228-570 10/26/2011 1of25

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

Matthew Granahan
Nufarm Americas, Inc.
150 Harvester Drive
Suite 200
Burr Ridge, IL 60527

OCT 26 2011

Subject: Nufarm Polaris AC Complete Herbicide
EPA Reg. No. 228-570
Label Notification per PRN 98-10

Dear Mr. Granahan,

The Agency is in receipt of your application for Pesticide Notification under Pesticide Registration Notice (PRN) 98-10 for Nufarm Polaris AC Complete Herbicide (EPA Reg No. 228-570) dated October 19, 2011. The Registration Division (RD) has conducted a review of this request for its applicability under PRN 98-10 and finds that the action requested falls within the scope of PRN 98-10. The label submitted with the application has been stamped "Notification" and will placed in our records.

If you have any questions, please contact Emily Hartman of my staff at (703) 347-0189 or hartman.emily@epa.gov.

Sincerely,

Kable Bo Davis, Product Manager 25
Herbicide Branch
Registration Division
Office of Pesticide Programs

Please read instructions on reverse before completing form.

Form Approved. OMB No. 2070-0060

EPA

United States
Environmental Protection Agency
Washington, DC 20460

[ ] Registration
[ ] Amendment
[X] Other

OPP Identifier Number

Application for Pesticide - Section I

1. Company/Product Number 228-570	2. EPA Product Manager Kable Davis	3. Proposed Classification [ ] None [ ] Restricted
4. Company/Product (Name) Nufarm Polaris AC Complete Herbicide	PM# 25	
5. Name and Address of Applicant *(Include ZIP Code)* Nufarm Americas, Inc. 150 Harvester Drive, Suite 200 Burr Ridge, IL 60527 [ ] *Check if this is a new address*	6. **Expedited Reveiw.** In accordance with FIFRA Section 3(c)(3)(b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

Section - II

[ ] Amendment - Explain below.
[ ] Resubmission in response to Agency letter dated _____
[X] Notification - Explain below.
[ ] Final printed labels in repsonse to Agency letter dated _____
[ ] "Me Too" Application.
[ ] Other - Explain below.

NOTIFICATION
OCT 26 2011

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Label notification consistent and 98-10, see cover letter for detailed explanation. This notification is consistent with the provisions of PR Notice 98-10 and EPA regulations at 40 CFR 152.46, and no other changes have been made to the labeling or the confidential statement of formula of this product. I understand that it is a violation of 18 U.S.C. Sec. 1001 to willfully make false statements to EPA. I further understand that if this notification is not consistent with the terms of PR Notice 98-10 and 40 CFR 152.46, this product may be in violation of FIFRA and I may be subject to enforcement action and penalties under sections 12 and 14 of FIFRA.

Section - III

1. Material This Product Will Be Packaged In:

Child-Resistant Packaging	Unit Packaging	Water Soluble Packaging	2. Type of Container
[ ] Yes [X] No	[ ] Yes [X] No	[ ] Yes [X] No	[X] Metal [X] Plastic [ ] Glass [ ] Paper [ ] Other (Specify) _____
* *Certification must be submitted*	If "Yes" Unit Packaging wgt. / No. per container	If "Yes" Package wgt / No. per container	

3. Location of Net Contents Information	4. Size(s) Retail Container	5. Location of Label Directions
[X] Label [ ] Container	2 1/2, 5, 20, 55 Gal, Bulk	[X]

6. Manner in Which Label is Affixed to Product [X] Lithograph [X] Paper glued [ ] Stenciled [ ] Other _____

Section - IV

1. Contact Point *(Complete items directly below for identification of individual to be contacted, if necessary, to process this application)*

Name	Title	Telephone No. (Include Area Code)
Matthew Granahan matthew.granahan@us.nufarm.com	Regulatory Manager	630.455.2048

Certification

I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowlingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

6. Date Application Received (Stamped)

2. Signature	3. Title Regulatory Manager
4. Typed Name Matthew Granahan	5. Date 10/19/2011

Nufarm Americas Inc.
150 Harvester Drive, Suite 200
Burr Ridge, IL 60527
Telephone: (630) 455.2000 Facsimile: (630) 455.2001
www.us.nufarm.com

October 19, 2011

Via Overnight Courier

Kable Davis (PM-25)
U. S. Environmental Protection Agency (7504P)
Document Processing Desk (NOTIF)
Room S4900, One Potomac Yard
2777 S. Crystal Drive
Arlington, VA 22202

Subject: Nufarm Polaris AC Complete Herbicide
EPA Reg. No. 228-570
Notification per PR Notice 1998-10

Dear Mr. Davis:

Enclosed please find a Notification submission for the above referenced product. Nufarm wishes to make the following three changes; 1) Add a Header for "Personal Protective Equipment (PPE)" , 2) Restrict 23 weeds species from being using in California by denoting the with an "*" and adding "* - Not for Use in California", 3) Add Optional language on the front of the label and in the S&D to allow for multiple container and packaging sizes and configurations. Changes number 1 and 2 are a result of Nufarm communication with CDPR. Nufarm believes these changes fall under the scope of PR Notice 1998-10.

To process this request please find enclosed the following:

- Application for Pesticide Registration EPA form 8570-1
- Certification with Respect to Label Integrity form
- Revised labeling with areas of change clearly identified (1 copy)
- Revised labeling – clean (1 copy)
- CD containing the proposed labeling

If you should have any questions regarding this matter, please feel free to contact me at (630) 455-2048 or matthew.granahan@us.nufarm.com.

Sincerely,

Matthew Granahan
Regulatory Manager
Nufarm Americas, Inc.

Nufarm Polaris AC
Complete Herbicide

FOR THE CONTROL OF UNDESIRABLE VEGETATION IN FORESTRY SITES, AQUATIC SITES, GRASS PASTURE, RANGELAND, FENCE ROWS, MAINTENANCE OF WILDLIFE OPENINGS, AND INDUSTRIAL NONCROPLAND AREAS INCLUDING RAILROAD, UTILITY, PIPELINE RIGHTS-OF-WAY, UTILITY PLANT SITES, PETROLEUM TANK FARMS, PUMPING INSTALLATIONS, STORAGE AREAS, BUILDING PERIMETERS, IRRIGATION AND NON-IRRIGATION DITCHBANKS, ROADS, TRANSMISSION LINES, AND INDUSTRIAL BARE GROUND AREAS.

ACTIVE INGREDIENT:

Isopropylamine salt of Imazapyr (2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid)*	53.10%
OTHER INGREDIENTS:	46.90%
TOTAL:	100.00%

*Equivalent to 43.3% 2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid or 4 pounds acid per gallon.

KEEP OUT OF REACH OF CHILDREN

CAUTION / PRECAUCION

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.
(If you do not understand this label, find someone to explain it to you in detail.)

SEE INSIDE BOOKLET FOR FIRST AID AND ADDITIONAL PRECAUTIONARY STATEMENTS

For Chemical Spill, Leak, Fire, or Exposure, Call CHEMTREC (800) 424-9300
For Medical Emergencies Only, Call (877) 325-1840

In the State of New York, Aquatic Uses are Not Allowed.

NOTIFICATION

OCT 26 2011

EPA REG. NO. 228-570
EPA EST. NO.

MANUFACTURED FOR
NUFARM AMERICAS INC.
150 HARVESTER DRIVE
BURR RIDGE, IL 60527

NET CONTENTS GALS.

[Designation as "NONREFILLABLE" or "REFILLABLE" for containers > 5 GAL]

000228-00570.20111019.EPA Notification

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS
CAUTION / PRECAUCION

Harmful if inhaled. Avoid contact with skin, eyes, or clothing. Avoid breathing spray mist.

Some materials are chemical resistant to this product are natural rubber ≥14 mils. If you want more options, follow the instructions for category A on the EPA chemical resistance category selection chart.

PERSONAL PROTECTIVE EQUIPMENT (PPE):

Mixers, loaders, applicators and other handlers must wear:
- Long-sleeved shirt and long pants,
- Shoes plus socks
- Chemical-resistant gloves for mixers and loaders, plus applicators using handheld equipment.

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. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.

Pilots must use an enclosed cockpit that meet the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d) (6)].

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.
- Wash the outside of gloves before removing.
- User should remove clothing/PPE immediately if pesticide gets inside.

FIRST AID	
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 possible. • Call a poison control center or doctor for further treatment advice.
IF IN EYES	• Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. • Call 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 15-20 minutes. • Call a poison control center or doctor for treatment advice.
HOT LINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-877-325-1840 for emergency medical treatment information.	

ENVIRONMENTAL HAZARDS

This product is toxic to plants. Drift and run-off may be hazardous to plants in water adjacent to treated areas. Do not apply to water except as specified in this label. Treatment of aquatic weeds may result in oxygen depletion or loss to decomposition of dead plants. Do not treat more than one half the surface area of the water in a single operation and wait at least 10 to 14 days between treatments. Begin treatments along the shore and proceed outward in bands to allow aquatic organisms to move into untreated areas. Do not contaminate water when disposing of equipment; washwaters or rinsate. See Directions for Use for additional precautions and requirements.

PHYSICAL AND CHEMICAL HAZARDS

Spray solutions of this product should be mixed, stored, and applied only in stainless steel, fiberglass, plastic, and plastic-lined steel containers.

Do not mix, store, or apply this product or spray solutions of this product in unlined steel (except stainless steel) containers or spray tanks.

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.

This product may be used only in accordance with recommendations and restrictions on the booklet label. Keep containers closed to avoid spills and contamination.

This product may be applied using helicopters, ground operated sprayers, low-volume hand-operated spray equipment such as back-pack and pump-up sprayers, and tree injection equipment.

Observe all cautions and limitations in the package labels of products used in combination with this product.

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.

The requirements in this box apply to use on trees being grown for sale or other commercial use or commercial seed production or for production of timber or wood products or for research purposes.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 48 hours.

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

- coveralls
- shoes plus socks
- chemical-resistant gloves made of any waterproof material.
- protective eyewear

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 (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 treated areas until sprays have dried.

IMPORTANT

Do not use on food or feed crops. Do not use on Christmas trees. Do not apply this product within one-half mile upstream of an active potable water intake in flowing water (i.e., river, stream, etc.) or within one-half mile of an active potable water intake in a standing body of water, such as a lake, pond or reservoir. Do not apply to water used for irrigation except as described in APPLICATION TO WATERS USED FOR IRRIGATION section of this label. Keep from contact with fertilizers, insecticides, fungicides, and seeds to prevent unintentional exposure of desirable vegetation to this product. Do not apply or drain or flush equipment on or near sensitive desirable plants, or on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots. Do not drain or flush equipment on or near desirable trees or other plants, or on areas where their roots may extend, or in locations where the treated soil may be washed or moved into contact with their roots. Do not apply to lawns. Do not side trim desirable vegetation with this product unless severe injury and plant death can be tolerated. Prevent drift of spray to desirable plants. Clean application equipment after using this product by thoroughly flushing with water.

RESISTANCE

When herbicides with the same mode of action are used repeatedly over several years to control the same weed species in the same application site, naturally occurring resistant weed biotypes may survive a correctly applied herbicide treatment, propagate and become dominant in that site. These resistant weed biotypes may not be adequately controlled. Using herbicides with different modes of action within these sites can aid in delaying the proliferation and possible dominance of herbicide resistant weed biotypes. It is advisable that each user of this product check with the local extension service for a current list of resistant weed biotypes.

PRODUCT INFORMATION

This product is a surfactant free aqueous solution to be mixed in water and generally applied as a post-emergent spray for control of most annual and perennial grasses, broadleaf weeds, vines, brambles, hardwood brush, trees for forestry site preparation and release of conifers from woody and herbaceous competition. This product may be used for selective woody and herbaceous weed control in natural regeneration of certain conifers (see pine release). This product may also be mixed in water and used for stump and cut-stem treatment for control of unwanted woody vegetation. This product can be applied along forest roads to control undesirable vegetation. This product is also recommended for the control of undesirable vegetation along non-irrigation ditchbanks and for the establishment and maintenance of wildlife openings. See use directions for stump and cut stem treatments and herbaceous weed control and use directions for spot treatment of undesirable hardwood vegetation.

This product may be applied on forestry sites that contain areas of temporary surface water caused by the collection of water between planting beds, in equipment ruts, or in other depressions created by forest management activities, except in the state of New York. It is permissible to treat drainage ditches, intermittent drainage, intermittently flooded low lying sites, seasonally dry flood plains, and transitional areas between upland and lowland sites when no water is present, except in the state of New York. Only the edge of drainage ditches can be treated for drainage ditches that contain water. It is also permissible to treat marshes, swamps, and bogs after water has receded, as well as seasonally dry flood deltas, except in the state of New York.

SYMPTOMOLOGY

This product is readily absorbed through foliage and roots and is translocated rapidly throughout the plant, with accumulation in the meristematic regions. Treated plants stop growing soon after spray application. Chlorosis first appears in the youngest leaf tissue. In perennials, the herbicide is translocated into the roots, thus preventing most resprouting. Chlorosis and tissue necrosis may not be apparent in some plant species for several weeks after application. Woody plants, brush, and trees normally do not display the full extent of herbicide control until several months following application.

MIXING AND APPLICATION INSTRUCTIONS

WHEN USING FOR CONIFER RELEASE TREATMENTS, PLEASE REFER TO THE CONIFER RELEASE SECTION OF THIS LABEL.

PRECAUTIONS FOR AVOIDING INJURY TO NON-TARGET PLANTS

Untreated desirable plants can be affected by root uptake of this product from treated soil. Injury or loss of desirable plants may result if this product is applied on or near desirable plants, on areas where their roots extend, or in locations where the treated soil may be washed or moved into contact with their roots. When making applications along shorelines where desirable plants may be present, caution should be exercised to avoid spray contact with their foliage or spray application to the soil in which they are rooted. Shoreline plants that have roots that extend into the water in an area where this product has been applied generally will not be adversely affected by uptake of the herbicide from the water.

If treated vegetation is to be removed from the application site, Do not use the vegetative matter as mulch or compost on or around desirable species.

Untreated trees can occasionally be affected by root uptake of this product through movement into the top soil. Injury or loss of desirable trees or other plants may result if this product is applied on or near desirable trees or other plants, on areas where their roots extend, or in locations where the treated soil may be washed or moved into contact with their roots.

MANAGING OFF-TARGET MOVEMENT

The following information is provided as general guidance for managing off-target movement. Specific use recommendations for this product may differ depending on the application technique used and the vegetation management objective.

SPRAY DRIFT

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.

Spray drift from applying this product may result in damage to sensitive plants adjacent to the treatment area. Only apply this product when the potential for drift to these and other adjacent sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, or non-target crops) is minimal. Do not apply when the following conditions exist that increase the likelihood of spray drift from intended targets: high or gusty winds, high temperatures, low humidity, temperature inversions.

To minimize spray drift, the applicator should be familiar with and take into account the following drift reduction advisory information. Additional information may be available from state enforcement agencies or the Cooperative Extension on the application of this product.

The best drift management strategy and most effective way to reduce drift potential are to apply large 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 low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift. Do not use nozzles producing a mist droplet spray.

Application Height: Making applications at the lowest possible height (aircraft, ground driven spray boom) that is safe and practical reduces exposure of droplets to evaporation and wind. Swath Adjustment: When applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the application equipment (e.g. aircraft, ground) upwind. Swath adjustment distance should increase with increasing drift potential (higher wind, smaller droplets, etc.).

Wind: Drift potential is lowest between wind speeds of 3-10 mph. Do not apply at with wind speeds greater than 10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. Application should be avoided below 3 mph due to variable wind direction and high inversion potential. NOTE: Local terrain can influence wind patterns. Every applicator should 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: Drift potential is high during a temperature inversion. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud, which 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.

Wind Erosion: Avoid treating powdery dry or light sandy soils when conditions are favorable for wind erosion. Under these conditions, the soil surface should first be settled by rainfall or irrigation.

Aerial Application Methods and Equipment: Use 2 or more gallons of water per acre. The actual minimum spray volume per acre is determined by the spray equipment used. Use adequate spray volume to provide accurate and uniform distribution of spray particles over the treated area and to avoid spray drift.

Aerial Applications:

-Applicators are required to use a coarse or coarser droplet size (ASABE S572) or, if specifically using a spinning atomizer nozzle, applicators are required to use a volume mean diameter (VMD) of 385 microns or greater for release heights below 10 feet; Applicators are required to use a very coarse or coarser droplet size or, if specifically using a spinning atomizer nozzle, applicators are required to use a VMD of 475 microns or greater for release heights above 10 feet; Applicators must consider the effects of nozzle orientation and flight speed when determining droplet size.

-Applicators are required to use upwind swath displacement.

-The boom length must not exceed 60% of the wingspan or 90% of the rotor blade diameter to reduce spray drift.

-Applications with wind speeds less than 3mph and with wind speeds greater than 10 mph are prohibited.

-Applications into temperature inversions are prohibited.

ADJUVANTS

Postemergence applications of this product may require the addition of a spray adjuvant for optimum herbicide performance. Only use spray adjuvants that are labeled for the specific use sites. When using for conifer release treatments, please refer to the conifer release section of this label. The addition of a Chemical Producers and Distributors Associations (CPDA) certified adjuvant may increase control. A CPDA certified drift control agent may also be used.

Nonionic Surfactants: Use a nonionic surfactant at the rate 0.25% v/v or higher (see manufacturer's label) of the spray solution (0.25% v/v is equivalent to 1 quart in 100 gallons). For best results, select a nonionic surfactant with a HLB (hydrophilic to lipophilic balance) ratio between 12 and 17 with at least 90% surfactant in the formulated product (alcohols, fatty acids, oils, ethylene glycol or diethylene glycol should not be considered as surfactants to meet the above requirements).

Methylated Seed Oils or Vegetable Oil Concentrates: Instead of a surfactant, a methylated seed oil or vegetable-based seed oil concentrate may be used at the rate of 1.5 to 2 pints per acre. When using spray volumes greater than 30 gallons per acre, methylated seed oil or vegetable based seed oil concentrates should be mixed at a rate of 1% of the total spray volume, or alternatively use a nonionic surfactant as described above. Research indicates that these oils may aid in product deposition and uptake by plants under moisture or temperature stress.

Silicone Based Surfactants: See manufacturer's label for specific rate recommendations. Silicone-based surfactants may reduce the surface tension of the spray droplet, allowing greater spreading on the leaf surface as compared to conventional nonionic surfactants. However, some silicone-based surfactants may dry too quickly, limiting herbicide uptake.

Invert Emulsions: This product can be applied as an invert emulsion. Consult the invert chemical label for proper mixing directions. Fertilizer/Surfactant Blends: Nitrogen based liquid fertilizers such as 28%N, 32%N, 1 0-34-0 or ammonium sulfate, may be added at the rate of 2 to 3 pints per acre in combination with the recommended rate of nonionic surfactant, methylated seed oil or vegetable/seed oil concentrate. The use of fertilizers in a tank mix without a nonionic surfactant, methylated seed oil or vegetable/seed oil concentrate is not recommended.

Other: An antifoaming agent, spray pattern indicator or drift reducing agent may be applied at the product labeled rate if necessary or desired.

HELICOPTER SPRAY EQUIPMENT:

Thoroughly mix the directed amount of this product in 5 to 30 gallons of water per acre and uniformly apply with properly calibrated aerial equipment. A suitable nonionic surfactant may be added to the spray solution to enhance control of undesirable vegetation. All precautions should be taken to minimize or eliminate spray drift. Applications should not be made under windy or gusty conditions. The use of controlled droplet booms and nozzle configurations is recommended. A drift control agent may be added at the specified label rate. A foam reducing agent may be added at the specified label rate, if needed.

IMPORTANT: Do not make applications by fixed wing aircraft. Maintain adequate buffer zones. Thoroughly clean application and mixing equipment, including landing gear, immediately after use. Prolonged exposure of this product to uncoated steel (except stainless steel) surfaces may result in corrosion and failure of the exposed part.

GROUND OPERATED SPRAY EQUIPMENT:

GROUND APPLICATION (BROADCAST)

Water Volume: Use adequate spray volume to provide accurate and uniform distribution of spray particles over the treated area and to avoid spray drift. Thoroughly mix and apply the recommended amount of this product in 5 gallons or more per treated acre. The actual minimum spray volume per acre is determined by the spray equipment used and sites treated. Use adequate spray volume to provide accurate and uniform distribution of spray particles over the treated area and to avoid spray drift.

A suitable nonionic surfactant may be added to the spray solution to enhance control of undesirable vegetation.

A drift control agent and a foam reducing agent may be added at the recommended label rates, if needed. If desired, a spray pattern indicator may be added at the recommended label rate.

For best results, uniformly cover the foliage of the vegetation to be controlled with the spray solution.

Ground Boom Applications:

- Applicators are required to use a nozzle height below 4 feet above the ground or plant canopy and coarse or coarser droplet size (ASABE S572) or, if specifically using a spinning atomizer nozzle, applicators are required to use a volume mean diameter (VMD) of 385 microns or greater.

-Applications with wind speeds greater than 10 mph are prohibited.

-Applications into temperature inversions are prohibited.

IMPORTANT: Maintain adequate buffer zones. Clean application and mixing equipment after using this product by thoroughly flushing with water.

FOLIAR APPLICATIONS

Low Volume Foliar:
For low volume, select proper nozzles to avoid over-application. Moisten, but do not drench target vegetation causing spray solution to run off. Proper application is critical to ensure desirable results. Best results are achieved when the spray covers the crown and approximately 70 percent of the plant.

DIRECTED FOLIAR OR SPOT SPRAY EQUIPMENT:
When making directed or spot spray applications with helicopter or ground spray equipment, or low-volume hand operated spray equipment, thoroughly mix a solution of 1 to 5 percent by volume of this product and a minimum of ~~1~~ percent by volume nonionic surfactant in water. When using for conifer release treatments, please refer to the conifer release section of this label.

To mix the spray solution, add the volume of this product and nonionic surfactant indicated in the table below to the desired amount of water.

CUT STUBBLE:
This product can be applied within 2 weeks after mechanical mowing or cutting of brush. To suppress or control resprouting, uniformly apply a spray solution of this product at the rate of 1 to 2 pints per acre to the cut area. This product may be tank-mixed with picloram, or equivalent labeled product for this use, to aid in control or suppression of brush. The addition of 5% (v/v) or more of a penetrating agent can aid in uptake through the bark or exposed roots.

Cut stubble applications are made to the soil and cut brush stumps. This type of application may increase ground cover injury. However, vegetation will recover. Making applications of this product directly to the soil can increase potential root uptake causing injury or death of desirable trees.

Efficacy can be increased and root uptake by desirable vegetation can be decreased if the brush is allowed to regrow and the foliage is treated. See the Brush Control section of this label.

CUT SURFACE TREATMENTS

This product may be used to control undesirable woody vegetation by applying the product solution to the cambium area of freshly cut stump surfaces or to fresh cuts on the stem of the target woody vegetation. Applications can be made at any time of the year except during periods of heavy sap flow in the spring. Do not over apply solution causing run-off from the cut surface.

Injury may occur to desirable woody plants if the shoots extend from the same root system or their root systems are grafted to those of the treated tree.

Mixing: This product may be mixed as either a concentrated or dilute solution for stump and cut stem treatments. The dilute solution may be used for applications to the surface of the stump or to cuts on the stem of the target woody vegetation. Concentrated solutions may be used for applications to cuts on the stem. Use of the concentrated solution permits application to fewer cuts on the stem, especially for large diameter trees. Follow the application instructions to determine proper application techniques for each type of solution.

To prepare a dilute solution, mix 4 to 6 fluid ounces of this product with one gallon of water. If temperatures are such that freezing of the spray mixture may occur, antifreeze (ethylene glycol) may be used according to manufacturer's label to prevent freezing. The use of a surfactant or penetrating agent may improve uptake through partially callused cambiums. To prepare a concentrated solution, mix 1 quart of this product with no more than 1 quart of water.

SPRAY SOLUTION MIXING GUIDE FOR LOW-VOLUME FOLIAR APPLICATIONS

AMOUNT OF SPRAY SOLUTION BEING PREPARED	DESIRED CONCENTRATION (fluid volume)					
	0.25%	0.50%	0.75%	1.00%	1.50%	5.00%
1 gallon	0.30 oz.	0.60 oz.	0.90 oz.	1.30 oz.	1.90 oz.	6.50 oz.
3 gallons	1.00 oz.	1.90 oz.	2.80 oz.	3.80 oz.	5.80 oz.	1.2 pints
4 gallons	1.25 oz.	2.50 oz.	3.80 oz.	5.10 oz.	7.70 oz.	1.6 pints
5 gallons	1.60 oz.	3.20 oz.	4.80 oz.	6.50 oz.	9.60 oz.	2.0 pints
50 gallons	1 pint	2 pints	3 pints	4 pints	6 pints	10 quarts
100 gallons	2 pints	4 pints	6 pints	8 pints	6 quarts	5 gallons
2 Tablespoons = 1 Fluid Ounce						

Refer to individual use sections.
For best results, uniformly cover the foliage of the vegetation to be controlled with the spray solution. Avoid making applications directly to desirable conifers. For low volume directed applications on bigleaf maple a 2.5% by volume spray solution is recommended. **IMPORTANT:** Do not over apply causing runoff from the treated foliage. Avoid direct application to desired plant species as injury may occur. Do not exceed recommended dosage rate per acre.

CUT SURFACE APPLICATIONS WITH DILUTE AND CONCENTRATE SOLUTIONS

This product may be mixed as either a concentrated or dilute solution. The dilute solution may be used for applications to the cut surface of the stump or to cuts on the stem of the target woody vegetation. Concentrated solutions may be used for applications to cuts on the stem. Use of the concentrated solution permits application to fewer cuts on the stem, especially for large diameter trees. Follow the application instructions to determine proper application techniques for each type of solution.

- To prepare a dilute solution, mix 4 to 6 fluid ounces of this product with one gallon of water. The use of a surfactant or penetrating agent may improve uptake through partially callused cambiums.
- To prepare a concentrated solution, mix 1 quart of this product with no more than 1 quart of water.

Cut stump treatments:

- Dilute Solution - Spray or brush the solution onto the cambium area of the freshly cut stump surface. Insure that the solution thoroughly wets the entire cambium area (the wood next to the bark of the stump).

Cut stem (injection, hack & squirt) treatments:

- Dilute Solutions - Using standard injection equipment, apply 1 milliliter of solution at each injection site around the tree with no more than one-inch intervals between cut edges. Insure that the injector completely penetrates the bark at each injection site.
- Concentrate Solutions - Using standard injection equipment, apply 1 milliliter of solution at each injection site. Make at least one injection cut for every 3 inches of Diameter at Breast Height (DBH) on the target tree. For example, a 3-inch DBH tree will receive 1 injection cut and a 6-inch DBH tree will receive 2 injection cuts. On trees requiring more than one injection site place the injection cuts at approximately equal intervals around the tree.

Frill or girdle treatments:

- Using a hatchet, machete, or chain saw, make cuts through the bark and completely around the tree to expose the cambium. The cut should angle downward extending into the cambium enough to expose at least two growth rings. Using a spray applicator or brush, apply a 25% to 100% solution of this product into each cut until thoroughly wet. Avoid applying so much herbicide that runoff to the ground or water occurs.

SITE PREPARATION TREATMENTS

This product may be used to control labeled actively growing grasses, broadleaf weeds, vines and brambles, and woody brush and trees on forest sites in advance of regeneration for the following conifer crop species:

Crop Species	Rate (oz./A)
Loblolly Pine (*Pinus taeda*)	24-40
Loblolly X Pitch Hybrid	24-40
Longleaf Pine (*Pinus palustris*)	24-40
Shortleaf Pine (*Pinus echinata*)	24-40
Virginia Pine (*Pinus virginiana*)	24-40
Slash Pine (*Pinus elliottii*)	20-32
Douglas-Fir (*Pseudotsuga menziesii*)	12-24
Coastal Redwood (*Sequoia sempervirens*)	12-24
Western Hemlock (*Tsuga heterophylla*)	12-24
California Red Fir (*Abies magnifica*)	12-20
California White Fir (*Abies concolor*)	12-20
Jack Pine (*Pinus banksiana*)	12-16
Lodgepole Pine (*Pinus contorta*)	12-16
Pitch Pine (*Pinus rigida*)	12-16
Ponderosa Pine (*Pinusponderosa*)	12-16
Sugar Pine (*Pinus lambertiana*)	12-16
White Pine (*Pinus strobus*)	12-16
Black Spruce (*Picea mariana*)	12-16
Red Spruce (*Picea rubens*)	12-16
White Spruce (*Picea glauca*)	12-16

Use the specified rate of this product per acre applied as a broadcast foliar spray for long-term control of labeled woody plants and residual control of herbaceous weeds. Within 4 to 6 weeks of treatment, grasses and other herbaceous weeds will be controlled and may provide fuel to facilitate a site preparation burn, if desired, to control conifers or other species tolerant to the herbicide.

Apply the specified rate of this product per acre in 5 to 30 gallons total spray solution for helicopter applications or 5 to 100 gallons total spray solution for mechanical ground spray and backpack applications. Use a minimum of 1/4 percent by volume nonionic surfactant. Use the higher label rates of this product and higher spray volumes when controlling particularly dense or multilayered canopies of hardwood stands, or difficult to control species.

Tank mixes may be necessary for chemical control of conifers and other species tolerant to this product in certain cases. Observe all precautions and restrictions on the product labels. Always follow the most restrictive label. Combinations with other products labeled for forest site preparation may kill certain plants such as legumes and blackberry which are desirable for wildlife habitat.

Where quick initial brown out (deadening of foliage) is desired for burning, apply a tank mixture of this product with triclopyr or other products registered for this use at specified label rates per acre. For control of seedling pines, apply this product with glyphosate or other products registered for this use at specified label rates. For site preparation, rates less than the specified label rates of this product will provide suppression of hardwood brush and trees, and some re-sprouting may occur.

Do not plant seedlings of black spruce (*Picea mariana*) or white spruce (*Picea glauca*) on sites that have been broadcast treated with this product or into the treated zone of spot or banded applications for three months following application or injury may occur.

HERBACEOUS WEED CONTROL

Use this product for selective weeding in the following conifers:

Crop Species	Rate (f l. oz./A)
Loblolly Pine (*Pinus taeda*)	4 - 6
Loblolly X Pitch Hybrid	6 - 10
Virginia Pine (*Pinus virginiana*)	6 - 10
Longleaf Pine (*Pinus palustris*) [1]	4 - 6
Shortleaf Pine (*Pinus echinata*) [1]	4 - 6
Slash Pine (*Pinus elliottii*) [1]	4 - 6
Douglas-Fir (*Pseudotsuga menziesii*) [1]	4 - 6

[1]Use of surfactant is not recommended.

This product may be applied as a broadcast treatment, banded over tree rows, or as a directed spray for release of young conifers from herbaceous weeds. To prevent possibility of conifer injury, do not apply this product when conifers are under stress from drought, diseases, animal or winter injury, planting shock, or other stresses reducing conifer vigor. Broadcast applications may be made by helicopter, ground, or backpack sprayer. For difficult to control weeds, use the higher labeled rates. Where herbaceous weeds have overtopped conifer seedlings, a nonionic surfactant may be added to improve weed control (except for slash pine, long-leaf pine, and Douglas-fir), at a rate not to exceed 1/4 percent of spray solution volume. Some minor conifer growth inhibition may be observed when herbaceous weed control treatments are made during periods of active conifer growth.

This product may also be applied using backpack or hand-held sprayers to control herbaceous weeds around individual conifer seedlings. Mix 0.4 to 0.6 fluid ounces of this product and 0.2 fluid ounces nonionic surfactant per gallon of water. Direct the spray to the weeds and minimize the amount applied to conifer foliage for best conifer tolerance. Ensure that maximum labeled rates per acre listed for crop species above are not exceeded.

This product may be tank mixed with a sulfometuron-methyl product to broaden the spectrum of weeds controlled. For loblolly pine, apply 4 to 6 fluid ounces of this product plus a sulfometuron-methyl product at the specified label rate per acre. The application of this product plus a sulfometuron-methyl product at the specified label rates on other conifer species may cause growth suppression.

CONIFER RELEASE TREATMENTS

This product may be applied as a broadcast or directed spray application for suppression of labeled brush, tree, and herbaceous weed species. Directed spray applications may be made with low-volume applications in conifer stands of all ages by targeting the unwanted vegetation and avoiding direct application to the conifer. Ensure that maximum labeled rates per acre listed for crop species below are not exceeded.

Use broadcast applications of this product for release of the following conifers from hardwood competition:

Crop Species	Rate (f l. oz./Acre)
Loblolly Pine (*Pinus taeda*) 3	12 - 20
Loblolly X Pitch Hybrid 3	12 - 20
Virginia Pine (*Pinus virginiana*) 3	12 - 20
Longleaf Pine (*Pinuspalustris*)	12- 16
Pitch Pine (*Pinus rigida*)	12 - 16
Shortleaf Pine (*Pinus echinata*)	12 - 16
Slash Pine (*Pinus elliottii*)	12 - 16
White Pine (*Pinus strobus*) 1	8 - 16
California Red Fir (*Abies magnifica*)	8 - 12
California White Fir (*Abies concolor*)	8 - 12
Lodgepole Pine (*Pinus contorta*) 2	8 - 12
Douglas-Fir (*Pseudotsuga menziesii*) 2	8 - 12
Jack Pine (*Pinus banksiana*) 2	6 - 12
Black Spruce (*Picea mariana*) 2	6 - 12
Red Spruce (*Picea rubens*) 2	6 - 12
White Spruce (*Picea glauca*) 2	6 - 12

1 Do not make applications to white pine stands younger than three years old. To minimize potential white pine injury, release treatments should not be made prior to July 15.

2 Applications should be made after formation of final conifer resting buds in the fall or height growth inhibition may occur.

3 Mid-rotation release: For broadcast applications below the pine canopy in established stands of loblolly pine, loblolly X pitch hybrid, and Virginia pine use 16 to 32 fluid ounces product per acre. For mid-rotation release of other species use rates listed above.

Apply the specified rate of this product per acre when making broadcast applications with helicopter or ground spray equipment. Refer to mixing and application instructions for proper spray volumes. A nonionic surfactant may be added at no more than 1/4 percent by volume.

Use the higher label rates of this product when controlling particularly dense stands or difficult to control species. Some minor conifer growth inhibition may be observed when release treatments are made during periods of active conifer growth. To minimize potential conifer height growth inhibition, do not make broadcast applications to conifer stands, except loblolly pine, before the end of the second growing season. To minimize potential conifer height growth inhibition, broadcast release treatments may be made late in the growing season. To prevent possibility of conifer injury, Do not apply this product when conifers are under stress from drought, diseases, animal or winter injury, or other stresses reducing conifer vigor.

This product may be used to release loblolly pine seedlings during the first growing season following planting or for one-year-old natural loblolly pine regeneration. For one-year-old loblolly pine release, apply 12 to 20 fl. oz./A of this product after July 15. The use of rates below 16 fl. oz./A is intended for hardwood growth suppression and some hardwood resprouting should be expected.

FOR SLASH PINE AND LONGLEAF PINE, broadcast release treatments over the top of pines for the purpose of woody plant control must be made after August 15 and only in stands 2 through 5 years old. For applications over the top of slash pine and longleaf pine, do not add surfactant and use lower labeled rates on sandy soils.

FOR THE AERIAL RELEASE TO SLASH PINE (*PINUS ELLIORTII*) STANDS OVER THE AGE OF 5 YEARS This product may be applied as an aerial application for release of slash pine stands over the age of 5 years. In addition to reading and following all directions in this product, the following precautions and restrictions are required:

- Make applications in the fall after slash pine height growth has stopped and buds have set.
- Do not apply before September 15 even if height growth has stopped and buds have set.
- A maximum of 12 to 14 fl. oz./A of this product may be applied. Use the 12 fl. oz./A rate on sandier sites.

USE FOR SPOT TREATMENT OF UNDESIRABLE HARDWOOD VEGETATION

This product may be used as a directed foliar or cut stem application to control undesirable brush and hardwoods in the management of stands of all ages for the conifer species listed in the broadcast application section above. Refer to mixing and application instructions in the directed foliar or cut stem sections above for proper use rates, equipment, and application techniques. Ensure that the maximum labeled rates per acre listed for crop species are not exceeded. Cut stem applications may be used for spot treatment of undesirable hardwoods in Ponderosa pine stands using 12 fluid ounces or less of product per acre.

Avoid direct application to desired plant species as injury may occur. Injury may occur to non-target or desirable hardwoods or conifers if they extend from the same root system or their root systems are grafted to those of the treated tree or if their roots extend into the treated zone.

LATE ROTATION VEGETATION CONTROL IN WESTERN CONIFERS

In California, the Pacific Northwest and Inland Northwest, broadcast aerial applications of this product up to 24 fl. oz./A are permissible in conifer stands that are targeted for harvesting the year following treatment. Use minimum spray volume of 15 gallons per acre. Do not use this treatment if conifer injury or mortality cannot be tolerated.

BAG AND SPRAY APPLICATIONS FOR CONIFER RELEASE

In Douglas-fir and Ponderosa pine stands, broadcast applications of this product up to 16 fl. oz./A are permissible when the trees are covered by bags prior to the application. The bags must prevent the spray mix from contacting the conifer foliage. On sites with coarse textured soils (e.g. decomposed granite, pumice, sandy or rocky sites) or low levels of soil organic matter (generally 5% or less) significant conifer growth inhibition and mortality is possible. Do not use this treatment on these types of sites if conifer growth inhibition and mortality cannot be tolerated.

WEEDS CONTROLLED

This product will provide post-emergence control and some residual control of the following target vegetation species. Degree of control is both species and rate dependent. This product should be used only in accordance with the instructions on this label.

GRASSES

The species of annual and perennial grasses controlled by this product include the following:

Annual bluegrass (*Poa annua*)
Bahiagrass (*Paspalum notatum*)
Barnyardgrass (*Echinochloa crus-galli*)
Beardgrass (*Andropogon* spp.)
Bermudagrass (*Cynodon dactylon*) 1
Big bluestem (*Andropogon gerardii*)
Broadleaf signalgrass (*Brachiaria platyphylla*)
Canada bluegrass (*Poa compressa*)
Cattail (*Typha* spp.)
Cheat (*Bromus secalinus*)
Cogongrass (*Imperata cylindrica*) 2
Crabgrass (*Digitaria* spp.)
Crowfootgrass (*Dactyloctenium aegyptium*)
Dallisgrass (*Paspalum dilatatum*)
Downy brome (*Bromus tectorum*)
Fall panicum (*Panicum dichotomiflorum*)
Feathertop (*Pennisetum villosum*)
Fescue (*Festuca* spp.)
Foxtail (*Setaria* spp.)
Giant reed (*Arundo donax*)
Goosegrass (*Eleusine indica*)
Guineagrass (*Panicum maximum*)
Italian ryegrass (*Lolium multiflorum*)
Itchgrass (*Rottboellia exaltata*)
Johnsongrass (*Sorghum halepense*) 1
Junglerice (*Echinochloa colonum*)
Kentucky bluegrass (*Poa pratensis*)
Lovegrass (*Eragrostis* spp.) 1
Orchardgrass (*Dactylis glomerata*)
Panicum spp.
Paragrass (*Brachiaria mutica*)
Phragmites (*Phragmites australis*)
Prairie cordgrass (*Spartina pectinata*)
Prairie threeawn (*Aristida oligantha*)
Quackgrass (*Agropyron repens*)
Reed canary grass (*Phalaris arundinacea*)
Saltgrass (*Distichlis stricta*)
Sand dropseed (*Sporobolus cryptandrus*)
Sandbur (*Cenchrus* spp.)
Smooth brome (*Bromus inermis*)
Sprangletop (*Leptochloa* spp.)
Timothy (*Phleum pratense*)
Torpedograss (*Panicum repens*)
Vaseygrass (*Paspalum urvillei*)
Wild barley (*Hordeum* spp.)
Wild oats (*Avena fatua*)
Wirestem muhly (*Muhlenbergia frondosa*)
Witchgrass (*Panicum capillare*)
Woolly cupgrass (*Eriochloa villosa*)

1 Use higher labeled rates.
2 Use minimum of 24 fl. oz. per acre.

BROADLEAF WEEDS

The species of annual and perennial broadleaf weeds controlled by this product include the following:

Arrowwood (*Pluchea sericea*)
Broom snakeweed (*Gutierrezia sarothrae*)
Bull thistle (*Cirsium vulgare)*
Burclover (*Medicago* spp.)
Burdock (*Arctium* spp.)
Camphorweed (*Heterotheca subaxillaris*)
Canada thistle (*Cirsium arvense*)
Carolina geranium (*Geranium carolinianum*)
Carpetweed (*Mullugo verticillata*)
Chickweed, mouseear (*Cerastium vulgatum*)
Clover (*Trifolium* spp.)
Cocklebur (*Xanthium strumarium*)
Common chickweed (*Stellaria media*)
Common ragweed (*Ambrosia artemisiifolia*)
Cudweed (*Gnaphalium* spp.)
Dandelion (*Taraxacum officinale*)
Desert camelthorn (*Alhagi pseudalhagi*)
Diffuse knapweed (*Centaurea diffusa*)
Dock (*Rumex* spp.)
Dogfennel (*Eupatorium apillifolium*)
Fiddleneck (*Amsinckia intermedia*)
Filaree (*Erodium* spp.)
Fleabane (*Erigeron* spp.)
Giant ragweed (*Ambrosia trifida*)
Goldenrod (*Solidago* spp.)
Gray rabbitbrush (*Chrysothamnus nauseosus*)
Henbit (*Lamium aplexicaule*)
Hoary vervain (*Verbena stricta*)
Horseweed (*Conyza canadensis*)
Indian mustard (*Brassica juncea*)
Japanese bamboo/knotweed (*Polygonum cuspidatum*)
Knotweed, prostrate (*Polygonum aviculare*)
Kochia (*Kochia scoparia*)
Lambsquarters (*Chenopodium album*)
Little mallow (*Malva parviflora*)
Milkweed (*Asclepias* spp.)
Miners lettuce (*Montia perfoliata*)
Mullein (*Verbascum* spp.)
Nettleleaf goosefoot (*Chenopodium murale*)
Oxeye daisy (*Chrysanthemum leucanthemum*)
Pepperweed (*Lepidium* spp.)
Pigweed (*Amaranthus* spp.)
Plantain (*Plantago* spp.)
Pokeweed (*Phytolacca americana*)
Primrose (*Oenothera kunthiana*)
Puncturevine (*Tribulus terrestris*)
Purple loosestrife (*Lythrum salicaria*)
Purslane (*Portulaca* spp.)
Pusley, Florida (*Richardia scabra*)
Rocket, London (*Sisymbrium irio*)
Rush skeletonweed (*Chondrilla juncea*)
Russian knapweed (*Centaurea repens*)
Russian thistle (*Salsola kali*)
Saltbush (*Atriplex* spp.)
Shepherd's purse (*Capsella bursapastoris*)
Silverleaf nightshade (*Solanum elaeagnifolium*)
Smartweed (*Polygonum* spp.)
Sorrell (*Rumex* spp.)
Sowthistle (*Sonchus* spp.)
Spurge, annual (*Euphorbia* spp.)
Stinging nettle (*Urtica dioica*)
Sunflower (*Helianthus* spp.)
Sweet clover (*Melilotus* spp.)
Tansymustard (*Descurainia pinnata*)
Texas thistle (*Cirsium texanum*)
Velvetleaf (*Abutilon theophrasti*)
Western ragweed (*Ambrosia psilostachya*)
Wild carrot (*Daucus carota*)
Wild lettuce (*Lactuca* spp.)
Wild parsnip (*Pastinaca sativa*)
Wild turnip (*Brassica campestris*)
Woollyleaf bursage (*Ambrosia grayi*)
Yellow starthistle (*Centaurea solstitialis*)
Yellow woodsorrel (*Oxalis stricta*)

WEEDS CONTROLLED

This product will provide post-emergence control and some residual control of the following target vegetation species. Degree of control is both species and rate dependent. This product should be used only in accordance with the instructions on this label.

VINES AND BRAMBLES

The species of vines and brambles controlled by this product include the following:

Field bindweed (*Convolvulus arvensis*)
Hedge bindweed (*Calystegia sequium*)
Honeysuckle (*Lonicera* spp.) 1
Morningglory (*Ipomoea* spp.)
Poison ivy (*Rhus radicans*)
Redvine (*Brunnichia cirrhosa*)
Trumpetcreeper (*Campsis radicans*)
Virginia creeper (*Parthenocissus quinquefolia*)
Wild buckwheat (*Polygonum convolvulus*)
Wild grape (*Vitis* spp.)
Wild rose (*Rosa* spp.) 1
Including: Multiflora rose (*Rosa multiflora*)
Macartney rose (*Rosa bracteata*)

1 Use higher labeled rates.

WOODY BRUSH AND TREES

The species of woody brush and trees controlled by this product include the following:

Alder (*Alnus* spp.)
American beech (*Fagus grandifolia*)
Ash (*Fraxinus* spp.) 1
Aspen (*Populus* spp.)
Autumn olive (*Elaeagnus umbellata*)
Bald cypress (*Taxodium distichum*)
Bigleaf maple (*Acer macrophyllum*)
Birch (*Betula* spp.) 1
Black oak (*Quercus kelloggii*)
Blackgum (*Nyssa sylvatica*) 2
Boxelder (*Acer negundo*)
Brazilian peppertree (*Schinus terebinthifolius*)
Ceanothis (*Ceanothis* spp.)
Cherry (*Prunus* spp.) 1,2
Chinaberry (*Melia azedarach*)
Chinese tallow-tree (*Sapium sebiferum*)
Chinquapin (*Castanopsis chrysophylla*)
Cottonwood (*Populus trichocarpa and Populus deltoides*)
Cypress (*Taxodium* spp.)
Dogwood (*Cornus* spp.) 1
Eucalyptus (*Eucalyptus* spp.)
Hawthorn (*Crataegus* spp.)
Hickory (*Carya* spp.) 1
Huckleberry (*Gaylussacia* spp.)
Lyonia spp.
Including: Fetterbush (*Lyonia lucida*)
Staggerbush (*Lyonia mariana*)
Madrone (*Arbutus menziesii*)
Maple (*Acer* spp.)
Melaleuca (*Melaleuca quinquenervia*)
Mulberry (*Morus* spp.) 1,3
Oak (*Quercus* spp.) 4
Persimmon (*Diospyros virginiana*)2
Poison oak (*Rhus diversiloba*)
Popcorn-tree (*Sapium sebiferum*)
Poplar (*Populus* spp.)
Privet (*Ligustrum vulgare*)
Red alder (*Alnus rubra*)
Red maple (*Acer rubrum*)
Saltcedar (*Tamarix pentandra*)
Sassafras (*Sassafras albidum*)
Sourwood (*Oxydendrum arboreum*) 2
Sumac (*Rhus* spp.)
Sweetgum (*Liquidambar styraciflua*)
Sycamore (*Platanus occidentalis*)
Tanoak (*Lithocarpus densiflorus*) 1
TiTi (*Cyrilla racemiflora*) 5
Tree of heaven (*Ailanthus altissima*)
Vaccinium spp.
Including: Blueberry (*Vaccinium* spp.)
Sparkleberry (*Vaccinium arboreum*)
Willow (*Salix*spp.)
Yellow-poplar (*Liriodendron tulipifera*) 1

1 Use higher labeled rates.

2 Best control with applications prior to formation of fall leaf color.

3 The degree of control may be species dependent.

4 For Water oak (*Quercus nigra*), Laurel oak (*Q. laurifloria*), Willow oak (*Q. phellos*) and Live oak (*Q. virginiana*) use higher labeled rates.

5 Suppression.

AQUATIC USE SECTION
USE PRECAUTIONS AND RESTRICTIONS FOR AQUATICS

In the State of New York, Aquatic Uses are Not Allowed.

Applications may only be made for the control of undesirable emergent and floating aquatic vegetation in and around standing and flowing water, including estuarine and marine sites. Applications may be made to control undesirable wetland, riparian and terrestrial vegetation growing in or around surface water.

Aerial application is restricted to helicopter only.

Application of this product can only be made by federal or state agencies, such as Water Management District personnel, municipal officials and the U.S. Army Corps of Engineers, or those applicators who are licensed or certified as aquatic pest control applicators and are authorized by the state or local government.

Applications to private waters: Applications may be made to private waters that are still, such as ponds, lakes and drainage ditches where there is minimal or no outflow to public waters.

Application to public waters: Applications may be made to public waters such as ponds, lakes, reservoirs, marshes, bayous, drainage ditches, canals, streams, rivers, and other slow-moving or quiescent bodies of water for control of aquatic weeds or for control of riparian and wetland weed species.

Consult local state fish and game agency and water control authorities before applying this product to public water. Permits may be required to treat such water.

Recreational Use of Water in Treatment Area: There are no restrictions on the use of water in the treatment area for recreational purposes, including swimming and fishing.

Livestock Use of Water in/from Treatment Area: There are no restrictions on livestock consumption of water from the treatment area.

Precautions for Potable Water Intakes: Do not apply this product directly to water within one-half mile upstream of an active potable water intake in flowing water (i.e., river, stream, etc.) or within one-half mile of an active potable water intake in a standing body of water such as lake, pond or reservoir. To make aquatic applications around and within one-half mile of active potable water intakes, the water intake must be turned off during application and for a minimum of 48 hours after the application. These aquatic applications may be made only in the cases where there are alternative water sources or holding ponds, which would permit the turning off of an active potable water intake for a minimum period of 48 hours after the applications. Note: Existing potable water intakes which are no longer in use, such as those replaced by connections to wells or a municipal water system, are not considered to be active potable water intakes. This restriction does not apply to intermittent, inadvertent over spray of water in terrestrial use sites.

APPLICATION TO WATERS USED FOR IRRIGATION

The use of treated waters on irrigated crops within 120 days of treatment is prohibited.

Seasonal Irrigation Waters: This product may be applied during the off-season to surface waters that are used for irrigation on a seasonable basis, provided that there is a minimum of 120 days between product application and the first use of treated water for irrigation purposes or until product residue levels are determined by laboratory analysis, or other appropriate means of analysis, to be 1.0 ppb or less.

Irrigation Canals/Ditches: Do not apply this product to irrigation canals/ditches unless the 120-day restriction on irrigation water usage can be observed or product residue levels are determined by laboratory analysis, or other appropriate means of analysis, to be 1.0 ppb or less. Do not apply this product to dry irrigation canals/ditches.

Quiescent or Slow Moving Waters: In lakes and reservoirs Do not apply this product within one (1) mile of an active irrigation water intake during the irrigation season. Applications less than one (1) mile from an inactive irrigation water intake may be made during the off-season, provided that the irrigation intake will remain inactive for a minimum 120 days after application or until product residue levels are determined by laboratory analysis, or other appropriate means of analysis, to be 1.0 ppb or less.

Moving water: Do not apply within one-half mile downstream of an active irrigation water intake. When making applications upstream from an active irrigation water intake, the intake must be turned off for a period of time sufficient to allow the upstream portion of treated water to completely flow past the irrigation intake before use can resume. Shut off time will be determined by the speed of water flow and the distance and length of water treated upstream from the intake. Consult local, state and/or federal authorities before making any applications upstream from an active irrigation water intake.

Use Sites: This product is an aqueous solution to be mixed with water and a surfactant and applied as a spray solution to control floating and emergent undesirable vegetation (see AQUATIC WEEDS CONTROLLED section and the ADDITIONAL WEEDS CONTROLLED section) in or near bodies of water which may be flowing, non-flowing, or transient. This product may be applied to specified aquatic sites that include lakes, rivers, streams, ponds, seeps, drainage ditches, canals, reservoirs, swamps, bogs, marshes, estuaries, bays, brackish water, transitional areas between terrestrial and aquatic sites and seasonal wet areas. See AQUATIC USE section of this label for precautions, restrictions, and instructions on aquatic uses.

Read and observe the following directions if aquatic sites are present in terrestrial noncrop areas and are part of the intended treatment area:

Herbicidal Activity: This product will control most annual and perennial grasses and broadleaf weeds in addition to many brush and vine species with some residual control of undesirable species that germinate above the waterline. This product is readily absorbed through emergent leaves and stems and is translocated rapidly throughout the plant, with accumulation in the meristematic regions. Treated plants stop growing soon after spray application. Chlorosis appears first in the newest leaves, and necrosis spreads from this point. In perennials, the herbicide is translocated into, and kills, underground or submerged storage organs, which prevents regrowth. Chlorosis and tissue necrosis may not be apparent in some plant species until two or more weeks after application. Complete kill of plants may not occur for several weeks. Performance of this product may be reduced if rainfall occurs within 2 hours of application.

This product does not control plants which are completely submerged or have a majority of their foliage under water. Application Methods: This product must be applied to the emergent foliage of the target vegetation and has little to no activity on submerged aquatic vegetation. Product concentrations resulting from direct application to water are not expected to be of sufficient concentration or duration to provide control of target vegetation. Application should be made in such a way as to maximize spray interception by the target vegetation while minimizing the amount of over spray that enters the water. For maximum activity, weeds should be growing vigorously at the time of application and the spray solution should include a surfactant (See ADJUVANTS section for specific recommendations). This product may be selectively applied by using low-volume directed application techniques or may be broadcast- applied by using ground equipment, watercraft or by helicopter. In addition, this product may also be used for cut stump, cut stem and frill and girdle treatments within aquatic sites (see AERIAL APPLICATIONS and GROUND APPLICATIONS sections for additional details).

This product should be applied with surface or helicopter application equipment in a minimum of 5 gallons of water per acre. When applying by helicopter, follow directions under the AERIAL APPLICATIONS section of this label, otherwise refer to section on GROUND APPLICATIONS when using surface equipment.

Applications made to moving bodies of water should be made while traveling upstream to prevent concentration of this herbicide in water. Do not apply to bodies of water or portions of bodies of water where emergent and/or floating weeds do not exist.

When application is to be made to target vegetation that covers a large percentage of the surface area of impounded water, treating the area in strips may avoid oxygen depletion due to decaying vegetation. Oxygen depletion may result in the suffocation of some sensitive aquatic organisms. Do not treat more than one half of the surface area of the water in a single operation and wait at least 10 to 14 days between treatments. Begin treatment along the shore and proceed outward in bands to allow aquatic organisms to move into untreated areas.

Apply this product at 1 to 3 pints per acre depending on species present and weed density. Do not exceed the maximum label rate of 3 pints per acre (1.5 lb. ai/A) per year. Use the higher labeled rates for heavy weed pressure. Consult the AQUATIC WEEDS CONTROLLED section and the ADDITIONAL WEEDS CONTROLLED section of this label for specific rates.

This product may be applied as a draw down treatment in areas described above. Apply this product to weeds after water has been drained and allow 14 days before reintroduction of water.

AQUATIC SPECIES CONTROLLED

This product will control the following target species as specified in the INSTRUCTIONS section of the table. Rates are expressed in terms of product volume for broadcast applications and as a percent solution for directed applications including spot treatments. For percent solution applications, Do not apply more than the equivalent of 1.5 quarts of this product per acre.

COMMON NAME	SCIENTIFIC NAME	INSTRUCTIONS
Floating Species		
* Duckweed	*Lemna minor*	1 -1½ pints/acre (1% solution) applied in 100 GPA water mix. Ensure 100%coverage of actively growing, emergent foliage.
* Duckweed, Giant	*Spirodela polyriza*	1 -1½ pints/acre (1% solution) applied in 100 GPA water mix. Ensure 100%coverage of actively growing, emergent foliage.
* Frogbit	*Limnobium spongia*	½-1 pint/acre (0.5% solution) applied in 100 GPA water mix. Ensure 100%coverage of actively growing, emergent foliage.
* Spatterdock	*Nuphar luteum*	Apply a tank-mix of 1 - 2 pints/acre of this product + 4 - 6 pints/acre glyphosate (0.5% this product + 1.5% glyphosate) in 100 GPA water for best control. Ensure 100% coverage of actively growing, emergent foliage.
* Water Hyacinth	*Eichhornia crassipes*	½-1 pint/acre (0.5% solution) applied in 100 GPA water to actively growing foliage.
* Water Lettuce	*Pistia stratiotes*	½-1 pint/acre (0.5% solution) applied in 100 GPA water mix. Ensure 100%coverage of actively growing, emergent foliage.
Emerged Species		
* Alligatorweed	*Alternanthera philoxeroides*	½-2 pints/acre (0.5% solution) applied in 100 GPA water mix. Ensure 100%coverage of actively growing emergent foliage. Tank-mix with glyphosate is NOT recommended, and may reduce alligatorweed control, requiring higher product rates.
* Arrowhead, Duck-potato	*Sagittaria* spp.	½-1 pint/acre (0.5% solution) applied in 100 GPA water mix. Ensure 100%coverage of actively growing, emergent foliage.
* Bacopa, lemon	*Bacopa* spp.	½-1 pint/acre (0.5% solution) applied in 100 GPA water mix. Ensure 100%coverage of actively growing, emergent foliage.
* Parrot feather	*Myriophyllum aquaticum*	Must be foliage above water for sufficient product uptake. Apply 1 - 2 pints to actively growing emergent foliage.
* Pennywort	*Hydrocotyle* spp.	½-1 pint/acre (0.5% solution) applied in 100 GPA water mix. Ensure 100%coverage of actively growing, emergent foliage.
* Pickerelweed	*Pontederia cordata*	1 -1½ pints/acre (1% solution) applied in 100 GPA water mix. Ensure 100%coverage of actively growing, emergent foliage.
* Taro, wild; Dasheen; Elephant's Ear; Coco Yam	*Colocasia esculentum*	2 - 3 pints/acre (1.5% solution) applied in 100 GPA with a high quality 'sticker' adjuvant. Ensure good coverage of actively growing, emergent foliage.
* Water lily	*Nymphaea odorata*	1 -1½ pints/acre (1% solution) applied in 100 GPA water mix. Ensure 100%coverage of actively growing, emergent foliage.
* Water primrose	*Ludwigia uruguayensis*	2 -3 pints/acre (1.5% solution), ensure 100% coverage of actively growing, emergent foliage. Tank-mix with glyphosate is NOT recommended and may reduce water primrose control.
Terrestrial/Marginal		
* Soda Apple, aquatic; Nightshade	*Solanum tampicense*	1 pint/acre applied to foliage.
* Bamboo, Japanese	*Phyllostachys* spp.	1½ - 2 pints/acre applied to the foliage when plant is actively growing. Before setting seed head. More foliage will result in greater herbicide uptake, resulting in greater root kill.
Brazilian Pepper; Christmasberry	*Schinus terebinthifolius*	1 - 2 pints/acre applied to foliage.
Cattail	*Typha* spp.	1 - 2 pints (1% solution) applied to actively growing, green foliage after full leaf elongation. Lower rates will control cattail in the north; higher rates are needed n the south.
Chinese Tallow Tree	*Sapium sebiferum*	8 - 12 ounces applied to foliage.

(Continued)

COMMON NAME	SCIENTIFIC NAME	INSTRUCTIONS
Terrestrial/Marginal *(continued)*		
Cogon Grass	*Imperata cylindrica*	Burn foliage, till area, that fall spray 1 quart/acre this product + MSO applied to new growth.
Cordgrass, prairie	*Spartina* spp.	2 - 3 pints applied to actively growing foliage.
* Cutgrass	*Zizaniopsis miliacea*	2 - 3 pints applied to actively growing foliage.
* Elephant Grass; Napier Grass	*Pennisetum purpureum*	1½ pints/ acre applied to actively growing foliage.
* Flowering rush	*Butumu typla*	1 - 1½ pints applied to actively growing foliage
Giant Reed, Wild Cane	*Arundo donax*	2 - 3 pints/acre applied in spring to actively growing foliage
* Golden Bamboo	*Phyllostachys aurea*	1½-2 pints/acre applied to the foliage when plant is actively growing. Before setting seed head. More foliage will result in greater herbicide uptake, resulting in greater root kill.
Junglerice	*Echinochloa colonum*	1½- 2 pints applied to actively growing foliage
Knapweeds	*Centaurea species*	Russian Knapweed - 1 to 1½ pints + 1 quart/acre MSO fall applied after senescence begins
Knotweed, Japanese(see Fallopia japonica)	*Polygonum cuspidatum*	1½ - 2 pints/acre applied postemergence to actively growing foliage
Melaleuca; Paperbark Tree	*Melaleuca quinquenervia*	For established stands, apply 3 pints/acre this product+ 6 pints/acre glyphosate + spray adjuvant. For best results use 4 quarts/A methylated seed oil as an adjuvant. For ground foliar application, uniformly apply to ensure 100% coverage. For broadcast foliar control, apply aerially in a minimum of two passes at 10 gallons/acre applied cross treatment. For spot treatment use a 25% this product + 25% solution of + glyphosate +1.25% MSO in water applied as a frill or stump treatment.
* Nutgrass; Kili'p'opu	*Cyperus rotundus*	1 pint this product + 1 quart/acre MSO applied early postemergence
* Nutsedge	*Cyperus* spp.	1 -1½ pints postemergence to foliage or pre-emergence incorporated, non-incorporated preemergence applications will not control.
Phragmites; Common Reed	*Phragmites australis*	1½-2 pints/acre applied to actively growing, green foliage after full leaf elongation, ensure 100% coverage. If stand has a substantial amount of old stem tissue, mow or burn, allow to regrow to approximately 5' tall before treatment. Lower rates will control phragmites in the north; higher rates are needed in the south.
* Poison Hemlock	*Conium maculatum*	1 pint this product + 1 quart/acre MSO applied preemergence to early postemergence to rosette, prior to flowering
Purple Loosestrife	*Lythrum salicaria*	½ pint/acre applied to actively growing foliage
Reed canarygrass	*Phalaris arundinacea*	1½ - 2 pints/acre applied to actively growing foliage
Rose, swamp	*Rosa palustris*	1 - 1½ pints/acre applied to actively growing foliage
Russian-Olive	*Elaeagnus angustifolia*	1 - 2 pints/acre or a 1% solution, applied to foliage
Saltcedar; Tamarisk	*Tamarix species*	Aerial apply 1 quart this product + 0.25%v/v NIS applied to actively growing foliage during flowering. For spot spraying use 1% solution of this product + 0.25%v/v NIS and spray to wet foliage. After application wait at least two years before disturbing treated saltcedar. Earlier disturbance can reduce overall control.
Smartweed	Polygonum spp.	1 pint/acre applied early postemergence
Sumac	Rhus spp.	1 - 1½ pints/acre applied to foliage
Swamp Morning Glory; Water Spinach; Kangkong	*Ipomoea aquatica*	½- 1 pint/acre this product+ 1 quart/acre MSO applied early postemergence
Torpedo Grass	*Panicum repens*	2 pints/acre (1 - 1.5% solution), ensure good coverage to actively growing foliage.
* White Top; Hoary Cress	*Cardaria draba*	½- 1 pints/acre applied in spring, to foliage, during flowering.
Willow	*Salix* spp.	1 - 1½ pints/acre of this product applied to actively growing foliage, ensure good coverage

* - Not for Use in California

TANK MIXES

This product may be tank mixed with other aquatic use herbicides for the control of emergent and floating aquatic vegetation provided that the tank mix herbicide label does not prohibit such mixing. Consult manufacturer's labels for specific rates and weeds controlled. Always follow the more restrictive label instructions and restrictions when making an application involving tank mixes.

TANK MIXES FOR WEED AND BRUSH CONTROL

This product may be tank mixed with other registered herbicide products to provide control of species tolerant to this product.

Consult manufacturer's labels for specific rates and weeds controlled. Always follow the more restrictive label when making an application involving tank mixes. Tank mixing with 2,4-D or products which contain 2,4-D could result in reduced performance of this product when 2,4-D is used at high rates.

INVERT EMULSIONS:
This product can be applied as an invert emulsion. Consult the invert chemical label for proper mixing directions.

FOR CONTROL OF UNDESIRABLE WEEDS UNDER PAVED SURFACES

This product can be used under asphalt, pond liners and other paved areas, ONLY in industrial sites or where the pavement has a suitable barrier along the perimeter that prevents encroachment of roots of desirable plants.

This product should be used only where the area to be treated has been prepared according to good construction practices. If rhizomes, stolons, tubers or other vegetative plant parts are present in the site, they should be removed by scalping with a grader blade to a depth sufficient to insure their complete removal.

IMPORTANT: Paving should follow applications of this product as soon as possible. DO NOT apply where the chemical may contact the roots of desirable trees or other plants.

The product is not recommended for use under pavement on residential properties such as driveways or parking lots, nor is it recommended for use in recreational areas such as under bike or jogging paths, golf cart paths, or tennis courts, or where landscape plantings could be anticipated.

Injury or death of desirable plants may result if this product is applied where roots are present or where they may extend into the treated area. Roots of trees and shrubs may extend a considerable distance beyond the branch extremities or so-called drip line.

APPLICATION DIRECTIONS FOR PAVED SURFACES:
Applications should be made to the soil surface only when final grade is established. Do not move soil following application of this product. Apply this product in sufficient water (at least 100 gals. per acre) to ensure thorough and uniform wetting of the soil surface, including the shoulder areas. Add this product at a rate of 3 pints per acre (1.1 fluid ounces per 1000 square feet) to clean water in the spray tank during the filling operation. Agitate before spraying.

If the soil is not moist prior to treatment, incorporation of this product is needed for herbicide activation. This product can be incorporated into the soil to a depth of 4 to 6 inches using a rototiller or disc. Rainfall or irrigation of 1 inch will also provide uniform incorporation. Do not allow treated soil to wash or move into untreated areas.

FOR CONTROL OF UNDESIRABLE WEEDS IN UNIMPROVED DORMANT BERMUDAGRASS AND BAHIAGRASS This product may be used on unimproved dormant bermudagrass and bahiagrass turf on roadsides and utility rights-of-way. The application of this product on established common and coastal bermudagrass and bahiagrass provides control of labeled broadleaf and grass weeds. Competition from these weeds is eliminated, releasing the bermudagrass and bahiagrass. Treatment of bermudagrass with this product results in a compacted growth habit and seedhead inhibition.

Uniformly apply with properly calibrated ground equipment using at least 10 gallons of water per acre with a spray pressure 20 to 50 psi.

IMPORTANT: Temporary yellowing of grass may occur when treatment is made after growth commences. DO NOT add surfactant in excess of the specified rate (1 fluid ounces per 25 gallons of spray solution). DO NOT APPLY to grass during its first growing season. DO NOT APPLY to grass that is under stress from drought, disease, insects, or other causes.

DOSAGE RATES AND TIMING:
Bermudagrass - Apply this product at 3 to 6 fluid ounces per acre when the bermudagrass is dormant. Apply this product at 3 to 4 fluid ounces per acre after the bermudagrass has reached full green-up. Applications made during green-up will delay green-up. Include a surfactant in the spray solution (See IMPORTANT statement above).

For additional pre-emergence control of annual grasses and small seeded broadleaf weeds, add Endurance® or Pendulum® herbicide at the rate of 3.3 to 6.6 pounds per acre. Consult the Endurance® or Pendulum® label for weeds controlled and for other use directions and precautions.

For control of johnsongrass in bermudagrass turf, apply this product at 4 fluid ounces per acre plus a registered herbicide with addition of an approved surfactant. For additional control of broadleaves and vines, a registered herbicide may be added to the above mix at the rate of 1to 2 pints per acre. Observe all precautions and restrictions on the labels.

Bahiagrass - Apply this product at 2 to 4 fluid ounces per acre when the bahiagrass is dormant or after the grass has initiated green-up but has not exceeded 25% green-up. Include in the spray solution a surfactant (See Adjuvant section for specific recommendations on surfactants).

WEEDS CONTROLLED

Bedstraw (*Galium* spp.)
Bishopweed (*Ptilimnium capillaceum*)
Buttercup (*Ranunculus parviflorus*)
Carolina geranium (*Geranium carolinianum*)
Fescue (*Festuca* spp.)
Foxtail (*Setaria* spp.)
Little barley (*Hordeum pusillum*)
Seedling Johnsongrass (*Sorghum halepense*) Wild carrot (*Daucus carota*)
White clover (*Trifolium repens*)
Yellow woodsorrel (*Oxalis stricta*)

GRASS GROWTH AND SEEDHEAD SUPPRESSION

This product may be used to suppress growth and seedhead development of certain turfgrasses in unimproved areas. When applied to desirable turf, this product may result in temporary turf damage, death, and/or discoloration. Effects to the desirable turf may vary with environmental conditions. For optimum performance, application should be made prior to culm elongation. Applications may be made before or after mowing. If applied prior to mowing, allow at least three days of active growth before mowing. If following a mowing, allow sufficient time for the grasses to recover before applying this product or injury may be amplified.

DO NOT APPLY to turf under stress (drought, cold, insect damaged, etc.) or severe injury or death may occur.

Bermudagrass - Apply this product at 3 to 4 fluid ounces per acre from early green-up to prior to seed head initiation. DO NOT add a surfactant for this application.

Cool Season Unimproved Turf - Apply this product at 1 fluid ounce per acre plus 0.25% nonionic surfactant. For increased suppression, this product may be tank-mixed with other products suitable for this use.

Tank-mixes may increase injury to desired turf. Consult each product label for recommended turf species and other use directions and precautions. Tank mixes with 2,4-D or products containing 2,4-D at higher rates may decrease the effectiveness of this product.

TOTAL VEGETATION CONTROL WHERE BAREGROUND IS DESIRED

This product is an effective herbicide for preemergence or postemergence control of many annual and perennial broadleaf and grass weeds where bare ground is desired. This product is particularly effective on hard-to-control perennial grasses. This product at 0.75 to 3.00 pints per acre can be used alone or in tank mix with Diuron, Simazine, Vanquish®, or other registered herbicides labeled for this use. The degree and duration of control are dependent on the rate of this product used, tank-mix partner, the volume of carrier, soil texture, rainfall and other conditions.

Consult manufacturer's labels for specific rates and weeds controlled. Always follow the more restrictive label when making an application involving tank-mixes.
Applications of these products may be made anytime of the year. Use equipment calibrated to deliver desired gallons per acre spray volume and uniformly distribute the spray pattern over the treated area.

Postemergence Applications: Always use a spray adjuvant (See ADJUVANTS section of this label) when making a postemergence application. For optimum performance on tough to control annual grasses. For spot treatments, this product may be used as a follow-up treatment to control escapes or weed encroachment in a bare ground situation. To prepare the spray solution, thoroughly mix in each gallon of water 0.5 to 5% of this product plus an adjuvant.

FOR SPOT TREATMENT WEED CONTROL IN GRASS PASTURE AND RANGELAND

For the control of undesirable vegetation in grass pasture and rangeland, this product may be applied as a spot treatment at a rate of 1 to 24 fluid ounces of product per treated acre using any of the described ground application methods. Spot applications to grass pasture and rangeland may not exceed more than one tenth of the area to be grazed or cut for hay. See appropriate sections of this label for specific use directions for the application method and vegetation control desired. DO NOT apply more than 48 fluid ounces per acre per year.

Grazing and haying restrictions: There are no grazing restrictions following application of this product. DO NOT cut forage grass for hay for seven days after application of this product.

GUIDELINES FOR RANGELAND USE

This product may be applied to rangeland for the control of undesirable vegetation in order to achieve one or more of the following vegetation management objectives:

1. The control of undesirable (non-native, invasive and noxious) plant species.
2. The control of undesirable vegetation in order to aid in the establishment of desirable rangeland plant species.
3. The control of undesirable vegetation in order to aid in the establishment of desirable rangeland vegetation following a fire.
4. The control of undesirable vegetation for purposes of wildfire fuel reduction.
5. The release of existing desirable rangeland plant communities from the competitive pressure of undesirable plant species.
6. The control of undesirable vegetation for purposes of wildlife habitat improvement.

To ensure the protection of threatened and endangered plants when applying this product to rangeland:

1. Federal agencies must follow NEPA regulations to ensure protection of threatened and endangered plants.
2. State agencies must work with the Fish and Wildlife Service or the Service's designated state conservation agency to ensure protection of threatened and endangered plants.
3. Other organizations or individuals must operate under a Habitat Conservation Plan if threatened or endangered plants are known to be present on the land to be treated.

ROTATIONAL CROP INSTRUCTIONS

Rotational crops may be planted twelve months after applying this product at the specified pasture and rangeland rate. Following twelve months after an application of this product, and before planting any crop, a successful field bioassay must be completed. The field bioassay consists of a test strip of the intended rotational crop planted in the previously treated area in the grass pasture/rangeland and grown to maturity. The test strip should include low areas and knolls, and include variations in soil type and pH within the treated area. If no crop injury is evident in the test strip, the intended rotational crop may be planted the following year.

Use of this product in accordance with label directions is expected to result in normal growth of rotational crops in most situations; however, various environmental and agronomic factors make it impossible to eliminate all risks associated with the use of this product and, therefore, rotational crop injury is always possible.

ADDITIONAL WEEDS CONTROLLED

In terrestrial sites, this product will provide preemergence or postemergence control with residual control of the following target vegetation species at the rates listed. Residual control refers to control of newly germinating seedlings in both annuals and perennials. In general, annual weeds may be controlled by preemergence or postemergence applications of this product. For established biennials and perennials postemergence applications of this product are recommended.

The rates shown below pertain to broadcast applications and indicate the relative sensitivity of these weeds. The relative sensitivity should be referenced when preparing low volume spray solutions (see Low Volume section of Ground Applications); low volume applications may provide control of the target species with less product per acre than is shown for the broadcast treatments. This product should be used only in accordance with the recommendations on this label.

The relative sensitivity of the species listed below can also be used to determine the relative risk of causing non-target plant injury if any of the below listed species are considered to be desirable within the area to be treated.

Resistant Biotypes: Naturally occurring biotypes (a plant within a given species that has a slightly different, but distinct genetic makeup from other plants of the same species) of some weeds listed on this label may not be effectively controlled. If naturally occurring resistant biotypes are present in an area, this product should be tank-mixed or applied sequentially with an appropriate registered herbicide having a different mode of action to ensure control.

GRASSES

COMMON NAME	SPECIES	GROWTH HABIT [2]
Apply 1.0 -1.5 pints per acre [1]		
Annual bluegrass	(*Poa annua*)	A
Broadleaf signalgrass	(*Brachiaria platyphylla*)	A
Canada bluegrass	(*Poa compressa*)	P
Downy brome	(*Bromus tectorum*)	A
Fescue	(*Festuca* spp.)	A/P
Foxtail	(*Setaria* spp.)	A
Italian ryegrass	(*Lolium multiflorum*)	A
Johnsongrass	(*Sorghum halepense*)	P
Kentucky bluegrass	(*Poa pratensis*)	P
Lovegrass	(*Eragrostis* spp.)	A/P
*Napier grass	(*Pennisetum purpureum*)	P
Orchardgrass	(*Dactylis glomerata*)	P
Paragrass	(*Brachiaria mutica*)	P
Quackgrass	(*Agropyron repens*)	P
Sandbur	(*Cenchrus* spp.)	A
Sand dropseed	(*Sporobulus cryptandrus*)	P
Smooth brome	(*Bromus inermis*)	P
Vaseygrass	(*Paspalum urvillei*)	P
Wild oats	(*Avena fatua*)	A
Witchgrass	(*Panicum capillare*)	A
Apply 1.5 -2.0 pints per acre [1]		
Barnyardgrass	(*Echinochloa crus-gali*)	A
Beardgrass	(*Andropogon* spp.)	P
Bluegrass, Annual	(*Poa annua*)	A
*Bulrush	(*Scirpus validus*)	P
Cheat	(*Bromus secalinus*)	A
Crabgrass	(*Digitaria* spp.)	A
Crowfootgrass	(*Dactyloctenium aegyptium*)	A
Fall panicum	(*Panicum dichotomiflorum*)	A
Giant Reed	(*Arundo donax*)	A
Goosegrass	(*Eleusine indica*)	A
Itchgrass	(*Rottboellia exaltata*)	A
Junglerice	(*Echinochloa colonum*)	A
Lovegrass	(*Eragrostis* spp.)	A
*Maidencane	(*Panicum hemitomon*)	A
Panicum, Browntop	(*Panicum fasciculatum*)	A
Panicum, Texas	(*Panicum texanum*)	A
Prairie threeawn	(*Aristida oligantha*)	P
Reed canarygrass	(*Phalaris arundinacea*)	P
Sandbur, Field	(*Cenchrus incertus*)	A
Signalgrass	(*Brachiaria platyphylla*)	A
Torpedograss	(*Panicum repens*)	P
Wild barley	(*Hordeum* spp.)	A
Wooly Cupgrass	(*Eriochloa villosa*)	A
Apply 2.0 - 3.0 pints per acre [1]		
Bahiagrass	(*Paspalum notatum*)	P
Bermudagrass3	(*Cynodon dactylon*)	P
Big bluestem	(*Andropogon gerardii*)	P
Cattail	(*Typha* spp.)	P
Cogongrass	(*Imperata cylindrica*)	P
Dallisgrass	(*Paspalum dilatatum*)	P
Feathertop	(*Pennisetum villosum*)	P
Guineagrass	(*Panicum maximum*)	P
Phragmites	(*Phragmites austalis*)	P
Prairie cordgrass	(*Spartina pectinata*)	P
Saltgrass3	(*Distichlis stricta*)	P
Sand dropseed	(*Sporobolus cryptandrus*)	P
Sprangletop	(*Leptochloa* spp.)	A
Timothy	(Phleum pratense)	P
Wirestem muhly	(Muhlenbergia frondosa)	P

BROADLEAF WEEDS

COMMON NAME	SPECIES	GROWTH HABIT [2]
Apply 1.0 - 1.5 pints per acre [1]		
Alligatorweed	(*Alternanthera philoxeroides*)	A/P
Burdock	(*Arctium* spp.)	B
Goosegrass	(*Eleusine indica*)	A
Camphorweed	(*Heterotheca subaxillaris*)	P
Carolina geranium	(*Geranium carolinianum*)	A
Clover	(*Trifolium* spp.)	A/P
Common chickweed	(*Stellaria media*)	A
Common ragweed	(*Ambrosia artemisiifolia*)	A
Dandelion	(*Taraxacum officinale*)	P
Dog fennel	(*Eupatorium capillifolium*)	A
Filaree	(*Erodium* spp.)	A
Fleabane	(*Erigeron* spp.)	A
Hoary vervain	(*Verbena stricta*)	P
Horseweed	(*Conyza canadensis*)	A
Indian mustard	(*Brassica juncea*)	A
Kochia	(*Kochia scoparia*)	A
Lambsquarters	(*Chenopodium album*)	A
*Lespedeza	(*Lespedeza* spp.)	P
Miners lettuce	(*Montia perfoliata*)	A
Mullein	(*Verbascum* spp.)	B
Nettleleaf goosefoot	(*Chenopodium murale*)	A
Oxeye daisy	(*Chrysanthemum leucanthemum*)	P
Pepperweed	(*Lepidium* spp.)	A

BROADLEAF WEEDS (continued)

COMMON NAME	SPECIES	GROWTH HABIT [2]
	Apply 1.0 -1.5 pints per acre [1]	
Pigweed	(*Amaranthus* spp.)	A
Plantain	(*Plantago* spp.)	P
Puncturevine	(*Tribulus terrestris*)	A
Russian thistle	(*Salsola kali*)	A
Smartweed	(*Polygonum* spp.)	A/P
Sorrell	(*Rumex* spp.)	P
Sunflower	(*Helianthus* spp.)	A
Sweet clover	(*Melilotus* spp.)	A/B
Tansymustard	(*Descurainia pinnata*)	A
Western ragweed	(*Ambrosia psilostachya*)	P
Wild carrot	(*Daucus carota*)	B
Wild lettuce	(*Lactuca* spp.)	A/B
Wild parsnip	(*Pastinaca sativa*)	B
Wild turnip	(*Brassica campestris*)	B
Woollyleaf bursage	(*Franseria tomentosa*)	P
Yellow woodsorrel	(*Oxalis stricta*)	P
	Apply 1.5 -2.0 pints per acre [1]	
Broom snakeweed[4]	(*Gutierrezia sarothrae*)	P
Bull thistle	(*Cirsium vulgare*)	B
Burclover	(*Medicago* spp.)	A
Chickweed, Mouseear	(*Cerastium vulgatum*)	A
Clover, Hop	(*Trifolium procumbens*)	A
Cocklebur	(*Xanthium strumarium*)	A
Cudweed	(*Gnaphalium* spp.)	A
Desert Camelthorn	(*Alhagi pseudalhagi*)	P
Diffuse knapweed	(*Centaurea diffusa*)	A
Dock	(*Rumex* spp.)	P
Fiddleneck	(*Amsinckia intermedia*)	A
Goldenrod	(*Solidago* spp.)	P
Henbit	(*Lamium aplexicaule*)	A
Knotweed, prostrate	(*Polygonum aviculare*)	A/P
Pokeweed	(*Phytolacca americana*)	P
Purple loosestrife	(*Lythrum salicaria*)	P
Purslane	(*Portulaca* spp.)	A
Pusley, Florida	(*Richardia scabra*)	A
Rocket, London	(*Sisymbrium irio*)	A
Rush skeletonweed[4]	(*Chondrilla juncea*)	B
Saltbush	(*Atriplex* spp.)	A
Shepherd's-purse	(*Capsella bursa-pastoris*)	A
Spurge, Annual	(*Euphorbia* spp.)	A
Stinging nettle[4]	(*Urtica dioica*)	P
Velvetleaf	(*Abutilon theophrasti*)	A
Yellow starthistle	(*Centaurea solstitialis*)	A
	Apply 2.0 -3.0 pints per acre [1]	
Arrowweed	(*Pluchea sericea*)	A
Canada thistle	(*Cirsium arvense*)	P
Giant ragweed	(*Ambrosia trifida*)	A
Grey rabbitbrush	(*Chrysothamnus nauseosus*)	P
Little mallow	(*Malva parviflora*)	B
Milkweed	(*Asclepias* spp.)	P
Primrose	(*Oenothera kunthiana*)	P
Russian knapweed	(*Centaurea repens*)	P
Silverleaf nightshade	(*Solanum eleagnifolium*)	P
Sowthistle	(*Sonchus* spp.)	A
Texas thistle	(*Cirsium texanum*)	P

VINES AND BRAMBLES

COMMON NAME	SPECIES	GROWTH HABIT [2]
	Apply 0.5 pint per acre	
Field bindweed	(*Convolvulus arvensis*)	P
Hedge bindweed	(*Calystegia sequium*)	A
	Apply 1.0 -1.5 pints per acre [1]	
Wild buckwheat	(*Polygonum convolvulus*)	P
	Apply 1.5 -2.0 pints per acre [1]	
Greenbriar	(*Smilax* spp.)	P
Honeysuckle	(*Lonicera* spp.)	P
Morningglory	(*Ipomoea* spp.)	A/P
Poison ivy	(*Rhus radicans*)	P
Redvine	(*Brunnichia cirrhosa*)	P
Wild rose	(*Rosa* spp.)	P
Including: Multiflora rose	(*Rosa multiflora*)	P
McCartney rose	(*Rosa bracteata*)	P
	Apply 2.0 -3.0 pints per acre [1]	
Blackberry	(*Rubus* spp.)	P
Dewberry	(*Rubus* spp.)	P
*Kudzu[3]	(*Pueraria lobata*)	P
Trumpetcreeper	(*Campsis radicans*)	P
Virginia creeper	(*Parthenocissus quinquefolia*)	P
Wild grape	(*Vitis* spp.)	P

BRUSH SPECIES

COMMON NAME	SPECIES	GROWTH HABIT [2]
	Apply 2.0 -3.0 pints per acre [1]	
American beech	(*Fagus grandifolia*)	P
Ash	(*Fraxinius* spp.)	P
Bald cypress	(*Taxodium distichum*)	P
Bigleaf maple	(*Acer macrophylum*)	P
Black locusts	(*Robinia pseudoacacia*)	P
Blackgum	(*Nyssa sylvatica*)	P
Boxelder	(*Acer negundo*)	P
Brazilian peppertree	(*Schinus terebinthifolius*)	P
Cherry	(*Prunus* spp.)	P
Chinaberry	(*Melia azadarach*)	P
Chinese tallowtree	(*Sapium sebiferum*)	P
Dogwood	(*Cornus* spp.)	P
Elm[6]	(*Ulmus* spp.)	P
Hawthorn	(*Crataegus* spp.)	P
Hickory	(*Carya* spp.)	P
Honeylocusts	(*Gleditsia triacanthos*)	P
Maple	(*Acer* spp.)	P
Melaleuca	(*Melaleuca quiquenervia*)	P
Mulberry	(*Morus* spp.)	P
Oak	(*Quercus* spp.)	P
Persimmon	(*Diospyros virginiana*)	P
*Pines	(*Pinus* spp.)	P
Poplar	(*Populus* spp.)	P
Privet	(*Ligustrum vulgare*)	P
Red Alder	(*Alnus rubra*)	P
Red Maple	(*Acer rubrum*)	P
Rubber rabbitbrush	(*Chrysothamnus nauseaosus*)	P
Russian Olive	(*Eleagnus angustifolia*)	P
Sassafras	(*Sassafras albidum*)	P
Saltcedar	(*Tamarix ramosissima*)	P
Sourwood	(*Oxydendrum arboreum*)	P
Sumac	(*Rhus* spp.)	P
Sweetgum	(*Liquidambar styraciflua*)	P
*Water willow	(*Justica americana*)	P
Willow	(*Salix* spp.)	P
Yellow poplar	(*Liriodendron tulipifera*)	P

*Not approved for use in California

[1] The higher rates should be used where heavy or well-established infestations occur.
[2] Growth Habit -A = Annual, B = Biennial, P = Perennial
[3] Use a minimum of 75 GPA -Control of established stands may require repeat applications.
[4] For best results early postemergence applications are required.
[5] Tank mix with glyphosate or triclopyr.
[6] Tank-mix with glyphosate.

STORAGE AND DISPOSAL

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

PESTICIDE STORAGE: Do not store below 10°F.

PESTICIDE DISPOSAL: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER DISPOSAL [HANDLING]:

[Note to Reviewer: The following statement will be included on all Final Printed Labels bearing multiple Container Disposal (Container Handling) statements] "**NOTE:** This product is available in multiple containers. Refer to the Net Contents section of this products labeling for the applicable "Nonrefillable" or "Refillable" designation. Follow the container disposal [handling] instructions below that apply to your container type / size."

[Note to Reviewer: The bracketed section headers will be included when multiple container types / sizes are listed on the label.]

[Nonrefillable Containers 5 Gallons or Less:] Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available. Triple rinse container (or equivalent) 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 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Plastic containers are also disposable by incineration, or, if allowed by State and local authorities, by burning. If burned stay out of smoke.

[Nonrefillable containers larger than 5 gallons:] Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available. If recycling or reconditioning not available, puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Plastic containers are also disposable by incineration, or, if allowed by State and local authorities, by burning. If burned stay out of smoke. Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse as follows:** Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 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. **Pressure rinse as follows:** Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

[Refillable containers larger than 5 gallons:] 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 a mix tank. Fill the container about 10% full with water. Agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

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