

228-561

2-29-2008

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

OFFICE OF  
PREVENTION, PESTICIDES AND  
TOXIC SUBSTANCES

Mr. George Meindl  
Product Registration  
Nufarm Americas, Inc.,  
150 Harvester Drive, Suite 200  
Burr Ridge, IL 60527

FEB 29 2008

SUBJECT: Application for Pesticide Notification (PRN 98-10)  
Request Primary Brand Name "Trooper 101 Mixture Herbicide"  
EPA Reg. No. 228-561  
Application Dated February 6, 2008

Dear Mr. Meindl:

The Agency is in receipt of your Application for Pesticide Notification under Pesticide Registration Notice (PRN) 98-10 dated 02/06/08 for the above product. The Registration Division (RD) has conducted a review of this request for its applicability under PRN 98-10 and finds that the action(s) requested fall within the scope of PRN 98-10. The label submitted with the application has been stamped "Notification" and will be placed in our records.

If you have any questions, please call me directly at 703-305-6249 or Owen F. Beeder of my staff at 703-308-8899.

Sincerely,

A handwritten signature in black ink, appearing to read "Linda Arrington".

Linda Arrington  
Notifications & Minor Formulations Team Leader  
Registration Division (7505P)  
Office of Pesticide Programs

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Nufarm Americas, Inc.  
George Meindl  
Registration Manager  
150 Harvester Drive, Suite 200  
Burr Ridge, IL 60527  
Phone: 630.455-2017 Fax: 630.455.2030  
george.meindl@us.nufarm.com

February 6, 2008

Via Overnight Courier

Document Processing Desk (NOTIF)  
Office of Pesticide Programs (7504P)  
U. S. Environmental Protection Agency  
Room S-4900, One Potomac Yard  
2777 S. Crystal Drive  
Arlington, VA 22202

Subject: NUP06095 IVM Herbicide  
EPA Reg. No. 228-561  
Change primary brand name to  
Trooper™ 101 Mixture Herbicide

Dear Ms. Hobgood:

Nufarm Americas Inc. would like to make a change to the primary brand name for the subject registration. We would like the primary brand name for the subject registration to be: Trooper™ 101 Mixture Herbicide. We feel that this label change is permitted and consistent with PRN98-10 section II (Labeling notifications) part A (Changing primary brand name). The new primary brand name is not false and misleading.

To process this request please find enclosed the following:

- Application for Pesticide Registration (EPA form 8570-1)
- Final print labeling with new primary brand name (1 copy)

If you should have any questions regarding this matter, please feel free to contact me at 630.455.2017 or email at [george.meindl@us.nufarm.com](mailto:george.meindl@us.nufarm.com).

Sincerely,

George Meindl  
Registration Manager  
Nufarm Americas, Inc.



Please read instructions on reverse before completing form.

Form Approved. OMB No. 2070-0060

 <b>United States</b> <b>Environmental Protection Agency</b> Washington, DC 20460	<input type="checkbox"/> <b>Registration</b>	OPP Identifier Number  <hr/>
	<input type="checkbox"/> <b>Amendment</b>	
	<input checked="" type="checkbox"/> <b>Other</b>	

**Application for Pesticide - Section I**

<b>1. Company/Product Number</b> 228-561	<b>2. EPA Product Manager</b> Erik Kraft	<b>3. Proposed Classification</b> <input type="checkbox"/> None <input type="checkbox"/> Restricted
<b>4. Company/Product (Name)</b> Trooper 101 Mixture Herbicide	<b>PM#</b> 23	
<b>5. Name and Address of Applicant (Include ZIP Code)</b> Nufarm Americas, Inc. 150 Harvester Drive Suite 200 Burr Ridge, IL 60527  <input type="checkbox"/> Check if this is a new address		<b>6. Expedited Review.</b> 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"/> Resubmission in response to Agency letter dated _____  <input checked="" type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____ <input type="checkbox"/> "Me Too" Application.  <input type="checkbox"/> Other - Explain below.
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**Explanation:** Use additional page(s) if necessary. (For section I and Section II.)

Label notification consistent with PRN98-10, primary brand name change - see cover letter for detailed explanation. This notification is consistent with the provisions of PR Notice 98-10 and EPA regulations at 40 CFR 152.46, and no other changes have been made to the labeling or the confidential statement of formula of this product. I understand that it is a violation of 18 U.S.C. Sec. 1001 to willfully make false statements to EPA. I further understand that if this notification is not consistent with 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**

<b>1. Material This Product Will Be Packaged In:</b>					
<b>Child-Resistant Packaging</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Unit Packaging</b> <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Water Soluble Packaging</b> <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>2. Type of Container</b> <input type="checkbox"/> Metal <input type="checkbox"/> Plastic <input type="checkbox"/> Glass <input type="checkbox"/> Paper <input type="checkbox"/> Other (Specify) _____		
* Certification must be submitted		If "Yes" Unit Packaging wgt.    No. per container	If "Yes" Package wgt    No. per container		
<b>3. Location of Net Contents Information</b> <input type="checkbox"/> Label <input type="checkbox"/> Container		<b>4. Size(s) Retail Container</b>		<b>5. Location of Label Directions</b> <input type="checkbox"/>	
<b>6. Manner in Which Label is Affixed to Product</b>			<input checked="" type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled <input type="checkbox"/> Other _____		

**Section - IV**

<b>1. Contact Point</b> (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)		
<b>Name</b> George Meindl george.meindl@us.nufarm.com	<b>Title</b> Registration Manager	<b>Telephone No. (Include Area Code)</b> 630.455.2017
<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.		<b>6. Date Application Received</b> (Stamped)
<b>2. Signature</b> 	<b>3. Title</b> Registration Manager	
<b>4. Typed Name</b> George Meindl	<b>5. Date</b> 2/6/2008	

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# RESTRICTED USE PESTICIDE

May injure (Phytotoxic) Susceptible, Non-Target Plants. For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification. Commercial certified applicators must also ensure that all persons involved in these activities are informed of the precautionary statements.

# TROOPER™ 101 MIXTURE HERBICIDE

**A weed and brush herbicide for control of unwanted annual and perennial broadleaf weeds, woody plants and vines on forest planting sites and non-crop areas including industrial, manufacturing, and storage sites, rights-of way, such as electrical power lines, communication lines, pipelines, highways, railroads, and wildlife openings in forest and non-crop areas.**

**ACTIVE INGREDIENTS:**

Picloram: 4-amino-3,5,6-trichloropicolinic acid, triisopropanolamine salt*	10.2%
2,4-dichlorophenoxyacetic acid, triisopropanolamine salt**	39.6%
<b>OTHER INGREDIENTS:</b>	<b>50.2%</b>
<b>TOTAL:</b>	<b>100.0%</b>

**Acid equivalents:**

*Picloram: 4-amino-3,5,6-trichloropicolinic acid	5.7%, 0.54 lb/gal
**2,4-dichlorophenoxyacetic acid	21.2%, 2.00 lb/gal

## 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.)

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

EPA REG. NO. 228-561  
EPA EST. NO.

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



NET CONTENTS:

00228-00561.20080204.EPA  
NUP-06095IVM

**PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS AND DOMESTIC ANIMALS  
WARNING - AVISO**

Causes substantial but temporary eye injury. Harmful if swallowed. Do not get in eyes or on clothing. Wear protective eyewear (goggles, face shield or safety glasses). Prolonged or frequent repeated skin contact may cause allergic reactions in some individuals.

**PERSONAL PROTECTIVE EQUIPMENT (PPE):**

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category C on an EPA chemical resistance category selections chart.

**All mixers, loaders, applicators, flaggers and other handlers must wear:**

- Long-sleeved shirt and long pants
- Chemical resistant gloves such as Barrier Laminate, Butyl Rubber, Nitrile Rubber, Neoprene Rubber, Polyvinyl Chloride (PVC), or Viton
- Shoes plus socks
- Protective eyewear
- Chemical resistant apron must be worn when mixing or loading, cleaning up spills or otherwise exposed to the concentrate

**For containers of over 1 gallon, but less than 5 gallons:** Mixers and loaders who do not use a mechanical system (such as probe and pump) to transfer the contents of this container must wear coveralls or a chemical-resistant apron in addition to other required PPE.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry. After each day of use, clothing or PPE must not be reused until it has been cleaned.

**Engineering Controls**

**For containers of 5 gallons or more:** Do not open pour product from this container. A mechanical system (such as probe and pump or spigot) must be used for transferring the contents of this container. If the contents of a non-refillable pesticide container are emptied, the probe must be rinsed before removal. If the mechanical system is used in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4)], the handler PPE requirements may be reduced or modified as specified in the WPS.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the WPS [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS. Pilots must use an enclosed cockpit that meets the requirements listed in the WPS for agricultural pesticides [40 CFR 170.240(d)(6)].

<b>USER SAFETY RECOMMENDATIONS</b>	
<b>Users Should:</b>	
<ul style="list-style-type: none"> <li>• Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.</li> <li>• Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.</li> <li>• Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.</li> </ul>	

<b>FIRST AID</b>	
<b>IF IN EYES</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15 to 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 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 the poison control center or doctor.</li> <li>• Do not give anything by mouth to an unconscious person.</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 by mouth-to-mouth, if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>

<b>HOT LINE NUMBER</b>
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-877-325-1840 for emergency medical treatment information.

<b>NOTE TO PHYSICIAN</b>
Probable mucosal damage may contraindicate the use of gastric lavage.

**ENVIRONMENTAL HAZARDS**

This pesticide is toxic to fish and aquatic invertebrates. This pesticide is toxic to some plants at very low concentrations. Non-target plants may be adversely affected if pesticide is allowed to drift from areas of application. 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 or rinsate. Do not contaminate water used for irrigation or domestic purposes by cleaning of equipment or disposal of wastes. Do not allow run-off or spray to contaminate wells, irrigation ditches, or any body of water used for irrigation or domestic purposes. Do not make application when circumstances favor movement from treatment site. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. Application around cistern or well may result in contamination of drinking water or ground water.

Picloram is known to leach through soil into ground water under certain conditions as a result of agricultural use. 2,4-D has properties and characteristics associated with chemicals detected in groundwater. Use of these chemicals in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

Picloram can contaminate surface water through spray drift. Under some conditions, picloram may also have a high potential for runoff into surface water (primarily via dissolution in runoff water) for several months post-application. These include poorly draining or wet soils with readily visible slopes toward adjacent surface waters, frequently flooded areas, areas over-laying extremely shallow ground water, areas with in-field canals or ditches that drain to surface water, areas not separated from adjacent surface waters with vegetated filter strips, and areas overlaying tile drainage systems that drain to surface water.

Most cases of groundwater contamination involving phenoxy herbicides such as 2,4-D have been associated with mixing/loading and disposal sites. Caution should be exercised when handling 2,4-D pesticides at such sites to prevent contamination of groundwater supplies. Use of closed systems for mixing or transferring this pesticide will reduce the probability of spills. Placement of the mixing/loading equipment on an impervious pad to contain spills will help prevent groundwater contamination.

**PHYSICAL AND CHEMICAL HAZARDS**

**Combustible** - Do not use or store near heat or open flame.

Notice: Read the entire label. Use only according to label directions.

Agricultural Chemical: Do not ship or store with food, feeds, drugs or clothing.

**DIRECTIONS FOR USE**

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Read all Directions for Use carefully before applying.

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

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

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

**AGRICULTURAL USE REQUIREMENTS**

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

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

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water is: coveralls, shoes plus socks, chemical resistant gloves made of any waterproof material, such as polyvinyl chloride, nitrile rubber, or butyl rubber, and 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.

Entry Restrictions for Non-WPS Uses: Do not enter or allow people or pets to enter the treated area until sprays have dried.

**GENERAL INFORMATION**

Every 2 years starting January 1, 2008 the registrant will offer training to applicators which will cover application techniques and product stewardship particular to their use(s) of this product. Applicators of this product must be able to provide certification of such training on demand to the State, Tribal or Federal enforcement agent.

This product is a water-soluble liquid product containing picloram and 2,4-D. Use this product in forest planting sites and non-cropland area including industrial manufacturing and storage sites, rights-of-way, such as electrical power lines, communication lines, pipelines, highways, railroads, and wildlife openings in forest and non-crop areas to selectively control many unwanted annual and perennial broadleaf weeds, woody species and vines listed on this label.

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Herbicidal effects of this product occur primarily from uptake by plant foliage and translocation throughout the plant, however, secondary herbicidal activity may occur from soil uptake of picloram. Very small amounts can kill or damage broadleaf plants. To prevent damage to crops and other desirable plants, carefully follow all directions and precautions.

### PRECAUTIONS AND RESTRICTIONS

**Be sure that use of this product conforms to all applicable regulations:** Observe any special use and application restrictions and limitations, including method of application and permissible areas of use as required by state or local regulations. When used in tank mix combination with other products, follow all applicable use directions, precautions, restrictions, and limitations on the labels of each product used.

#### Maximum Use Rates:

Total amount used of this product must not exceed 8 quarts per acre per annual growing season on rights-of-way and other non-crop areas.

Total amount used of this product must not exceed 8 quarts per acre within a period of 2 annual growing seasons on forest sites.

Maximum rate of 4 quarts (2 lbs 2,4-D active ingredient) per application, with a maximum of 2 applications per year for non-crop annual and perennial weeds. Minimum of 30 days between applications.

Maximum rate of 8 quarts (4 lbs 2,4-D active ingredient) per application, maximum 1 application per year for non-crop woody plants and forestry uses.

#### Application Rate Ranges:

For broadleaf weed control, use this product at rates of 1 to 4 quarts per acre.

For woody plants and vines control, use this product at rates between 1 to 2 gallons per acre.

For mixed woody plants and vines control, this product may be tank mixed with Tahoe® 3A or Tahoe® 4E (triclopyr herbicides), or 4 lb./gal. 2,4-D low-volatile esters registered for sites listed on this label. When tank mixing, observe all precautions, directions, and limitations on both products' labeling. In all cases use the amounts specified in enough water to give thorough and uniform coverage of the plants to be controlled.

NOTE: This product does not mix readily with oil. Use of a non-ionic agricultural surfactant, such as Ortho X-77, Triton AG-98, or Tronic, is recommended for all applications. When using surfactants, follow the use directions and precautions listed on the surfactant manufacturer's label. Use the higher recommended concentrations of surfactant in the spray mixture when applying lower spray volumes per acre.

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

**Do not make application when circumstances favor movement from treatment site.**

**Do not rotate crops intended for food or feed use** on treated land if they are not registered for use with picloram until an adequately sensitive bioassay or chemical test shows that soil residues of picloram are no longer detectable.

On areas treated with this product, do not rotate to crops intended for food or feed use, other than grasses, rye, forage sorghum, sudangrass, wheat, barley or oats not underseeded with a legume.

**Do not mix** with dry fertilizer.

**Do not use on sub-irrigated land.**

**Do not move treated soil, or use treated soil for growing other plants** until soil residues of picloram are no longer detectable as indicated by an adequately sensitive bioassay or chemical test.

**Do not spray if the injury to existing legumes cannot be tolerated.** This product may injure or kill legume plants. New seeding of legumes may not be successful if made within two years following application of this product.

**Grazing Restrictions:** There are no grazing restrictions for non-lactating dairy animals or other livestock including horses, sheep, goats and other animals in the treatment area. Do not allow lactating dairy animals to graze treated areas within 7 days after application. Do not harvest grass cut for hay from treated areas for 30 days after application. Meat animals must be withdrawn from treated forage at least 3 days before slaughter.

**Do not transfer livestock** from treated grazing areas to broadleaf crop areas without first allowing 7 days of grazing on an untreated grass pasture. Otherwise, urine may contain enough picloram to cause injury to sensitive broadleaf plants.

**Do not use manure** from animals grazing treated areas on land used for growing broadleaf crops, ornamentals, orchards, or other susceptible, desirable plants. Manure may contain enough picloram to cause injury to susceptible plants.

**Do not use plant material from treated areas** for composting or mulching of susceptible broadleaf plants.

**Do not contaminate water intended for irrigation or domestic purposes.** To avoid injury to crops or other desirable plants, do not treat or allow spray drift or run-off to fall onto banks or bottoms of irrigation ditches, either dry or containing water, or other channels that carry water that may be used for irrigation or domestic purposes. Do not apply to snow or frozen ground.

**Do not apply or otherwise permit this product or sprays containing this product to contact crops or other desirable broadleaf plants** including, but not limited to alfalfa, beans, cotton, grapes, melons, peas, potatoes, safflower, soybeans, sugar beets, sunflower, tobacco, tomatoes, and other vegetable crops, flowers, fruit plants, ornamentals and shade trees.

**Do not apply this product on residential or commercial lawns or near ornamental trees and shrubs.** Untreated trees can occasionally be affected by root uptake or herbicide through movement into the top soil or by excretion of the product from the roots of nearby treated trees. Do not apply this product within the root zone of desirable trees unless such injury can be tolerated.

**Avoid injury to newly planted conifers.** Conifer planting intervals vary. Pines planted sooner than 6 months after treatment with this product may be injured in the south or west of the Cascade Mountains. Other conifers, west of the Cascade Mountains, may be injured if planted sooner than 8 to 9 months after treatment. For all conifers, the waiting period treatment and planting should be 11 to 12 months in the area between the Cascade and Rocky Mountains and 8 to 9 months in the Great Lake States and the Northeastern United States.

**Avoid injurious spray drift:**

Applications should be made to avoid spray drift because very small quantities of the spray that may not be visible may severely injure susceptible crops during both growing and dormant periods. To minimize spray drift:

1. Use nozzle pressures no greater than are required to obtain a proper spray pattern for adequate coverage of target plants.
2. Apply as a coarse spray.
3. Use nozzles designed for herbicide application that do not produce a fine droplet spray.
4. Spray when wind velocity is low. Follow local state regulations. Avoid application under conditions which are conducive to air inversions or conditions of atmospheric temperature inversion.

When making applications near susceptible crops, spray drift may be further lessened by using a drift control system such as Microfoil, Thru-Valve boom (or equivalent) or a drift control agent such as Nalco-Trol (or equivalent). If a drift control additive is used, follow all use directions and precautions on the product label.

It is suggested that a continuous smoke column at or near the spray site or a smoke generator on the spray equipment be used to detect air movement, lapse conditions, or temperature inversions (stable air). If the smoke layers or indicates a potential of hazardous spray drift, do not spray.

**Avoid spray drift via Ground Equipment:** With ground equipment, spray drift may be lessened by thickening (higher viscosity) spray mixtures by adding a drift control additive as directed by the manufacturer; by keeping the spray boom as low as possible; by keeping the operating spray pressures at the manufacturers recommended minimum pressures for the specific nozzle types used (low pressure nozzles are available from spray equipment manufacturers). In hand-gun applications such as high volume leaf-stem treatment, spray drift may be minimized by selecting the minimum pressure that will provide adequate coverage (without forming a mist); by spraying no higher than brush tops. Do not apply this product with a mistblower.

**Avoid spray drift via Aerial Application:** Avoid spray drift at the application site. The interaction of many equipment-and-weather-related factors determine the potential for spray drift. Users are responsible for considering all these factors when making decisions.

The following drift management requirements must be followed to avoid off-target drift movement from aerial applications:

1. The distance of the outer most operating 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 must be observed.

The applicator should be familiar with and take into account the information covered in the following Aerial Drift Reduction Advisory. [This information is advisory in nature and does not supersede mandatory label requirements.]

### Aerial Drift Reduction Advisory

**Information On Droplet Size**

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

**Controlling Droplet Size**

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

**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 exposure of droplets to evaporation and wind.

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

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

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

**Determine Air Movement and Direction Before Making Foliar Applications:** Do not spray when wind is blowing toward susceptible crops or ornamental plants near enough to be injured. It is suggested that a continuous smoke column at or near the spray site or a smoke generator on the spray equipment be used to detect air movements, lapse conditions, or temperature inversions (stable air). If the smoke layers or otherwise indicates a potential for hazardous spray drift, do not spray.

PLANTS CONTROLLED BY THIS PRODUCT					
Annual/Perennial Weed Species			Woody Plants and Vines		
bindweed, field	knapweed	thistles	ailanthus	fir, balsam	persimmon
bouncingbet	milkweed	toadflax	alder	gorse	pine
carrot, wild	plantain	vetch	aspen	gum	poison oak
chicory	prickly lettuce		birch	hemlock	sassafras
clover	ragweed		blackberry	hickory	sourwood
dandelion	ragwort, tansy		bracken fern	honeysuckle	spruce
dock	rush skeleton weed		buttonbrush	kudzu	sumac
fleabane	sowthistle		cherry	locust	tulip poplar
goldenrod	spurge, leafy		Douglas fir	maple	wild rose
horsenettle	starthistle, yellow		elm	oak	willow

**SPECIFIC USE DIRECTIONS**

High Volume Leaf-Stem Treatment	
Specific Application	Specific Use Directions
For broadleaf weeds; vines; other woody plants	Apply this product at a rate of 4 quarts in water to make 100 gallons of spray. Apply spray mixture in a manner which thoroughly wets all leaves, stems, and root collars.
For controlling a wider range of plant species	Mix 1 to 2 quarts of product with: 1 to 4 quarts of Tahoe® 3A (triclopyr herbicide) OR 1 to 3 quarts of Tahoe® 4E (triclopyr herbicide) OR 4 lb/gal 2,4-D low-volatile ester AND dilute to make 100 gallons of spray. Apply after the foliage is well developed and in a manner to give thorough spray coverage.
For woody plants	Apply spray mixture in a manner which thoroughly wets all leaves, stems, and root collars.
For hard-to-kill species, such as ash and oak	Apply spray mixture in a manner which thoroughly wets all leaves, stems, root collars and soil around the root collars.
The amount of spray mixture applied per acre will vary with plant size and density. Do not allow the spray, even as minute amounts of spray drift, to contact desirable broadleaf plants, and do not wet the soil over roots of such plants. <b>NOTE:</b> The total use of this product must not exceed 8 quarts per acre.	

<b>Modified High Volume Leaf-Stem Treatment</b>	
<b>Specific Application</b>	<b>Specific Use Directions</b>
For woody brush	Apply this product at a rate of 2 to 4 quarts in water to make 100 gallons of spray. Apply spray mixture in a manner which thoroughly wets all leaves, stems, and root collars.
For controlling a wider range of plant species	Mix 2 to 4 quarts of product with: 1 to 4 quarts of Tahoe® 3A (triclopyr herbicide) or                  1 to 3 quarts of Tahoe® 4E (triclopyr herbicide) and dilute to make 100 gallons of spray. Apply after the foliage is well developed and in a manner to give thorough spray coverage.
The amount of spray mixture applied per acre will vary with plant size and density. Use a total amount of spray mixture applied per acre is 40 to 60 gallons. <b>NOTE:</b> The total use of this product must not exceed 8 quarts per acre.	

<b>Broadcast Ground or Aerial Foliage Treatments</b>	
<b>For Ground Applications:</b> In order to obtain adequate plant coverage, apply this product in 15 or more gallons of total spray mixture per acre. <b>For Aerial Applications:</b> In order to obtain adequate plant coverage, apply this product in 5 to 20 gallons of total spray mixture per acre. Use higher spray volumes where plants are tall, where the vegetation to be treated is dense, or where difficult to control species are present.	
<b>Specific Application</b>	<b>Specific Use Directions</b>
For broadleaf annual and perennial weeds and woody vine control	Apply this product at a rate of 2 to 4 quarts per acre for non-cropland and 2 to 8 quarts per acre for forestry in a water spray mixture. Apply to problem weeds and vines any time after growth begins in the spring and late in summer or fall.
For seasonal control of vigorously growing stands of field bindweed, Canada thistle, or mixtures of these with susceptible annual weeds such as ragweed, dandelion, plantain, clovers, and dock	Mix 2 to 3 quarts of this product per acre in water spray.
In arid areas and for control of more resistant perennial weeds	Apply this product at a rate of 4 to 8 quarts per acre for forestry uses and at a rate of up to 4 quarts for non-cropland use. Use 4 to 6 quarts per acre to control species such as Canada thistle, field bindweed, and milkweed for forestry uses. Use up to 4 quarts for non-cropland use. The higher rates should be used under drought stress conditions and for the more resistant species such as bouncingbet, leafy spurge, toadflax, and woody vines. The spectrum of activity can be improved by tank mixing 2 to 4 quarts of this product with 1.33 to 4 quarts of Tahoe® 3A (triclopyr herbicide) or 1 to 3 quarts of Tahoe® 4E (triclopyr herbicide) per acre.
For woody plant control	Apply this product at a rate of 4 to 8 quarts per acre in water spray mixture.
For susceptible seedling stages of species such as aspen, cherry, and sumac	Apply this product at a rate of 4 to 6 quarts per acre in water spray mixture.
For more mature and/or less susceptible species such as Poison oak, blackberries, Douglas fir, willow, buttonbush, black locust, sassafras, sumac, tulip poplar, and cherry	Apply this product at a rate of 8 quarts per acre in water spray mixture.
For more resistant brush such as maple, pine sownwood, blackgum, cedar, and oak, and to improve the spectrum of species controlled.	Apply by tank mixing 4 to 8 quarts of this product per acre with 2 to 8 quarts of Tahoe® 3A (triclopyr herbicide) or Tahoe® 4E (triclopyr herbicide) or 4 lb./gal 2,4-D low-volatile es.e..
<b>NOTE:</b> For best results under conditions of drought stress, use the rate at the higher end of the rate range. Even these rates under such conditions may not be as effective as the lower rates under good growing conditions.	

<b>Broadcast Treatments for Forest Site Preparation (not for conifer release)</b>	
<p>For broadcast applications, apply the specified rate of this product in a total spray volume of 5 to 25 gallons per acre by air or 10 to 100 gallons per acre by ground. Use spray volumes sufficient to provide thorough coverage of treated foliage. Use applications systems designed to prevent spray drift to off-target sites. Nozzles or additives that produce larger droplets may require higher spray volumes to provide adequate coverage.</p> <p>NOTE: This use is not intended for conifer release (see precautions).</p>	
<p><b>Southern States</b> Including Alabama, Arkansas, Delaware, Georgia, Louisiana, Maryland, Mississippi, North Carolina, Tennessee, Texas, and Virginia</p>	
Specific Application	Specific Use Directions
For control of susceptible woody plants and broadleaf weeds	Apply this product at a rate of 6 to 8 quarts per acre.
For control of a broadened spectrum of woody plants and broadleaf weeds	Apply this product at a rate of 6 to 8 quarts per acre in a tank mix combination with 2 to 4 quarts per acre of Tahoe® 4E (triclopyr herbicide). Where grass control is also desired, this product alone or in combination with Tahoe® 4E may be tank mixed with 1 to 4 quarts per acre of Razor® herbicide, or 8 to 16 fluid ounces per acre of Polaris® AC.
For control of susceptible woody plants, broadleaf weeds and grasses	Apply this product at a rate of 6 to 8 quarts per acre in a tank mix combination with 3 to 5 quarts per acre of Razor®, or 16 to 24 fluid ounces per acre of Polaris® AC.
<p><b>In Western, Northeastern, North Central and Great Lake States (States not listed above as Southern States)</b></p>	
Specific Application	Specific Use Directions
For control of susceptible woody plants and broadleaf weeds	Apply this product at a rate of 4 to 8 quarts per acre.
For control of a broadened spectrum of woody plants and broadleaf weeds	Apply this product at a rate of 4 to 8 quarts per acre in a tank mix combination with 1-1/2 to 3 quarts per acre of Tahoe® 4E (triclopyr herbicide). Where grass control is also desired, this product alone or in combination with Tahoe® 4E may be applied with 1 to 3 quarts per acre of Razor herbicide, 2 to 4 fluid ounces of Oust, a combinations of Razor® plus Oust® at the rates listed, or 8 to 16 fluid ounces per acre of Polaris® AC.
<p>NOTE: When applying tank mixes, follow the use directions and precautions on each product label.</p>	

<b>Conifer Strip Thinning in the Northeastern United States</b>	
Specific Application	Specific Use Directions
To thin strands of naturally regenerated spruce and fir by applying herbicide in treated bands or strips which alternate with untreated bands or strips	Apply this product such that the rate in the treated bands or strips is 2 gallons of herbicide in a total spray mixture volume of 12 to 20 gallons. For best results, apply during the period of active conifer growth. To obtain the precise placement of spray mixture in the treated bands that is required for this technique, aerial applications should be made using a helicopter equipped with a Microfoil or Thru-Valve boom. Multiple treated bands may be obtained within a single spray swath by establishing alternating series of flowing and blocked spray nozzles.
<p>NOTE: Injury or death of desired residual conifers may result if spray mixture is permitted to contact their foliage as a result of inaccurate light guidance during aerial application or as a result of spray drift from treated into untreated strips.</p>	

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<b>Cut Surface Treatments</b>	
<p>In forest and other non-crop areas to kill unwanted trees such as elm, maple, oak, and pine apply this product, either diluted or undiluted in a 1:1 ratio with water, as directed below. The below methods may be used successfully at any season except during periods of heavy sap flow of certain species, such as maples, or during drought periods. Untreated trees within a few feet of the treated trees or stumps may be injured or killed.</p>	
Specific Application	Specific Use Directions
With Tree Injector Method	<p>Application should be made by injecting 1/2 milliliter of undiluted product or 1 milliliter of the diluted solution through the bark at intervals of 3 inches between edges of the injector wound. The injections should completely surround the tree at any convenient height.</p> <p><b>NOTE:</b> No Worker Protection Standard worker entry restrictions or worker notification requirements apply when this product is directly injected into agricultural plants.</p>
With Frill or Girdle Method	<p>Make a single girdle through the bark completely around the tree at a convenient height, wet the cut surface with the diluted solution.</p>
Stump Treatment	<p>Spray or paint to wet the cut surfaces of freshly cut stumps or stubs with this product diluted or undiluted with a ratio of 1:1 in water. All of the cambium area next to the bark is the most vital area to wet.</p>

<b>Broadcast Cut Stubble Treatment</b>	
Specific Application	Specific Use Directions
<p>To prevent resprouting of susceptible woody species, after mowing or hand-cutting on non-crop areas and rights-of-way</p>	<p>Apply this product at a rate of 2 gallons per acre in 25 or more gallons of a water spray mixture.</p> <p>Best results may be obtained when applications are made before or during periods of active root growth. Do not make applications when the soil surface is frozen or covered in snow or standing water. Make applications soon after cutting, before sprouting of woody species has occurred.</p>

<b>STORAGE AND DISPOSAL</b>
<p>Do not contaminate water, food, fertilizer, or feed by storage or disposal.</p> <p><b>PESTICIDE STORAGE:</b> Keep container tightly closed when not in use. If exposed to subfreezing temperatures, the product should be warmed to at least 40°F and mixed thoroughly before using.</p> <p><b>PESTICIDE DISPOSAL:</b> Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law and may contaminate groundwater. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the nearest Environmental Protection Agency Regional Office for guidance.</p> <p><b>CONTAINER DISPOSAL:</b> Do not reuse container. Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incinerator, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.</p> <p>Consult federal, state, or local disposal authorities for approved alternative procedures.</p> <p><b>SPRAYER CLEAN-OUT:</b> To avoid injury to desirable plants, equipment used to apply this product should be thoroughly cleaned before reusing to apply any other products.</p> <p>A) Rinse and flush application equipment thoroughly after use. Dispose of rinse water in non-cropland area away from water supplies.</p> <p>B) Rinse again, adding 1 quart of household ammonia for every 25 gallons of water. Circulate the solution through the entire system for about 15 to 20 minutes so that all internal surfaces are contacted. Let the solution stand for several hours, preferably overnight.</p> <p>C) Flush the solution out of the spray tank through the boom.</p> <p>D) Rinse the system twice with clean water, recirculating and draining each time.</p> <p>E) Nozzles and screens should be removed and cleaned separately.</p>

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