



United States  
Environmental Protection Agency  
Washington, DC 20460

<input type="checkbox"/>	Registration
<input type="checkbox"/>	Amendment
<input checked="" type="checkbox"/>	Other

OPP Identifier Number

### Application for Pesticide - Section I

1. Company/Product Number 74530-4	2. EPA Product Manager Tompkins	3. Proposed Classification <input type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) Glyfox	PM# 25	
5. Name and Address of Applicant (Include ZIP Code) Helm Agro US, Inc. 1155 Snowden Farm Cove Collierville, TN 38017 <input type="checkbox"/> Check if this is a new address	6. Expedited Review. 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

<input type="checkbox"/> Amendment - Explain below.	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____	<b>NOTIFICATION</b> APR 24 2003
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.	
<input checked="" type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - Explain below.	

**Explanation:** Use additional page(s) if necessary. (For section I and Section II.)  
 Notification of Alternate Brand Name HELOSATE per PR Notice 98-10  
 This notification is consistent with the provision 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 any false statement 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:				2. Type of Container	
Child-Resistant Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Metal	<input checked="" type="checkbox"/> Plastic
* Certification must be submitted	If "Yes" Unit Packaging wgt.	No. per container	If "Yes" Package wgt	<input type="checkbox"/> Glass	<input type="checkbox"/> Paper
3. Location of Net Contents Information <input checked="" type="checkbox"/> Label <input type="checkbox"/> Container	4. Size(s) Retail Container 5, 30, 55 gal.	5. Location of Label Directions <input type="checkbox"/>			
6. Manner in Which Label is Affixed to Product <input checked="" type="checkbox"/> Lithograph Paper glued <input type="checkbox"/> Stenciled			<input type="checkbox"/> Other _____		

### Section - IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)		
Name Jeanine H. Betsher	Title Dir., Regulatory Affairs	Telephone No. (Include Area Code) 931-331-7431
<b>Certification</b> I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.		6. Date Application Received (Stamped)
2. Signature <i>Jeanine H Betsher</i>	3. Title Dir., Regulatory Affairs	
4. Typed Name Jeanine H. Betsher	5. Date <i>April 15, 2003</i>	

# HELOSATE™

## HERBICIDE

Avoid herbicide contact with foliage, green stems, exposed nonwoody roots or fruit of crops, desirable plants and trees because severe injury or destruction may result.

**ACTIVE INGREDIENT:**

\*Glyphosate (n-(phosphonomethyl) glycine), in the form of its isopropylamine salt . . . . . 41.0%

**INERT INGREDIENTS:** . . . . . 59.0%

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

\*Contains 480 grams per liter or 4 pounds per U.S. gallon of the active ingredient glyphosate, in the form of its isopropylamine salt. Equivalent to 356 grams per liter or 3 pounds per U.S. gallon of the acid glyphosate.

EPA Reg. No. 74530-4

EPA Est. No.

### KEEP OUT OF REACH OF CHILDREN

### WARNING / AVISO

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

FIRST AID	
<b>If in eyes:</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15 - 20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If on skin or clothing:</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15 - 20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If inhaled:</b>	<ul style="list-style-type: none"> <li>• Move person to fresh air.</li> <li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>
<b>If swallowed:</b>	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• Do not induce vomiting unless told to do so by a poison control center or doctor.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul>
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.	

FOR CHEMICAL EMERGENCY: Spill, leak, fire, exposure, or accident, call CHEMTREC 1-800-424-9300



HELM AGRO US, Inc.  
1155 Snowden Farm Cove  
Collierville, Tennessee 38017

Net Contents:

**NOTIFICATION**  
APR 24 2003

**PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS AND DOMESTIC ANIMALS  
KEEP OUT OF REACH OF CHILDREN  
WARNING**

Causes substantial but temporary eye injury. Harmful if inhaled or absorbed through the skin. Do not get in eyes, on skin, or on clothing. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before re-use.

Domestic animals: This product is considered to be relatively nontoxic to dogs and other domestic animals; however, ingestion of this product or large amounts of freshly sprayed vegetation may result in temporary gastrointestinal irritation (vomiting, diarrhea, colic, etc.). If such symptoms are observed, provide the animal with plenty of fluids to prevent dehydration. Call a veterinarian if symptoms persist for more than 24 hours.

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

**Applicators and other handlers must wear:**

- long sleeved shirt and long pants
- shoes plus socks
- protective eyewear

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

**Engineering controls statement:** When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

<p><b>USER SAFETY RECOMMENDATIONS:</b></p> <p>Users should:</p> <ul style="list-style-type: none"> <li>• Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.</li> <li>• Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.</li> </ul>
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**ENVIRONMENTAL HAZARDS**

Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

**PHYSICAL OR CHEMICAL HAZARDS**

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

**DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS.** This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas, which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

**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 at the time of application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulations.

**Agricultural Use Requirements**

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated area during the restricted entry interval (REI) of 12 hours.

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

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

Keep people and pets off treated areas until spray solution has dried.

**STORAGE AND DISPOSAL**

Do not contaminate water, foodstuffs, feed or seed by storage or disposal.

**DISPOSAL:** Wastes resulting from the use of this product that cannot be used or chemically reprocessed should be disposed of in a landfill approved for pesticide disposal or in accordance with applicable Federal, State or local procedures.

Emptied container retains vapor and product residue. Observe all labeled safeguards until container is destroyed.

**FOR BULK CONTAINERS:** Triple rinse emptied bulk container. Then offer for recycling or reconditioning, or dispose of in a manner approved by State and local authorities.

**FOR RETURNABLE / REFILLABLE CONTAINERS:** Do not reuse container, except for refill in accordance with a valid repackaging or toll repackaging agreement. If not refilled or returned to an authorized repackaging facility, triple rinse container, then puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

**FOR ALL OTHER NON-RETURNABLE / REFILLABLE CONTAINERS:** Do not reuse container. Triple rinse container, then puncture and dispose of in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

**GENERAL INFORMATION**

**DO NOT APPLY THIS PRODUCT USING AERIAL SPRAY EQUIPMENT EXCEPT UNDER CONDITIONS AS SPECIFIED WITHIN THIS LABEL.**

This product mixes readily with water to be applied as a foliar spray for the control or destruction of most herbaceous plants. It may be applied through most standard industrial or field-type sprayers after dilution and thorough mixing with water in accordance with label instructions.

This product moves through the plant from the point of foliage contact to and into the root system. Visible effects on most annual weeds occur within 2 to 4 days, but on most perennial weeds may not occur for 7 days or more. Extremely cool or cloudy weather following treatment may slow activity of this product and delay visible effects of control. Visible effects are a gradual wilting and yellowing of the plant, which advances to complete browning of above-ground growth

and deterioration of underground plant parts.

Unless otherwise specified on this label, delay application until vegetation has emerged and reached the stages described for control of such vegetation under the **WEEDS CONTROLLED** section of this label.

Unemerged plants arising from unattached underground rhizomes or root stocks of perennials will not be affected by the herbicide and will continue to grow. For this reason, best control of most perennial weeds is obtained when treatment is made at late growth stages approaching maturity.

Always use the higher rate of this product per acre within the recommended range when (1) weed growth is heavy or dense, or (2) weeds are growing in an undisturbed (noncultivated) area.

Do not treat weeds under poor growing conditions such as drought stress, disease or insect damage, as reduced weed control may result. Reduced results may also occur when treating weeds heavily covered with dust.

Reduced control may result when applications are made to annual and perennial weeds that have been mowed, grazed, or cut, and have not been allowed to regrow to the recommended stage for treatment.

Rainfall or irrigation occurring within 6 hours after application may reduce effectiveness. Heavy rainfall or irrigation within 2 hours after application may wash the chemical off the foliage and a repeat treatment may be required.

This product does not provide residual weed control. For subsequent residual weed control, follow a label-approved herbicide program. Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

Buyer and all users are responsible for all loss or damage in connection with the use or handling of mixtures of this product with herbicides or other materials that are not expressly recommended in this labeling. Mixing this product with herbicides or other materials not recommended on this label may result in reduced performance.

For best results, spray coverage should be uniform and complete. Do not spray weed foliage to the point of runoff.

**NOTE:** Use of this product in any manner not consistent with this label may result in injury to persons, animals, or crops, or other unintended consequences. Keep container closed to prevent spills and contamination.

#### **MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS**

APPLY THESE SPRAY SOLUTIONS IN PROPERLY MAINTAINED AND CALIBRATED EQUIPMENT CAPABLE OF DELIVERING DESIRED VOLUMES. DO NOT APPLY WHEN WIND OR OTHER CONDITIONS FAVOR DRIFT. HAND-HELD APPLICATIONS SHOULD BE PROPERLY DIRECTED TO AVOID SPRAYING DESIRABLE PLANTS.

**NOTE:** REDUCED RESULTS MAY OCCUR IF WATER CONTAINING SOIL IS USED, SUCH AS WATER FROM PONDS AND UNLINED DITCHES.

#### **MIXING**

This product mixes readily with water. Mix spray solutions of this product as follows: Fill the mixing or spray tank with the required amount of water. Add the recommended amount of this product (see the **DIRECTIONS FOR USE** and **WEEDS CONTROLLED** sections of this label) near the end of the filling process and mix well. Use caution to avoid siphoning back into the carrier source. Use approved anti-back-siphoning devices where required by state or local regulations. During mixing and application, foaming of the spray solution may occur. To prevent or minimize foam, avoid the use of mechanical agitators, terminate by-pass and return lines at the bottom of the tank and, if needed, use an approved anti-foam or defoaming agent.

#### **TANK MIXTURES**

Always predetermine the compatibility of labeled tank mixtures of this product with water carrier by mixing small proportional quantities in advance.

Mix labeled tank mixtures of this product with water as follows:

1. Place a 20 to 35 mesh screen or wetting basket over filling port.
2. Through the screen, fill the spray tank one-half full with water and start agitation.
3. If a wettable powder is used, make a slurry with the water carrier, and add it SLOWLY through the screen into the tank. Continue agitation.
4. If a flowable formulation is used, premix one part flowable with one part water. Add diluted mixture SLOWLY through the screen into the tank. Continue agitation.
5. If an emulsifiable concentrate formulation is used, premix one part emulsifiable concentrate with two parts water. Add diluted mixture slowly through the screen into the tank. Continue agitation.
6. Continue filling the spray tank with water and add the required amount of this product near the end of the filling process.
7. Where nonionic surfactant is recommended, add this to the spray tank before completing the filling process.
8. Add individual formulations to the spray tank as follows: wettable powder, flowable, emulsifiable concentrate, drift control additive, water soluble liquid followed by surfactant.

Maintain good agitation at all times until the contents of the tank are sprayed. If the spray mixture is allowed to settle, thorough agitation is required to resuspend the mixture before spraying is resumed. Keep by-pass line on or near bottom of the tank to minimize foaming. Screen size in nozzle or line strainers should be no finer than 50 mesh. Carefully select proper nozzle to avoid spraying a fine mist. For best results with conventional ground application equipment, use flat fan nozzles. Clean sprayer and parts immediately after using this product by thoroughly flushing with water.

**ADDITIVES**

**Surfactants:**

Nonionic surfactants that are labeled for use with herbicides may be used. Do not reduce rates of this product when adding surfactant. When adding additional surfactant, use 0.5% surfactant concentration (2 quarts per 100 gallons of spray solution) when using surfactants that contain at least 70% active ingredient or a 1% surfactant concentration (4 quarts per 100 gallons of spray solution) for those surfactants containing less than 70% active ingredient. Read and carefully observe surfactant cautionary statements and other information appearing on the surfactant label.

**Ammonium Sulfate:**

The addition of 1 to 2% dry ammonium sulfate by weight or 8.5 to 17 pounds per 100 gallons of water may increase the performance of this product and this product plus 2,4-D, dicamba or residual herbicide tank mixtures on annual and perennial weeds. The improvement in performance may be apparent where environmental stress is a concern. Low-quality ammonium sulfate may contain material that will not readily dissolve, which could result in nozzle tip plugging. To determine quality, perform a jar test by adding 1/3 cup of ammonium sulfate to 1 gallon of water and agitate for 1 minute. If undissolved sediment is observed, predissolve the ammonium sulfate in water and filter prior to addition to the spray tank. If ammonium sulfate is added directly to the spray tank, add slowly with agitation. Adding too quickly may clog outlet line. Ensure the ammonium sulfate is completely dissolved in the spray tank before adding herbicides or surfactant. Thoroughly rinse the spray system with clean water after use to reduce corrosion.

**NOTE:** The use of ammonium sulfate as an additive does not preclude the need for additional surfactant. Do not use herbicide rates lower than recommended in this label.

**Colorants or Dyes:**

Agriculturally approved colorants or marking dyes may be added to this product. Colorants or dyes used in spray solutions of this product may reduce performance, especially at lower rates or dilutions. Use colorants or dyes according to the manufacturer's recommendations.

**APPLICATION EQUIPMENT AND TECHNIQUES**

Do not apply this product through any type of irrigation system. This product may be applied with the following application equipment.

**Aerial** - Fixed wing and helicopter

**Broadcast Spray**

**Controlled Droplet Applicator (CDA)** - Hand-held or boom-mounted applicators that produce a spray consisting of a narrow range of droplet sizes.

**Hand-Held and High-Volume Spray Equipment** - Knapsack and backpack sprayers, pump-up pressure sprayers,

handguns, handwands, mistblowers\*, lances and other hand-held and motorized spray equipment used to direct the spray onto weed foliage.

\*THIS PRODUCT IS NOT REGISTERED IN CALIFORNIA OR ARIZONA FOR USE IN MISTBLOWERS

**Selective Equipment** - Recirculating sprayers, shielded sprayers and wiper applicators.

See the appropriate part of this section for specific instructions and rates of application.

### **SPRAY DRIFT MANAGEMENT**

**AVOID DRIFT. EXTREME CARE MUST BE USED WHEN APPLYING THIS PRODUCT TO PREVENT INJURY TO DESIRABLE PLANTS AND CROPS.**

Do not allow the herbicide solution to mist, drip, drift or splash onto desirable vegetation since minute quantities of this product can cause severe damage or destruction to the crop, plants or other areas on which treatment was not intended.

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.

### **AERIAL EQUIPMENT**

Use the recommended rates of this herbicide in 3 to 15 gallons of water per acre unless otherwise specified on this label. See the WEEDS CONTROLLED section of this label for specific rates. Unless otherwise specified, do not exceed 1 quart per acre. Aerial applications of this product may be made in annual cropping conventional tillage systems, fallow and reduced tillage systems, preharvest, silvicultural sites and rights-of-way. Refer to the individual use area sections of this label for recommended volumes and application rates.

### **AERIAL SPRAY DRIFT MANAGEMENT**

The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops. These requirements do not apply to forestry applications or to public health uses.

1. The distance of the outermost nozzles on the boom must not exceed 3/4 the length of the wingspan or rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees. Where states have more stringent regulations, they should be observed.

### **Importance of Droplet Size**

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see the Wind, Temperature and Humidity, and Temperature Inversion sections of this label).

### **Controlling Droplet Size**

**Volume:** Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with the higher rated flows produce larger droplets.

**Pressure:** Use the lower spray pressures recommended for the nozzle. Higher pressure reduces droplet size and does not improve canopy protection. 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 backwards, parallel to the airstream will produce larger droplets than other orientations. 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 larger droplets than other nozzle types.

**Boom length:** For some use patterns, reducing the effective boom length to less than 3/4 of the wingspan or rotor length may further reduce drift without reducing swath width.

**Application height:** Applications should not be made at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces the

exposure of the droplets to evaporation and wind.

**Swath Adjustment:** When applications are made with a crosswind, the swath will be displaced downward. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the part of the aircraft upwind. Swath adjustment distance should increase with increasing drift potential (higher wind, smaller droplets, etc.).

**Wind:** Drift potential is lowest between wind speeds of 2 to 10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 2 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 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:** Applications should not occur during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

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

**Avoid direct application to any body of water.**

**Drift control additives may be used.** When a drift control additive is used, read and carefully observe the cautionary statements and all other information appearing on the additive label.

**Ensure uniform application** - To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills. **PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR ARE MOST SUSCEPTIBLE.** The maintenance of an organic coating (paint), which meets aerospace specification MIL-C-38413, may prevent corrosion.

**THIS PRODUCT PLUS OUST<sup>®</sup>, DICAMBA OR 2,4-D TANK MIXTURES MAY NOT BE APPLIED BY AIR IN CALIFORNIA.**

**FOR AERIAL APPLICATION IN CALIFORNIA ONLY**

**Directions for Use**

This label must be in the possession of the user at the time of the herbicide application.

See GENERAL INFORMATION and MIXING, ADDITIVES and APPLICATION INSTRUCTIONS sections of this label for essential product performance information.

See the CROPPING SYSTEMS section of this label for specific recommendations on the use of this product.

**EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE, GREEN STEMS, OR FRUIT OF DESIRABLE CROPS, PLANTS, TREES, OR OTHER DESIRABLE VEGETATION SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.**



Aerial applications of this product are allowed in the following situations:

1. In fallow and reduced tillage systems prior to the emergence or transplanting of labeled crops.
2. Prior to harvest in cotton, soybeans, wheat and Roundup Ready<sup>®</sup> canola, corn, and cotton.

Do not plant subsequent crops other than those listed in this label for 30 days following application.

When applied as recommended, under the conditions described, HELOSATE controls annual and perennial weeds listed in this label.

**DO NOT EXCEED MAXIMUM RATE OF 1 QUART PER ACRE OF THIS PRODUCT WHEN MAKING APPLICATIONS BY AIR WITH THE FOLLOWING EXCEPTIONS:**

**DO NOT EXCEED A MAXIMUM RATE OF 2 QUARTS PER ACRE OF THIS PRODUCT WHEN MAKING APPLICATIONS BY AIR IN FALLOW AND REDUCED TILLAGE SYSTEMS, AND PRIOR TO HARVEST IN ROUNDUP READY COTTON.**

**Aerial Equipment**

Use the recommended rates of this product in 3 to 15 gallons of water per acre.

Do not apply to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

**AVOID DRIFT - DO NOT APPLY WHEN WINDS ARE GUSTY OR UNDER ANY OTHER CONDITIONS WHICH WILL ALLOW DRIFT. DRIFT MAY CAUSE DAMAGE TO ANY VEGETATION CONTACTED TO WHICH TREATMENT IS NOT INTENDED. TO PREVENT INJURY TO ADJACENT DESIRABLE VEGETATION, APPROPRIATE BUFFER ZONES MUST BE MAINTAINED.**

Use the following guidelines when aerial applications are made near crops or desirable perennial vegetation after bud break and before total leaf drop, and/or near other desirable vegetation or annual crops.

1. Do not apply within 100 feet of all desirable vegetation or crop(s).
2. If wind up to 5 miles per hour is blowing toward desirable vegetation or crop(s), do not apply within 500 feet of the desirable vegetation or crop(s).
3. Winds blowing from 5 to 10 miles per hour toward desirable vegetation or crop(s) may require buffer zones in excess of 500 feet.
4. Do not apply when winds are in excess of 10 miles per hour or when inversion conditions exist.

Coarse sprays are less likely to drift; therefore, do not use nozzles or nozzle configurations which dispense spray as fine spray droplets. Do not angle nozzles forward into the airstream and do not increase nozzle pressure.

Drift control additives may be used. When a drift control additive is used, read and carefully observe the cautionary statements and all other information appearing on the additive label.

Ensure uniform application - to avoid streaked, uneven or overlapped application, use appropriate marking devices.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills. **PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR ARE MOST SUSCEPTIBLE.** The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38413 may prevent corrosion.

**FOR AERIAL APPLICATION IN FRESNO COUNTY CALIFORNIA ONLY  
FROM FEBRUARY 15 THROUGH MARCH 31 ONLY.**

**NOTE: For aerial application outside these dates, refer to FOR AERIAL APPLICATION IN CALIFORNIA**

**ONLY section.**

**Directions for Use**

This label must be in the possession of the user at the time of the herbicide application.

See GENERAL INFORMATION and MIXING, ADDITIVES and APPLICATION INSTRUCTIONS sections of this label for essential product performance information.

See the CROPPING SYSTEMS section of this label for specific recommendations on the use of this product.

**Applicable Area**

This supplemental only applies to the area contained inside the following boundaries within Fresno County California only:

North: Fresno County line

South: Fresno County line

East: State Highway 99

West: Fresno County line

**General Information**

Always read and follow the label directions and precautionary statements for all products used in the aerial application.

Observe the following directions to minimize off-site movement during aerial application of HELOSATE.

Minimization of off-site movement is the responsibility of the grower, Pest Control Advisor, and aerial applicator.

**Written Recommendations**

A written recommendation **MUST** be submitted by or on behalf of the applicator to the Fresno County Agricultural Commissioner 24 hours prior to application. This written recommendation **MUST** state the proximity of the surrounding crops, and that conditions of each manufacturer's applicable product label(s) and this label have been satisfied.

**Aerial Applicator Training and Equipment**

Aerial application of HELOSATE is limited to pilots who have successfully completed a Fresno County Agricultural Commissioner and California Department of Pesticide Regulation approved training program for aerial application of herbicides. All aircraft must be inspected, critiqued in flight, and certified at a Fresno County Agricultural Commissioner approved fly-in. Test and calibrate spray equipment at intervals sufficient to insure that proper rates of herbicides and adjuvants are being applied during commercial use. Applicator must document such calibrations and testing. Demonstration of performance at Fresno County Agricultural Commission approved fly-ins constitutes such documentation, or other written records showing calculations and measurements of flight and spray parameters acceptable to the Fresno County Agricultural Commissioner.

**Application at night** - Do not apply this product by air earlier than 30 minutes prior to sunrise and/or later than 30 minutes after sunset without prior permission from the Fresno County Agricultural Commissioner.

**BROADCAST EQUIPMENT**

For control of annual or perennial weeds listed on this label using broadcast equipment - Use the recommended rates of this product in 3 to 40 gallons of water per acre as a broadcast spray unless otherwise specified on this label. See the WEEDS CONTROLLED section of this label for specific rates. As density of weeds increases, spray volume should be increased within the recommended range to ensure complete coverage. Carefully select proper nozzle to avoid spraying a fine mist. For best results with ground application equipment, use flat fan nozzles. Check for even distribution of spray droplets.

**CONTROLLED DROPLET APPLICATION (CDA)**

The rate of this product applied per acre by vehicle-mounted CDA equipment must not be less than the amount recommended in this label when applied by conventional broadcast equipment. For vehicle-mounted CDA equipment, apply 3 to 15 gallons of water per acre.

For the control of labeled annual weeds with hand-held CDA units, apply a 20% solution of this product at a flow rate

of 2 fluid ounces per minute and a walking speed of 1.5 mph (1 quart per acre). For the control of labeled perennial weeds, apply a 20 to 40% solution of this product at a flow rate of 2 fluid ounces per minute and a walking speed of 0.75 mph (2 to 4 quarts per acre).

Controlled droplet application equipment produces a spray pattern that is not easily visible. Extreme care must be exercised to avoid spray or drift contacting the foliage or any other green tissue of desirable vegetation, as damage or destruction may result.

**HAND-HELD AND HIGH-VOLUME EQUIPMENT**

Use coarse sprays only.

Mix this product in clean water and apply to foliage of vegetation to be controlled. For applications made on a spray-to-wet basis, spray coverage should be uniform and complete. Do not spray to the point of runoff.

For control of annual weeds listed on this label, apply a 0.5% solution of this product plus nonionic surfactant to weeds less than 6 inches in height or runner length. Apply prior to seedhead formation in grass or bud formation in broadleaf weeds. Allow three or more days before tillage or mowing.

For annual weeds over 6 inches tall, or when not using additional surfactant, or unless otherwise specified, use a 1% solution. For best results, use a 2% solution on harder-to-control perennials, such as Bermuda grass, dock, field bindweed, hemp dogbane, milkweed and Canada thistle.

When using application methods that result in less than complete coverage, use a 5% solution for annual and perennial weeds and a 5 to 10% solution for woody brush and trees.

Prepare the desired volume of spray solution by mixing the amount of this product in water as shown in the following table:

**Spray Solution**

Desired volume	Amount of HELOSATE					
	1/2 %	1%	1 1/2%	2%	5%	10%
1 gallon	2/3 oz.	1 1/3 oz.	2 oz.	2 2/3 oz.	6 1/2 oz.	13 oz.
25 gallons	1 pt.	1 qt.	1 1/2 qt.	2 qt.	5 qt.	10 qt.
100 gallons	2 qt.	1 gal.	1 1/2 gal.	2 gal.	5 gal.	10 gal.
<b>2 tablespoons = 1 fluid ounce</b>						

For use in knapsack sprayers, it is suggested that the recommended amount of this product be mixed with water in a larger container. Fill sprayer with the mixed solution.

**SELECTIVE EQUIPMENT**

This product may be applied through a recirculating spray system, a shielded applicator, or a wiper applicator after dilution and thorough mixing with water to listed weeds growing in any noncrop site specified on this label and only when specifically recommended in cropping systems.

A recirculating spray system directs the spray solution onto weeds growing above desirable vegetation, while spray solution not intercepted by weeds is collected and returned to the spray tank for reuse.

A shielded applicator directs the herbicide solution onto weeds, while shielding desirable vegetation from the herbicide.

A wiper applicator applies the herbicide solution onto weeds by rubbing the weed with an absorbent material containing the herbicide solution.

**AVOID CONTACT WITH DESIRABLE VEGETATION.**

Contact of the herbicide solution with the desirable vegetation may result in damage or destruction. Applicators used

above desired vegetation should be adjusted so that the lowest spray stream or wiper contact point is at least 2 inches above the desirable vegetation. Droplets, mist, foam, or splatter of the herbicide solution settling on desirable vegetation may result in discoloration, stunting or destruction.

Applications made above the crops should be made when the weeds are a minimum of 6 inches above the desirable vegetation. Better results may be obtained when more of the weed is exposed to the herbicide solution. Weeds not contacted by the herbicide solution will not be affected. This may occur in dense clumps, severe infestations or when the height of weeds varies so that not all weeds are contacted. In these instances, repeat treatment may be necessary.

**Shielded Applicators**

When applied as directed under conditions described for shielded applicators, this product will control those weeds listed in the WEEDS CONTROLLED section of this label.

Use the following equation to convert from a broadcast rate per acre to a band rate per acre.

$$\frac{\text{Band width in inches}}{\text{Row width in inches}} \times \text{herbicide broadcast RATE / acre} = \text{herbicide band RATE / acre}$$

$$\frac{\text{Band width in inches}}{\text{Row width in inches}} \times \text{herbicide broadcast VOLUME of solution / acre} = \text{band VOLUME of solution / acre}$$

Use nozzles that provide uniform coverage within the treated area. Keep shields on shielded sprayers adjusted to protect desirable vegetation. **EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT WITH DESIRABLE VEGETATION.**

For specific rates of application and instructions for control of various annual weeds and perennial weeds, see the WEEDS CONTROLLED section of this label.

**Wiper Applicators**

Wiper applicators are devices that physically wipe appropriate amounts of this product directly onto the weed.

Equipment must be designed, maintained and operated to prevent the herbicide solution from contacting desirable vegetation. Operate this equipment at ground speeds no greater than 5 mph. Performance may be improved by reducing speed in areas of heavy weed infestations to ensure adequate wiper saturation. Better results may be obtained if 2 applications are made in opposite directions.

Avoid leakage or dripping onto desirable vegetation. Adjust height of applicator to ensure adequate contact with weeds. Keep wiping surfaces clean. Be aware that, on sloping ground, the herbicide solution may migrate causing dripping on the lower end and drying of the wicks on the upper end of a wiper applicator.

Do not use wiper equipment when weeds are wet.

Mix only the amount of solution to be used during a 1-day period, as reduced activity may result from use of leftover solutions. Clean wiper parts immediately after using this product by thoroughly flushing with water.

Do not add surfactant to the herbicide solution.

**For rope or sponge wick applicators** - Mix 1 gallon of this product in 2 gallons of water to prepare a 33% solution. Apply this solution to weeds listed in this Wiper Applicators section.

**For porous-plastic applicators** - Solutions ranging from 33 to 100% of this product in water may be used in porous-plastic wiper applicators.

**When applied as recommended under the conditions described for Wiper Applicators, this product CONTROLS the following weeds:**  
**Annual Grasses**

Corn	<i>Zea mays</i>
Panicum, Texas	<i>Panicum texanum</i>
Rye, common	<i>Secale cereale</i>
Shattercane	<i>Sorghum bicolor</i>
<b>Annual Broadleaves</b>	
Sicklepod	<i>Cassia obtusifolia</i>
Spanishneedles	<i>Bidens bipinnata</i>
Starbur, bristly	<i>Acanthospermum hispidum</i>
<b>When applied as recommended under the conditions described for Wiper Applicators, this product SUPPRESSES the following weeds:</b>	
<b>Annual Broadleaves</b>	
Beggarweed, Florida	<i>Desmodium tortuosum</i>
Dogfennel	<i>Eupatorium capilliflorum</i>
Pigweed, redroot	<i>Amaranthus retroflexus</i>
Ragweed, common	<i>Ambrosia artemisiifolia</i>
Ragweed, giant	<i>Ambrosia trifida</i>
Sunflower	<i>Helianthus annuus</i>
Thistle, musk	<i>Carduus nutans</i>
Velvetleaf	<i>Abutilon theophrasti</i>
<b>Perennial Grasses</b>	
Bermuda grass	<i>Cynodon dactylon</i>
Guineagrass	<i>Panicum maximum</i>
Johnsongrass	<i>Sorghum halepense</i>
Smutgrass	<i>Sporobolus poiretii</i>
Vaseygrass	<i>Paspalum urvillei</i>
<b>Perennial Broadleaves</b>	
Dogbane, hemp	<i>Apocynum cannabinum</i>
Milkweed	<i>Asclepias syriaca</i>
Nightshade, silverleaf	<i>Solanum elaeagnifolium</i>
Thistle, Canada	<i>Cirsium arvense</i>

**WEEDS CONTROLLED**

This herbicide controls many annual and perennial grasses and broadleaf weeds.

**ANNUAL WEEDS**

- Apply to actively growing grass and broadleaf weeds.
- Allow at least 3 days after treatment before tillage.
- For maximum agronomic benefit, apply when weeds are 6 inches or less in height.
- To prevent seed production, applications should be made prior to seedbed formation.
- This product does not provide residual control; therefore, delay application until maximum weed emergence. Repeat treatments may be necessary to control later germinating weeds.

**Low-Volume Broadcast Application (Low-Rate Technology)**

When applied as directed under the conditions described, this product will control the weeds listed below when:

1. Water carrier volumes of 3 to 10 gallons per acre for ground applications and 3 to 5 gallons per acre for aerial applications are recommended. (See the AERIAL EQUIPMENT section of this label for approved sites.)
2. A nonionic surfactant is added at 0.5 to 1% by total spray volume. Use 0.5% surfactant concentration when using surfactants that contain at least 70% active ingredient or a 1% surfactant concentration for those surfactants containing less than 70% active ingredient.

**NOTE:**

- The addition of 2% dry ammonium sulfate by weight or 17 pounds per 100 gallons of water may increase the performance of this product on annual weeds. The improvement in performance may be apparent where environmental stress is a concern. Refer to the MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS section of this label.
- Do not tank-mix with soil residual herbicides when using these rates unless otherwise specified.
- For weeds that have been mowed, grazed, or cut, allow regrowth to occur prior to treatment.
- Refer to the Tank Mixtures portion of this section for control of additional broadleaf weeds.

Weed Species		Maximum Height - Length	Rate per Acre* (fl. oz.)
For water volumes, surfactant and/or additives, see above			
<b>Foxtail</b>	<i>Setaria spp.</i>	12"	8 oz.
<b>Barnyardgrass</b>	<i>Echinochloa crus-galli</i>	6" [0 to 4" <sup>1</sup> [4 to 6" <sup>1</sup>	12 oz. 16 oz. <sup>1</sup> 24 oz. <sup>1</sup>
<b>Bluegrass, annual</b> <b>Brome downy**</b> <b>Mustard, blue</b> <b>Mustard, tansy</b> <b>Mustard, tumble</b> <b>Mustard, wild</b> <b>Spurry, umbrella</b>	<i>Poa annua</i> <i>Bromus tectorum</i> <i>Chorispora tenella</i> <i>Descurainia pinnate</i> <i>Sisymbrium altissimum</i> <i>Brassica kaber</i> <i>Holosteum umbellatum</i>	6"	12 oz.
<b>Barley</b> <b>Rye</b> <b>Sandbur, field</b> <b>Shattercane</b> <b>Stinkgrass</b>	<i>Hordeum vulgare</i> <i>Secale cereale</i> <i>Cenchrus spp.</i> <i>Sorghum bicolor</i> <i>Eragrostic cilianensis</i>	12"	12 oz.
<b>Wheat</b>	<i>Triticum aestivum</i>	18"	12 oz.
<b>Morningglory</b>	<i>Ipomoea spp.</i>	2"	16 oz.
<b>Sicklepod</b>	<i>Cassia obtusifolia</i>	2" 2 to 4" 4 to 12"	16 oz. 24 oz. 32 oz.
<b>Bluegrass, bulbous</b> <b>Cheat</b> <b>Chickweed, common</b> <b>Chickweed, mouseear</b> <b>Corn</b> <b>Goatgrass, jointed</b> <b>Groundsel, common</b> <b>Henbit</b> <b>Pennycress, field (fanweed)</b> <b>Rocket, London</b> <b>Ryegrass, common or Italian</b> <b>Shepherd's purse</b>	<i>Poa bulbosa</i> <i>Bromus secalinus</i> <i>Stellaria media</i> <i>Cerastium vulgatum</i> <i>Zea mays</i> <i>Aegilops cylindrica</i> <i>Senecio vulgaris</i> <i>Lamium amplexicaule</i> <i>Thlaspi arvense</i> <i>Sisymbrium irio</i> <i>Lolium multiflorum</i> <i>Capsella bursa-pastoris</i>	6"	16 oz.
<b>Horseweed / marestail</b> <b>Lambsquarters, common</b> <b>Spurge, annual</b>	<i>Conyza canadensis</i> <i>Chenopodium album</i> <i>Euphorbia spp.</i>	6" 6 to 12"	16 oz. 24 oz.

Buttercup	<i>Ranunculus spp.</i>	12"	16 oz.
Cocklebur	<i>Xanthium strumarium</i>		
Crabgrass	<i>Digitaria spp.</i>		
Dwarf dandelion	<i>Krigia cespitosa</i>		
Falseflax, smallseed	<i>Camelina microcarpa</i>		
Foxtail, Carolina	<i>Alopecurus carolinianus</i>		
Johnsongrass, seedling	<i>Sorghum halepense</i>		
Oats, wild	<i>Avena fatua</i>		
Panicum, fall	<i>Panicum dichotomiflorum</i>		
Panicum, Texas	<i>Panicum texanum</i>		
Pigweed, redroot	<i>Amaranthus retroflexus</i>		
Pigweed, smooth	<i>Amaranthus hybridus</i>		
Witchgrass	<i>Panicum capillare</i>		
Signalgrass, broadleaf	<i>Brachiaria platyphylla</i>	4"	24 oz.
Rice, red	<i>Oryza sativa</i>	4"	32 oz.
Teaweed	<i>Sida spinosa</i>		
Sprangletop	<i>Leptochloa spp.</i>	6" 6 to 12"	32 oz. 48 oz.
Geranium, Carolina	<i>Geranium carolinianum</i>	12"	32 oz.
Goosegrass	<i>Eleusine indica</i>		
Primrose, cutleaf evening	<i>Oenothera laciniata</i>		
Pusley, Florida	<i>Richardia scabra</i>		
Spanishneedles	<i>Bidens bipinnata</i>	5 to 12"	32 oz.
Filaree	<i>Erodium spp.</i>	12"	48 oz.

<sup>1</sup> Use these rates to control barnyardgrass in Alabama, Arkansas, Mississippi, Missouri, Louisiana and Texas for preplant treatments.

\* For those rates less than 32 fl. oz. per acre, this product at rates up to 32 fl. oz. per acre may be used where heavy weed densities exist.

\*\* For control in no-till systems, use 16 fl. oz. per acre.

#### Tank Mixtures

**HELOSATE plus dicamba plus nonionic surfactant**

**HELOSATE plus 2,4-D plus nonionic surfactant**

DO NOT APPLY DICAMBA OR 2,4-D TANK MIXTURES BY AIR IN CALIFORNIA.

These tank mixtures are recommended for use in fallow and reduced tillage areas only. Follow use directions as given in the Low-Volume Broadcast Application section.

This product plus dicamba or 2,4-D will control the annual grasses and broadleaf weeds listed for this product alone at the indicated heights (except 8 fl. oz. per acre applications), plus the following broadleaf weeds. For those weeds previously listed at 8 fl. oz. of this product alone per acre, use 12 fl. oz. in these tank mixtures.

**NOTE:** Refer to the specific product labels for crop rotation restrictions and cautionary statements for all products used in tank mixtures. Some crop injury may occur if dicamba is applied within 45 days of planting. The addition of dicamba in a mixture with this product may provide short-term residual control of selected weed species.

Apply 12 to 16 fl. oz. of this product plus 0.25 pound active ingredient of dicamba or 0.5 pound active ingredient of

2,4-D, plus 0.5 to 1% nonionic surfactant by total spray volume per acre to control dense populations of the following annual broadleaf weeds when less than the height indicated:

<b>Cocklebur (12")</b>	<i>Xanthium strumarium</i>	<b>Morningglory (6")</b>	<i>Iporicea spp.</i>
<b>Horseweed/marestail (6")</b>	<i>Conyza canadensis</i>	<b>Pigweed, redroot (12")</b>	<i>Amaranthus retroflexus</i>
<b>Kochia* (6")</b>	<i>Kochia scoparia</i>	<b>Pigweed, smooth (12")</b>	<i>Amaranthus hybridus</i>
<b>Lambsquarters (12")</b>	<i>Chenopodium album</i>	<b>Thistle, Russian (12")</b>	<i>Salsola kali</i>
<b>Lettuce, prickly (6")</b>	<i>Lactuca serriola</i>		

\* Controlled with dicamba tank mixture only

Apply 16 fl. oz. of this product plus 0.5 pound active ingredient of 2,4-D, plus 0.5 to 1% nonionic surfactant by total spray volume per acre to control the following annual broadleaf weeds when less than 6 inches in height.

<b>Ragweed, common</b>	<i>Ambrosia artemisiifolia</i>	<b>Smartweed, Pennsylvania</b>	<i>Polygonum pensylvanicum</i>
<b>Ragweed, giant</b>	<i>Ambrosia trifida</i>	<b>Velvetleaf</b>	<i>Abutilon theophrasti</i>

**High-Volume Broadcast Applications**

When applied as directed under the conditions described, this product will control the weeds listed below when water carrier volumes are 10 to 40 gallons per acre for ground applications.

Apply 1 to 1.5 quarts of this product per acre plus 0.5 to 1% nonionic surfactant by total spray volume. Use 1 quart per acre if weeds are less than 6 inches tall and 1.5 quarts per acre if weeds are over 6 inches tall. If weeds have been mowed, grazed, or cut, allow adequate time for new growth to reach recommended stages prior to treatment. These rates will also provide control of weeds listed in the Low-Volume Broadcast Application section.

**Weed Species:**

<b>Balsamapple*</b>	<i>Momordica charantia</i>	<b>Panicum</b>	<i>Panicum spp.</i>
<b>Bassia, fivehook</b>	<i>Bassia hyssopifolia</i>	<b>Ragweed, common</b>	<i>Ambrosia artemisiifolia</i>
<b>Brome</b>	<i>Bromus spp.</i>	<b>Ragweed, giant</b>	<i>Ambrosia trifida</i>
<b>Fiddleneck</b>	<i>Amsinckia spp.</i>	<b>Smartweed, Pennsylvania</b>	<i>Polygonum pensylvanicum</i>
<b>Fleabane, hairy</b>	<i>Conyza bonariensis</i>	<b>Sowthistle, annual</b>	<i>Sonchus oleraceus</i>
<b>Fleabane</b>	<i>Erigeron spp.</i>	<b>Sunflower</b>	<i>Helianthus annuus</i>
<b>Kochia</b>	<i>Kochia scoparia</i>	<b>Thistle, Russian</b>	<i>Salsola kali</i>
<b>Lettuce, prickly</b>	<i>Lactuca serriola</i>	<b>Velvetleaf</b>	<i>Abutilon theophrasti</i>

\* Apply with hand-held equipment only.

**PERENNIAL WEEDS**

Apply this product as follows to control or destroy most perennial weeds:

**NOTE:** If weeds have been mowed or tilled, do not treat until plants have resumed active growth and have reached the recommended stages.

Repeat treatments may be necessary to control weeds regenerating from underground parts or seed. Repeat treatments must be made prior to crop emergence.

The addition of 1 to 2% dry ammonium sulfate by weight or 8.5 to 17 pounds per 100 gallons of water may increase the performance of this product on perennial weeds. The improvement in performance may be apparent where environmental stress is a concern. Refer to the MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS section of this label.

When applied as recommended under the conditions described, this product WILL CONTROL the following perennial weeds (see additional notes, by weed species, below this listing):



<b>Alfalfa</b>	<i>Medicago sativa</i>	<b>Lantana</b>	<i>Lantana camara</i>
<b>Alligatorweed*</b>	<i>Alternanthera philoxeroides</i>	<b>Lespedeza</b>	<i>Lespedeza spp.</i>
<b>Anise (fennel)</b>	<i>Foeniculum vulgare</i>	<b>Milkweed</b>	<i>Asclepias spp.</i>
<b>Artichoke, Jerusalem</b>	<i>Helianthus tuberosus</i>	<b>Muhly, wirestem</b>	<i>Muhlenbergia frondosa</i>
<b>Bahiagrass</b>	<i>Paspalum notatum</i>	<b>Mullein, common</b>	<i>Verbascum thapsus</i>
<b>Bentgrass</b>	<i>Agrostis spp.</i>	<b>Napierrgrass</b>	<i>Pennisetum purpureum</i>
<b>Bermuda grass</b>	<i>Cynodon dactylon</i>	<b>Nightshade, silverleaf</b>	<i>Solanum elaeagnifolium</i>
<b>Bermuda grass, water (Knotgrass)</b>	<i>Paspalum distichum</i>	<b>Nutsedge; purple, yellow</b>	<i>Cyperus rotundus</i> <i>Cyperus esculentus</i>
<b>Bindweed, field</b>	<i>Convolvulus arvensis</i>	<b>Orchardgrass</b>	<i>Dactylis glomerata</i>
<b>Bluegrass, Kentucky</b>	<i>Poa pratensis</i>	<b>Pampasgrass</b>	<i>Cortaderia spp.</i>
<b>Blueweed, Texas</b>	<i>Helianthus ciliaris</i>	<b>Paragrass</b>	<i>Brachiaria mutica</i>
<b>Brackenfern</b>	<i>Pteridium aquilinum</i>	<b>Phragmites*</b>	<i>Phragmites spp.</i>
<b>Bromegrass, smooth</b>	<i>Bromus inermis</i>	<b>Poison hemlock</b>	<i>Conium maculatum</i>
<b>Bursage, woollyleaf</b>	<i>Franseria tomentosa</i>	<b>Quackgrass</b>	<i>Elytrigia repens</i>
<b>Canarygrass, reed</b>	<i>Phalaris arundinacea</i>	<b>Redvine*</b>	<i>Brunnichia ovata</i>
<b>Cattail</b>	<i>Typha spp.</i>	<b>Reed, giant</b>	<i>Arundo donax</i>
<b>Clover, red</b>	<i>Trifolium pratense</i>	<b>Ryegrass, perennial</b>	<i>Lolium perenne</i>
<b>Clover, white</b>	<i>Trifolium repens</i>	<b>Smartweed, swamp</b>	<i>Polygonum coccineum</i>
<b>Cogongrass</b>	<i>Imperata cylindrica</i>	<b>Spurge, leafy*</b>	<i>Euphorbia esula</i>
<b>Dallisgrass</b>	<i>Paspalum dilatatum</i>	<b>Starthistle, yellow</b>	<i>Centaurea solstitialis</i>
<b>Dandelion</b>	<i>Taraxacum officinale</i>	<b>Sweet potato, wild*</b>	<i>Ipomoea pandurata</i>
<b>Dock, curly</b>	<i>Rumex crispus</i>	<b>Thistle, Canada</b>	<i>Cirsium arvense</i>
<b>Dogbane, hemp</b>	<i>Apocynum cannabinum</i>	<b>Thistle, artichoke</b>	<i>Cynara cardunculus</i>
<b>Fescues</b>	<i>Festuca spp.</i>	<b>Timothy</b>	<i>Phleum pratense</i>
<b>Fescue, tall</b>	<i>Festuca arundinacea</i>	<b>Torpedograss*</b>	<i>Panicum repens</i>
<b>Guineagrass</b>	<i>Panicum maximum</i>	<b>Trumpet creeper*</b>	<i>Campsis radicans</i>
<b>Horsenettle</b>	<i>Solanum carolinense</i>	<b>Vaseygrass</b>	<i>Paspalum urvillei</i>
<b>Horseradish</b>	<i>Armoracia rusticana</i>	<b>Velvetgrass</b>	<i>Holcus spp.</i>
<b>Ice Plant</b>	<i>Mesembryanthemum crystallinum</i>	<b>Wheatgrass, western</b>	<i>Agropyron smithii</i>
<b>Johnsongrass</b>	<i>Sorghum halepense</i>		
<b>Kikuyugrass</b>	<i>Pennisetum clandestinum</i>		
<b>Knapweed</b>	<i>Centaurea repens</i>		

\* Partial control

THIS PRODUCT IS NOT REGISTERED IN CALIFORNIA FOR USE IN WATER BERMUDA GRASS

See DIRECTIONS FOR USE and MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS sections of this label for labeled uses and specific application instructions.

**Alfalfa** - Apply 1 quart of this product per acre plus 0.5 to 1% nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Make application after the last hay cutting in the fall. Allow alfalfa to regrow to a height of 6 to 8 inches or more prior to treatment. Applications should be followed with deep tillage at least 7 days after treatment, but before soil freeze-up.

**Alligatorweed** - Apply 4 quarts of this product per acre or apply a 1.5% solution with hand-held equipment to provide partial control. Apply when most of the plants are in bloom. Repeat applications will be required to maintain such control.

**Anise (fennel) / poison hemlock** - Apply a 1 to 2% solution of this product as a spray-to-wet treatment. Optimum results are obtained when plants are treated at the bud to full-bloom stage of growth. Repeat applications may be needed in succeeding years to control plants arising from seeds.

**Bentgrass** - For suppression in grass seed production areas. For ground applications only, apply 1.5 quarts of this

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product plus 0.5 to 1% nonionic surfactant by total spray volume in 10 to 20 gallons of water per acre. Ensure entire crown area has resumed growth prior to a fall application. Bentgrass should be actively growing and have at least 3 inches of growth. Tillage prior to treatment should be avoided. Tillage 7 to 10 days after application is recommended for best results. Failure to use tillage after treatment may result in unacceptable control.

**Bermuda grass** - For control, apply 5 quarts of this product per acre. For partial control, apply 3 quarts per acre. Treat when Bermuda grass is actively growing and seedheads are present. Retreatment may be necessary to maintain control. Allow 7 or more days after application before tillage.

**Bermuda grass, water (knotgrass)** - Apply 1.5 quarts of this product plus 0.5 to 1% nonionic surfactant by total spray volume in 5 to 10 gallons of water per acre. Apply when water Bermuda grass is actively growing and 12 to 18 inches in length. Allow 7 or more days before tilling, flushing, or flooding the field. Fall applications only - Apply 1 quart of this product plus 0.5 to 1% nonionic surfactant by total spray volume in 5 to 10 gallons of water per acre. Fallow fields should be tilled prior to application. Apply prior to frost on water Bermuda grass that is actively growing and 12 to 18 inches in length. Allow 7 or more days before tillage.

**Bindweed, field** - For control, apply 4 to 5 quarts of this product per acre west of the Mississippi River and 3 to 4 quarts east of the Mississippi River. Apply when the weeds are actively growing and are at or beyond full bloom. Do not treat when weed is under drought stress as good soil moisture is necessary for active growth. For best results, apply in late summer or fall. Fall treatments must be applied before a killing frost. Allow 7 or more days after application before tillage.

Also for control, apply 2 quarts of this product plus 0.5 pound active ingredient of dicamba in 10 to 20 gallons of water per acre. At these rates, apply using ground application only.

The following tank mixtures with 2,4-D may be applied using aerial application equipment (except in California) in fallow and reduced tillage systems only.

For suppression on irrigated agricultural land, apply 1 to 2 quarts of this product plus 1 pound active ingredient of 2,4-D in 10 to 20 gallons of water per acre with ground equipment only. Applications should be made following harvest or in fall fallow ground when the bindweed is actively growing and the majority of runners are 12 inches or more in length. The use of at least one irrigation will promote active bindweed growth.

For suppression, apply 16 fl. oz. of this product plus 0.5 pound active ingredient of 2,4-D plus 0.5 to 1% nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre for ground applications and 3 to 5 gallons of water per acre for aerial applications. Applications should be delayed until maximum emergence has occurred and when vines are between 6 to 18 inches in length.

**In California only**, apply 1 to 5 quarts of this product per acre. Actual rate needed for suppression or control will vary within this range depending on local conditions.

For suppression on irrigated land where annual tillage is performed, apply 1 quart of this product plus 0.5 to 1% nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Apply to actively growing bindweed that has reached a length of 12 inches or greater. Allow maximum weed emergence and runner growth. Do not treat when weeds are under drought stress as good soil moisture is necessary for active growth. Allow 3 or more days after application before tillage.

**Bluegrass, Kentucky / bromegrass, smooth / orchardgrass** - Apply 2 quarts of this product in 10 to 40 gallons of water per acre when the grasses are actively growing and most plants have reached boot-to-early seedhead stage of development. For partial control in pasture or hay crop renovation, apply 1 to 1.5 quarts of this product plus 0.5 to 1% nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Apply to actively growing plants when most have reached 4 to 12 inches in height. Allow 7 or more days after application before tillage.

**Orchardgrass (sods going to no-till corn)** - Apply 1 to 1.5 quarts of this product per acre plus 0.5 to 1% nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Apply to orchardgrass that is a minimum of 12 inches tall for spring applications and 6 inches tall for fall applications. Allow at least 3 days following application before planting. A sequential application of atrazine will be necessary for optimum results.

**Blueweed, Texas** - Apply 4 to 5 quarts of this product per acre west of the Mississippi River and 3 to 4 quarts east of the Mississippi River. Apply when weed is actively growing and is at or beyond full bloom. Do not treat when weed is under drought stress as good soil moisture is necessary for active growth. New leaf development indicates active growth. For best results, apply in late summer or fall. Fall treatments must be applied before a killing frost. Allow 7 or more days after application before tillage.

**Brackenfern** - Apply 3 to 4 quarts of this product per acre as a broadcast spray or as a 1 to 1.5% solution with hand-held equipment. Apply to fully expanded fronds that are at least 18 inches long.

**Bursage, woollyleaf** - For control, apply 2 quarts of this product plus 1 pint of dicamba per acre. For partial control, apply 1 quart of this product plus 1 pint of dicamba per acre. Add 0.5 to 1% nonionic surfactant by total spray volume and apply in 3 to 20 gallons of water per acre. Apply when plants are producing new active growth that has been initiated by moisture for at least 2 weeks and when plants are at or beyond flowering.

**Canarygrass, reed / timothy / wheatgrass, western** - Apply 2 to 3 quarts of this product per acre. For best results, apply to actively growing plants when most have reached the boot-to-head stage of growth. Allow 7 or more days after application before tillage.

**Cogongrass** - Apply 3 to 5 quarts of this product plus 0.5 to 1% nonionic surfactant in 10 to 40 gallons of water per acre. Apply when cogongrass is at least 18 inches tall and actively growing in late summer or fall. Allow 7 or more days after application before tillage or mowing. Due to uneven stages of growth and the dense nature of vegetation preventing good spray coverage, repeat treatments may be necessary to maintain control.

**Dandelion / dock, curly** - Apply 3 to 5 quarts of this product per acre when plants are actively growing and most have reached early bud stage of growth. Allow 7 or more days after application before tillage. Also for control, apply 16 fl. oz. of this product plus 0.5 pound active ingredient 2,4-D plus 0.5 to 1% nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre.

**Dogbane, hemp** - Apply 4 quarts of this product per acre. Apply when actively growing and when most weeds have reached the late bud to flower stage of growth. Following crop harvest or mowing, allow weeds to regrow to a mature stage prior to treatment. For best results, apply in late summer or fall. Allow 7 or more days after application before tillage.

For suppression, apply 16 fl. oz. of this product plus 0.5 pound active ingredient 2,4-D plus 0.5 to 1% nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre for ground applications and 3 to 5 gallons of water per acre for aerial applications. Delay applications until maximum emergence of dogbane has occurred.

**Fescue, tall** - Apply 3 quarts of this product in 10 to 40 gallons of water per acre to actively growing plants when most have reached boot-to-early seedhead stage of development.

Fall applications only - Apply 1 quart of this product plus 0.5 to 1% nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Apply to fescue in the fall when actively growing and plants have 6 to 12 inches of new growth. Allow 7 or more days after application before tillage. A sequential application of 1 pint per acre of this product plus nonionic surfactant will improve long-term control and control seedlings germinating and emerged after fall treatments or the following spring.

**Guineagrass** - Apply 3 quarts of this product per acre or use a 1% solution with hand-held equipment. Apply to actively growing guineagrass when most has reached at least the 7-leaf stage of growth. Ensure thorough coverage when using hand-held equipment. Allow 7 or more days after application before tillage.

**Johnsongrass / ryegrass, perennial** - Apply 1 to 3 quarts of this product per acre. In annual cropping systems apply 1 to 2 quarts of this product per acre. Apply 1 quart of this product plus 0.5 to 1% nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Use 2 quarts of this product when applying 10 to 40 gallons of water per acre. In noncrop, or areas where annual tillage (no-till) is not performed, apply 2 to 3 quarts of this product in 10 to 40 gallons of water per acre. For best results, apply to actively growing plants when most have reached the boot-to-head stage of growth or in the fall prior to frost. Allow 7 or more days after application before tillage. Do not tank-mix with residual herbicides when using the 1 quart per acre rate.

For burndown of Johnsongrass - Apply 1 pint per acre plus 0.5 to 1% nonionic surfactant in 3 to 10 gallons of water per acre before the plants reach a height of 12 inches. For this use, allow at least 3 days after treatment before tillage. For spot treatment (partial control or suppression) - Apply a 1% solution of this product plus 0.5 to 1% nonionic surfactant by total spray volume when Johnsongrass is 12 to 18 inches in height. Coverage should be uniform and complete.

**Kikuyugrass** - Apply 2 to 3 quarts of this product per acre. Spray when most kikuyugrass is at least 8 inches in height (3- or 4-leaf stage of growth) and actively growing. Allow 3 or more days after application before tillage.

**Knapweed / horseradish** - Apply 4 quarts of this product per acre. Apply when actively growing and when most weeds have reached the late bud to flower stage of growth. Following crop harvest or mowing, allow weeds to regrow to a mature stage prior to treatment. For best results, apply in late summer or fall. Allow 7 or more days after application before tillage.

**Lantana** - Apply this product as a 1 to 1.25% solution using hand-held equipment only. Apply to actively growing lantana at or beyond the bloom stage of growth. Use the higher application rate for plants that have reached the woody stage of growth. Allow 7 or more days after application before tillage.

**Milkweed, common** - Apply 3 quarts of this product per acre. Apply when actively growing and most of the milkweed has reached the late bud to flower stage of growth. Following small grain harvest or mowing, allow milkweed to regrow to a mature stage prior to treatment. Allow 7 or more days after application before tillage.

**Muhly, wirestem** - Apply 1 to 2 quarts of this product per acre. Use 1 quart of this product plus 0.5 to 1% nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Use 2 quarts of this product when applying 10 to 40 gallons of water per acre or in pasture, sod, or noncrop areas. Spray when wirestem muhly is 8 inches or more in height and actively growing. Do not till between harvest and fall applications or in the fall or spring prior to spring applications. Allow 3 or more days after application before tillage. This product will not provide residual control of wirestem muhly from seeds that germinate after application of this product. Do not tank mix with residual herbicides when using the 1 quart per acre rate.

**Nightshade, silverleaf** - For control, apply 2 quarts of this product plus 0.5 to 1% nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Applications should be made when at least 60% of the plants have berries. Fall treatments must be applied before a killing frost. Allow 7 or more days after application before tillage. Do not treat when weed is under drought stress as good soil moisture is necessary for active growth.

**Nutsedge: purple, yellow** - Apply 3 quarts of this product per acre as a broadcast spray, or apply a 1 to 2% solution from hand-held equipment to control existing nutsedge plants and immature nutlets attached to treated plants. Treat when plants are in flower or when new nutlets can be found at rhizome tips. Nutlets that have not germinated will not be controlled and may germinate following treatment. Repeat treatments will be required for long-term control of ungerminated nutlets.

Sequential applications of 1 to 2 quarts of this product plus 0.5 to 1% nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre will provide control. Make applications when a majority of the plants are in the 3- to 5-leaf stage (less than 6 inches tall). Repeat this application, as necessary, when newly emerging plants reach the 3- to 5-leaf stage. Subsequent applications will be necessary for long-term control.

For suppression to partial control of existing plants, apply 1 pint to 2 quarts of this product per acre, plus 0.5 to 1% nonionic surfactant in 3 to 40 gallons of water per acre. Treat when plants have 3 to 5 leaves and most are less than 6 inches tall. Repeat treatments will be required to control subsequent emerging plants or regrowth of existing plants. Wait 7 days after treatment before tillage or mowing.

**Pampasgrass / ice plant** - Apply this product as a 1.5 to 2% solution using hand-held equipment. Apply to plants that are actively growing. Pampasgrass should be at or beyond the boot stage of growth. Thorough coverage is necessary for best control.

**Phragmites** - For partial control of phragmites in Florida and the counties of other states bordering the Gulf of Mexico, apply 5 quarts per acre as a broadcast spray or apply as a 2% solution from hand-held equipment. For partial control in other areas of the U.S., apply 3 quarts per acre as a broadcast spray or apply a 1% solution from hand-held equipment. For best results, treat during late summer or fall months or when plants are actively growing and in full bloom. Treatment before or after this stage may lead to reduced control. Due to uneven stages of growth or the dense nature of the vegetation, which may prevent good spray coverage, repeat treatments may be necessary to maintain control. Visible symptoms of control will be slow to develop.

**Quackgrass - In annual cropping systems, or in pastures and sods followed by deep tillage:** Apply 1 to 2 quarts of this product per acre. For the 1 quart rate, apply 0.5 to 1% nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. For the 2 quart rate, apply in 10 to 40 gallons of water per acre. Do not tank mix with residual herbicides when using the 1 quart rate. Spray when quackgrass is 6 to 8 inches in height and actively growing. Do not till between harvest and fall applications, or in fall or spring prior to spring application. Allow 3 or more days after

application before tillage. In pastures or sods, for best results use a moldboard plow.

**Quackgrass - In pasture or sod or other noncrop areas where deep tillage is not planned following application:**

Apply 2 to 3 quarts in 10 to 40 gallons of water per acre. Spray when the quackgrass is greater than 8 inches tall and actively growing. Do not till between harvest and fall application, or in fall or spring prior to spring application. Allow 3 or more days after application before tillage.

**Redvine** - For suppression, apply 24 fl. oz. of this product per acre at each of two applications 7 to 14 days apart, or a single application of 2 quarts per acre. Apply recommended rates in 5 to 10 gallons of water per acre plus 0.5 to 1% nonionic surfactant by total volume. Apply in late September or early October to actively growing plants, which are at least 18 inches tall and have been growing 45 to 60 days since the last tillage operation. Make applications at least 1 week before a killing frost.

**Reed, giant** - For control of giant reed, apply a 2% solution of this product when plants are actively growing. Best results are obtained when applications are made in late summer to fall.

**Smartweed, swamp** - Apply 3 to 5 quarts of this product per acre when plants are actively growing and most have reached the early bud stage of growth. Allow 7 or more days after application before tillage.

Also for control, apply 16 fl. oz. of this product plus 0.5 pound active ingredient of 2,4-D plus 0.5 to 1% nonionic surfactant by total volume in 3 to 10 gallons of water per acre in the late summer or fall. Apply when plants are actively growing and most have reached the early bud stage of growth. Allow 7 or more days after application before tillage.

**Spurge, leafy** - For suppression, apply 16 fl. oz. of this product plus 0.5 pound active ingredient 2,4-D plus 0.5 to 1% nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre in the late summer or fall. Apply when plants are actively growing. If mowing has occurred prior to treatment, apply when most of the plants are 12 inches tall. Allow 7 or more days after application before tillage.

**Starthistle, yellow** - Best results are obtained when applications are made during periods of active growth, including the rosette, bolting and early flower stages. For spray-to-wet applications, apply this product as a 2% solution. For broadcast applications, apply 2 quarts per acre in 10 to 40 gallons per acre of water carrier.

**Sweet potato, wild / thistle, artichoke** - Apply this product as a 2% solution using hand-held equipment. Apply to actively growing weeds that are at or beyond the bloom stage of growth. Repeat applications will be required. Allow the plant to reach the recommended stage of growth before retreatment. Allow 7 or more days before tillage.

**Thistle, Canada** - Apply 2 to 3 quarts of this product per acre. Apply to actively growing thistles when most are at or beyond the bud stage of growth. After harvest, mowing or tillage in the late summer or fall, allow at least 4 weeks for initiation of active growth and rosette development prior to the application of this product. Fall treatments must be applied before a killing frost. Allow 3 or more days after application before tillage.

For suppression of Canada thistle, apply 1 quart per acre of this product, or 1 pint of this product plus 0.5 pound active ingredient 2,4-D per acre, plus 0.5 to 1% nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre in the late summer or fall after harvest, mowing or tillage. Allow rosette regrowth to a minimum of 6 inches in diameter before treating. Applications can be made as long as leaves are still green and plants are actively growing at the time of application. Allow 3 or more days after application before tillage.

**Torpedograss** - Apply 4 to 5 quarts of this product per acre to provide partial control of torpedograss. Apply to actively growing torpedograss when most plants are at or beyond the seedhead stage of growth. Repeat applications will be required to maintain control. Fall treatments must be applied before frost. Allow 7 or more days after application before tillage.

**Trumpet creeper** - For control, apply 2 quarts of this product per acre in 5 to 10 gallons of water per acre. Apply to actively growing plants in late September and October, which are at least 18 inches tall and have been growing 45 to 60 days since the last tillage operation. Make applications at least 1 week before killing frost.

**Other perennials listed on this label** - Apply 3 to 5 quarts of this product per acre. Apply when actively growing and most have reached the early head to early bud stage of growth. Allow 7 or more days after application before tillage.

**WOODY BRUSH AND TREES**

When applied as recommended under the conditions described, this product CONTROLS or PARTIALLY CONTROLS the following woody brush plants and trees:

<b>Alder</b>	<i>Alnus spp.</i>	<b>Maple:</b>	
<b>Ash*</b>	<i>Fraxinus spp.</i>	<b>red**</b>	<i>Acer rubrum</i>
<b>Aspen quaking</b>	<i>Populus tremuloides</i>	<b>sugar</b>	<i>Acer saccharum</i>
<b>Bearmat (Bearelover)</b>	<i>Chamaebatia foliolosa</i>	<b>vine*</b>	<i>Acer circinatum</i>
<b>Beech</b>	<i>Fagus grandifolia</i>	<b>Monkey flower*</b>	<i>Mimulus guttatus</i>
<b>Birch</b>	<i>Betula spp.</i>	<b>Oak:</b>	
<b>Blackberry</b>	<i>Rubus spp.</i>	<b>black*</b>	<i>Quercus velutina</i>
<b>Blackgum</b>	<i>Nyssa spp.</i>	<b>northern pin</b>	<i>Quercus palustris</i>
<b>Bracken</b>	<i>Peridium spp.</i>	<b>post</b>	<i>Quercus stellata</i>
<b>Broom: French</b>	<i>Cytisus monspessulanus</i>	<b>red</b>	<i>Quercus rubra</i>
<b>Scotch</b>	<i>Cytisus scoparius</i>	<b>southern red</b>	<i>Quercus falcata</i>
<b>Buckwheat, California*</b>	<i>Eriogonum fasciculatum</i>	<b>white*</b>	<i>Quercus alba</i>
<b>Cascara*</b>	<i>Rhamnus purshiana</i>	<b>Persimmon*</b>	<i>Diospyros spp.</i>
<b>Catsclaw*</b>	<i>Acacia greggi</i>	<b>Pine</b>	<i>Pinus spp.</i>
<b>Ceanothus*</b>	<i>Ceanothus spp.</i>	<b>Poison ivy</b>	<i>Rhus radicans</i>
<b>Chamise</b>	<i>Adenostoma fasciculatum</i>	<b>Poison oak</b>	<i>Rhus toxicodendron</i>
<b>Cherry:</b>		<b>Poplar, yellow* (tulip tree)</b>	<i>Liriodendron tulipifera</i>
<b>bitter</b>	<i>Prunus emarginata</i>	<b>Raspberry</b>	<i>Rubus spp.</i>
<b>black</b>	<i>Prunus serotina</i>	<b>Redbud, eastern</b>	<i>Cercis canadensis</i>
<b>pin</b>	<i>Prunus pensylvanica</i>	<b>Rose, multiflora</b>	<i>Rosa multiflora</i>
<b>Coyote brush</b>	<i>Baccharis consanguinea</i>	<b>Russian olive</b>	<i>Elaeagnus angustifolia</i>
<b>Creeper, Virginia*</b>	<i>Parthenocissus quinquefolia</i>	<b>Sage: black, white</b>	<i>Salvia spp.</i>
<b>Dewberry</b>	<i>Rubus trivialis</i>	<b>Sagebrush, California</b>	<i>Artemisia californica</i>
<b>Dogwood*</b>	<i>Cornus spp.</i>	<b>Salmonberry</b>	<i>Rubus spectabilis</i>
<b>Elderberry</b>	<i>Sambucus spp.</i>	<b>Saltcedar</b>	<i>Tamarix spp.</i>
<b>Elm*</b>	<i>Ulmus spp.</i>	<b>Sassafras</b>	<i>Sassafras albidum</i>
<b>Eucalyptus</b>	<i>Eucalyptus spp.</i>	<b>Sourwood</b>	<i>Oxydendrum arboreum</i>
<b>Gorse</b>	<i>Ulex europaeus</i>	<b>Sumac:</b>	
<b>Hasardia*</b>	<i>Haplopappus squamosus</i>	<b>poison*</b>	<i>Rhus vernix</i>
<b>Hawthorn</b>	<i>Crataegus spp.</i>	<b>smooth*</b>	<i>Rhus glabra</i>
<b>Hazel</b>	<i>Carylus spp.</i>	<b>winged*</b>	<i>Rhus copallina</i>
<b>Hickory*</b>	<i>Carya spp.</i>	<b>Sweetgum</b>	<i>Liquidambar styraciflua</i>
<b>Holly, Florida / Brazilian</b>	<i>Schinus terebinthifolius</i>	<b>Swordfern*</b>	<i>Polystichum munitum</i>
<b>peppertree*</b>		<b>Tallowtree, Chinese</b>	<i>Sapium sebiferum</i>
<b>Honeysuckle</b>	<i>Lonicera spp.</i>	<b>Tanoak</b>	<i>Lithocarpus densiflorus</i>
<b>Hornbeam, American*</b>	<i>Carpinus caroliniana</i>	<b>Thimbleberry</b>	<i>Rubus parviflorus</i>
<b>Kudzu</b>	<i>Pueraria lobata</i>	<b>Tobacco, tree*</b>	<i>Nicotiana glauca</i>
<b>Locust, black*</b>	<i>Robinia pseudoacacia</i>	<b>Trumpet creeper</b>	<i>Campsis radicans</i>
<b>Madrone</b>	<i>Arbutus menziesii</i>	<b>Waxmyrtle, southern*</b>	<i>Myrica cerifera</i>
<b>Manzanita</b>	<i>Arctostaphylos spp.</i>	<b>Willow</b>	<i>Salix spp.</i>

\*Partial control \*\* See below for control or partial control instructions.

**NOTE:** If brush has been mowed or tilled or trees have been cut, do not treat until regrowth has reached the recommended stages of growth.

Apply this product when plants are actively growing and, unless otherwise directed, after full leaf expansion. Use the higher rate for larger plants and/or dense areas of growth. On vines, use the higher rate for plants that have reached the woody stage of growth. Best results are obtained when application is made in the late summer or fall after fruit formation.

In arid areas, best results are obtained when application is made in the spring to early summer when brush species are at high moisture content and are flowering.

Ensure thorough coverage when using hand-held equipment. Symptoms may not appear prior to frost or senescence

with fall treatments.

Allow 7 or more days after application before tillage, mowing or removal. Repeat treatments may be necessary to control plants regenerating from underground parts or seed. Some autumn colors on undesirable deciduous species are acceptable provided no major leaf drop has occurred. Reduced performance may result if fall treatments are made following a frost.

See DIRECTIONS FOR USE and MIXING, ADDITIVES and APPLICATION INSTRUCTIONS sections of this label for labeled uses and specific application instructions.

Apply this product as follows to control or partially control the following woody brush and trees.

**Alder / dewberry / honeysuckle / post oak / raspberry** - For control, apply 3 to 4 quarts per acre of this product as a broadcast spray or as a 1 to 1.5% solution with hand-held equipment.

**Aspen, quaking / cherry: bitter, black, pin / hawthorn / oak, southern red / sweetgum / trumpet creeper** - For control, apply 2 to 3 quarts of this product per acre as a broadcast spray or as a 1 to 1.5% solution with hand-held equipment.

**Birch / elderberry / hazel / salmonberry / thimbleberry** - For control apply 2 quarts per acre of this product as a broadcast spray or as a 1% solution with hand-held equipment.

**Blackberry** - For control, apply 3 to 4 quarts per acre of this product as a broadcast spray, or 1 to 1.5% solution with hand-held equipment. Make application after plants have reached full leaf maturity. Best results are obtained when applications are made in the late summer or fall. After berries have set or dropped in late fall, blackberry can be controlled by applying a 0.75% solution of this product plus 0.5 to 1% nonionic surfactant by total spray volume with hand-held equipment. For control of blackberries after leaf drop and until killing frost or as long as stems are green, apply 3 to 4 quarts of this product in 10 to 40 gallons of water per acre.

**Broom: French, Scotch** - For control, apply a 1.5 to 2% solution with hand-held equipment.

**Buckwheat, California / hasardia / monkey flower / tobacco, tree** - For partial control of these species, apply a 1 to 2% solution of this product as a foliar spray with hand-held equipment. Thorough coverage of foliage is necessary for best results.

**Catsclaw** - For partial control, apply a 1 to 1.5% solution with hand-held equipment.

**Coyote brush** - For control, apply a 1.5 to 2% solution with hand-held equipment when at least 50% of the new leaves are fully developed.

**Eucalyptus** - For control of eucalyptus resprouts, apply a 2% solution with hand-held equipment when resprouts are 6 to 12 feet tall. Ensure complete coverage. Apply when plants are growing actively. Avoid application to drought stressed plants.

**Kudzu** - For control, apply 4 quarts of this product per acre as a broadcast spray or as a 2% solution with hand-held equipment. Repeat applications will be required to maintain control.

**Madrone resprouts** - For suppression or partial control, apply a 2% solution of this product to resprouts less than 3 to 6 feet tall. Best results are obtained with spring / early summer treatments.

**Maple, red** - For control, apply as a 1 to 1.5% solution with hand-held equipment when at least 50% of the new leaves are fully developed. For partial control, apply 2 to 4 quarts of this product per acre as a broadcast spray.

**Maple, sugar / oak, northern pin / oak, red** - For control, apply as a 1 to 1.5% solution with hand-held equipment when at least 50% of the new leaves are fully developed.

**Poison ivy / poison oak** - For control, apply 4 to 5 quarts of this product per acre as a broadcast spray or as a 2% solution with hand-held equipment. Repeat applications may be required to maintain control. Fall treatments must be applied before leaves lose green color.

**Rose, multiflora** - For control, apply 2 quarts of this product per acre as a broadcast spray or as a 1% solution with hand-held equipment. Treatments should be made prior to leaf deterioration by leaf-feeding insects.

**Sage, black / sagebrush, California / chamise / tallotree, Chinese** - For control of these species, apply a 1% solution of this product as a foliar spray with hand-held equipment. Thorough coverage of foliage is necessary for best results.

**Tanoak resprouts** - For suppression or partial control, apply a 2% solution of this product to resprouts less than 3 to 6 feet tall. Best results are obtained with fall applications.

**Willow** - For control, apply 3 quarts of this product per acre as a broadcast spray, or as a 1% solution with hand-held equipment.

**Other woody brush and trees listed on this label** - For partial control, apply 2 to 5 quarts of this product per acre as a broadcast spray or as a 1 to 2% solution with hand-held equipment.

**CROPPING SYSTEMS**

When applied as directed for CROPPING SYSTEMS, under the conditions described, this product controls annual and perennial weeds listed on this label, prior to the emergence of direct seeded crops or prior to transplanting of crops listed on this label.

See GENERAL INFORMATION and MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS sections of this label for essential product performance information.

See the following CROPPING SYSTEMS sections for specific recommended uses.

**EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE, GREEN STEMS OR FRUIT OF DESIRABLE CROPS, PLANTS, TREES OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.**

Repeat treatments may be necessary to control weeds regenerating from underground parts or seed.

Except as otherwise specified on this label, repeat treatments must be made before the crop emerges in accordance with the instructions of this label.

Except as otherwise specified in a crop section of this label, the combined total of all treatments must not exceed 8 quarts per acre of this product per year. The maximum use rates stated throughout this product's labeling apply to this product combined with the use of all other herbicides containing glyphosate or sulfosate as the active ingredient, whether applied as mixtures or separately. Calculate the application rates and ensure that the total use of this and other glyphosate or sulfosate containing products does not exceed stated maximum use rate.

For any crop NOT listed below, applications must be made at least 30 days prior to planting.

Do not harvest or feed treated vegetation for 8 weeks following application. Following spot treatment or selective equipment use, allow 14 days before grazing domestic livestock or harvesting forage grasses and legumes.

<b>Row Crops</b>		
Corn (all)* Cotton*	Peanuts Sorghum (milo)*	Soybeans* Sugarcane*
<b>Cereal Grains</b>		
Barley* Buckwheat* Millet (pearl, proso)*	Oats* Rice** Rye*	Triticale* Wheat (all)* Wild rice*
<b>Citrus</b>		
Calamondin Chironja Citron Grapefruit Kumquat	Lemon Lime Mandarin orange Orange (all)	Pummelo Tangelo Tangerine Tangors
<b>Tree Nuts</b>		



Almond Beechnut Brazil nut Butternut Cashew	Chestnut Chinquapin Filbert (hazelnut) Hickory nut	Macadamia Pecan Pistachio Walnut (black, English)
<b>Vine Crops</b>		
Grapes	Kiwi fruit	
<b>Tree Fruits</b>		
Apple Apricot Cherry (sweet, sour) Loquat	Mayhaw Nectarine Olive Peach	Pear Plum / prune (all) Quince
<b>Vegetables</b>		
Artichoke, Jerusalem Asparagus* Beans (all) Beet greens Beets (red, sugar) Broccoli (all) Brussels sprouts Cabbage (all) Cabbage, Chinese Cantaloupe*** Carrot Cauliflower Casaba melon*** Celeriac Celery Chard, Swiss Chicory Collards Crenshaw melon*** Cucumber***	Eggplant*** Endive Garlic*** Gourds*** Ground cherry*** Honeydew melon*** Honey ball melon*** Horseradish Kale Kohlrabi Leek Lentils Lettuce Mango melon*** Melons (all)*** Muskmelon*** Mustard greens Okra Onion	Parsley Parsnip Peas (all) Pepper (all)*** Persian melon*** Potato (Irish, sweet) Pumpkin*** Radish Rape greens (rapini) Rhubarb Rutabaga Shallot Spinach(all) Squash (summer, winter)*** Tomatillo*** Tomato***† Turnip Watercress*** Watermelon*** Yams
<b>Small Fruits and Berries</b>		
Blackberry Blueberry Boysenberry Cranberry	Currant Dewberry Elderberry Gooseberry	Huckleberry Loganberry Ollalieberry Raspberry (black, red)
<b>Forage Crops and Legumes</b>		
Alfalfa*	Forage grasses*	Forage legumes*

Tropical Crops		
Acerola	Figs	Persimmons
Atemoya	Genip	Pineapple***
Avocado	Guava	Plantains
Banana	Jaboticaba	Pomegranate
Breadfruit	Jackfruit	Sopadilla
Canistel	Longan	Sapote (black, mamey, white)
Carambola	Lychee	Soursop
Cherimoya	Mango	Sugarapple
Cocoa beans	Papaya	Tamarind
Coffee	Passion fruit	Tea
Dates		

- \*Spot treatments may be applied in these crops.
- \*\*Do not treat rice fields or levees when the fields contain flood water.
- \*\*\*Apply only prior to planting. Allow at least 3 days between application and planting.
- \*\*\*\*Do not feed or graze treated pineapple forage following application.
- † Use is restricted to direct seeded crops only.

When applying this product prior to transplanting crops into plastic mulch, care must be taken to remove residues of this product, which could cause crop injury, from the plastic prior to transplanting. Residues can be removed by a single 0.5 inch application of water, either by natural rainfall or via a sprinkler irrigation system. Applications made at emergence will result in injury or death to emerged seedlings.

**Spot treatment** (Only those crops with \* can be spot treated) - Applications in growing crops must be made prior to heading of small grains and milo, initial pod set in soybeans, silking of corn, or boll opening on cotton.

For forage grasses and forage legumes see Spot treatment in the PASTURES section of CROPPING SYSTEMS in this label.

For dilution and rates of application using boom or hand-held equipment, see MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS and WEEDS CONTROLLED sections of this label.

**NOTE: FOR SPOT TREATMENT IN FORAGE GRASSES AND FORAGE LEGUMES, NO MORE THAN ONE-TENTH OF ANY ACRE SHOULD BE TREATED AT ONE TIME. FOR ALL OTHER CROPS, DO NOT SPOT TREAT MORE THAN 10% OF THE TOTAL FIELD AREA TO BE HARVESTED. THE CROP RECEIVING SPRAY IN TREATED AREA WILL BE KILLED. TAKE CARE TO AVOID DRIFT OR SPRAY OUTSIDE TARGET AREA FOR THE SAME REASON.**

**Selective equipment** - This product may be applied through recirculating sprayers, shielded applicators or wiper applicators in cotton and soybeans. Shielded and wiper applicators may also be used in tree crops and grapes. Wiper applicators may be used in wheat, rutabagas, forage grasses and forage legumes, including pasture sites and grain sorghum (milo).

See the SELECTIVE EQUIPMENT part of the APPLICATION EQUIPMENT AND TECHNIQUES section of this label for information on proper use and calibration of this equipment.

Allow at least the following time intervals between application and harvest:

Cotton, soybeans	7 days
Apples, citrus, pear	1 day
Atemoya, avocado, breadfruit, canistel, carambola, cherry, dates, grapes, jaboticaba, jackfruit, longan, lychee, passion fruit, persimmons, rutabagas, sapodilla, sapote, soursoap, sugarapple, tamarind	14 days
Stone fruit	17 days
Nut crops	3 days
Wheat <sup>1</sup>	35 days
Sorghum (milo) <sup>1,2</sup>	40 days

<sup>1</sup>Do not use roller applicators.

<sup>2</sup>Do not feed or graze treated milo fodder. Do not ensile treated vegetation.

**ASPARAGUS**

When applied as directed for CROPPING SYSTEMS under the conditions described, this product controls weeds listed on this label in asparagus.

for specific rates of applications and instructions for control of various annual and perennial weeds, see the WEEDS CONTROLLED section of this label.

**Prior to crop emergence** - Apply this product prior to crop emergence for the control of the emerged labeled annual and perennial weeds. DO NOT APPLY WITHIN A WEEK BEFORE THE FIRST SPEARS EMERGE.

**Spot treatment** - Apply this product immediately after cutting, but prior to the emergence of new spears. Do not treat more than 10% of the total field area to be harvested. Do not harvest within 5 days of treatment.

**Postharvest** - Apply this product after the last harvest and all spears have been removed. If spears are allowed to regrow, delay application until ferns have developed. Delayed treatments should be applied as directed or shielded spray in order to avoid contact of the spray with ferns, stems or spears. Direct contact of the spray with the asparagus may result in serious crop injury.

**NOTE:** Select and use recommended types of spray equipment for post-emergence postharvest applications. A directed spray is any application where the spray pattern is aligned in such a way as to avoid direct contact of the spray with the crop. A shielded spray is any application where a physical barrier is positioned and maintained between the spray and the crop to prevent contact of spray with the crop.

**BERRIES AND SMALL FRUITS**

Wiper applicators may be used in cranberries in accordance with instructions in this section.

For other berries, apply as a preplant broadcast application, or as a directed spray or wiper application, post-planting.

See GENERAL INFORMATION and MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS sections of this label for essential product performance information.

See the SELECTIVE EQUIPMENT part of APPLICATION EQUIPMENT AND TECHNIQUES section of this label for information on recommended use and calibration of this equipment.

Allow a minimum of 30 days between last application and harvest of cranberries.

For other small fruits and berries, allow a minimum of 14 days between last application and harvest.

For wick or other wiper applicators - Mix 1 gallon of this product in 4 gallons of water to prepare a 20% solution. In severe infestations, reduce equipment ground speed to ensure that adequate amounts of this product are wiped on the weeds. A second treatment in the opposite direction may be beneficial.

Do not permit herbicide solution to contact desirable vegetation, including green shoots, canes or foliage.

**CORN**

**Hooded sprayers** - This product may be used through hooded sprayers for weed control between the rows of corn. Only hooded sprayers that completely enclose the spray pattern may be used.

A hooded sprayer is a type of shielded applicator. The spray pattern is completely enclosed on the top and all 4 sides by a hood, thereby shielding the crop from the spray solution. This equipment must be set up and operated in a manner that avoids bouncing or raising the hoods off the ground in any way. If the hoods are raised, spray particles may escape and come into contact with the crop, causing damage or destruction of the crop. The spray hoods must be operated on the ground or skimming across the ground. Tractor speed must be adjusted to avoid bouncing of the spray hoods. Avoid operation on rough or sloping ground where the spray hoods might be raised off the ground.

When applying to corn that is grown on raised beds, ensure that the hood is designed to completely enclose the spray solution. If necessary, extend the front and rear flaps of the hoods to reach the ground in deep furrows.

Follow these requirements:

- The spray hoods must be operated on the ground or skimming across the ground.
- Do not apply more than 1 quart of this product per acre per application.
- Corn must be at least 12 inches tall, measured without extending leaves.
- Leave at least an 8 inch untreated strip over the drill row. For example, if the crop row width is 38 inches, the maximum width of the spray hood should be 30 inches.
- Maximum tractor speed: 5 mph
- Maximum wind speed: 10 mph
- Use low-drift nozzles.

Crop injury may occur when the foliage of treated weeds comes into direct contact with leaves of the crop. Do not apply this product when the leaves of the crop are growing in direct contact with weeds to be treated. Droplets, mist, foam or splatter of the herbicide solution may contact the crop and cause discoloration, stunting or destruction.

Contact of this product in any manner to any vegetation to which treatment is not intended may cause damage. Such damage shall be the sole responsibility of the applicator.

For specific rates of application and instructions for control of various annual and perennial weeds, see the WEEDS CONTROLLED section of this label.

Do not graze or feed corn forage or fodder following applications of this product through hooded sprayers.

Do not apply more than 3 quarts of this product per acre per year for hooded sprayer applications.

**FALLOW AND REDUCED TILLAGE SYSTEMS**

**FOR AERIAL APPLICATION IN CALIFORNIA. REFER TO THE FOR AERIAL APPLICATION IN CALIFORNIA ONLY AND FOR AERIAL APPLICATION IN FRESNO COUNTY CALIFORNIA ONLY SECTIONS OF THIS LABEL**

Use this product in fallow and reduced tillage systems for control of annual weeds prior to emergence of crops listed in this label. Refer to the WEEDS CONTROLLED section of this label for specific rates and instructions. This product may be applied using ground or aerial spray equipment. See the APPLICATION EQUIPMENT AND TECHNIQUES section of this label for instructions.

**Tank Mixtures**

**HELOSATE plus dicamba plus nonionic surfactant**

**HELOSATE plus 2,4-D plus nonionic surfactant**

**DO NOT APPLY DICAMBA OR 2,4-D TANK MIXTURES BY AIR IN CALIFORNIA.**

Applications of 2,4-D or dicamba must be made at least 7 days prior to planting corn.

The addition of dicamba in a mixture with this product may provide short-term residual control of selected weed species. Some crop injury may occur if dicamba is applied within 45 days of planting. Refer to the dicamba and 2,4-D labels

for cropping restrictions and other use instructions.

**HELOSATE plus Goal™ plus Nonionic Surfactant**

This product alone or in tank mixtures with Goal plus 0.5 to 1% nonionic surfactant by total spray volume will provide control of the weeds listed below.

Make applications when weeds are actively growing and at the recommended stages of growth. Avoid spraying when weeds are subject to moisture stress, when dust is on the foliage or when straw canopy covers the weeds.

**HELOSATE @ 12 fl. oz. / acre**

Wheat	18"*
Barley	12"
Bluegrass, annual	6"
Barnyardgrass	6"
Rye	6"

**HELOSATE @ 16 fl. oz. / acre**

Annual grasses at left plus:	
Ryegrass, annual	6"
Chickweed	6"
Groundsel	6"
Marestail	6"
Rocket, London	6"
Shepherd's purse	6"
Crabgrass	12"
Johnsongrass, seedling	12"
Lamb's quarters	12"
Oats, wild	12"
Pigweed, redroot	12"
Mustards	12"

\*Maximum height or length in inches.

NOTE: Use 32 fl. oz. of this product per acre where heavy densities exist.

HELOSATE @ 12 fl. oz. / acre		HELOSATE @ 16 fl. oz. / acre	
+		+	
Goal** 2 to 4 fl. oz. / acre		Goal** 2 to 4 fl. oz. / acre	
Annual grasses above plus:		Annual weeds above plus:	
Cheeseweed, common	3"	Cheeseweed, common	6"
Chickweed	3"	Groundsel	6"
Groundsel	3"	Chickweed	12"
Rocket, London	6"	Rocket, London	12"
Shepherd's purse	6"	Shepherd's purse	12"

NOTE: Use 32 fl. oz. of this product per acre in mixtures with 2 to 4 fl. oz. of Goal per acre where heavy weed densities exist.

\*\*Use the higher rate of Goal when weeds approach maximum recommended height or stands are dense.

These recommended tank mixtures may be applied using ground or aerial spray equipment. Refer to the WEEDS CONTROLLED section of this label for specific rates and instructions.

**Ecofarming Systems**

THE RECOMMENDATIONS MADE IN THIS SECTION ARE NOT REGISTERED FOR USE IN CALIFORNIA.

The Ecofarming System consists of the following rotation: winter wheat, corn / sorghum, ecofallow.

Use the following tank mixtures for control of emerged annual weeds before planting corn or sorghum in the Ecofarming System.

HELOSATE at 16 to 20 fl. oz. per acre  
plus

2,4-D at 0.375 to 0.5 pound active ingredient per acre  
 plus  
 Atrazine at 0.75 to 1 pound active ingredient per acre  
 plus  
 Lasso\* at 2.5 to 3 quarts per acre

The above tank mixture should be applied in 28-0-0 or 32-0-0 liquid fertilizer carrier at 20 to 30 gallons per acre. The liquid fertilizer may be diluted with water to achieve the desired carrier volume.

**Weeds controlled** - The following weeds, up to a maximum height of 4 inches, will be controlled:

<b>Brome, downy</b>	<i>Bromus tectorum</i>	<b>Lettuce, prickly</b>	<i>Lactuca serriola</i>
<b>Cheat</b>	<i>Bromus secalinus</i>	<b>Pigweed, redroot</b>	<i>Amaranthus retroflexus</i>
<b>Foxtail, green</b>	<i>Setaria viridis</i>	<b>Thistle, Russian</b>	<i>Salsola kali</i>
<b>Foxtail, yellow</b>	<i>Setaria lutescens</i>	<b>Wheat, volunteer</b>	<i>Triticum aestivum</i>
<b>Kochia*</b>	<i>Kochia scoparia</i>		

\*For improved control of kochia, add 4 fl. oz. per acre (0.125 pound active ingredient per acre) of dicamba to the above tank mixture.

Risk of crop injury from 2,4-D or dicamba can be reduced by applying this treatment 7 to 14 days before planting. Refer to the label booklet for Lasso herbicide for pre-emergence weed control achieved by this tank mixture. Refer to the specific product labels for crop rotation restrictions and cautionary statements for all products used in these tank mixtures.

**Aid to Tillage**

This product, when used in conjunction with preplant tillage practices, will provide control of downy brome, cheat, volunteer wheat, tansy mustard and foxtail. Apply 8 fl. oz. of this product plus 0.5 to 1% nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Make applications when weeds are actively growing and before they are 6 inches in height. Application must be followed by conventional tillage practices no later than 15 days after treatment and before regrowth occurs. Allow at least 1 day after application before tillage. Tank mixtures with residual herbicides may result in reduced performance.

**POSTHARVEST GRAIN SORGHUM, SORGHUM REGROWTH CONTROL**

This product may be applied to grain sorghum (milo) stubble following harvest to suppress or control regrowth. Apply 1 quart of this product per acre for control, or 1.5 pints of this product per acre for suppression. Use 0.5% nonionic surfactant in 3 to 10 gallons of spray solution per acre.

**PASTURES**

Apply this product prior to planting forage grasses and legumes.

**Pasture or hay crop renovation** - When applied as a broadcast spray, this product controls the annual and perennial weeds listed in this label prior to planting forage grasses or legumes. Remove domestic livestock before application and wait 8 weeks after application before grazing or harvesting.

**Spot treatment** - When applied as a spot treatment as recommended, this product controls annual and perennial weeds listed in this label which are growing in pastures, forage grasses and forage legumes composed of bahiagrass, Bermuda grass, bluegrass, brome, fescue, orchardgrass, ryegrass, timothy, wheatgrass, alfalfa or clover.

**Wiper application** - When applied as directed, this product controls or suppresses the weeds listed under Wiper Applicators in the SELECTIVE EQUIPMENT section of this label.

For spot treatment and wiper application, apply in areas where the movement of domestic livestock can be controlled. No more than one-tenth of any acre should be treated at one time. Further applications may be made in the same area at 30-day intervals. Remove domestic livestock before application and wait 14 days after application before grazing livestock or harvesting.

**SUGARCANE**

When applied as directed for CROPPING SYSTEMS, under the conditions described, this product controls those emerged annual and perennial weeds listed on this label growing in or around sugarcane or in fields prior to the emergence of plant cane. This product will also control undesirable sugarcane.

**NOTE:** Where repeat treatments are necessary, do not exceed a total of 10.6 quarts of this product per acre per year. Do not apply to vegetation in or around ditches, canals or ponds containing water to be used for irrigation.

**Broadcast treatment** - Apply this product in 10 to 40 gallons of water per acre on emerged weeds prior to the emergence of plant cane.

For specific rates of application and instructions for control of various annual and perennial weeds, see the WEEDS CONTROLLED section of this label.

For removal of last stubble or ratoon cane, apply 4 to 5 quarts of this product in 10 to 40 gallons of water per acre to new growth having at least 7 or more new leaves. Allow 7 or more days after application before tillage.

**Spot treatment in or around sugarcane fields** - For dilution and rates of application using hand-held equipment, see MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS and WEEDS CONTROLLED sections of this label. For control of volunteer or diseased sugarcane, make a 1% solution of this product in water and spray to wet the foliage of vegetation to be controlled.

**NOTE:** When spraying volunteer or diseased sugarcane, the plants should have at least 7 new leaves.

Avoid spray contact with healthy cane plants since severe damage or destruction may result.

Do not feed or graze treated sugarcane forage following application.

**CONSERVATION TILLAGE, MINIMUM TILLAGE AND NO-TILL SYSTEMS**

**CORN AND SOYBEANS**

**Tank Mixtures**

THE RECOMMENDATIONS MADE IN THIS SECTION ARE NOT REGISTERED FOR USE IN CALIFORNIA.

When applied as recommended under the conditions described, these tank mixtures listed in this section control many emerged weeds, and give pre-emergence control of many annual weeds where corn or soybeans will be planted directly into a cover crop, established sod or in previous crop residues.

Refer to specific product labels for crop rotation restrictions and cautionary statements of all products used in these tank mixtures. For mixing instructions, see the MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS section of this label.

Apply these tank mixtures in 10 to 20 gallons of water or 10 to 60 gallons of nitrogen solution per acre before, during or after planting. Do not apply these mixtures after crop emergence.

When tank mixing with residual herbicides, add an agriculturally approved nonionic surfactant at 0.5 to 1% volume of spray solution. The addition of 1 to 2% dry ammonium sulfate by weight may increase the performance of this product.

**NOTE:** When using these tank mixtures, do not exceed 4 quarts of this product per acre.

**Corn**

For residual control, this product may be tank-mixed with the following herbicides or combination of herbicides:

Lasso / alachlor Lariat® Bullet® Dual Magnum™	Bicep Magnum® Partner® Atrazine Cyanazine	Simazine Prowl® Micro-Tech®
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For improved burndown, this product may be tank-mixed with 2,4-D or dicamba. Applications of 2,4-D or dicamba must be made at least 7 days prior to planting corn. See the WEEDS CONTROLLED section for specific rate information.

**Soybeans**

For residual control, this product may be tank-mixed with the following herbicides or combination of herbicides:

Canopy <sup>®</sup>	Linuron	Turbo <sup>™</sup>
Command <sup>®</sup>	Pursuit <sup>®</sup>	Scepter <sup>®</sup>
Dual Magnum	Partner	Sencor <sup>®</sup>
Gemini <sup>™</sup>	Lerox <sup>®</sup> Plus	Squadron <sup>®</sup>
Lasso / alachlor	Preview <sup>™</sup>	Pursuit Plus
Lexone <sup>™</sup>	Prowl	Micro-Tech

For improved burndown, this product may be tank-mixed with 2,4-DB and 2,4-D; see the label for 2,4-D for intervals between application and planting.

**Corn and Soybeans**

**Annual weeds** - For difficult-to-control weeds such as fall panicum, barnyardgrass, crabgrass, shattercane and broadleaf signalgrass up to 2 inches tall, and Pennsylvania smartweed up to 6 inches tall, apply this product at 2 pints per acre in the tank mixtures above specific to each crop. For other labeled annual weeds, apply 1 to 1.5 pints of this product per acre when weeds are less than 6 inches tall, and 2 to 3 pints when weeds are over 6 inches tall. For a complete list of annual weeds controlled, see the WEEDS CONTROLLED section of this label.

**Perennial weeds** - At normal application times in minimum tillage systems, perennial weeds may not be at the proper stage of growth for control. See the WEEDS CONTROLLED section of this label for the proper stage of growth for perennial weeds.

Use of 2 to 4 quarts of this product per acre in the tank mixtures mentioned above, under these conditions provides top kill and reduces competition from many emerged perennial grasses and broadleaf weeds.

For emerged perennial weeds controlled, see the WEEDS CONTROLLED section of this label.

To obtain the desired stage of growth, it may be necessary to apply this product alone in the late summer or fall and then follow with a label-approved seedling weed-control program at planting.

**USE OF THESE TANK MIXTURES FOR BERMUDA GRASS OR JOHNSONGRASS CONTROL IN MINIMUM TILLAGE SYSTEMS IS NOT RECOMMENDED.** For Bermuda grass control, follow the instructions under the PERENNIAL WEEDS section of this label and then use a label-approved, seedling weed-control program in a minimum tillage or conventional tillage system. For Johnsongrass control, follow instructions under the PERENNIAL WEEDS section of this label. Then use a label approved seedling weed control program with conventional tillage.

**PREHARVEST APPLICATIONS**

When applied as directed under the conditions described, this product controls annual and perennial weeds listed on this label prior to the harvest of cotton, soybeans, grain sorghum (milo), and wheat.

For specific rates and application instructions for control of various annual and perennial weeds, see the WEEDS CONTROLLED section of this label.

This product may be applied by both ground and aerial application equipment.

**DO NOT APPLY MORE THAN 1 QUART PER ACRE OF THIS PRODUCT BY AIR.** See the APPLICATION EQUIPMENT AND TECHNIQUES section of this label for instructions for ground and aerial applications.

**NOTE:** Do not apply to crops grown for seed. Reduction in germination or vigor may occur.

**THE USE OF THIS PRODUCT FOR PREHARVEST GRAIN SORGHUM (MILO) IS NOT REGISTERED IN CALIFORNIA.**

**Soybeans**

Apply after all pods have set and lost all green color. Allow a minimum of 7 days between application and harvest of soybeans. Care should be taken to avoid excessive seed shatter loss due to ground application equipment.

Do not graze or harvest treated crop for livestock feed within 25 days of last preharvest application.

**DO NOT APPLY MORE THAN 6 QUARTS PER ACRE OF THIS PRODUCT FOR PREHARVEST APPLICATIONS.**



**Cotton**

**Broadcast applications** - This product may be applied using either aerial or ground spray equipment. For ground applications with broadcast equipment, apply this product in 10 to 20 gallons of water per acre. For aerial applications, apply this product in 3 to 10 gallons of water per acre.

This product provides weed control and cotton regrowth inhibition when applied prior to the harvest of cotton. Apply 1 to 2 quarts of this product in 3 to 10 gallons of water per acre for cotton regrowth inhibition. Do not apply more than 2 quarts of this product per acre for preharvest applications. **THE USE OF ADDITIVES FOR PREHARVEST APPLICATION TO COTTON IS PROHIBITED.**

This product may be tank mixed with DEF<sup>®</sup>6, Folex<sup>®</sup>, or Prep<sup>™</sup> to provide additional enhancement of cotton leaf drop.

Allow a minimum of 7 days between application and harvest of cotton.

Apply after sufficient bolls have developed to produce the desired yield of cotton. Applications made prior to this time could affect maximum yield potential.

Do not feed or graze treated cotton forage or hay following preharvest applications.

**Grain Sorghum (Milo)**

Make applications at 30% grain moisture or less and at least 7 days prior to harvest.

Apply up to 2 quarts of this product per acre.

**Wheat**

Apply after hard dough stage of grain (30% or less grain moisture) and at least 7 days prior to harvest.

**DO NOT APPLY MORE THAN 1 QUART PER ACRE OF THIS PRODUCT FOR PREHARVEST APPLICATIONS TO WHEAT.**

**TREE AND VINE CROPS**

This product is recommended for weed control in established groves, vineyards, and orchards, or for site preparation prior to transplanting crops listed in this section. Applications may be made with boom equipment, CDA, shielded sprayers, hand-held and high-volume wands, lances, orchard guns or with wiper applicator equipment, except as directed in this section. See the APPLICATION EQUIPMENT AND TECHNIQUES section of this label for specific information on use of equipment.

When applying this product, refer to the WEEDS CONTROLLED section of this label and to specific recommendations in this section for rates to be used.

**NOTE:** Repeat treatments may be necessary to control weeds originating from underground parts of untreated weeds or from seeds. This product does not provide residual weed control. For subsequent weed control, use repeated applications of this product. Do not apply more than 10.6 quarts of this product per acre per year.

**EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF HERBICIDE SOLUTION, SPRAY, DRIFT OR MIST WITH FOLIAGE OR GREEN BARK OF TRUNK, BRANCHES, SUCKERS, FRUIT OR OTHER PARTS OF TREES OR VINES. CONTACT OF THIS PRODUCT WITH OTHER THAN MATURED BROWN BARK CAN RESULT IN SERIOUS CROP DAMAGE.**

**AVOID PAINTING CUT STUMPS WITH THIS PRODUCT AS INJURY RESULTING FROM ROOT GRAFTING MAY OCCUR IN ADJACENT TREES.**

Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed or cut and have not been allowed to regrow to the recommended stage for treatment.

For specific rates of application and instructions, see the WEEDS CONTROLLED section of this label, and the specific recommendations that follow.

**Middle Management (For annual weeds in middles between rows of tree and vine crops)**

For citrus crops, treat uniformly between trees.

HELOSATE

HELOSATE plus Goal

This product alone or in mixtures with Goal will control or suppress the annual weeds listed below. Apply the recommended rates of this product, either alone or in mixtures with Goal, plus 0.5 to 1% nonionic surfactant by spray volume in 3 to 10 gallons of water per acre. Apply when weeds are actively growing and less than 6 inches in height or diameter. If weeds are under drought stress, irrigate prior to application. Reduced control may occur if weeds have been mowed prior to application. Up to 48 fl. oz. per acre of this product may be used to control weeds, which have been mowed, are stressed or are growing in dense populations.

Weed Species		Maximum Height / Diameter (inches)	Rate per Acre	
			HELOSATE (fl. oz.)	Goal (fl. oz.)
Barley	<i>Hordeum vulgare</i>	6	8	-
Bluegrass, annual	<i>Poa annua</i>			
Barnyardgrass	<i>Echinochloa crus-galli</i>		12	-
Chickweed, common	<i>Stellaria media</i>			
Red maids	<i>Calandrinia ciliata</i>			
Crabgrass	<i>Digitaria spp.</i>		16	-
Fleabane, hairy	<i>Conyza bonariensis</i>			
Groundsel, common	<i>Senecio vulgaris</i>		16 to 32	+ 4 to 16**
Junglerice	<i>Echinochloa colonum</i>			
Lamb's quarters, common	<i>Chenopodium album</i>			
Pigweed, redroot	<i>Amaranthus retroflexus</i>			
Rocket, London	<i>Sisymbrium irio</i>			
Ryegrass, common or Italian	<i>Lolium multiflorum</i>			
Shepherd's purse	<i>Capsella bursa-pastoris</i>			
Sowthistle, annual	<i>Sonchus oleraceus</i>			
Cheeseweed, common	<i>Malva spp.</i>	3	12 to 32 + 4 to 16	
Cheeseweed, common	<i>Malva spp.</i>	6	16 to 32 + 4 to 16	
Filaree*	<i>Erodium spp.</i>			
Horseweed / marestail	<i>Conyza canadensis</i>			
Nettle, stinging	<i>Urtica dioica</i>			
Purslane, common	<i>Portulaca oleracea</i>			

\* Suppression only

\*\* The mixture of this product plus Goal is recommended when weeds are stressed or growing in dense populations.

**Strips (For annual and perennial weeds in strips of tree and vine crops)**

**Tank mixtures with residual herbicides** - When applied as a tank mixture, this product provides control of the emerged annual weeds and control or suppression of emerged perennial weeds listed in this label.

The following residual herbicides will provide pre-emergence control of those weeds listed in the individual product labels.

- HELOSATE plus Goal 2XL
- HELOSATE plus Karmex<sup>®</sup> DF
- HELOSATE plus Krovar I
- HELOSATE plus Krovar II
- HELOSATE plus Simazine, Princep Caliber 90
- HELOSATE plus Simazine 4L
- HELOSATE plus Simazine 80W
- HELOSATE plus Solicam<sup>™</sup> SODF
- HELOSATE plus Surflan AS
- HELOSATE plus Surflan 75W
- HELOSATE plus Simazine (80W, or 4L, or Princep Caliber 90) plus Surflan (AS or 75W)
- HELOSATE plus Goal (2XL) plus Surflan (AS or 75W)
- HELOSATE plus Goal (2XL) plus Simazine (80W, or 4L, or Princep Caliber 90)
- HELOSATE plus Goal (2XL) plus Surflan (AS or 75W) plus Simazine (80W, or 4L, or Princep Caliber 90)

Do not apply these tank mixtures in Puerto Rico.

When tank-mixing with residual herbicides, add an agriculturally approved nonionic surfactant at 0.5 to 1% by volume of spray solution.

Refer to the individual product labels for specific crops, rates, geographical restrictions and precautionary statements. Read and carefully observe the label claims, cautionary statements, rates and all other information on the labels of all products.

**Recommended rates:**

**Annual weeds** - Apply 1 to 5 quarts per acre of this product in these tank mixtures. Use rates at the higher end of the recommended range when weeds are stressed, growing in dense populations or are greater than 12 inches tall.

**Perennial weeds** - Apply 1 pint to 5 quarts per acre of this product in these tank mixtures to control or suppress perennial weeds. Follow the recommendations in the WEEDS CONTROLLED section of this label for stage of growth and application rates for specific perennial weeds.

**HELOSATE plus Goal plus simazine / Surflan**

This product plus low rates of Goal in 3-way or 4-way mixtures with simazine and/or Surflan will provide post-emergence control of the weeds listed below.

Refer to the individual simazine and Surflan labels for pre-emergence rates, weeds controlled, precautionary statements and other important information.

Apply these tank mixtures in 3 to 40 gallons of water. Add 0.5 to 1% nonionic surfactant by total spray volume to the spray solution.

Apply 1 to 5 quarts per acre of this product plus 4 to 48 fl. oz. per acre of Goal plus labeled rates of simazine and/or Surflan to control the following weeds:

<b>Barley, wild</b>	<i>Hordeum leporinum</i>	<b>Horseweed / marestail</b>	<i>Conyza canadensis</i>
<b>Bluegrass, annual</b>	<i>Poa annua</i>	<b>Nettle, stinging</b>	<i>Urtica dioica</i>
<b>Cheeseweed, common</b>	<i>Malva spp.</i>	<b>Pineappleweed</b>	<i>Matricaria matricariodes</i>
<b>Chickweed, common</b>	<i>Stellaria media</i>	<b>Rocket, London</b>	<i>Sisymbrium irio</i>
<b>Filaree*</b>	<i>Erodium spp.</i>	<b>Shepherd's purse</b>	<i>Capsella bursa-pastoris</i>
<b>Fleabane, hairy</b>	<i>Conyza bonariensis</i>	<b>Sowthistle, annual</b>	<i>Sonchus oleraceus</i>
<b>Groundsel, common</b>	<i>Senecio vulgaris</i>		

\*Use a minimum of 1.5 quarts of product in these mixtures.

**NOTE:** This recommendation does not preclude the use of Goal in these mixtures at higher, labeled rates for pre-emergence weed control.

**Perennial Grass Suppression - Orchard Floors**

When applied as directed, this product will suppress vegetative growth as indicated below.

**Bahiagrass:** This product will provide significant inhibition of seedhead emergence and will suppress vegetative growth for a period of approximately 45 days with a single application and approximately 120 days with sequential applications. Apply this product 1 to 2 weeks after full green-up or after mowing to a uniform height of 3 to 4 inches. Applications must be made prior to seedhead emergence. Apply 6 fl. oz. of this product plus 0.5 to 1% nonionic surfactant by total spray volume in 10 to 25 gallons of water per acre.

Sequential applications of this product plus nonionic surfactant may be made at approximately 45-day intervals to extend the period of seedhead and vegetative growth suppression. For continued seedhead suppression, sequential applications must be made prior to seedhead emergence. Apply no more than 2 sequential applications per year. As a first sequential application, apply 4 fl. oz. of this product plus nonionic surfactant. A second sequential application of 2 to 4 fl. oz. may be made approximately 45 days after the last application.

**Bermuda grass:** For burndown, apply 1 to 2 quarts of this product plus 0.5 to 1% nonionic surfactant by total spray volume in 3 to 20 gallons of water per acre. Use 1 quart of this product in 3 to 20 gallons of water per acre east of the Rocky Mountains. Use 1 to 2 quarts of this product in 3 to 10 gallons of water per acre west of the Rocky Mountains. Use this treatment only if reduction of the Bermuda grass stand can be tolerated. When burndown is required prior to harvest, allow at least 21 days to ensure sufficient time for burndown to occur.

**Suppression only (east of the Rocky Mountains)** - Apply 6 to 16 fl. oz. of this product plus 0.5 to 1% nonionic surfactant by total spray volume in 3 to 20 gallons of water per acre no sooner than 1 to 2 weeks after full green-up. Mowing prior to application may occur provided a minimum height of 3 inches is maintained. Rates of 6 to 10 fl. oz. of this product plus nonionic surfactant should be used in shaded conditions or where a lesser degree of suppression is desired. Sequential applications may be made when regrowth occurs and Bermuda grass injury and stand reduction can be tolerated.

**Suppression only (west of the Rocky Mountains)** - Apply 16 fl. oz. of this product plus 0.5 to 1% nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre to Bermuda grass up to 6 inches in height and no sooner than 1 to 2 weeks after full green-up. Mowing prior to application may occur provided a minimum height of 3 inches is maintained. Sequential applications may be made when regrowth occurs and Bermuda grass injury and stand reduction can be tolerated.

**Cool season grass covers:** For suppression of tall fescue, fine fescue, orchardgrass and quackgrass, apply 8 fl. oz. of this product plus 0.5 to 1% nonionic surfactant by total spray volume in 10 to 20 gallons of water per acre. For best suppression, add ammonium sulfate to the spray solution at a rate of 2% by weight or 17 pounds per 100 gallons of spray solution.

For suppression of Kentucky bluegrass covers, apply 6 fl. oz. of this product plus 0.5 to 1% nonionic surfactant. Do not add ammonium sulfate.

For best results, mow cool-season grass covers in the spring to even their height and apply the recommended rate of this product 3 to 4 days after mowing. Avoid treating cool season grass covers under poor growing conditions, such as drought stress (drip irrigation), disease or insect damage.

**Low Volume Application (Florida and Texas)**

For burndown or control of the weeds listed, apply the recommended rates of this product plus 0.5 to 1% nonionic surfactant by total spray volume in 3 to 30 gallons of water per acre. Where weed foliage is dense, use 10 to 30 gallons of water per acre.

**Annual weeds - Goatweed** - Apply 2 to 3 quarts per acre of this product plus 17 pounds of ammonium sulfate per 100 gallons of water plus 0.5 to 1% nonionic surfactant by total spray volume. Apply in 20 to 30 gallons of water per acre when plants are actively growing. Use 2 quarts per acre when plants are less than 8 inches tall and 3 quarts per acre when plants are greater than 8 inches. If goatweed is greater than 8 inches tall, the addition of Kroval II or Karmex may improve control. Use labeled rates for these residual products.

Read and carefully observe the label claims, cautionary statements, rates and all other information on the Krovar II and Karmex labels.

**Perennial weeds** - Apply when leaves are actively growing and at the growth stages listed in the PERENNIAL WEEDS section of this label. If perennial weeds are mowed, allow weeds to regrow to the recommended stage of growth.

S = suppression; B = burndown; C = control; PC = partial control

Low Volume Application (Florida and Texas)				
Weed Species	HELOSATE Rate per Acre			
	1 qt.	2 qts.	3 qts.	5 qts.
Bermuda grass	B	•	PC	C
Guineagrass				
Texas and Florida ridge	B	C	C	C
Florida flatwoods	•	B	C	C
Paragrass	B	C	C	C
Torpedograss	S	•	PC	C

**TREE CROPS**

**Citrus\*\*\*\*\*:** calamondin, chironja, citron, grapefruit, kumquat, lemon, lime, mandarin orange, orange, pummelo, tangelo, tangerine, tangors.

**Nuts\*\*:** almond, beechnut, Brazil nut, butternut, cashew, chestnuts, chinquapin, filbert, hazelnut, hickory nut, macadamia, pecan, pistachio, walnut.

**Pome Fruit\*\*\*\*\*:** apple, loquat, mayhaw, pear, quince.

**Stone Fruit\*\*\*:** apricots, cherries, nectarines, olives, peaches, plums / prunes.

For cherries, any application equipment listed in this section may be used in all states.

For citron and olives, apply as a directed spray only.

Any application equipment listed in this section may be used in apricots, nectarines, peaches and plums / prunes growing in Arizona, California, Colorado, Idaho, Kansas, Kentucky, New Jersey, North Dakota, Oklahoma, Oregon, Texas, Utah and Washington, except for peaches grown in states specified in the following paragraph. In all other states use wiper equipment only.

For peaches grown in Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina and Tennessee only, apply with a shielded boom sprayer or shielded wiper applicator, which prevents any contact with the foliage or bark of trees. Apply no later than 90 days after first bloom. Applications made after this time may result in severe damage. Remove suckers and low-hanging limbs at least 10 days prior to application. Avoid applications near trees with recent pruning wounds or other mechanical injury. Apply only near trees that have been planted in the orchard for 2 or more years. **EXTREME CARE MUST BE TAKEN TO ENSURE NO PART OF THE PEACH TREE IS CONTACTED.**

Tropical Fruit: acerola\*, atemoya\*, avocado\*, banana\*\*\*\*\*, breadfruit\*, canistel\*, carambola\*, cherimoya\*, cocoa beans\*, coffee\*\*\*\*, dates\*, figs\*, genip\*, guava\*\*\*\*\*, jaboticaba\*, jackfruit\*, longan\*, lychee\*, mango\*, mayhaw\*, papaya\*\*\*\*\*, passion fruit\*, persimmons\*, plantains\*\*\*\*\*, pomegranate\*, sapodilla\*, sapote\*, soursop\*, sugar apple\*, tamarind\*, tea\*. In coffee and banana, delay applications 3 months after transplanting to allow the new coffee or banana plant to become established.

**NOTE:**

- \* Allow a minimum of 14 days between last application and harvest.
- \*\* Allow a minimum of 3 days between last application and harvest.
- \*\*\* Allow a minimum of 17 days between last application and harvest.
- \*\*\*\* Allow a minimum of 28 days between last application and harvest.
- \*\*\*\*\* Allow a minimum of 1 day between last application and harvest.

**VINE CROPS**

**Kiwi Fruit**

**Grapes:** Any variety of table, wine or raisin grapes may be treated with any equipment listed in this section.

Applications should not be made when green shoots, canes, or foliage are in the spray zone.

Allow a minimum of 14 days between last application and harvest.

In the Northeast and Great Lakes regions, applications must be made prior to the end of bloom stage of grapes to avoid injury.

**ROUNDUP READY® CROPS**

The following instructions include all applications that can be made onto Roundup Ready crops during the complete cropping season. DO NOT combine these instructions with other recommendations made for crop varieties that do NOT contain the Roundup Ready gene, in the CROPPING SYSTEMS section of this label.

**CANOLA**

HELM RECOMMENDS USE OF THIS PRODUCT ONLY ON CANOLA DESIGNATED AS HAVING THE ROUNDUP READY GENE. DO NOT USE THIS PRODUCT ON CANOLA WITH THE ROUNDUP READY GENE PLANTED IN THE FOLLOWING STATES: ALABAMA, DELAWARE, FLORIDA, GEORGIA, KENTUCKY, MARYLAND, NEW JERSEY, NORTH CAROLINA, SOUTH CAROLINA, TENNESSEE, VIRGINIA AND WEST VIRGINIA.

- Applying this product to canola that is not designated as Roundup Ready will result in severe crop injury and yield loss. Avoid contact with foliage, green stems, or fruit of crops, or any desirable plants that do not contain the Roundup Ready gene since severe injury or destruction will result.
- The Roundup Ready designation indicates the canola contains a patented gene that provides tolerance to this herbicide. Information on Roundup Ready canola may be obtained from your seed supplier.

**Application Instructions**

HELOSATE will control many troublesome emerged weeds when applied preplant, pre-emergent and/or with over-the-top applications in Roundup Ready canola. Allow a minimum of 60 days between last application and canola harvest.

**Maximum Allowable Yearly Rates of HELOSATE (see footnote 1)**

Preplant and pre-emergence applications	2 quarts / acre
Total in-crop application from emergence to 6 leaf	1 quart / acre

**For ground applications** with broadcast equipment, apply this product in 5 to 20 gallons of spray solution per acre. Carefully select proper nozzle and spray pressure to avoid spraying a fine mist. For best results with ground application equipment use flat fan nozzles. Check for even distribution of spray droplets.

**For aerial applications** apply this product in 3 to 15 gallons of water per acre.

**AVOID DRIFT. EXTREME CARE MUST BE USED WHEN APPLYING THIS PRODUCT TO PREVENT INJURY TO DESIRABLE PLANTS AND CROPS WHICH DO NOT CONTAIN THE ROUNDUP READY GENE. DO NOT APPLY DURING LOW-LEVEL INVERSION CONDITIONS, WHEN WINDS ARE GUSTY OR UNDER ANY OTHER CONDITIONS WHICH FAVOR DRIFT. DRIFT MAY CAUSE DAMAGE TO ANY VEGETATION CONTACTED TO WHICH TREATMENT IS NOT INTENDED. TO PREVENT INJURY TO ADJACENT DESIRABLE VEGETATION, APPROPRIATE BUFFER ZONES MUST BE MAINTAINED.**

Do not allow the herbicide solution to mist, drop, drift or splash onto desirable vegetation since minute quantities of this product can cause severe damage or destruction to the crop, plants or other areas on which treatment was not intended. The likelihood of injury occurring from the use of this product increases when winds are gusty, as wind velocity increases, when wind direction is constantly changing or when there are other meteorological conditions that favor spray drift. When spraying, avoid combinations of pressure and nozzle type that will result in splatter or fine particles (mist) that are likely to drift. **AVOID APPLYING AT EXCESSIVE SPEED OR PRESSURE.**

Coarse sprays are less likely to drift; therefore, do not use nozzles or nozzle configurations that dispense spray as fine spray droplets. Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure.

**There are no rotational crop restrictions following applications of this product.**

### **Spray Equipment Preparation**

It is important that sprayer and mixing equipment be clean and free of pesticide residue before making applications of this product to Roundup Ready canola. Follow the cleaning procedures specified on the label of the product(s) previously used. Canola can be very sensitive to many herbicides at extremely low concentrations and care should be taken to thoroughly clean all equipment prior to use.

### **Preplant or Pre-emergent Applications**

HELOSATE may be applied by aerial or ground application equipment prior to planting or emergence of canola. The maximum combined application rate from all preplant and pre-emergent applications should not exceed 2 quarts (64 fl. oz.) per acre per season.

**NOTE:** In no-till and stale seedbed systems, always use a burndown treatment to control existing weeds before canola emerges. Apply a preplant burndown treatment of 16 to 32 fl. oz. (½ to 1 quart) per acre of this product.

### **Over-the-top Applications**

HELOSATE may be applied by aerial or ground application equipment post-emergence to Roundup Ready canola from emergence through the 6-leaf stage of development. Applications made during bolting or flowering may result in crop injury and yield loss. To maximize yield potential, make applications early to eliminate competing weeds.

**Single application** - Apply 16 to 24 fl. oz. (½ to ¾ quart) per acre no later than the 6-leaf stage for the control of annual weeds. Avoid overlapping applications that may result in temporary yellowing, delayed flowering, and / or growth reduction. Similar injury may result when applications of more than 16 oz. per acre are applied after the 4-leaf stage.

**Sequential applications** - Apply 16 fl. oz. (½ quart) per acre to 1 to 3-leaf canola followed by a sequential application at a minimum interval of 10 days, but no later than the 6-leaf stage. Sequential applications are recommended for early emerging annual weeds and perennial weeds such as Canada thistle and quackgrass.

This product will control or suppress most perennial weeds. For some perennial weeds, repeat applications may be required to eliminate crop competition throughout the growing season.

No more than two over-the-top broadcast applications may be made from crop emergence through the 6-leaf stage of development and the total in-crop application should not exceed 1 quart (32 fl. oz.) per acre.

### **Weeds Controlled**

For specific rates of application and instructions for control of various annual and perennial weeds, refer to the WEEDS CONTROLLED section of this label.

Tank mixtures with other herbicides, insecticides, or fungicides may result in reduced weed control or crop injury and are not recommended for over-the-top applications of this product.

Some weeds with multiple germination times or suppressed (stunted) weeds may require sequential applications of this product for control. The second application should be made after some regrowth has occurred and at least 10 days after a previous application of this product.

**Footnote 1:** The yearly maximum allowable amount of HELOSATE that can be applied also includes other glyphosate-containing products.

### **CORN**

HELM RECOMMENDS USE OF THIS PRODUCT FOR POST-EMERGENCE APPLICATION ONLY ON CORN HYBRIDS DESIGNATED AS HAVING THE ROUNDUP READY GENE.

Applying this product to corn hybrids which are not designated as "Roundup Ready" will result in severe crop injury and yield loss.

The Roundup Ready designation indicates that the corn contains a patented gene which provides tolerance to certain glyphosate-containing herbicides including HELOSATE. Information on Roundup Ready corn is available from your

seed supplier.

**Application Instructions**

This product may be applied post-emergence to Roundup Ready corn from emergence through the V8 stage (8 leaves with collars) or until corn height reaches 30 inches, whichever comes first. Single in-crop applications of HELOSATE are not to exceed 1 quart per acre. Sequential in-crop applications of HELOSATE from emergence through the V8 stage or 30 inches must not exceed 2 quarts per acre per growing season.

**Maximum Yearly Amounts Allowed (see Footnote 1)**

**Preplant:** Maximum amount of HELOSATE that can be applied prior to crop emergence is 5 quarts per acre.

**In-crop:** Maximum combined total of multiple in-crop applications from emergence through the V8 stage or 30 inches is 2 quarts per acre.

**Preharvest:** Maximum amount of HELM HELOSATE 41 that can be applied after maximum kernel fill is complete and the crop is physiologically mature (black layer formation) until 7 days before harvest is 1 quart per acre.

**Cropping season:** Combined total per year for all applications may not exceed 8 quarts per acre.

When applied as directed, this product controls labeled annual grasses and broadleaf weeds in Roundup Ready corn. Many perennial grasses and broadleaf weeds will be controlled or suppressed with one or more applications of this product. Applications should be made to actively growing weeds before they reach the maximum size listed in the WEEDS CONTROLLED section. Refer to the MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS section of the label for proper use instructions.

**Ammonium sulfate:** Ammonium sulfate may be mixed with this product for applications to Roundup Ready corn. Refer to the MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS section of this label for use instructions for ammonium sulfate.

Allow a minimum of 50 days between application of this product and harvest of corn forage and 7 days between application and harvest of corn grain. Allow a minimum of 10 days between in-crop applications of this product.

**There are no rotational crop restrictions following applications of this product.**

**ATTENTION: AVOID DRIFT. EXTREME CARE MUST BE EXERCISED WHEN APPLYING THIS PRODUCT TO PREVENT INJURY TO DESIRABLE PLANTS AND CROPS WHICH DO NOT CONTAIN THE ROUNDUP READY GENE.**

**THOROUGHLY CLEAN THE SPRAY TANK AND ALL LINES AND FILTERS TO ELIMINATE POTENTIAL CONTAMINATION FROM OTHER HERBICIDES PRIOR TO MIXING AND APPLYING HELOSATE.**

**Ground Applications**

Use the recommended rates of this product in 5 to 20 gallons of spray solution per acre as a broadcast spray. Carefully select correct nozzles and spray pressure to avoid spraying a fine mist. Check for even distribution of spray droplets.

**Aerial Applications**

Use the recommended rates of HELOSATE in 3 to 15 gallons of spray solution per acre. Do not exceed 1 quart per acre. See the WEEDS CONTROLLED section of this label for recommended rates. **AVOID DRIFT. DO NOT APPLY DURING INVERSION CONDITIONS, WHEN WINDS ARE GUSTY OR UNDER ANY OTHER CONDITIONS THAT FAVOR DRIFT. DRIFT MAY CAUSE DAMAGE TO ANY VEGETATION CONTACTED TO WHICH TREATMENT IS NOT INTENDED. TO PREVENT INJURY TO ADJACENT VEGETATION, APPROPRIATE BUFFER ZONES MUST BE MAINTAINED.**

**Weed Control Recommendations**

Apply 24 to 32 fl. oz. (3/4 to 1 quart) of HELOSATE per acre for control of labeled grasses and broadleaf weeds in conventional and no-till corn production systems. See ANNUAL WEEDS section of this label for rates recommendations for specific annual weeds. HELOSATE applied up to 1 quart per acre will control or suppress the



growth of perennial weeds such as:

Bermuda grass Field bindweed Nutsedge Redvine Wirestem muhly	Canada thistle Hemp dogbane Quackgrass Trumpetreeper	Common milkweed Horsenettle Rhizome Johnsongrass Swamp smartweed
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For additional information on perennial weeds, see the PERENNIAL WEEDS section of this label.

**Pre-emergence followed by post-emergence weed control program:** This product may be applied post-emergence in-crop following any labeled pre-emergence herbicide application. The post application of this product should be made before the weeds reach a height and/or density that the weeds become competitive with the crop. A single in-crop application of this product at the recommended rate will provide control of emerged weeds listed on this label. This product may be applied post-emergence to Roundup Ready corn from emergence through the V-8 (8 leaves with collars) stage or until corn height reaches 30 inches (free standing), whichever comes first.

**Post-emergence only weed control program:** This product may be applied alone as a post-emergence in-crop application to provide control of emerged weeds listed on this label. The post-emergence application of this product should be made before the weeds reach a height and/or density that the weeds become competitive with the crop. If new flushes of weeds occur, a sequential application of this product at 24 to 32 fl. oz. (3/4 to 1 quart) per acre will control the listed grasses and broadleaf weeds. This product may be applied post-emergence to Roundup Ready corn from emergence to the V-8 stage or until corn height reaches 30 inches (free standing), whichever comes first. This product may be applied in tank mixtures with a labeled rate of Harness®, Harness Xtra, Harness Xtra 5.6L, Micro-Tech, Bullet, Partner, Permit®, or atrazine. Refer to the specific product label and observe all precautions and limitations on the label for all products used in tank mixtures, including application timing restrictions, soil restrictions, minimum re-cropping interval and rotational guidelines the more restrictive requirements apply. Tank mixtures with other products may result in increased potential for crop injury and/or weed antagonism. Refer to the table below for height limitation for tank mix partner.

Tank mix partner	Max. height of corn for application
Harness	11 inches
Harness Xtra	11 inches
Harness Xtra 5.6L	11 inches
Bullet	5 inches
Micro-Tech	5 inches
Partner	5 inches
Permit	24 inches
Atrazine	12 inches

Bullet, Micro-Tech and Partner are not registered products for use as a post-emergence application in Texas.

**NOTE:** See ADDITIVES section of this label for directions for using with nonionic surfactants.

**Footnote 1:** The yearly maximum allowable amount of HELOSATE that can be applied also includes other glyphosate-containing products.

**COTTON**

HELM RECOMMENDS THIS PRODUCT FOR USE ONLY OVER-THE-TOP OF, OR DIRECTED ONTO, IMPROVED COTTON VARIETIES THAT ARE DESIGNATED AS COTTON WITH THE ROUNDUP READY GENE. **NOTE:** SEVERE INJURY OR DEATH OF COTTON WILL RESULT IF ANY COTTON VARIETIES NOT PROPERLY DESIGNATED AS HAVING THE ROUNDUP READY GENE ARE SPRAYED WITH THIS PRODUCT. AVOID CONTACT OF HERBICIDE WITH FOLIAGE, GREEN STEMS, FRUIT OF CROPS, OR ANY DESIRABLE PLANTS AND TREES, OTHER THAN CROPS WITH THE ROUNDUP READY GENE, SINCE

SEVERE INJURY OR DESTRUCTION WILL RESULT. ROUNDUP READY COTTON VARIETIES MUST BE PURCHASED FROM AN AUTHORIZED LICENSED SEED SUPPLIER. THE DESIGNATION 'ROUNDUP READY' INDICATES THE COTTON CONTAINS A PATENTED PROPRIETARY TRAIT.

**Application Instructions**

This product will control many troublesome weeds with over-the-top, post-directed, hooded sprayer, or preharvest applications in Roundup Ready cotton.

**Maximum Allowable Yearly Rates of HELOSATE (see Footnote 1)**

- |    |                                                   |                   |
|----|---------------------------------------------------|-------------------|
| 1. | Combined total per year for all applications      | 8 quarts per acre |
| 2. | Preplant, pre-emergence applications              | 5 quarts per acre |
| 3. | Total in-crop applications from cracking to layby | 4 quarts per acre |
| 4. | Maximum preharvest application rate               | 2 quarts per acre |

**Ground Applications**

With broadcast equipment, apply HELOSATE in 5 to 20 gallons of spray solution per acre. Carefully select proper nozzle and spray pressure to avoid spraying a fine mist. For best results with ground application equipment, use flat fan nozzles. Check for even distribution of spray droplets.

**Aerial Applications**

Apply HELOSATE in 3 to 15 gallons of water per acre.

DO NOT EXCEED A MAXIMUM RATE OF 1 QUART PER ACRE OF THIS PRODUCT WHEN MAKING APPLICATIONS BY AIR UNLESS OTHERWISE DIRECTED. AVOID DRIFT. EXTREME CARE MUST BE USED WHEN APPLYING THIS PRODUCT TO PREVENT INJURY TO DESIRABLE PLANTS AND CROPS WHICH DO NOT CONTAIN THE ROUNDUP READY GENE. Do not apply during low-level inversion conditions, when winds are gusty or under any other conditions which favor drift. Drift may cause damage to any vegetation contacted to which treatment is not intended. To prevent injury to adjacent desirable vegetation, appropriate buffer zones must be maintained.

**There are no rotational crop restrictions following applications of this product.**

**Spray equipment preparation:** It is important that sprayer and mixing equipment be clean and free of pesticide residue before making applications of HELOSATE to Roundup Ready cotton. Follow the cleaning procedures specified on the label of the product(s) previously used. Cotton is very sensitive to many herbicides at extremely low concentrations and care should be taken to thoroughly clean all equipment prior to use of this product.

In addition to uses listed in this label, the following applications can be made:

**Over-the-top applications:** This product may be applied by aerial or ground application equipment post-emergence to Roundup Ready cotton from the ground cracking stage until the four leaf (node) stage of development (until the fifth true leaf reaches the size of a quarter). Over-the-top applications made after the four leaf (node) stage of development may result in boll loss, delayed maturity and/or yield loss. Any single over-the-top broadcast application should not exceed 1 quart per acre. No more than two over-the-top broadcast applications may be made from crop emergence through the four leaf (node) stage of development. Sequential over-the-top applications of this product must be at least 10 days apart and cotton must have at least two nodes of incremental growth between applications.

**NOTE:** Always plant into a weed free seedbed. In no-till and stale seedbed systems always burn down existing weeds before cotton emerges. Apply a preplant burndown treatment of 16 to 48 fl. oz. (1/2 to 1 1/2 quarts) per acre of HELOSATE.

**Post-directed or hooded applications:** This product may be applied using precision post-directed or hooded sprayers to Roundup Ready cotton through layby. At this stage, post-directed equipment should be used which directs the spray to the base of the cotton plants. Contact of the spray with the cotton leaves should be avoided to the maximum extent possible. To minimize spray onto the leaves of the cotton plants, place nozzles in a low position directing a horizontal spray pattern under the cotton leaves to contact the weeds in the row, and maintain low spray pressure (less than 30 psi). For best results, make applications while weeds are small (less than 3 inches). Any single post-directed application should not exceed 1 quart per acre of HELOSATE. No more than two applications should be made from the fifth leaf

stage through layby. Sequential in-crop applications of this product must be at least 10 days apart and cotton must have at least two nodes of incremental growth between applications.

**ATTENTION:** Use of HELOSATE herbicide in accordance with label directions is expected to result in normal growth of Roundup Ready cotton, however, various environmental conditions, agronomic practices and other factors make it impossible to eliminate all risks associated with the use of this product, even when applications are made in conformance with the label specifications. In some cases, these factors can result in boll loss, delayed maturity and/or yield loss.

**Salvage treatment:** This treatment may be used after the four leaf stage of development and should only be used where weeds threaten to cause the loss of the crop. One quart per acre may be applied either as an over-the-top application or as a post-directed treatment sprayed higher on the cotton plants and over the weeds.

**NOTE:** Salvage treatments will result in significant boll loss, delayed maturity and/or yield loss. No more than one salvage treatment should be used per growing season.

**Weeds controlled:** For specific rates of application and instructions for control of various annual and perennial weeds, refer to the WEEDS CONTROLLED section. HELOSATE applied at 1 quart per acre will burndown or suppress the growth of the following perennial weeds and reduce crop competition.

Yellow and purple nutsedge Common Bermuda grass Trumpet creeper	Rhizome Johnsongrass Silverleaf nightshade Redvine
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Fall preharvest applications may be required for control of these perennial weeds.

Tank mixtures with other herbicides may result in reduced weed control or crop injury and are not recommended for over-the-top applications with HELOSATE.

Some weeds with multiple germination times or suppressed (stunted) weeds, may require sequential applications of this product for control.

**Preharvest applications:** HELOSATE may be applied for preharvest annual and perennial weed control as a broadcast treatment to Roundup Ready cotton after 20% boll crack. For application rates please see the WEEDS CONTROLLED section of this label. This product may be applied using either aerial or ground spray equipment. Aerial or ground applications may be made up to a maximum of 2 quarts per acre. Allow a minimum of 7 days between final application and harvest. THE USE OF ADDITIVES FOR PREHARVEST APPLICATION OF HELOSATE TO ROUNDUP READY COTTON IS PROHIBITED. NOTE: HELOSATE will not enhance the performance of harvest aids when applied to Roundup Ready cotton. DO NOT APPLY HELOSATE PREHARVEST TO CROPS GROWN FOR SEED.

**NOTE:** See ADDITIVES section of this label for directions for using with nonionic surfactants.

**Footnote 1:** The yearly maximum allowable amount of HELOSATE that can be applied also includes other glyphosate-containing products.

**SOYBEANS**

**NOTE:** THIS PRODUCT IS NOT FOR USE ON ROUNDUP READY SOYBEANS IN CALIFORNIA.

HELM RECOMMENDS USE OF THIS PRODUCT FOR POST-EMERGENCE APPLICATION ONLY ON SOYBEAN VARIETIES DESIGNATED AS HAVING THE ROUNDUP READY GENE.

Applying this product to soybean varieties which are not designated as "Roundup Ready" will result in severe crop injury and yield loss. Avoid contact with foliage, green stems, or fruit of crops or any desirable plants that do not contain the Roundup Ready gene, since severe injury or destruction will result.

The "Roundup Ready" designation indicates that the soybean contains a patented gene which provides tolerance to certain glyphosate-containing herbicides including HELOSATE.

Information on Roundup Ready soybeans is available from your seed supplier.

**Application Instructions**

This product may be applied post-emergence to Roundup Ready soybeans from the cracking stage throughout flowering.

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Allow a minimum of 14 days between final application and harvest or feeding of soybean grain, forage or hay.

**Maximum Allowable Yearly Rates (see Footnote 1):**

**Cropping season:** Combined total per year for all applications may not exceed 8 quarts per acre.

**Preplant, pre-emergence:** Maximum amount of HELOSATE which can be applied prior to crop emergence is 5 quarts per acre.

**In-crop:** Maximum combined total of single or multiple in-crop applications of this product from cracking throughout the flowering stage is 3 quarts per acre.

**Preharvest:** Maximum amount of this product that can be applied after loss of green color in soybean pods until 14 days before harvest is 1 quart per acre.

When used as directed, this product will control annual grasses and broadleaf weeds listed in Roundup Ready soybeans. Many perennial grasses and broadleaf weeds will be controlled or suppressed with one or more applications of this product.

**Precautions / Restrictions**

The combined total application from crop emergence through harvest must not exceed 3 quarts (96 fl. oz.) per acre. The maximum rate for any single in crop application is 2 quarts (64 fl. oz.) per acre. Allow a minimum of 14 days between final application and harvest, or feeding of soybean grain, forage or hay.

**There are no rotational crop restrictions following applications of this product.**

**Ground Application**

Use the recommended rates of this product in 5 to 20 gallons of spray solution per acre as a broadcast spray. Carefully select proper nozzle and spray pressure to avoid spraying a fine mist. For best results with ground application equipment, use nozzles that provide a flat fan pattern. Check for even distribution of spray droplets.

**Aerial Application**

Use the recommended rates of this product in 3 to 15 gallons of water per acre. Do not exceed 1 quart of this product per acre unless otherwise directed. **DO NOT APPLY DURING LOW-LEVEL INVERSION CONDITIONS, WHEN WINDS ARE GUSTY, OR UNDER ANY OTHER CONDITIONS WHICH FAVOR DRIFT. DRIFT MAY CAUSE DAMAGE TO ANY VEGETATION CONTACTED TO WHICH TREATMENT IS NOT INTENDED. MAINTAIN APPROPRIATE BUFFER ZONES TO PREVENT INJURY TO ADJACENT DESIRABLE VEGETATION**

**Rates for Annual Weeds**

The following recommended rates will provide control of labeled grasses and broadleaf weeds in conventional and no-till soybean production systems. Refer to the ANNUAL WEEDS section of this label for rate recommendations for specific annual weeds.

HELM will not warrant crop safety or weed control when Roundup Ready soybeans are treated with herbicides not specified on this label. Because of the potential for 1) crop injury, 2) poor weed control from antagonism, and/or 3) rotational crop restrictions, herbicides not specified on this label should not be used whether applied pre-emergence or applied post-emergence as a tank mixture with HELOSATE.

This product may be used at a rate of up to 2 quarts (64 fl. oz.) per acre in any single application for control of annual weeds, where heavy weed densities exist.

**NOTE:** The following recommendations are based on a clean start at planting by using a burn-down application or tillage to control existing weeds before crop emergence. In no-till or stale seedbed systems, a pre-plant burn-down treatment of ½ to 2 quarts (16 to 64 fl. oz.) per acre of this product can be used to control existing weeds prior to crop emergence.

**Midwest / Mid-Atlantic Recommendations**

**Narrow-row or drilled soybeans:** An in-crop application of this product will provide effective control of labeled weeds. For best results an initial application of 1 quart (32 fl. oz.) per acre on 4 to 8 inch weeds is recommended. Weeds will generally be 4 to 8 inches tall 3 to 5 weeks after planting. If the initial application is delayed, and weeds are 8 to 18 inches tall, use 1 ½ quarts (48 fl. oz.) per acre for best results.

Under adverse growing conditions such as drought, hail, wind damage, or a poor soybean stand that slows or delays canopy closure, a sequential application of this product at 24 to 32 fl. oz. (3/4 to 1 quart) per acre may be necessary to control late flushes of weeds.

**Wide-row soybeans:** An in-crop application of this product will provide effective control of the initial stand of labeled weeds. For best results, an initial application of 1 quart (32 fl. oz.) per acre on 4 to 8 inch weeds is recommended. Weeds will generally be 4 to 8 inches tall 3 to 5 weeks after planting. If new flushes of weeds occur, they can be controlled by sequential applications of this product.

Initial Treatment and Sequential (if needed) Applications	
Weed Height (inches)	Rate (fl. oz. per acre)
1 - 3	24
3 - 8	32
8 - 18	48

Black nightshade, Pennsylvania smartweed, velvetleaf and waterhemp: Apply 32 fl. oz. (1 quart) per acre to weeds 3 to 6 inches tall and 48 fl. oz. (1 1/2 quarts) to weeds up to 12 inches tall. For morningglory species, apply 32 fl. oz. (1 quart) to weeds up to 4 inches and 48 fl. oz. (1 1/2 quarts) to weeds up to 6 inches.

Giant ragweed: Apply 32 fl. oz. (1 quart) per acre when the weed is 8 to 12 inches tall to avoid the need for sequential application.

Some weeds such as black nightshade, woolly cupgrass, shattercane, wild proso millet, burcucumber, and giant ragweed with multiple germination times may require a sequential application of this product. Suppressed or stunted weeds may also require sequential application. Sequential applications should be made after some regrowth has occurred. Use a minimum of 24 fl. oz. (3/4 quart) of HELOSATE per acre for sequential applications.

**Southeast Recommendations**

**Narrow-row, drilled, or wide-row soybeans:** An in-crop application of this product will provide effective control of the initial stand of labeled weeds. For best results, an initial application of 32 fl. oz. (1 quart) per acre on 3 to 6 inch weeds is recommended. Weeds will generally be 3 to 6 inches tall 2 to 3 weeks after planting.

Initial Treatment	
Weed Height (inches)	Rate (fl. oz. per acre)
3 - 6	32
6 - 12	48

Under adverse growing conditions such as drought, hail, wind damage, or a poor soybean stand that slows or delays canopy closure, a sequential application of this product at 16 to 32 fl. oz. (3/4 to 1 quart) per acre may be necessary to control late flushes of weeds.

Sequential Application (if needed)	
Weed Height (inches)	Rate (fl. oz. ) per acre
2 - 3	16
3 - 6	24
6 - 12	32

Florida pusley, hemp sesbania, and spurred anoda: Apply 32 fl. oz. (1 quart) per acre to weeds 2 to 4 inches tall for the initial application. Apply 32 fl. oz. (1 quart) per acre when these weeds are 3 to 6 inches tall if a sequential application is needed.

For morningglory, black nightshade, groundcherry, and Pennsylvania smartweed, apply the following rates for initial

application:

Weed Height (inches)	Rate (fl. oz. per acre)
1 - 3	24
3 - 6	32
6 - 12	48

Some weeds such as black nightshade, broadleaf signalgrass, Texas panicum, burcucumber, and sicklepod with multiple germination times may require a sequential application of this product. Suppressed or stunted weeds may also require sequential applications. Sequential applications should be made after some regrowth has occurred. Use a minimum of 16 fl. oz. (1/2 quart) per acre of this product for sequential applications. The combined total of all in-crop applications of this product post-emergence must not exceed 3 quarts (96 fl. oz.) per acre.

**Delta / Mid-South Recommendations**

**Narrow-row, drilled or wide-row soybeans:** An in-crop application of this product will provide effective control of the initial stand of labeled weeds. A sequential application will be required to control new flushes of weeds. For best results, an initial application of 32 fl. oz. (1 quart) per acre on 2 to 4 inch weeds is recommended. Weeds will generally be 2 to 4 inches tall 2 to 3 weeks after planting.

Initial Treatment	
Weed Height (inches)	Rate (fl. oz. per acre)
2 - 4	32
4 - 12	48

Sequential Application	
Weed Height (inches)	Rate (fl. oz. per acre)
2 - 3	16
3 - 6	24
6 - 12	32

Hemp sesbania and spurred anoda: Apply a sequential treatment of 32 fl. oz. (1 quart) per acre on weeds 3 to 6 inches tall if required.

Some weeds such as black nightshade, broadleaf signalgrass, Texas panicum, burcucumber, and sicklepod, with multiple germination times may require a sequential application of this product.

Suppressed or stunted weeds may also require sequential application. Sequential applications should be made after some regrowth has occurred. Use a minimum of 16 fl. oz. (1/2 quart) per acre of this product for sequential applications.

**Perennial Weeds Rate Recommendations**

A 1 to 2 quart (32 to 64 fl. oz.) per acre rate (single or multiple applications) of this product will control or suppress perennial weeds such as : Bermuda grass, Canada thistle, common milkweed, field bindweed, hemp dogbane, horsetettle, marestalk (horseweed), nutsedge, quackgrass, rhizome Johnsongrass, redvine, trumpetcreeper, swamp smartweed, and wirestem muhly.

For best results, allow perennial weed species to achieve at least 6 inches of growth before spraying with HELOSATE. For additional information on perennial weeds, see the PERENNIAL WEEDS section of this label. For some perennial weeds, repeat application may be required to eliminate crop competition throughout the growing season.

**NOTE:** See ADDITIVES section of this label for directions for using with nonionic surfactants.

The addition of certain surfactants to this product may result in some crop response including leaf necrosis, leaf chlorosis or leaf speckling due to the surfactant added to the spray mixture. Read and carefully observe cautionary statements and other information appearing on the surfactant label.

**Footnote 1:** The yearly maximum allowable amount of HELOSATE that can be applied also includes other glyphosate-containing products.

### **NONCROP USES**

See GENERAL INFORMATION and MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS sections of this label for essential product performance information and the following NONCROP sections for specific recommended uses.

**EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE, GREEN STEMS, EXPOSED NON-WOODY ROOTS OR FRUIT OF CROPS, DESIRABLE TURFGRASSES, TREES, SHRUBS OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.**

Repeat treatments may be necessary to control weeds regenerating from underground parts or seeds. Where repeat applications are necessary, do not exceed 10.6 quarts of this product per acre per year. The maximum use rates stated throughout this product's labeling apply to this product combined with the use of all other herbicides containing glyphosate or sulfosate as the active ingredient, whether applied as mixtures or separately. Calculate the application rates and ensure that the total use of this and other glyphosate or sulfosate containing products does not exceed stated maximum use rate.

This product does not provide residual weed control. For subsequent weed control, follow a label-approved herbicide program.

Read and carefully observe all cautionary statements and all other information appearing on the labels of all herbicides used.

### **INDUSTRIAL, RECREATIONAL AND PUBLIC AREAS**

When applied as directed for NONCROP USES, under conditions described, this product controls annual and perennial weeds listed on this label growing in areas such as airports, ditch banks, dry ditches, dry canals, fencerows, golf courses, highways, industrial plant sites, lumberyards, parking areas, parks, petroleum tank farms and pumping installations, pipelines, power and telephone rights-of-way, railroads, roadsides, schools, storage areas, utility substations, other public areas and similar industrial or noncrop areas.

For specific rates of application and instructions for control of various annual and perennial weeds and woody brush and trees, see the WEEDS CONTROLLED section of this label.

This product may be applied with recirculating sprayers, shielded applicators, or wiper applicators in any noncrop site specified on this label. See the SELECTIVE EQUIPMENT part of APPLICATION EQUIPMENT AND TECHNIQUES section of this label for information on proper use and calibration of this equipment.

### **Tank Mixtures for Industrial Sites and Forestry Site Preparations**

#### **HELOSATE plus Oust**

Use on industrial sites including airports, industrial plants, lumberyards, petroleum tank farms, pumping stations, pipelines, railroads, roadsides, storage areas or other similar sites where bare ground is desired.

This tank mixture may also be used as a site preparation treatment for sites to be planted to jack pine, loblolly pine, red pine, slash pine and Virginia pine.

When applied as directed for NONCROP USES under the conditions described, this product plus Oust provides control of annual weeds listed in the WEEDS CONTROLLED section of the label for this product and Oust, and control or partial control of the perennial weeds listed below.

Apply 1 to 2 quarts of this product with 2 to 4 ounces of Oust in 10 to 40 gallons of spray solution per acre as a broadcast spray to actively growing weeds.

This mixture may be applied by aerial equipment in site prep operations. When applied by air, use the recommended rates in 5 to 15 gallons of spray solution per acre.

**THIS PRODUCT PLUS OUST TANK MIXTURES MAY NOT BE APPLIED BY AIR IN CALIFORNIA.**

For control of annual weeds, use the lower rates of these products.

For control on the listed perennial weeds, use the higher rates of both products. For partial control, use the lower rates.

<b>Bahiagrass</b>	<i>Paspalum notatum</i>	<b>Johnsongrass**</b>	<i>Sorghum halepense</i>
<b>Bermuda grass*</b>	<i>Cynodon dactylon</i>	<b>Poorjoe**</b>	<i>Diodia teres</i>
<b>Broomsedge</b>	<i>Andropogon virginicus</i>	<b>Quackgrass</b>	<i>Elytrigia repens</i>
<b>Dock, curly</b>	<i>Rumex crispus</i>	<b>Trumpet creeper*</b>	<i>Campsis radicans</i>
<b>Dogfennel</b>	<i>Eupatorium capillifolium</i>	<b>Vaseygrass</b>	<i>Paspalum urvillei</i>
<b>Fescue, tall</b>	<i>Festuca arundinacea</i>	<b>Vervain, blue</b>	<i>Verbena hastata</i>

\*Suppression at higher rates only.

\*\* Control at the lower rates.

Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

**HELOSATE plus Garlon 4**

For burndown and partial control or suppression of woody brush and weeds in industrial sites: This tank mixture is recommended for use on rights-of-way (utility, railroad, highway, pipeline), fencerows, roadsides, nonirrigation ditchbanks, wasteland and similar noncrop or industrial sites.

**Hand-held and high-volume applications:**

Use 2 to 4 quarts of HELOSATE herbicide plus 1 to 2 quarts of Garlon 4 per 100 gallons of spray solution and apply to foliage of actively growing woody brush and weeds. Applications should be made on a spray-to-wet basis. Spray coverage should be uniform and complete. Do not spray to point of runoff.

**Broadcast applications with ground equipment:**

Use 2 to 4 quarts of HELOSATE plus 1/2 to 2 quarts of Garlon 4 in sufficient water to make 20 to 100 gallons of total spray per acre.

**Aerial applications (helicopter only):**

Use 2 to 4 quarts of HELOSATE plus 1 to 2 quarts of Garlon 4 and apply in a total spray volume of 10 to 20 gallons per acre. Aerial sprays should be applied using suitable drift control.

Apply when plants are actively growing and after full leaf expansion of woody brush. Use the higher rates of these products where vegetation is heavy or dense, or where hard-to-control brush species are prevalent. Repeat applications may be necessary to maintain control or suppress areas where canopying of vegetation prevents good spray coverage and penetration.

Nonionic surfactants which are labeled for use with herbicides may be used. Use 0.5 percent surfactant concentration (2 quarts per 100 gallons of spray solution) when using surfactants which contain at least 50 percent active ingredient or a 1 percent surfactant concentration (4 quarts per 100 gallons of spray solution) for those surfactants containing less than 50 percent active ingredient. Read and carefully observe cautionary statements and other information appearing on the surfactant label.

Drift control additive may be used. When a drift control additive is used, read and carefully observe the cautionary statements and all other information appearing on the additive label.

Read and carefully observe the label claims, cautionary statements and all information on the labels of both products used in this tank mixture. Use according to the most restrictive label directions for each product in the mixture.

When used in combination as recommended by HELM, the liability of HELM shall in no manner extend to any damage, loss or injury not directly caused by the inclusion of the HELM product in such combination use.

Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.



**Forestry Site Preparation Prior to Planting Douglas Fir in Washington and Oregon**

**HELOSATE plus Arsenal® Applicators Concentrate**

Apply 2 to 4 quarts of this product with 4 fl. oz. to 8 fl. oz. of Arsenal Applicators Concentrate in 5 to 15 gallons of spray solution per acre as a broadcast spray to control big leaf maple resprouts. Where big leaf maple resprouts are not a primary concern, addition of 1 fl. oz. to 4 fl. oz. per acre of Arsenal Applicators Concentrate to the recommended rate of this product will improve control of most other woody brush species, such as willow, pin cherry, dogwood, and vine maple.

Nonionic surfactants which are labeled for use with herbicides may be used. If used, add 2 quarts of nonionic surfactant per 100 gallons of spray solution. The tank mixtures may be applied by air (helicopter only).

**Application timing**

Big leaf maple resprouts should have vigorous growth prior to the application of these tank mixtures. Fall applications will provide best results.

Read and carefully observe the label directions, cautionary statements and all information on the labels of both products used in this tank mixture. Additional precautionary statements are made in these labels.

Use according to the most restrictive label directions for each product in the mixture.

When used in combination as recommended by HELM, the liability of HELM shall in no manner extend to any damage, loss or injury not directly caused by the inclusion of the HELM product in such combination use.

**Railroad Rights-Of-Way**

**HELOSATE plus Diuron plus Atrazine**

Apply when plants are actively growing. Use the higher recommended rates of these products where vegetation is heavy or dense, or where hard-to-control species are prevalent. Repeat applications may be necessary to maintain control where dense vegetation prevents good spray coverage. Applications should be made when weeds are less than 12 inches tall for best results.

Nonionic surfactants which are labeled for use with herbicides may be used. Use 0.5 percent surfactant concentration (2 quarts per 100 gallons of spray solution) when using surfactants which contain at least 50 percent active ingredient, or a 1 percent surfactant concentration (4 quarts per 100 gallons of spray solution) for those surfactants containing less than 50 percent active ingredient. Read and carefully observe surfactant cautionary statements and other information appearing on the surfactant label.

Drift control additives may be used. When a drift control additive is used, read and carefully observe the cautionary statements and all other information appearing on the additive label.

Read and carefully observe the label claims, cautionary statements and all information on the labels of both products used in this tank mixture. Use according to the most restrictive label directions for each product in the mixture. When used in combination as recommended by HELM, the liability of HELM shall in no manner extend to any damage, loss or injury not directly caused by the inclusion of the HELM product in such combination use.

**HELOSATE plus 2,4-D Amine plus Oust®**

For control of trumpetcreeper and johnsongrass:

**EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE OF DESIRABLE TURFGRASSES, TREES, SHRUBS, OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.**

**NOTE:** If spraying areas adjacent to desirable plants, use a shield made of cardboard, sheet metal or plyboard while spraying to help prevent spray from contacting foliage of desirable plants. Repeat treatments may be necessary to control weeds regenerating from underground parts or seeds.

HELOSATE does not provide residual weed control. For subsequent weed control, follow a label-approved herbicide program.

This product may be applied in noncrop sites as indicated in the MIXING, ADDITIVES AND APPLICATION

INSTRUCTIONS section unless otherwise directed.

#### **HELOSATE plus 2,4-D Amine**

When applied as directed for noncrop uses, HELOSATE when tank-mixed with 2,4-D amine will provide burndown and control of trumpetcreeper in railroad rights-of-way sites. Apply 2 to 3 quarts of HELOSATE with 1 to 2 pints of 2,4-D amine in 25 to 40 gallons of total spray solution per acre to actively growing trumpetcreeper. Application should be made any time from early postemergence to before a killing frost. Use the higher rates of these products when weed growth is heavy or dense.

#### **HELOSATE plus 2,4-D Amine plus Oust**

When applied as directed for noncrop uses, HELOSATE when tank-mixed with 2,4-D amine and Oust will provide burndown control of johnsongrass and trumpetcreeper. Apply 2 to 3 quarts of HELOSATE with 1 to 2 pints of 2,4-D amine plus 2 to 4 ounces of Oust in 25 to 40 gallons of total spray solution per acre. Application should be made any time from early postemergence to before a killing frost. Use the higher rates of these products when weed growth is heavy or dense.

#### **Tank mixing and application instructions**

Before using, refer to the individual product labels for precautionary statements. Do not apply this tank mixture, drain or flush equipment on or near desirable trees or other plants, on areas where their roots may extend, or in locations where Oust or 2,4-D amine may be washed or moved into contact with their roots.

Fill the spray tank at least one-third full of clean water. Mix the recommended amount of Oust in a separate container with sufficient water to make a smooth slurry. Pour the slurry into the spray tank; fill spray tank with the required amount of 2,4-D amine and HELOSATE and mix well before using. Maintain agitation until spraying is completed.

Before using, refer to individual product labels for specific cleaning instructions.

#### **Tank Mixtures for Noncrop Sites**

When applied as a tank mixture, this product provides control of the emerged annual weeds and partial control of the emerged perennial weeds listed in this label. When applied as a tank mixture, the following residual herbicides will provide pre-emergence control of the weeds listed in the individual product labels.

HELOSATE plus Diuron  
 HELOSATE plus Krovar® I  
 HELOSATE plus Krovar II  
 HELOSATE plus Ronstar™ 50WP  
 HELOSATE plus Simazine, Princep® Caliber® 90  
 HELOSATE plus Simazine 4L  
 HELOSATE plus Simazine 80W  
 HELOSATE plus Surflan™ 75W  
 HELOSATE plus Surflan AS

When tank mixing with residual herbicides, add an agriculturally approved nonionic surfactant at 0.5 to 1% volume of spray solution. See the MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS section of this label before preparing these tank mixtures.

Read and carefully observe the label claims, cautionary statements, recommended use rates and all other information on the labels of all products used in these tank mixtures. Use according to the most restrictive label directions for each product in the mixture.

#### **HELOSATE plus Oust and 2,4-D Amine**

When applied as directed, this tank mixture will control or partially control labeled annual and perennial weeds in noncrop areas.

Apply the recommended rate of HELOSATE plus 1 to 2 pints of 2,4-D amine and 2 to 4 ounces of Oust in 25 to 40 gallons of total spray solution per acre. Use the higher rates of these mixtures when weed growth is heavy or dense. Do not apply this tank mixture, drain or flush equipment on or near desirable trees or other plants, on areas where their roots may extend, or in locations where Oust or 2,4-D may be washed or moved into contact with their roots.

**HELOSATE plus Arsenal 2 WSL**

When applied as directed, this tank mixture will control or partially control labeled woody brush, trees and herbaceous weeds in noncrop areas. In addition to the weeds on this label, this tank mixture will control arrowweed, saltcedar and yaupon.

**Hand-held and high-volume applications**

Use 4 to 8 quarts of HELOSATE plus 1/2 to 4 pints of Arsenal 2 WSL per 100 gallons of spray solution. Nonionic surfactants which are labeled for use with herbicides may be used. If used, add 2 quarts of nonionic surfactant per 100 gallons of spray solution. Apply to foliage of actively growing vegetation. Applications should be made on a spray-to-wet-basis. Spray coverage should be uniform and complete. Do not spray to the point of runoff.

**Broadcast applications with ground equipment**

Use 2 to 5 quarts of HELOSATE plus 1/2 to 4 pints of Arsenal in sufficient water to apply in a total spray volume of 10 to 20 gallons per acre. Apply to foliage of actively growing vegetation.

**Aerial applications**

Use 2 to 5 quarts of HELOSATE plus 1/2 to 4 pints of Arsenal in sufficient water to apply in a total spray volume of 10 to 20 gallons per acre. Apply to foliage of actively growing vegetation.

Apply to woody brush and trees after full leaf expansion until initiation of fall color.

Avoid direct applications to any body of water. Do not apply on ditches used to transport irrigation water.

Read and carefully observe the label directions, cautionary statements and all information on the labels of each product used in this tank mixture. Additional precautionary statements are made on these labels; use according to the most restrictive label directions for each product in the mixture.

When used in combination as recommended by HELM, the liability of HELM shall in no manner extend to any damage, loss or injury not solely and directly caused by the inclusion of the HELM product in such combination use.

**Additional Tank Mixes for Noncrop Sites**

When applied as a tank mixture, the following herbicides will provide preemergence and/or postemergence control of the weeds listed in the individual product labels.

The following list of products may be tank mixed with this product. Any recommended rate of this product may be used in a tank mixture with these products.

Tank Mix Product	Rate per Acre
Arsenal*	0.5 to 4 pints
Banvel®	1 to 4 pints
2,4-D	0.5 to 1 pound
Garlon 3A	1 to 6 pints
Garlon 4	1 to 6 pints
Diuron	4 to 8 pounds
Diuron + 2,4-D	4 to 8 pounds + 0.5 to 1 pound
Diuron + Garlon 3A	4 to 10 pounds + 1 to 2 pints
Diuron + Garlon 4	4 to 10 pounds + 1 to 2 pints
Hyvar <sup>®</sup> X	4 to 8 pounds

Hyvar X + 2,4-D	4 to 8 pounds + 0.5 to 1 pound
Hyvar X + Garlon 3A	4 to 8 pounds + 1 to 2 pints
Hyvar X + Garlon 4	4 to 8 pounds + 1 to 2 pints
Krovar® I DF	4 to 6 pounds
Krovar I DF + 2,4-D	4 to 6 pounds + 0.5 to 1 pound
Krovar I DF + Garlon 3A	4 to 6 pounds + 1 to 2 pints
Krovar I DF + Garlon 4	4 to 6 pounds + 1 to 2 pints
Oust	2 to 6 ounces
Oust + 2,4-D	2 to 6 ounces + 0.5 to 1 pound
Oust + Garlon 3A	2 to 6 ounces + 1 to 2 pints
Oust + Garlon 4	2 to 6 ounces + 1 to 2 pints
Spike® 80W	2 to 5 pounds
Spike 80W + 2,4-D	2 to 5 pounds + 0.5 to 1 pound
Spike 80W + Garlon 3A	2 to 5 pounds + 1 to 2 pints
Spike 80W + Garlon 4	2 to 5 pounds + 1 to 2 pints

\*Arsenal is not approved for use in the state of California.

Refer to the individual product labels for specific noncrop sites, rates, carrier volumes and precautionary statements. Read and carefully observe the label claims, cautionary statements, recommended use rates and all other information on the labels of all products used in these tank mixtures. Use according to the most restrictive label directions for each product in the mixture.

Maintain good agitation at all times during the mixing process. Ensure that the tank mix products are well mixed with the spray solution before adding this product. Mix only the quantity of spray solution which can be used during the same day. Tank mixtures allowed to stand overnight may result in reduced weed control. Maintain good agitation at all times until the contents of the tank are sprayed. If the spray mixture is allowed to settle, thorough agitation is required to resuspend the mixture before spraying is resumed.

Nonionic surfactants which are labeled for use with herbicides may be used. Use a 0.5 percent surfactant concentration (2 quarts per 100 gallons of spray solution). Use surfactants that contain at least 50 percent active ingredient. Read and carefully observe surfactant cautionary statements and other information appearing on the surfactant label.

Drift control additives may be used. When a drift control additive is used, read and carefully observe the cautionary statements and all other information appearing on the additive label.

When used in combination as recommended by HELM, the liability of HELM shall in no manner extend to any damage, loss or injury not solely and directly caused by the inclusion of the HELM product in such combination use.

Read and carefully observe the label claims, cautionary statements, recommended use rates and all other information on the labels of all products used in these tank mixtures. Use according to the most restrictive label directions for each product in the mixture.

**Control of Emerged Weeds**

**NOTE:** For backpack sprayer and handgun applications, see the HAND-HELD AND HIGH-VOLUME EQUIPMENT section for recommended rates.

**Annual weeds** - Apply 1 quart per acre of this product in these tank mixtures when weeds are less than 6 inches tall and 1.5 quarts per acre when weeds are more than 6 inches tall.

**Perennial weeds** - For partial control of perennial weeds using tank mixtures, apply 2 to 5 quarts per acre of this product. Follow the recommendations in the WEEDS CONTROLLED section of this label for stage of growth and rate of application for specific perennial weeds.

**Pre-emergence Weed Control**

For pre-emergence weed control, refer to the individual product labels for specific noncrop sites, rates, carrier volumes and precautionary statements.

Mix only the quantity of spray solution that can be used during the same day. Do not allow these tank mixtures to stand overnight as this may result in reduced weed control.

**FARMSTEAD WEED CONTROL**

When applied as directed for NONCROP USES, under conditions described, this product controls desirable vegetation listed on this label around farmstead building foundations, along and in fences, shelterbelts and for general nonselective farmstead weed control.

For specific rates of application and instructions for control of various annual and perennial weeds, see the WEEDS CONTROLLED section of this label.

**Farm Ditches**

This product will suppress perennial grasses along farm ditches. Apply this product at a rate of 6 to 8 fl. oz. per acre. Use 8 fl. oz. per acre when treating tall (coarse) fescue, fine fescue, orchardgrass or quackgrass covers. For best suppression of these species, add ammonium sulfate at a rate of 1.7 pounds per 10 gallons of spray solution. Use 6 fl. oz. per acre without ammonium sulfate when treating Kentucky bluegrass.

Apply treatments in 10 to 20 gallons of spray solution per acre to actively growing perennial grass covers. For best spray distribution and coverage, use flat fan nozzles.

Add nonionic surfactant at a rate of 0.5% of the spray solution.

Where broadleaf weed control or suppression is desired, tank mix this product with the appropriate labeled broadleaf weed herbicide.

**CONSERVATION RESERVE PROGRAM (CRP ACRES)**

This product can be used to control undesirable vegetation when rotating out of CRP acres or to suppress competitive growth and seed production of undesirable vegetation in CRP acres.

For specific rates of application for various annual and perennial weeds, see the WEEDS CONTROLLED section of this label.

CRP applications may be made with wiper applicators or conventional spray equipment.

For selective applications with broadcast spray equipment, apply 12 to 16 fl. oz. per acre of this product in early spring before desirable CRP grasses, such as crested and tall wheatgrass, break dormancy and initiate green growth. Late fall applications can be made after desirable perennial grasses have reached dormancy. Some stunting of CRP perennial grasses will occur if applications are made when plants are not dormant.

**HABITAT MANAGEMENT**

This product is recommended for the restoration and/or maintenance of native habitats and in wildlife management areas. Apply as recommended in the NONCROP USES section of this label.

**Habitat Restoration and Maintenance**

When applied as directed, exotic and other undesirable vegetation may be controlled in habitat management areas. Applications can be made to allow recovery of native plant species, prior to planting desirable native species, and for similar broadspectrum vegetation control requirements in habitat management areas. Spot treatments can be made to selectively remove unwanted plants for habitat maintenance and enhancement. For spot treatments, care should be exercised to keep spray off desirable plants.

**Wildlife Food Plots**

This product may be used as a site preparation treatment prior to planting wildlife food plots. Any wildlife food species may be planted after applying this product, or native species may be allowed to repopulate the area. If tillage is needed

to prepare a seedbed, wait 7 days after applying this product before tilling.

#### **ORNAMENTALS, TREE NURSERIES, AND CHRISTMAS TREES**

**THIS PRODUCT IS NOT RECOMMENDED FOR USE AS AN OVER-THE-TOP BROADCAST SPRAY IN ORNAMENTALS AND CHRISTMAS TREES.**

**NOTE:** Desirable plants may be protected from the spray solution by using shields or coverings made of cardboard or other impermeable material.

When applied as instructed for the conditions described for **NONCROP USES**, this product controls undesirable vegetation listed on this label prior to planting, within and around greenhouses and shadehouses, and as a postdirected spray around established ornamentals and Christmas trees.

For specific rates of application and instructions for control of various annual and perennial weeds, see the **WEEDS CONTROLLED** section of this label.

Where repeat applications are necessary, do not exceed 10.6 quarts of this product per acre per year.

#### **Site Preparation**

Following preplant applications of this product, any ornamental, nursery species, or Christmas tree species may be planted. Precautions should be taken to protect nontarget plants during site preparation applications.

#### **Greenhouse / Shadehouse Use**

This product may be used to control weeds listed on this label that are growing inside greenhouses. Desirable vegetation must not be present during application and air circulation fans must be turned off.

#### **Postdirected Spray**

Use a postdirected spray around established woody ornamental species, nursery species, or Christmas trees such as those listed below. Care must be exercised to avoid contact of spray, drift or mist with foliage or green bark of established ornamental species.

<b>Arborvitae</b>	<i>Thuja spp.</i>	<b>Lilac</b>	<i>Syringa spp.</i>
<b>Azalea</b>	<i>Rhododendron spp.</i>	<b>Magnolia</b>	<i>Magnolia spp.</i>
<b>Boxwood</b>	<i>Buxus spp.</i>	<b>Maple</b>	<i>Acer spp.</i>
<b>Crabapple</b>	<i>Malus spp.</i>	<b>Oak</b>	<i>Quercus spp.</i>
<b>Douglas fir</b>	<i>Pseudotsuga spp.</i>	<b>Privet</b>	<i>Ligustrum spp.</i>
<b>Euonymus</b>	<i>Euonymus spp.</i>	<b>Pine</b>	<i>Pinus spp.</i>
<b>Fir</b>	<i>Abies spp.</i>	<b>Spruce</b>	<i>Picea spp.</i>
<b>Jojoba</b>	<i>Simmondsia chinensis</i>	<b>Yew</b>	<i>Taxus spp.</i>
<b>Hollies</b>	<i>Ilex spp.</i>		

**SILVICULTURAL SITES AND RIGHTS-OF-WAY**

**NOTE: NOT RECOMMENDED FOR USE AS AN OVER-THE-TOP BROADCAST SPRAY IN SILVICULTURAL NURSERIES.**

When applied as directed for NONCROP USES under conditions described, this product controls undesirable vegetation listed on this label. This product also suppresses or controls undesirable vegetation listed on this label when applied at recommended rates for release of established coniferous species listed on this label.

For specific rates of application and instructions for control of various brush, annual and perennial weeds, see the WEEDS CONTROLLED section of this label. For specific rates of application for release of listed coniferous species, see the Conifer Release part of this section of this label.

Where repeat applications are necessary, do not exceed 10.6 quarts of this product per acre per year.

**Aerial Application**

This product may be applied using aerial spray equipment for silvicultural site preparation, conifer release and rights-of-way treatments. See the APPLICATION EQUIPMENT AND TECHNIQUES section of this label for information on how to apply this product by air.

**DO NOT APPLY THIS PRODUCT BY AIR TO RIGHTS-OF-WAY SITES IN THE STATE OF CALIFORNIA.**

**Site Preparation**

Following preplant applications of this product, any silvicultural species may be planted.

**Postdirected spray**

In established silvicultural sites, use a spray on the foliage of undesirable vegetation. Care must be exercised to avoid contact of spray, drift or mist with foliage or green bark of desirable species.

**Conifer Release**

For release, apply only where conifers have been established for more than one year. Vegetation should not be disturbed prior to treatment or until visible symptoms appear after treatment. Symptoms of treatment are slow to appear, especially in woody species treated in late fall. Injury may occur to conifers treated for release, especially where spray patterns overlap or the higher rates are applied or when applications are made during periods of active conifer growth.

**Do not use additional surfactant with conifer release applications.**

Applications must be made after formation of final conifer resting buds in the fall or prior to initial bud swelling in spring. Some autumn colors on undesirable deciduous species are acceptable provided no major leaf drop has occurred. Use the following rates for conifer release to control or partially control the weeds listed in the WEEDS CONTROLLED section of this label.

**For release of the following conifer species:**

<b>Douglas fir</b>	<i>Pseudotsuga spp.</i>
<b>Fir</b>	<i>Abies spp.</i>
<b>Hemlock</b>	<i>Tsuga spp.</i>
<b>Pine*</b>	<i>Pinus spp.</i>
<b>Spruce</b>	<i>Picea spp.</i>

\*Includes all species except eastern white pine, loblolly pine or slash pine.

Apply 1.5 to 2 quarts of this product per acre except in Washington and Oregon, west of the crest of the Cascade Mountains. For spring treatments west of the crest of the Cascade Mountains, apply 1 quart of this product per acre before conifer bud swell for control of annual weeds. For fall treatments in Washington and Oregon, west of the crest of the Cascade Mountains, apply 1 to 1.5 quarts of this product per acre before any major leaf drop of deciduous species. For release of western hemlock, apply 1 quart of this product per acre.

**For release of the following conifer species:**

<b>Loblolly pine</b>	<i>Pinus taeda</i>
<b>Eastern white pine</b>	<i>Pinus strobus</i>
<b>Slash pine</b>	<i>Pinus elliottii</i>

**Late season application** - Apply 1.5 to 2 quarts of this product in a minimum of 5 gallons of spray solution per acre in early autumn. Applications made prior to September 1 or when conditions are conducive to rapid growth of conifers will create the potential for increased injury in the form of tip and/or needle burn. Injury may decrease with later applications. Some autumn colors are acceptable at the time of application. Apply prior to frost or leaf drop of undesirable plants. Applications made according to label directions will release loblolly pine, eastern white pine and slash pine by reducing competition from the following species:

<b>Conifer Release - Competing Species</b>			
<b>Ash</b>	<i>Fraxinus spp.</i>	<b>Persimmon</b>	<i>Diospyros spp.</i>
<b>Cherry: black pin</b>	<i>Prunus serotina</i> <i>Prunus pensylvanica</i>	<b>Poplar, yellow (tulip tree)</b>	<i>Liriodendron tulipifera</i>
<b>Elm</b>	<i>Ulmus spp.</i>	<b>Sassafras</b>	<i>Sassafras albidum</i>
<b>Hawthorn</b>	<i>Crataegus spp.</i>	<b>Sourwood</b>	<i>Oxydendrum arboreum</i>
<b>Locust, black</b>	<i>Robina pseudoacacia</i>	<b>Sumac: poison smooth winged</b>	<i>Rhus vernix</i> <i>Rhus glabra</i> <i>Rhus copallina</i>
<b>Maple, red</b>	<i>Acer rubra</i>	<b>Sweetgum</b>	<i>Liquidambar styraciflua</i>
<b>Oak: black post southern red white</b>	<i>Quercus velutina</i> <i>Quercus stellata</i> <i>Quercus falcata</i> <i>Quercus alba</i>		



Apply only to those sites where woody brush and trees listed in this label constitute the majority of the undesirable species.

**HELOSATE Plus Oust Tank Mixtures for Conifer Release from Herbaceous Weeds**

To release loblolly pines from herbaceous weeds, tank mixtures of this product with Oust will provide control of annual weeds listed in the WEEDS CONTROLLED section of this label and the Oust label, and partial control of the perennial weeds listed below.

Apply 16 to 24 fl. oz. of this product with 2 to 4 ounces of oust in 10 to 30 gallons of spray solution per acre. Make application to actively growing weeds as a broadcast spray over the top of the young loblolly pines.

**THIS PRODUCT PLUS OUST TANK MIXTURES MAY NOT BE APPLIED BY AIR IN CALIFORNIA.**

This tank mixture may be applied using aerial equipment. When applying by air, use the recommended rate in 5 to 15 gallons of spray solution per acre.

For control of annual weeds below 12 inches in height (or runner length on annual vines), use the lower rates of both products. Use higher rates of both products when annual weeds are in more advanced stages of growth and approaching flower or seed formation.

Use the higher rates of both products for partial control of the following perennial weeds. Use the lower rates for suppression of growth.

<b>HELOSATE Plus Oust Tank Mix - Conifer Release - Partially Controlled Perennial Weeds</b>			
<b>Bahiagrass</b>	<i>Paspalum notatum</i>	<b>Johnsongrass*</b>	<i>Sorghum halepense</i>
<b>Broomsedge</b>	<i>Andropogon virginicus</i>	<b>Poorjoe*</b>	<i>Diodia teres</i>
<b>Dock, curly</b>	<i>Rumex crispus</i>	<b>Trumpet creeper**</b>	<i>Campsis radicans</i>
<b>Dogfennel</b>	<i>Eupatorium capillifolium</i>	<b>Vaseygrass</b>	<i>Paspalum urvillei</i>
<b>Fescue, tall</b>	<i>Festuca arundinacea</i>	<b>Vervain, blue</b>	<i>Verbena hastata</i>

\*Control at higher rates.

\*\*Suppression at higher rates only

Pine damage may occur or can be accentuated if treatment takes place when young trees are under stress from drought, flood water, insects or disease.

Read and observe the cautionary statements and all other information appearing on the labels of all herbicides used.

**HELOSATE plus Arsenal Applicators Concentrate Tank Mixture for Forestry Conifer Release (Maine, New Hampshire and Vermont Only)**

Apply a mixture of 2 quarts of this product and 1 to 2.5 fl. oz. of Arsenal Applicators Concentrate per acre as a release treatment for balsam fir and red spruce.

This mixture is recommended for controlling woody brush, deciduous trees and herbaceous weeds on sites regenerated with balsam fir and red spruce. Make applications only after formation of final resting buds on these conifers. Use the higher recommended rates for sites with dense, tough-to-control woody brush and deciduous trees.

When using ground application equipment, use 10 to 60 gallons of spray solution per acre. For aerial application, (helicopter only), use 5 to 15 gallons of spray solution per acre.

Injury may occur to conifers treated for release, especially where spray patterns overlap. Injury can be accentuated if applications are made when conifers are actively growing or are under stress. Read and carefully observe the label claims, cautionary statements, and all information on the label for all products used.

**NOTE TO USER:** This product must NOT be used in areas where adverse impact on federally designated endangered/threatened plant or aquatic species is likely.

Prior to making applications, the user of this product must determine no such species are located in or immediately adjacent to the area to be treated.

**CUT STUMP TREATMENTS**

Woody vegetation may be controlled by treating freshly cut stumps of trees and resprouts with this product. Apply this product using suitable equipment to ensure coverage of the entire cambium. Cut vegetation close to the soil surface. Apply a 50 to 100% solution of this product to the freshly cut surface immediately after cutting. Delays in application may result in reduced performance. For best results, application should be made during periods of active growth and full leaf expansion.

When used according to directions for cut stump application, this product will CONTROL, PARTIALLY CONTROL or SUPPRESS many types of woody brush and tree species, some of which are listed below.

Partial List - Species Controlled or Suppressed - Cut Stump Application			
Alder	<i>Alnus spp.</i>	Saltcedar	<i>Tamarix spp.</i>
Eucalyptus	<i>Eucalyptus spp.</i>	Sweetgum	<i>Liquidambar styraciflua</i>
Madrone	<i>Arbutus menziesii</i>	Tanoak	<i>Lithocarpus densiflorus</i>
Oak	<i>Quercus spp.</i>	Willow	<i>Salix spp.</i>
Reed, giant	<i>Arundo donax</i>		

**INJECTION AND FRILL APPLICATIONS**

Woody vegetation may be controlled by injection or frill application of this product. Apply this product using suitable equipment which must penetrate into living tissue. Apply the equivalent of 1 ml of this product per each 2 to 3 inches of trunk diameter (DBH). This is best achieved by applying a 50 to 100% concentration of this material either to a continuous frill around the tree or as cuts evenly spaced around the tree below all branches. As tree diameter increases in size, better results are achieved by applying diluted material to a continuous frill or more closely spaced cuttings. Avoid application techniques that allow runoff to occur from frill or cut areas in species that exude sap freely after frills or cutting. In species such as this, make frill or cut at an oblique angle so as to produce a cupping effect and use undiluted material. For best results, application should be made during periods of active growth and after full leaf expansion.

Species Controlled or Suppressed - Injection and Frill Applications			
<b>This treatment WILL CONTROL the following woody species:</b>			
Oak	<i>Quercus spp.</i>	Sweetgum	<i>Liquidambar styraciflua</i>
Poplar	<i>Populus spp.</i>	Sycamore	<i>Platanus occidentalis</i>
<b>This treatment WILL SUPPRESS the following woody species:</b>			
Black gum	<i>Nyssa sylvatica</i>	Hickory	<i>Carya spp.</i>
Dogwood	<i>Cornus spp.</i>	Maple, red	<i>Acer rubrum</i>

**HYBRID POPLAR (*Populus spp.*) PRODUCTION**

**Preplant:** This product is recommended for use prior to planting *Populus spp.* This includes, but is not limited to, hybrid poplars and hybrid cottonwoods.

See the WEEDS CONTROLLED section of this label for specific rates for the weeds being controlled.

**Directed Sprays:** Use a 2 percent spray solution as a spray-to-wet application for the control of undesirable woody brush and trees. To control herbaceous weeds, use a 1 to 2 percent solution. Avoid contact of spray, drift, or mist with foliage, green bark or non-woody surface roots of *Populus spp.*

Mix 2 to 6 quarts of a nonionic surfactant per 100 gallons of spray solution (0.5 to 1.5 percent spray volume). Use a surfactant with greater than 70 percent active ingredient.

**Wipers:** This product may be used through wick or other suitable wiper applicators for control or partial control of grass and broadleaf weeds listed on this label.

For wick applicators, mix 1 gallon of this product with 2 gallons water to make a 33% solution. For wiper systems that can handle thicker solutions, such as force fed systems, a 33% to 100% HELOSATE solution may be used.

For best results ensure that the herbicide solution is allowed to contact the maximum amount of leaf surface. As weed densities increase, decrease equipment speed to allow sufficient herbicide flow to wet all weed surfaces contacted. Weeds not contacted will be unaffected.

**AVOID HERBICIDE CONTACT WITH DESIRABLE VEGETATION.** Desirable vegetation contacted by the herbicide solution may be injured or controlled. This includes foliage, fruit, or green stems.

**TURFGRASSES AND GRASSES FOR SEED PRODUCTION**

**Preplant and Renovation**

When applied as directed for NONCROP USES, under conditions described, this product controls most existing vegetation prior to the planting or renovation of either turfgrasses or grass seed production areas. For specific rates of application and instructions for control of various annual and perennial weeds, and woody brush and trees, see the WEEDS CONTROLLED section of this label.

For maximum control of existing vegetation, delay planting to determine if any regrowth from escaped underground plant parts occurs. Where repeat treatments are necessary, sufficient regrowth must be attained prior to application. For warm-season grasses, such as Bermuda grass, summer or fall applications provide best control.

**DO NOT DISTURB SOIL OR UNDERGROUND PLANT PARTS BEFORE TREATMENT.** Tillage or renovation techniques such as vertical mowing, coring or slicing should be delayed for 7 days after application to allow proper translocation into underground plant parts.

**Turfgrasses:** Where existing vegetation is growing in a field or unmowed situation, apply this product to actively growing weeds at the stages of growth listed in the WEEDS CONTROLLED section of this label. Where existing vegetation is growing under mowed turfgrass management, apply this product after omitting at least one regular mowing to allow sufficient growth for good interception of the spray.

Desirable turfgrasses may be planted following the above procedures.

**Grasses for seed production:** Apply this product to actively growing weeds at the stages of growth recommended in the WEEDS CONTROLLED section of this label prior to planting or renovation of turf or forage grass areas grown for seed production.

**DO NOT** feed or graze treated areas within 8 weeks after application.

**Annual Weed Control in Dormant Bermuda Grass and Bahiagrass Turf**

When applied as directed for NONCROP USES under the conditions described, this product will provide control or suppression of many winter annual weeds and tall fescue for effective release of dormant Bermuda grass and bahiagrass turf. Refer to the rate table Weeds Controlled or Suppressed with HELOSATE Alone under the RELEASE OF BERMUDA GRASS OR BAHIAGRASS section of this label for recommended rates and volumes on the species to be suppressed or controlled. Treat only when turf is dormant and prior to spring greenup. Spot treatments or broadcast applications of this product in excess of 16 fl. oz. per acre may result in injury or delayed greenup in highly maintained turfgrass areas, i.e., golf courses, lawns, etc. **DO NOT APPLY TANK MIXTURES** of this product plus Oust in highly maintained turfgrass areas.

**RELEASE OF BERMUDA GRASS OR BAHIAGRASS**

**NOTE:** Use only in areas where Bermuda grass or bahiagrass are desirable ground covers and where some temporary injury or discoloration can be tolerated. Use tank mixtures of this product plus Oust only on railroads, highways, utility plant sites, or other right-of-way areas.

When applied as directed for NONCROP USES under the conditions described, this product will provide control or suppression of many winter annual weeds and tall fescue for effective release of dormant Bermuda grass or bahiagrass. This product may be tank-mixed with Oust as recommended for residual control. Make applications to dormant Bermuda grass or bahiagrass. Tank mixtures of this product plus Oust may delay greenup. To avoid delays in greenup and minimize injury, do not add more than 1 ounce per acre of Oust on Bermuda grass or more than 0.5 ounce per acre on bahiagrass, or treat when these grasses are in a semi-dormant condition.

For best results on winter annuals, treat when plants are in an early growth stage (below 6 inches in height) after most have germinated. For best results on tall fescue, treat when fescue is in or beyond the 4- to 6-leaf stage.

**Weeds Controlled**

Rate recommendations for control or suppression of winter annuals and tall fescue are listed below.

Apply the recommended rates of this product alone or as a tank mixture in 10 to 25 gallons of water, plus 0.5 to 1% nonionic surfactant by total spray volume per acre.

For the best recommendation for the mixture of weeds within your geographic area, contact your sales representative.

**Release of Bermuda Grass or Bahiagrass  
Weeds Controlled or Suppressed with HELOSATE Alone\***

Weed species		HELOSATE fl. oz. / acre					
		8	12	16	24	32	64
Barley, little	<i>Hordeum pusillum</i>	s	c	c	c	c	c
Bedstraw, catchweed	<i>Galium aparine</i>	s	c	c	c	c	c
Bluegrass, annual	<i>Poa annua</i>	s	c	c	c	c	c
Chervil	<i>Chaerophyllum tainturieri</i>	s	c	c	c	c	c
Chickweed, common	<i>Stellaria media</i>	s	c	c	c	c	c
Clover, crimson	<i>Trifolium incarnatum</i>	•	s	s	c	c	c
Clover, large hop	<i>Trifolium campestre</i>	•	s	s	c	c	c
Fescue, tall	<i>Festuca arundinacea</i>	•	•	•	•	s	s
Geranium, Carolina	<i>Geranium carolinianum</i>	•	•	s	s	c	c
Henbit	<i>Lamium amplexicaule</i>	•	s	c	c	c	c
Ryegrass, common or Italian	<i>Lolium mutiflorum</i>	•	•	s	c	c	c
Speedwell, corn	<i>Veronica arvensis</i>	s	c	c	c	c	c
Vetch, common	<i>Vicia sativa</i>	•	•	s	c	c	c

\*These rates apply only to sites where an established competitive turf is present.  
c = control; s = suppression

**Release of Bermuda Grass or Bahiagrass  
Weeds Controlled or Suppressed with HELOSATE Plus Oust\***

Weed species		HELOSATE (fl. oz. / a) + Oust (oz. / a)						
		8 + 1/4	12 + 1/4	12 + 1/2	16 + 1/4	16 + 1/2	12 + 1	16 + 1
Barley, little	<i>Hordeum pusillum</i>	c	c	c	c	c	c	c
Bedstraw, catchweed	<i>Galium aparine</i>	c	c	c	c	c	c	c
Bluegrass, annual	<i>Poa annua</i>	s	c	c	c	c	c	c
Chervil	<i>Chaerophyllum tainturieri</i>	c	c	c	c	c	c	c
Chickweed, common	<i>Stellaria media</i>	s	c	c	c	c	c	c

<b>Clover, crimson</b>	<i>Trifolium incarnatum</i>	s	s	s	s	c	c	c
<b>Clover, large hop</b>	<i>Trifolium campestre</i>	•	•	s	s	s	c	c
<b>Fescue, tall</b>	<i>Festuca arundianacea</i>	•	•	•	•	•	s	s
<b>Geranium, Carolina</b>	<i>Geranium carolinianum</i>	•	s	s	c	c	c	c
<b>Henbit</b>	<i>Lamium amplexicaule</i>	•	s	c	c	c	c	c
<b>Ryegrass, common or Italian</b>	<i>Lolium mutiflorum</i>	•	s	s	c	c	c	c
<b>Speedwell, corn</b>	<i>Veronica arvensis</i>	s	c	c	c	c	c	c
<b>Vetch, common</b>	<i>Vicia sativa</i>	c	c	c	c	c	c	c

\* These rates or mixtures of rates apply only to sites where an established competitive turf is present.  
 c = control: s = suppression

**Release of Actively Growing Bermuda Grass**

When applied as directed, this product will aid in the release of Bermuda grass by providing control of annual species listed in the WEEDS CONTROLLED section of this and the Oust label, and suppression or partial control of certain perennial weeds.

For control or suppression of those annual species listed on this label, use 1 to 3 pints of this product as a broadcast spray in 10 to 25 gallons of spray solution per acre. Use the lower rate when treating annual weeds below 6 inches in height (or length of runner in annual vines). Use the higher rate as weeds increase in size or as they approach flower or seedhead formation.

Use the higher rate of this product for partial control of the following perennial species. Use the lower rate for suppression of growth. For best results, see the WEEDS CONTROLLED section of this label for proper stage of growth.

**For Bermuda Grass Release,  
 Use the Higher Rate for Partial Control of the Following Perennial Species**

<b>Bahiagrass</b>	<i>Paspalum notatum</i>	<b>Johnsongrass*</b>	<i>Sorghum halepense</i>
<b>Bluestem, silver</b>	<i>Andropogon saccharoides</i>	<b>Trumpet creeper**</b>	<i>Campsis radicans</i>
<b>Fescue, tall</b>	<i>Festuca arundinacea</i>	<b>Vaseygrass</b>	<i>Paspalum urvillei</i>

\* Control at higher rates                      \*\* Suppression at higher rates only

This product may be tank-mixed with Oust. If tank-mixed, use no more than 1 to 2 pints per acre of this product with 1 to 2 ounces of Oust per acre.

Use the lower rates of both mixtures to control annual weeds below 6 inches in height (or runner length in annual vines) that are listed in the WEEDS CONTROLLED section of this booklet and the Oust label. Use the higher rates as annual weeds increase in size and approach the flower and seedhead stages.

Use the higher rates of this product to provide partial control of the following perennial weeds. Use the lower rates for suppression of growth.

**For Bermuda Grass Release,  
 Use the Higher Rates of HELOSATE Plus Oust for Partial Control  
 of the Following Perennial Species**

<b>Bahiagrass</b>	<i>Paspalum notatum</i>	<b>Johnsongrass*</b>	<i>Sorghum halepense</i>
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<b>Bluestem, silver</b>	<i>Andropogon saccharoides</i>	<b>Poorjoe**</b>	<i>Diodia teres</i>
<b>Broomsedge</b>	<i>Andropogon virginicus</i>	<b>Trumpet creeper*</b>	<i>Campsis radicans</i>
<b>Dock, curly</b>	<i>Rumex crispus</i>	<b>Vaseygrass</b>	<i>Paspalum urvillei</i>
<b>Dogfennel</b>	<i>Eupatorium capilliflorum</i>	<b>Vervain, blue</b>	<i>Verbena hastata</i>
<b>Fescue, tall</b>	<i>Festuca arundinacea</i>		

\* suppression at higher rates only

\*\* control at the higher rates

Use only on well-established Bermuda grass. Bermuda grass injury may result from the treatment but regrowth will occur under moist conditions. Repeat applications in the same season are not recommended, since severe injury may result.

Read and carefully observe all cautionary statements and all other information appearing on the labels of all herbicides used.

**COOL SEASON TURF GROWTH REGULATION**

When applied as directed, this product will suppress growth and seedhead development of listed turf species in industrial sites.

This product is recommended for management of coarse turf on roadside rights-of-way or other industrial areas. Do not use on high-quality turf or other areas where turf color changes cannot be tolerated. Slight turf discoloration may occur but turf will regreen and regrow under moist conditions as effects of this product will wear off.

Apply 4 to 6 fl. oz. of this product per acre alone or in a recommended tank mixture. Spray volumes of 10 to 40 gallons per acre are recommended.

When using this product, mix 2 quarts of a nonionic surfactant per 100 gallons of spray solution.

This product can be used for growth and seedhead suppression of:

Tall fescue	Smooth brome
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For best results, apply this product in a recommended tank mixture to actively growing turfgrasses after greenup in the spring of the year. For suppression of seedheads, applications must be made before boot-to-seedhead stage of development. Applications made from seedhead emergence until maturity may result in turf discoloration or injury. After mowing or removal of seedheads, this product in a recommended tank mixture may also be used to suppress the growth of certain turfgrasses. Allow turf to recover from stress caused by heat, drought or mowing before making applications. Applications made to turf under stress may increase the potential for discoloration or injury.

**Annual Grasses**

For growth suppression of some annual grasses such as annual ryegrass, wild barley and wild oats, apply 3 to 4 fl. oz. of this product in 10 to 40 gallons of spray solution per acre. Applications should be when annual grasses are actively growing and before the seedheads are in the boot stage of development. Treatments made after seedhead emergence may cause injury to the desired grasses.

**Tank Mixtures**

For the following tank mixtures, consult each product label for weeds controlled and the correct stage of application. Do not treat turf under stress.

**Tank mixtures plus 2,4-D Amine:** For additional weed control benefits, up to 1 pound active ingredient per acre of 2,4-D amine may be added to the following tank mixtures. Consult the label for 2,4-D amine for weeds controlled.

**Tall Fescue**

**HELOSATE plus Telar®:** For suppression of tall fescue growth and seedheads, and control or partial control of some annual weeds, apply this tank mixture after greenup and prior to boot-to-seedhead stage of development. Use up to 0.5 ounce of Telar per acre.

This tank mixture can also be applied after mowing or removal of tall fescue seedheads for turf growth suppression. Make only one of the above applications per growing season.

**HELOSATE plus Oust:** For suppression of tall fescue growth and seedheads, and control or partial control of some annual weeds, apply this tank mixture after greenup and prior to boot-to-seedhead stage of development. Use up to 0.25 ounce of Oust per acre.

**HELOSATE plus Escort<sup>®</sup>:** This tank mixture can be applied after mowing or removal of tall fescue seedheads for turf growth suppression and control or partial control of some annual weeds. Use up to 1/3 ounce of Escort per acre.

**Smooth Brome**

**HELOSATE plus Oust:** For suppression of smooth brome growth and seedheads and control or partial control of some annual weeds, apply this tank mixture after greenup and prior to boot-to-seedhead stage of development. Use up to 0.25 ounce of Oust per acre.

**BAHIAGRASS SEEDHEAD AND VEGETATIVE SUPPRESSION**

When applied as directed in the indicated noncrop areas (roadsides, airports, golf course roughs, and plant sites), this product will provide significant inhibition of seedhead emergence and will suppress vegetative growth for a period of approximately 45 days with single applications and approximately 120 days with sequential applications.

Apply this product 1 to 2 weeks after full greenup of bahiagrass or after bahiagrass has been mowed to a uniform height of 3 to 4 inches. Applications must be made prior to seedhead emergence. Apply 6 fl. oz. per acre of this product plus 0.5 to 1% nonionic surfactant by total spray volume in 10 to 25 gallons of water per acre.

Sequential applications of this product plus 0.5 to 1% nonionic surfactant by total spray volume may be made at approximately 45 day intervals to extend the period of seedhead and vegetative growth suppression. For continued seedhead suppression, sequential applications must be made prior to seedhead emergence. Apply no more than 2 sequential applications per year. As a first sequential application, apply 4 fl. oz. of this product per acre plus nonionic surfactant. A second sequential application of 2 to 4 fl. oz. per acre plus nonionic surfactant may be made approximately 45 days after the last application.

A tank mixture of this product plus Oust may be applied only on roadsides for seedhead inhibition and vegetative suppression. Apply 6 fl. oz. per acre of this product plus 0.25 ounce per acre of Oust, plus 0.5 to 1% nonionic surfactant by total spray volume 1 to 2 weeks following an initial spring mowing. When using this product plus Oust for suppression of bahiagrass, make only 1 application per year.

**CONDITIONS OF SALE AND WARRANTY**

**HELM AGRO US, INC. AND SELLER OFFER THIS PRODUCT AND THE BUYER AND USER ACCEPTS THIS PRODUCT UNDER THE FOLLOWING AGREED CONDITIONS OF SALE AND WARRANTY.**

The directions for use of this product are believed to be reliable and should be followed carefully. However, it is impossible to take into account all variables and to eliminate all risks associated with its use. Injury or damage may result because of conditions which are beyond the control of HELM AGRO US, INC. or the Seller. HELM AGRO US, INC. warrants only that this product conforms to the chemical description on the label and is believed to be reasonably fit for the purposes referred to in the Directions for Use when used as directed under normal conditions. HELM AGRO US, INC. MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS OR MERCHANTABILITY OR ANY OTHER EXPRESS OR IMPLIED WARRANTY. In no case shall HELM AGRO US, INC. or the Seller be liable for consequential, special or indirect damages resulting from the use or handling of this product. Any variation or exception from this warranty must be in writing and signed by an authorized HELM AGRO US, INC. representative.



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Washington, D.C. 20460

Re: Notification, Alternate Brand Name Helosate, EPA Reg. No. 74530-4

To Whom It May Concern:

By means of this letter and the attached Form 8570-1, we are notifying the Agency of the alternate brand name Helosate for our currently registered GLYFOX, EPA Reg. No. 74530-4. I am submitting a copy of the labeling with the name changes highlighted as specified in PR Notice 98-10, as well as a clean copy that I ask you to stamp and return to me for our records and to facilitate state registrations. No changes have been made to the content of this label other than to change the name throughout the text; words or lines may have moved in several instances only due to the new name.

If you have any questions, please contact me at 901-331-7431 or [jbetsher@prodigy.net](mailto:jbetsher@prodigy.net).

Sincerely,

Jeanine Betsher  
Director, Regulatory Affairs