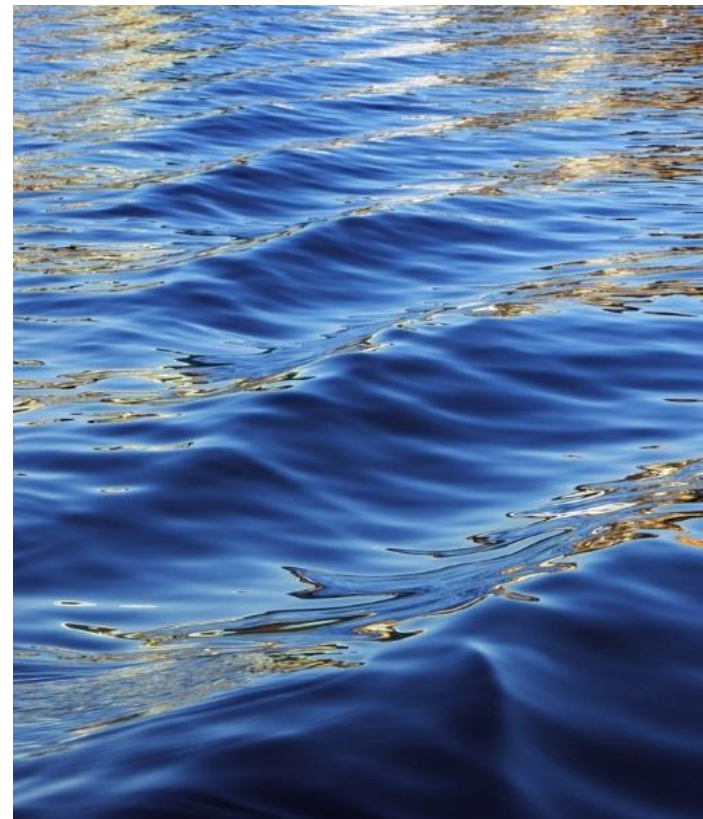




Understanding the Label

Presented by the Hawaii Dept. of Agriculture



REMEMBER!

Read the Label!

Follow the Label!

Label = Law!

PARTS OF A PESTICIDE LABEL

The diagram shows a pesticide label for POLARIS AC herbicide. Yellow arrows point from green callout boxes to specific parts of the label:

- HDOA Registration number** points to the "ACCEPTED" stamp.
- Group Number; mode of action** points to the "GROUP 2 HERBICIDE" box.
- Product Name** points to "POLARIS AC".
- Active ingredient and concentration** points to the "ACTIVE INGREDIENT" section.
- Toxicity Warning** points to the "KEEP OUT OF REACH OF CHILDREN" and "CAUTION / PRECAUCION" sections.
- EPA Registration Number** points to the "EPA Reg. No. 228-570" at the bottom.

Label Text:

STATE OF HAWAII
Department of Agriculture

ACCEPTED

LICENSE NO. **9805.90**

GROUP 2 HERBICIDE

POLARIS AC

COMPLETE Herbicide

For the control of undesirable vegetation in forestry sites, aquatic sites, pasture, rangeland, fence rows, for establishment and maintenance of wildlife openings, grass pastures and rangeland. Additionally for control of undesirable vegetation in dormant bermudagrass and bahiagrass, under certain paved areas, and industrial noncropland areas including railroad, utility, pipeline and highway 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.

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

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

EPA Reg. No. 228-570

Manufactured for
Nufarm Americas Inc.
11901 S. Austin Avenue
Alsip, IL 60803

Nufarm

PARTS OF A PESTICIDE LABEL Continued

Hazard
Warning

PPE!

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)].

Applicator PPE?
Mixing and Loading PPE?

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.

PARTS OF A PESTICIDE LABEL Continued

| FIRST AID | |
|---|---|
| IF INHALED | <ul style="list-style-type: none">• 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 | <ul style="list-style-type: none">• Hold eye open and rinse slowly and gently with water for 15-20 minutes.• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing.• Call a poison control center or doctor for treatment advice. |
| IF ON SKIN OR CLOTHING | <ul style="list-style-type: none">• 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. | |

First Aid Statement

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.

Environmental & Physical Hazards

Mis-use statement.
This is on every label.

Agricultural Use Requirements

WPS
REI
PPE

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

Not a Misuse

- It is *not* a misuse to apply a pesticide against any target *pest* not specified on the labeling if the application is to a crop, animal, or site specified on the labeling; provided that the labeling does not specifically prohibit the use on pests other than those listed on the labeling.
- It is *not* a misuse to use any method of application not prohibited by the labeling.
- It is *not* a misuse to mix a pesticide or pesticides with a fertilizer when such mixture is not prohibited by the labeling.
- It is *not* a misuse to apply a pesticide at any dosage, concentration, or frequency *less* than that specified on the labeling.

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 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.

Non Ag Use

Resistance

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 for the control of undesirable vegetation in the following noncropland areas: access roads; airfields; airports; around commercial or industrial structures or outbuildings; around farm and ranch structures and outbuildings; bare ground; construction sites; ditch banks; dry ditches & canals; fences & fencerows; firebreaks; gravel yards; habitat restoration & management areas; highways & roadsides (including aprons, medians, guardrails & right of ways); industrial plant sites; industrial areas; lumber yards; natural areas; paved areas; petroleum & other tank farms; pumping installations; pipeline, power, telephone & utility rights-of-way; power stations; railroad rights-of way; refineries; resorts; storage areas; substations; uncropped farmstead areas; uncultivated non-agricultural areas; vacant lots; walkways; wastelands; & wildlife habitat areas.

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.

Sites listed

Location specific
exception

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.

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.

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 specified 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:

Use equipment calibrated to deliver 5 to 20 gallons of spray solution per acre. To prepare the spray solution, thoroughly mix in water 0.25 to 2.5% of this product plus surfactant (see the ADJUVANTS section of this label for specific recommendations). A foam reducing agent may be applied at the specified label rate, if needed. For control of difficult species (see AQUATIC WEEDS CONTROLLED section and the ADDITIONAL WEEDS CONTROLLED section for relative susceptibility of weed species), use the higher concentrations of herbicide and/or spray volumes but do not apply more than 3 pints of this product per acre. Excessive wetting of foliage is not recommended. See the MIXING GUIDE below for some suggested volumes of this product and water.

For low volume, select proper nozzles to avoid over-application. Proper application is critical to ensure desirable results. Best results are achieved when the spray covers the crown and approximately 70% of the plant. The use of an even flat fan tip with a spray angle of 40 degrees or less will aid in proper deposition. Recommended tip sizes include 4004E, or 1504E. For a straight stream and cone pattern, adjustable cone nozzles such as 5500 X3 or 5500 X4 may be used. Attaching a rollover valve onto a Spraying Systems Model 30 gunjet or other similar spray guns allows for the use of both a flat fan and cone tips on the same gun.

Moisten, but do not drench target vegetation causing spray solution to run off.

Low Volume Foliar with Backpacks:

For low-growing species, spray down on the crown, covering crown and penetrating approximately 70% of the plant.

For target species 4 to 8 feet tall, swipe the sides of target vegetation by directing spray to at least two sides of the plant in smooth vertical motions from the crown to the bottom. Make sure to cover the crown whenever possible.

For target species over 8 feet tall, lace sides of the target vegetation by directing spray to at least two sides of the target in smooth zigzag motions from crown to bottom.

Low Volume Foliar with Hydraulic Handgun Application Equipment:

Use same technique as described above for Low Volume Foliar with Backpacks.

For broadcast applications, simulate a gentle rain near the top of target vegetation, allowing spray to contact the crown and penetrate the target foliage without falling to the understory. Herbicide spray solution which contacts the understory may result in severe injury or death of plants in the understory.

TANK-MIXES AND APPLICATION RATES FOR LOW VOLUME FOLIAR CONTROL*

| Target Vegetation | Rate of this product | Tank Mix |
|---|------------------------|--|
| Mixed hardwoods without elm, locust, or pine | 0.5 – 0.75 % by volume | Surfactant |
| Mixed hardwoods containing elm, locust, and pine | 0.25 – 0.5 % by volume | Accord® or AquaNeat® (4lb ae / gal glyphosate) at 2 - 3% by volume plus volume plus surfactant |
| Mixed hardwoods containing elm, locust, and pine | 0.25 – 0.5 % by volume | Razor® Pro (3lb ae / gal glyphosate) at 2.5 - 4% by volume plus surfactant |
| Mixed hardwoods with locust and pine but no elm | 0.25 – 0.5 % by volume | Krenite® at 2 - 5% by volume plus surfactant |
| Mixed hardwoods with locust and elm but no pine | 0.25 – 0.5 % by volume | Escort® or Patriot ® (metsulfuron methyl) at 2 oz./Acre or 2.3 grams/gal. plus surfactant |
| * Tank-Mixes with 2,4-D or products containing 2,4-D have resulted in reduced efficacy of this product. | | |

High Volume Foliar:

For optimum performance when spraying medium to high-density vegetation and brush, use equipment calibrated to deliver up to 100 gallons of spray solution per acre (GPA). Spray solutions exceeding 100 GPA may result in excessive spray run-off, causing increased ground cover injury, and injury to desirable species. To prepare the spray solution, thoroughly mix this product in water and add a surfactant (see ADJUVANT section for specific recommendations and rates of surfactants). A foam-reducing agent may be added at the recommended label rate, if needed. For control of difficult species (see AQUATIC WEEDS CONTROLLED section and the ADDITIONAL WEEDS CONTROLLED section for relative susceptibility of weed species), use the higher concentrations of herbicide and/or spray volumes, but do not exceed the specified maximum rates. Uniformly cover the foliage of the vegetation to be controlled but do not apply to run-off. Excessive wetting of foliage is not recommended.

Side Trimming:

Do not side trim with this product unless severe injury or death of the treated tree can be tolerated. This product is readily translocated and can result in death of the entire tree.

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 1/4 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; reference the SPRAY SOLUTION MIXING GUIDE FOR LOW-VOLUME FOLIAR APPLICATIONS table to determine the amount of this product and 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 0.5 to 1.0 pints per acre to the cut area. This product may be tank-mixed with picloram (such as Trooper), 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 the specified 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 12.5 to 50% solution of this product into each cut until thoroughly wet. Avoid applying so much herbicide that runoff to the ground or water occurs.

GRASSES

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

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

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 (<i>Pluchea sericea</i>) | Indian mustard (<i>Brassica juncea</i>) |
| Broom snakeweed (<i>Gutierrezia sarothrae</i>) | Japanese bamboo/knotweed (<i>Polygonum cuspidatum</i>) |
| Bull thistle (<i>Cirsium vulgare</i>) | Knotweed, prostrate (<i>Polygonum aviculare</i>) |
| Burclover (<i>Medicago</i> spp.) | Kochia (<i>Kochia scoparia</i>) |
| Burdock (<i>Arctium</i> spp.) | Lambsquarters (<i>Chenopodium album</i>) |
| Camphorweed (<i>Heterotheca subaxillaris</i>) | Little mallow (<i>Malva parviflora</i>) |
| Canada thistle (<i>Cirsium arvense</i>) | Milkweed (<i>Asclepias</i> spp.) |
| Carolina geranium (<i>Geranium carolinianum</i>) | Miners lettuce (<i>Montia perfoliata</i>) |
| Carpetweed (<i>Mullugo verticillata</i>) | Mullein (<i>Verbascum</i> spp.) |
| Chickweed, mouseear (<i>Cerastium vulgatum</i>) | Nettleleaf goosefoot (<i>Chenopodium murale</i>) |
| Clover (<i>Trifolium</i> spp.) | Oxeye daisy (<i>Chrysanthemum leucanthemum</i>) |
| Cocklebur (<i>Xanthium strumarium</i>) | Pepperweed (<i>Lepidium</i> spp.) |
| Common chickweed (<i>Stellaria media</i>) | Pigweed (<i>Amaranthus</i> spp.) |
| Common ragweed (<i>Ambrosia artemisiifolia</i>) | Plantain (<i>Plantago</i> spp.) |
| Cudweed (<i>Gnaphalium</i> spp.) | Pokeweed (<i>Phytolacca americana</i>) |
| Dandelion (<i>Taraxacum officinale</i>) | Primrose (<i>Oenothera kunthiana</i>) |
| Desert camelthorn (<i>Alhagi pseudalhagi</i>) | Puncturevine (<i>Tribulus terrestris</i>) |
| Diffuse knapweed (<i>Centaurea diffusa</i>) | Purple loosestrife (<i>Lythrum salicaria</i>) |
| Dock (<i>Rumex</i> spp.) | Purslane (<i>Portulaca</i> spp.) |
| Dogfennel (<i>Eupatorium apillifolium</i>) | Pusley, Florida (<i>Richardia scabra</i>) |
| Fiddleneck (<i>Amsinckia intermedia</i>) | Rocket, London (<i>Sisymbrium irio</i>) |
| Filaree (<i>Erodium</i> spp.) | Rush skeletonweed (<i>Chondrilla juncea</i>) |
| Fleabane (<i>Erigeron</i> spp.) | Russian knapweed (<i>Centaurea repens</i>) |
| Giant ragweed (<i>Ambrosia trifida</i>) | Russian thistle (<i>Salsola kali</i>) |
| Goldenrod (<i>Solidago</i> spp.) | Saltbush (<i>Atriplex</i> spp.) |
| Gray rabbitbrush (<i>Chrysothamnus nauseosus</i>) | Shepherd's purse (<i>Capsella bursapastoris</i>) |
| Henbit (<i>Lamium aplexicaule</i>) | Silverleaf nightshade (<i>Solanum elaeagnifolium</i>) |
| Hoary vervain (<i>Verbena stricta</i>) | Smartweed (<i>Polygonum</i> spp.) |
| Horseweed (<i>Conyza canadensis</i>) | |

(continued)

BROADLEAF WEEDS (continued)

| | |
|---|--|
| Sorrell (<i>Rumex</i> spp.) | Western ragweed (<i>Ambrosia psilostachya</i>) |
| Sowthistle (<i>Sonchus</i> spp.) | Wild carrot (<i>Daucus carota</i>) |
| Spurge, annual (<i>Euphorbia</i> spp.) | Wild lettuce (<i>Lactuca</i> spp.) |
| Stinging nettle (<i>Urtica dioica</i>) | Wild parsnip (<i>Pastinaca sativa</i>) |
| Sunflower (<i>Helianthus</i> spp.) | Wild turnip (<i>Brassica campestris</i>) |
| Sweet clover (<i>Melilotus</i> spp.) | Woollyleaf bursage (<i>Ambrosia grayi</i>) |
| Tansymustard (<i>Descurainia pinnata</i>) | Yellow starthistle (<i>Centaurea solstitialis</i>) |
| Texas thistle (<i>Cirsium texanum</i>) | Yellow woodsorrel (<i>Oxalis stricta</i>) |
| Velvetleaf (<i>Abutilon theophrasti</i>) | |

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

¹ Use higher labeled rates.

WOODY BRUSH AND TREES

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

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

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.

Triple Rinse and Puncture

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:

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.

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.

Triple Rinse and Puncture

STORAGE AND DISPOSAL (*continued*)

CONTAINER DISPOSAL (*continued*):

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.

QUESTIONS?

Calculating Total Rate for Area Treated

For Spot Treatment:

Using the label rate for spot treatment, total volume used over total area treated = Total Rate for Area Treated.

Avoid over application by coordinating treated area locations, times, and amounts with other agencies.