscus syriacus Ilex cornuta Ilex crenata

Ilex attenuata 'Fosteri'

Ilex attenuata Ilex vomitoria Diervilla Ionicera Juniperus spp.

Juniperus chinensis v. pfitzer

Juniperus conferta
Juniperus horizontalis
Prunus laurocerasus
Kalmia latifolia
Prunus laurocerasus
Prunus schipkanesis
Viburnum tinus
Lavandula angustifolia

Leucothoe fontanesiana
Leucothoe axillaris
Syringa laciniata
Agapanthus africanus
Mahoria aquifolium
Pittosporum tobira
Myrtus communis
Myrica cerifera
Nandina domestica
Nerium oleander
Mahonia aquifolium
Osmanthus fragrans
Chamaerops humillis
Chamaerops spp.

Leptodactylon californicum

Photinia X Fraseri
Pieris japonica
Pinus mugo
Carissa grandiflora
Ligustrum ovalifolium
Ligustrum lucidum
Ligustrum sinensis
Ligustrum japonicum
Pyracantha coccinea
Chaenomeles japonica
Leucophyllum frutescens

Ceanothus spp.
Rhododendron spp.

(continued)

(continuation) Robira Pittosporum tobiri Spice plant Illicium parviflorum Spiraea Spiraea vanhouttei Spiraea, anthony waterer Spiraea X bumalda Spiraea, Japanese Spirea japonica Sweet bay Laurus nobilis Trumpet bush Tecoma stans Verbena, lemon Aloysia triphylla Viburnum Viburnum suspensum Vitex Vitex spp. Weigela Weigela florida Wild lilac Ceanothus spp. Xylosma Xylosma congestum Yellowbells Tecoma stans Yew* Taxus media Yew, Japanese* Taxus cuspidata Yew, Southern Podocarpus macrophyllus Yucca, Adam's Yucca filamentosa Yucca, weeping Yucca pendula * Applications should not be made during Spring growth or injury to terminals may occur.

ORNAMENTAL TREES		
Common Name	Scientific Name	
Alder, European black	Alnus glutinosa	
Apple	Malus spp.	
Arborvitae, American	Thuja occidentalis	
Arbutus	Arbutus spp.	
Ash, red	Fraxinus pennsylvanica	
Ash, white	Fraxinus americana	
Aspen, bigtooth	Populus grandidentata	
Aspen, quaking	Populus tremuloides	
Basswood	Tilia spp.	
Birch, European weeping	Betula pendula	
Birch, river	Betula nigra	
Buckeye, red	Aesculus pavia	
Cedar, white	Thuja occidentalis	
Chamaecyparis, boulevard	Chamaecyparis pisifera	
Cherry, black	Prunus serotina	
Cherry, choke	Prunus virginiana	
Cherry, kwanzan	Prunus serrulata	
Cherry, nanking	Prunus tomentosa	
Cottonwood	Populus deltoides	
Crabapple	Malus spp.	
Crepe myrtle	Lagerstroemia indica	
Cryptomeria, Japanese cedar	Cryptomeria japonica	
Cypress, bald	Taxodium distichum	
Cypress, leyland	Cupressocyparis leylandii	
Dogwood, flowering	Cornus florida	
Dogwood, Korean	Cornus kousa	
Dogwood, silky	Cornus amomum	
Dogwood, shrub	Cornus spp.	
Elm	Ulmus japonica	
Fir, balsam	Abies balsamae	
Fir, douglas	Pseudotsuga menziesii	
Fir, fraser	Abies fraseri	
Fir, white	Abies concolor	
Franklinia	Franklinia spp.	
Ginkgo	Ginkgo biloba	
	(continued)	

(continuation) Gum, black Gum, sour Haw, black Hawthorn Hemlock, Canada

Hemlock, Eastern Holly, American Honeylocust Lilac, common Lilac, Japanese tree

Linden

Magnolia, saucer Magnolia, Southern Magnolia, star Maidenhair tree Maple, Japanese Maple, Norway Maple, red Maple, sugar Nannyberry, rusty

Oak, chinquapin Oak, live Oak, pin Oak, red

Oak, swamp chestnut

Oak, water Oak, white Oak, willow Olive Palm date Palm, fan Palm, pindo Palm, Washington

Peach

Pear. bradford

Pecan

Pine, Austrian Pine, Italian stone Pine, loblolly Pine, monterey Pine, red Pine, scotch Pine, slash Pine, Virginia Pine. white Plum, purple leaf

Redcedar, Eastern Redcedar, Western Red ironbark

Redwood, dawn Sequoia, giant Serviceberry Sourwood

Poplar, black

Spruce, Colorado blue Spruce, dwarf Alberta

Spruce, Norway

Nyssa sylvatica Nyssa sylvatica Viburnum prunifolium Crataegus spp. Tsuga canadensis Tsuga canadensis

Gleditsia triacanthos Syringa vulgaris Syringa reticulata

Tilia spp.

llex opaca

Magnolia soulangiana Magnolia grandiflora Magnolia stellata Ginkgo biloba Acer palmatum Acer plantanoides Acer rubrum Acer saccharum Viburnum rufidulum Quercus muehlenbergii Quercus virginiana Quercus palustris Quercus rubra Quercus michauxii Quercus nigra

Quercus alba Quercus phellos Olea europaea Phoenix spp. Washingtonia spp.

Butia spp.

Washingtonia spp. Prunus persica

Pyrus calleryana 'bradford'

Carva illinoensis Pinus nigra Pinus pinea Pinus taeda Pinus radiata Pinus resinosa Pinus sylvestris Pinus elliottii Pinus virginiana Pinus strobus Prunus cerasifera Populus nigra Juniperus virginiana

Thuja plicata

Eucalyptus sideroxylon 'rosea' Metasequoia glytostroboides Sequoiadendron giganteum Amelanchier laevis

Oxydendrum arboreum Picea pungens

Picea glauca 'albertiana'

Picea abies

(continued)

(continuation)		
Spruce, white	Picea glauca	l
Sweetgum	Liquidambar styraciflua	
Sycamore	Platanus occidentalis	
Trachycarpus	Trachycarpus spp.	
Tulip tree	Liriodendron tulipifera	
Walnut, black	Juglans nigra	
Willow, weeping	Salix babylonica	
Yellowwood	Cladrastis lutea	

PERENNIALS		
Common Name Scientific Name		
Bleeding heart	Dicentra spectabilis	
Calla lily	Zantedeschia aethiopica	
Canna, common garden	Canna generalis 'Lucifer'	
Chincherinchee	Ornithogalum thyrsoides	
Crinum Lily	Crinum spp.	
Fern, asparagus	Asparagus officinalis	
Fern, leatherleaf	Rumohra adiantiformis	
Freesia	Freesia x hybrida	
Heather, dwarf	Calluna vulgaris	
Hosta	Hosta spp.	
Lily	Lillium spp.	
Liriope, creeping	Liriope spicata	
Liriope, variegated	Liriope muscari	
Montbretia	Crocosmia crocosmiiflora	
Orchid, peacock	Acidanthera bicolor	
Peony, Chinese	Paeonia lactiflora	
Wisteria	Wisteria spp.	
Zephyr lily	Zephyranthes spp.	

This product may be used on plant species not listed on this label. The suitability for such uses should be determined by treating a small number of such plants at the labeled rate. Treated plants should be evaluated 1 to 2 months following treatment for possible injury. The user assumes responsibility for any crop damage or other liability.

DO NOT treat plants grown for food or feed. Do not use treated plants for food or feed.

WEEDS CONTROLLED

This product is used for pre-emergence control of the weeds listed below.

This product will not control established weeds.

If weeds should develop prior to activation of herbicide, shallow cultivate to destroy existing weeds or, where practical, remove by hand. When cultivating for any reason, it should be shallow. This product may be used in conjunction with herbicides registered for post-emergence 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.

Application of this product may be followed by any registered herbicide to control weeds not listed on this label.

WEEDS CONTROLLED		
Common Name Scientific Name		
Barnyardgrass	Echinochloa crus-galli	
Bluegrass, annual	Poa annua	
Burweed, lawn	Soliva pterosperma	
Carpetweed	Mollugo verticillata	
Chickweed, common	Stellaria media	
Chickweed, mouseear	Cerastium vulgatum	
Clover, hop	Trifolium procumbens	
Crabgrass	Digitaria spp.	
-	(continued)	

(continuation) Crowfootgrass Dactyloctenium aegyptium Cudweed Gnaphalium spp. Evening primrose Oenothera biennis Fiddleneck Amsinckia intermedia Filaree Erodium spp. Foxtail, giant Setaria faberi Foxtail, green Setaria viridis Foxtail, yellow Setaria glauca Goosegrass Eleusine indica Henbit Lamium amplexicaule Itchgrass Rottboellia exaltata Johnsongrass (from seed) Sorghum halepense Junglerice Echinochloa colona Knotweed, prostrate Polygonum aviculare Kochia scoparia Kochia Lambsquarters Chenopodium album Lovegrass (from seed) Eragrostis spp. Panicum, browntop Panicum fasciculatum Panicum, Fall Panicum dichotomiflorum Panicum, Texas Panicum texanum Pigweed Amaranthus spp. Puncturevine Tribulus terrestris Purslane Portulaca oleracea Pusley, Florida Richardia scabra Rocket, London Sisymbrium irio Sandbur, field Cenchrus incertus Shepherdspurse Capsella bursa-pastoris Signalgrass Brachiaria platyphylla Smartweed, Pennsylvania Polygonum pensylvanicum Speedwell, corn Veronica arvensis Sprangletop, Mexican Leptochloa uninervia Sprangletop, red Leptochloa filiformis Spurge, annual Euphorbia spp. Spurge, prostrate Euphorbia humistrata Velvetleaf (buttonweed) Abutilon theophrasti Panicum capillare Witchgrass Woodsorrel, yellow Oxalis stricta Woolly cupgrass Eriochloa villosa

APPLICATION RATES

Apply this product for pre-emergence weed control using broadcast spray equipment using the following rates:

APPLICATION RATES		
Duration of Control* This Product (qts./A) This Product (fl. ozs./1000 sq. ft.)		
Short term (2 to 4 months)	2.4	1.8
Long term (6 to 8 months)	4.8	3.6

For Hand-held Spray Equipment: Refer to the "APPLICATION RATES" table to determine the amount of this product to be applied per 1000 square feet. The amount of water to be used for the application 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. Refer to "MIXING INSTRUCTIONS" section of this label.

The efficacy of this product will improve if the application is followed by one-half inch of rainfall or its equivalent in sprinkler irrigation. Erratic weed control will result if this product is not activated by rainfall or irrigation within 30 days.

THIS PRODUCT IN TANK MIXTURE FOR ORNAMENTALS

This product can be tank mixed with glyphosate, Finale $^{\text{m}}$, Ornamec $^{\text{e}}$, Gallery $^{\text{m}}$, simazine and other similar herbicides to control emerged weeds in ornamentals. Do not apply tank mixtures containing glyphosate or Finale over the top of ornamental plants.

Before tank mixing, a simple jar test is recommended to insure compatibility of herbicides. Always read the companion product label. Follow all use precautions and restrictions that apply to each product used. Always follow the most restrictive label.

USE RESTRICTIONS AND PRECAUTIONS FOR ORNAMENTALS

- 1. Do not apply this product in greenhouses, shadehouses or other enclosed structures.
- 2. Apply this product to established plantings.
- 3. Do not make applications to grafted (or budded) liners at any time.
- 4. Do not make over-the-top applications to liners or transplants.
- 5. Do not apply this product to liners or transplants during bud break or at time of first flush of new growth.
- 6. When making applications to established liners or transplants, direct sprays to the soil.
- 7. Do not allow spray to cover or penetrate foliage and/or buds or injury is likely to occur.
- 8. Delay application to seedbeds, transplant beds or liners until plants have become well rooted. Allow soil or planting mixes to settle firmly following transplanting before applying this product. Do not allow direct contact of this product with roots.
- 9. On established rootstock, application of this product can be made before budding/grafting the plants.
- 10. Plant only those plant species listed on this label into soil treated the previous season with this product to avoid plant injury.
- 11. For container grown ornamentals, delay first application of this product to bareroot liners 2 to 4 weeks after transplanting.
- 12. It is recommended that treated plants be evaluated for 1 to 2 months prior to making application to a large number of plants. The user assumes responsibility for any crop damage or other liability.

LANDSCAPE AND GROUND MAINTENANCE

This product can be incorporated into landscape and ground maintenance programs to provide extended preemergence control of most annual grasses and certain broadleaf weeds. Areas to be treated, such as fence lines and borders, mulch beds, parking areas and roadsides, around statuary or monuments, and similar areas, should be free of emerged weeds before application. To remove emerged weeds, either cultivate or tank mix this product with a post-emergence herbicide labeled for such use.

Refer to the "APPLICATION RATES" table under the "ORNAMENTALS" section of this label for use rates. Avoid unintentional contact of spray solution of this product to stone, wood, or other porous surfaces as staining may occur. To avoid staining, rinse immediately.

NON-BEARING FRUIT AND NUT CROPS AND VINEYARDS

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

This product may be applied for pre-emergence control of most annual grasses and certain broadleaf weeds. Apply the spray directly to the ground below the trees or vines. Refer to the "APPLICATION RATES" table under the "ORNAMENTALS" section of this label.

Allow soil or planting mixes to settle firmly following transplanting and that there are no cracks that would allow direct contact of this product and roots. Directed sprays where soil and media surfaces are uniformly covered will result in best weed control and plant tolerance.

For newly transplanted and one year old Grapevines, apply only when they are dormant. Do not apply if buds have started to swell.

This product may be used where the roots of a fruit, vine, nut, or ornamental plant encroach into a treatable area.

NON-CROPLAND INCLUDING TREE PLANTATIONS

This product can be used for maintenance of grounds in noncropland areas; pre-emergence control of the weed species listed in and around established tree plantations (including Christmas trees); pulpwood and fiber farms; in and around established ornamentals planted in noncropland areas such as highway rights-of-way, and utility substations.

This product may be used for hardwood and Conifer regeneration on conservation reserve program land or similar areas.

Refer to the "APPLICATION RATES" table under the "ORNAMENTALS" section of this label for use rates. This product may be applied at planting or to established trees. When making an application at planting, it is important that slit closure be achieved to avoid direct contact of tree roots with this product or this product being washed into the root zone via the open slit or root stunting may occur.

For post-emergence use, tank-mix combination of this product with glyphosate, Finale, or other labeled herbicides are recommended. Refer to approved labeling for species recommendations. Rates for the tank-mix compounds should be determined from the product labels of both this product and partner herbicides prior to use.

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

TOTAL VEGETATION CONTROL

This product tank-mixed with Arsenal®, Plateau®, glyphosate, diuron, Finale, Oust®, or other products can provide bare ground, or total vegetation control. This product 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 in California.

Applications may be made to existing weeds controlled by the partner herbicide. Recommended Rates should be determined from the product labels prior to use. Follow the most restrictive label instructions.

For Kochia: Combinations of this product with Arsenal or diuron are recommended if control has been a problem for other herbicides.

Refer to the "APPLICATION RATES" table under the "ORNAMENTALS" section of this label for use rates.

STORAGE AND DISPOSAL

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

PESTICIDE STORAGE: Do not store below 40°F. Extended storage at temperatures below 40°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 redissolve.

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 (rigid material; ≤ 5 gallons): Nonrefillable container. Do not reuse or refill this container. Offer for recycling, if available. 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 one-fourth 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. Dispose of empty container in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

(continuation)

Nonrefillable Container (rigid material; > 5 gallons up to < 250 gallons): Nonrefillable container. Do not reuse or refill this container. Offer for recycling, if available. Clean container promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill container one-fourth 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. Turn the container over onto its other 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. Dispose of empty container in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

Refillable Container (≥ 250 gallons & Bulk): Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10% full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

For Residential/Household Use:

PESTICIDE DISPOSAL: Call your local solid waste agency for disposal instructions. Never place unused product down any indoor or outdoor drain.

CONTAINER DISPOSAL: Nonrefillable container. Do not reuse or refill this container. **If empty,** place in trash or offer for recycling if available. **If partially filled,** call your local solid waste agency for disposal instructions. Never place unused product down any indoor or outdoor drain.

WARRANTY—CONDITIONS OF SALE

OUR DIRECTIONS FOR USE of this product are based upon tests believed reliable. Follow directions carefully. Timing and method of application, weather and crop conditions, mixtures with other chemicals not specifically recommended and other influencing factors in the use of this product are beyond the control of the Seller. To the extent consistent with applicable law, Buyer assumes all risks of use, storage and handling of this material not in strict accordance with directions given herewith.

To the extent consistent with applicable law, in no case shall the Manufacturer or the Seller be liable for consequential, special or indirect damages resulting from the use or handling of this product when such use and/or handling is not in strict accordance with directions given herewith. The foregoing is a condition of sale by the Seller and is accepted as such by the Buyer.



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