

1381-247

3/8/2012

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

OFFICE OF  
CHEMICAL SAFETY AND  
POLLUTION PREVENTION

Alice Walker, Ph.D.  
Winfield Solutions, LLC  
P.O. Box 64589  
St. Paul, MN 55164

MAR - 8 2012

Subject: Label Amendment to remove petroleum distillate precautionary language  
Product Name: Rugged Herbicide  
EPA Reg. No. 1381-247  
Decision No. 457303

Dear Dr. Walker:

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, is acceptable.

One copy of the label stamped "Accepted" is enclosed for your records. Products shipped after 18 months from the date on this notice or the next printing of the label, whichever occurs first, must bear the new revised label. Amended labeling will supersede all previously accepted ones. Submit one (1) copy of final printed labeling before you release the product for shipment. Assure that the EPA establishment number and net contents are added to the final printed labeling.

If you have questions or concerns regarding this letter, please contact Beth Benbow at (703) 347-8072 or email at [benbow.bethany@epa.gov](mailto:benbow.bethany@epa.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Kathryn V. Montague".

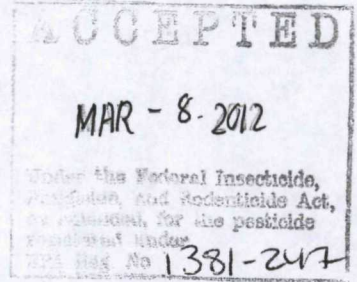
Kathryn V. Montague  
Product Manager 23  
Herbicide Branch  
Registration Division (7505P)



2/22



# RUGGED™ Herbicide



**ACTIVE INGREDIENT:**

2,4-Dichlorophenoxyacetic Acid\* ..... 38.4%

**OTHER INGREDIENTS:** ..... 61.6%

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

\*Contains 3.49 lbs. of 2,4-dichlorophenoxyacetic acid per gallon.

**KEEP OUT OF REACH OF CHILDREN**

**DANGER PELIGRO**

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 some one to explain it to you in detail.)

**PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS AND DOMESTIC ANIMALS  
DANGER**

Corrosive. Causes irreversible eye damage. Harmful if absorbed through skin or swallowed. Do not get in eyes or on clothing. Wear protective eyewear (goggles, face shield, or safety glasses). Avoid contact with skin.

**FIRST AID**

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

**IF ON SKIN or CLOTHING:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

**IF SWALLOWED:** Call a poison control center or doctor immediately for treatment advice. Have person sip glass of water if able to swallow. Do not induce vomiting unless told to by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

Have the product container or label with you when calling a poison control center or doctor or going for treatment. For additional information in case of medical emergency call toll free 1-877-424-7452.

For additional Precautionary Statements see inside booklet.

EPA Reg. No. 1381-247

EPA Est. No.

Distributed by  
Winfield Solutions, LLC  
P.O. Box 64589, St. Paul MN 55164-0089

NET CONTENTS

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**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Some materials that are chemical-resistant to this product are made of waterproof materials such as barrier laminate, butyl rubber, nitrile rubber or viton. If you want more options, follow the instructions for category A on an EPA chemical-resistance category selection chart.

ALL mixers, loaders, applicators, flaggers and other handlers must wear:

- Protective eyewear.
- Long-sleeved shirt and long pants.
- Shoes plus socks.
- Chemical-resistant gloves.
- Chemical-resistant apron for mixing, loading, cleaning up spills or equipment, or otherwise exposed to the concentrate.

See engineering controls for additional requirements.

Discard clothing or 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 or 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's use, clothing or PPE must not be reused until it has been cleaned.

**ENGINEERING CONTROLS STATEMENT**

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

When handlers use closed systems, enclosed cabs, or aircraft, in a manner that meets the requirements listed in the 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.

**USER SAFETY RECOMMENDATIONS**

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. If pesticide gets on skin, wash immediately with soap and water.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

**ENVIRONMENTAL HAZARDS**

This product may be toxic to fish and aquatic invertebrates. For terrestrial uses: Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark except as noted elsewhere on this label. Drift and runoff may be hazardous to aquatic invertebrates and non-target plants in water adjacent to treated areas. Do not contaminate water when disposing of equipment washwaters or rinsate.

For aquatic uses: Fish breathe dissolved oxygen in the water and decaying weeds also use oxygen. When treating continuous, dense weed masses, it may be appropriate to treat only part of the infestation at a time. For example, apply the product in lanes separated by untreated strips that can be treated after vegetation in treated lanes has disintegrated. During the growing season, weeds decompose in a 2 to 3 week period following treatment. Begin treatment along the shore and proceed outwards in bands to allow fish to move into untreated areas. Waters having limited and less dense weed infestations may not require partial treatments.

This chemical has properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination. Application around a cistern or well may result in contamination of drinking water or groundwater.



Most cases of groundwater contamination involving phenoxy herbicide 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 and transferring this pesticide will reduce the probability of spills. Placement of mixing/loading equipment on an impervious pad to contain spills will help prevent groundwater contamination.

**DIRECTIONS FOR USE**

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

Use of this product in certain portions of California, Oregon and Washington is subject to the January 22, 2004 Order for injunctive relief in Washington Toxics Coalition, et al. v. EPA, C01-0132C, (W.D. WA). For further information, please refer to EPA Web Site: <http://www.epa.gov/espp>.

**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 statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box apply only to those 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.
- 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.

Do not enter or allow people (or pets) to enter the treated area until sprays have dried.

**USE DIRECTIONS**

Unless noted otherwise under individual **DIRECTIONS** section, for aerial application, apply the specified amount in a minimum of 2 gallons of water per acre. For ground application, apply the specified amount in a minimum of 5 gallons of water per acre. Use more water for both methods when adverse growing conditions are present.

**Band Treatment:** If only bands or rows are treated, leaving middles untreated, the dosage and spray volume per crop acre are reduced proportionately. For example, treating a 12-inch band where the row spacing is 36 inches would require 1/3 of the specified broadcast rate per acre (12 inches divided by 36 inches = 1/3).

$$\frac{\text{Band width in inches}}{\text{Row width in inches}} \times \text{Broadcast volume per acre} = \text{Band volume per acre}$$

**Restrictions For All Uses:**

**DO NOT** apply with high spray pressures, hollow cone or other nozzle types that produce small spray droplets which may drift. Avoid spray drift by making applications when conditions such as wind, air stability and temperature inversions are not a factor. The use of a suitable drift control agent at the proper rate will aid in the reduction of spray drift. Apply when weather is warm



and plants are rapidly growing. Cold weather or dry conditions may cause poor results. **DO NOT** apply if rain is expected within 6 hours. Consult your local agronomist or Extension specialist for specific use and crop tolerance situations. Do not apply this product through any type of irrigation system.

**SPRAY DRIFT MANAGEMENT**

A variety of factors including weather conditions (e.g., wind direction, wind speed, temperature, and relative humidity) and method of application (e.g., ground, aerial, airblast) can influence pesticide drift. The applicator must evaluate all factors and make appropriate adjustments when applying this product.

**Droplet Size**

When applying sprays that contain 2,4-D as the sole active ingredient, or when applying sprays that contain 2,4-D mixed with active ingredients that require a Coarse or coarser spray, apply only as a Coarse or coarser spray (ASAE standard 572) or a volume mean diameter of 385 microns or greater for spinning atomizer nozzles.

When applying sprays that contain 2,4-D mixed with other active ingredients that require a Medium or more fine spray, apply only as a Medium or coarser spray (ASAE standard 572) or a volume mean diameter of 300 microns or greater for spinning atomizer nozzles.

**Wind Speed**

Do not apply at wind speeds greater than 15 mph. Only apply this product if the wind direction favors on-target deposition and there are not sensitive areas (including, but not limited to, residential areas, bodies of water, known habitat for non-target species, non-target crops) within 250 feet downwind. If applying a Medium spray, leave one swath unsprayed at the downwind edge of the treated field.

**Temperature Inversions**

If applying at wind speeds less than 3 mph, the applicator must determine if:  
a) conditions of temperature inversion exist, or  
b) stable atmospheric conditions exist at or below nozzle height. Do not make applications into areas of temperature inversions or stable atmospheric conditions.

**Susceptible Plants**

Do not apply under circumstances where spray drift may occur to food, forage, or other plantings that might be damaged or crops thereof rendered unfit for sale, use or consumption. Susceptible crops include, but are not limited to, cotton, okra, flowers, grapes (in growing stage), fruit trees (foliage), soybeans (vegetative stage), ornamentals, sunflowers, tomatoes, beans, and other vegetables, or tobacco. Small amounts of spray drift that might not be visible may injure susceptible broadleaf plants.

**Other State and Local Requirements**

Applicators must follow all state and local pesticide drift requirements regarding application of 2,4-D herbicides. Where states have more stringent regulations, they must be observed.

**Equipment**

All aerial and ground application equipment must be properly maintained and calibrated using appropriate carriers or surrogates.

*Additional requirements for aerial applications:*

The boom length must not exceed 75% of the wingspan or 90% of the rotor blade diameter. Release spray at the lowest height consistent with efficacy and flight safety. Do not release spray at a height greater than 10 feet above the crop canopy unless a greater height is required for aircraft safety. This requirement does not apply to forestry or rights-of-way applications. When applications are made with a crosswind, the swath will be displaced downwind. The applicator must compensate for this by adjusting the path of the aircraft upwind.

*Additional requirements for ground boom application:*



Do not apply with a nozzle height greater than 4 feet above the crop canopy.

**WEED LIST**

**RUGGED Herbicide** will control these plants and other 2,4-D susceptible species:

**ANNUAL AND BIENNIAL WEEDS**

Annual fanweed (field pennycress), annual yellow sweet clover, \* beggarticks, bull thistle, burdock, carpetweed, chickweed, cocklebur, coffeeweed, common mullein, common evening primrose, cornflower, croton, flixweed, galinsoga, goatsbeard, hemp, henbit, jewelweed, jimsonweed \* knotweed, lambsquarters, mallow (Venice, dwarf, little), marshelder, morningglory (common, ivy, wooly) musk thistle, mustards (except blue), pennycress, pepperweed (field), \*\* pigweeds, poorjoe (wooly plantain), \* prickly lettuce, puncturevine, purslane, ragweed (common, giant), rough fleabane, rush, Russian thistle, salsify, sheperdspurse, \* stinkweed, \* smartweeds (annual), sowthistle (annual or spiny), sunflower, tansymustard, tumbleweed, \* velvetleaf, vetches, water primrose, \* wild carrot, wild lettuce, wild parsnips, wild radish, wild sweet potato.

**PERENNIAL WEEDS**

\* Volunteer alfalfa, \* bindweeds (hedge, field and European), blue lettuce, \* broom snakeweed, buckhorn plantain, buttercup, \* Canada thistle, catnip, chamise, chicory, climbing milkweed, common duckweed, curly indigo, \* dandelion, \* docks, \* dogbanes, \* goldenrod, \* ground ivy, \* hawkweed (orange), \* hoary cress, \* Jerusalem artichoke, locoweed, \* many-flowered aster, milkvetch, \* nettles, nutgrass, plantains, poison ivy, pokeweed, sheep sorrel, sicklepod, sneezeweed (bitter), sowthistle (perennial), \* tansy ragwort, \* vervains, \* wild garlic, \* wild onion, witchweed, wormwood, yellow rocket, yellow starthistle.

**\* BRUSH**

Boxelder, buckbrush, coyotebrush, elderberry, manzanita, rabbitbrush, sagebrush (coastal, big, sand), sand shinnery oak, sumac, willow.

**AQUATIC WEEDS**

Alligatorweed, Eurasian water milfoil, parrotfeather, water hyacinth, water lily, water primrose

\* These partially controlled species may require repeat treatments and/or the higher rate. \*\* Control of pigweeds in the Texas and Oklahoma High Plains may be difficult.

**Resistant Weeds:** This product will not provide adequate control of known resistant weeds. For a list of these weeds in your area, check with your local agronomist, university or extension service.

**MIXING INSTRUCTIONS**

**WATER BASED SPRAY:** Fill the equipment half full of water, agitate while adding this product; then add the rest of the water.

**COMPATIBILITY:** Before full-scale mixing of this product with other herbicides, fertilizer solutions and adjuvants, it is advisable to determine the compatibility of the proposed mixture. Use proportionate quantities of each ingredient and mix in a small container. Always mix one product thoroughly with the diluent before adding another product. If no incompatibility is evident after 30 minutes, the mixture is generally compatible for spraying.

**NITROGEN FERTILIZER:** Weed and feed applications for corn, small grains, grasses grown for seed or grass pastures according to label use rates. - Add half the fertilizer to the tank, and then add the specified label amount of RUGGED Herbicide per acre. Agitate constantly and vigorously and finish filling the spray tank with fertilizer. Apply as soon as possible, agitating constantly. Do not hold spray mixture overnight. If incompatibility is a problem, the use of a compatibility agent at the specified label rate may correct the problem. Fertilize according to the recommendations of your supplier or your Extension specialist. Herbicide foliage contact burning may occur as a result of fertilizer use. Lower use rates and concentrations will reduce this problem.

**ADJUVANTS FOR PREEMERGENCE AND PREPLANT APPLICATIONS:** A non-ionic surfactant, high surfactant oil concentrate, or a crop oil concentrate may be added to the spray solution when this product is applied preemergence or preplant to increase control of large or difficult to control weeds. Crop oil concentrates must contain at least 17% emulsifier, and should be used at 1% volume/volume (1 gallon per 100 gallons of spray solution). Non-ionic surfactants should be used at a 0.25% volume/volume (1 quart per 100 gallons of spray solution). High surfactant oil concentrates must contain at least 25% emulsifier and should be used at least at 0.5% v/v (minimum 1 pt. per acre). Wash spray equipment thoroughly after using this product. When cleaning, do not pour washwater on the ground: spray or drain over a large area away from wells or other water sources. Apply the specified amount of RUGGED Herbicide per acre regardless of the amount of diluent used.



When an adjuvant is to be used with this product, Winfield Solutions, LLC recommends the use of a Chemical Producers and Distributors Association certified adjuvant.

**TANK MIXES**

Unless otherwise prohibited on this label or the label of an intended tank mix product, this product may be applied in combination with any herbicide registered for the same crop, timing, and method of application. Observe the most restrictive label statements of various tank mix products used. LIABILITY FOR CROP INJURY RESULTING FROM A TANK MIXTURE NOT SPECIFIED ON THIS LABEL OR SUPPLEMENTAL LABELING DISTRIBUTED FOR RUGGED HERBICIDE IS SPECIFICALLY DISCLAIMED BY WINFIELD SOLUTIONS, LLC.

RUGGED Herbicide + glyphosate (various formulations) may be used on all approved crops, use sites and use patterns, approved on both labels.

**PLANTING IN TREATED AREAS**

**Labeled Crops:** Within 29 days following an application of this product, plant only those crops named as use sites on this or other registered 2,4-D labels. Follow more specific limitations, if any, provided in the directions for individual crops. Labeled crops may be at risk for crop injury or loss when planted soon after application, especially in the first 14 days. Degradation factors described below should be considered in weighing this risk.

**Other Crops:** All other crops may be planted 30 or more days following an application without concern for illegal residues in the planted crop. However, under certain conditions, there may be a risk of injury to susceptible crops. Degradation factors described below should be considered in weighing this risk. Under normal conditions, any crop may be planted without risk of injury if at least 90 days of soil temperatures above freezing have elapsed since application.

**Degradation Factors:** When planting into treated areas, the risk of crop injury is less if lower rates of product were applied and conditions following application have included warm, moist soil conditions that favor rapid degradation of 2,4-D. Risk is greater if higher rates of product were applied and soil temperatures have been cold and/or soils have been excessively wet or dry in the days following application. Consult your local Agricultural Extension Service for information about susceptible crops and typical soil conditions in your area.

**Precautions for Planting Cotton:** Following application of RUGGED Herbicide and following a minimum of 1" rainfall or irrigation in a 24 hr. period, wait an interval of 30 days prior to planting cotton. Failure to observe these precautions may result in injury to cotton.

**APPLES, PEARS, STONE FRUIT AND NUT ORCHARDS** (Do not use in California)

WEEDS	Amount Per Acre	DIRECTIONS
Annual broadleaf weeds	3 pints	Apply to orchard floor using coarse sprays and low pressure in sufficient volume of water to obtain thorough wetting of weeds. Treat when weeds are small and actively growing.

RESTRICTIONS AND LIMITATIONS FOR USE UNDER ORCHARD CROPS – Do not use on light, sandy soils. Do not apply to bare ground as crop injury may result, nor apply immediately before irrigation and withhold irrigation for 2 days before and for 3 days after treatment. Do not allow spray to drift onto or contact foliage, fruit, stems, trunks of trees or exposed roots as injury may result. Do not apply to newly established or young orchards. Trees must be at least 1 year old and in vigorous condition. Do not apply during bloom.

- The preharvest interval (PHI) for apples and pears is 14 days; the PHI for stone fruits is 40 days; the PHI for nut orchards is 60 days.
- Do not cut orchard floor forage for hay within 7 days of application.
- Postemergence:  
 Limited to 2 applications per crop cycle.  
 Maximum of 4.5 pts. (2 lbs. ae) per acre per application.  
 For apples, pears, and stone fruit, minimum of 75 days between applications.  
 For nut orchards, minimum of 30 days between applications.



**ASPARAGUS**

WEEDS	Amount Per Acre	DIRECTIONS
Annual broadleaf weeds	3 to 4 pints	Apply in 50 - 60 gallons of water per acre for ground application and 12 gallons per acre for aerial application. Apply in the spring on actively growing weeds. If asparagus spears are present, treat immediately after cutting. Make no more than 2 applications during the harvest season and these should be spaced at least one month apart. Spears contacted by the spray may be malformed and off-flavored. If spears are malformed by spray, cut immediately and discard. Post harvest spraying should be only by ground application using drop nozzles to avoid spraying the fern.

**RESTRICTIONS AND LIMITATIONS FOR USE IN ASPARAGUS:**

- The preharvest interval (PHI) is 3 days.
- Limited to 2 applications per crop cycle.
- Maximum of 4.5 pts. (2 lbs. ae) per acre per application.
- Minimum of 30 days between applications.

**CORN – FIELD, SWEET AND POP**

WEEDS	Amount Per Acre	DIRECTIONS
Preplant - Annual and biennial broadleaf seedlings Perennial weed seedlings and existing cover crops	1 pint 1 to 2 pints *	Planting of corn must be delayed a minimum of 7 days after application at rates up to 1 pint per acre, and a minimum of 14 days at rates from 1 to 2 pints per acre. Planting sooner after application than specified on this label may result in unacceptable crop injury.

\* Use higher rate on hard-to-kill weeds and existing cover crops such as alfalfa. Do not perform tillage for at least 7 days after application. Do not use on sandy soils or unacceptable crop injury may result.

Preemergence and reduced tillage Broadleaf weeds and annual grasses suppression	2 pints *	Apply after corn is planted but before emergence for control of emerged broadleaf weeds. The seed furrow must be completely closed at application or severe crop injury may result.
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\* Do not use on sandy soils or unacceptable crop injury may result.

Postemergence Annual broadleaf weeds	1/2 to 1 pint **	Apply when corn is less than 8 inches tall, but to avoid crop injury, do not apply just after leaves have unfolded. If corn is over 8 inches tall, use drop nozzles to keep spray off of corn foliage as much as possible. See additional restrictions below.
Perennial broadleaf weeds	1 pint **	Apply when weeds are in bud to bloom stage. If corn is over 8 inches tall, use drop nozzles to keep spray off corn foliage as much as possible.

\*\* DO NOT apply from 2 weeks before tasseling to dough stage. DO NOT apply to open whorls. To avoid injury, do not use with atrazine, oil or other adjuvants. Application during high moisture and temperature conditions may cause injury or brittleness. DO NOT cultivate for a week to 10 days after treatment or stalk breakage may occur.

Late season weed control Preharvest (Field corn and popcorn only)	1 to 2 pints *	Apply after silks are completely brown to reduce weeds that interfere with harvest and reduce weed seed production. Do not apply preharvest to sweet corn.
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\* Use lower rate for small annual and biennial weeds. Use the higher rate for perennial and larger hard-to-kill annual and biennial weeds.

**RESTRICTIONS AND LIMITATIONS FOR FIELD CORN AND POPCORN:**

- Do not use treated crop as fodder for 7 days following application.
- The preharvest interval (PHI) is 7 days.
- Maximum of 6.8 pts. (3 lbs. ae) per acre per crop cycle.
- Preplant or preemergence:



Limited to one preplant or preemergence application per crop cycle.  
 Maximum of 2.2 pts (1 lb. ae) per acre per application.

- Postemergence:  
 Limited to one postemergence application per crop cycle.  
 Maximum of 1.1 pts. (1/2 lb. ae) per acre per application.
- Preharvest:  
 Limited to one preharvest application per crop cycle.  
 Maximum of 3.4 pts. (1 1/2 lbs. ae) per acre per application.

**RESTRICTIONS AND LIMITATIONS FOR SWEET CORN:**

- Do not use treated crop as fodder for 7 days following application.
- The preharvest interval (PHI) is 45 days.
- Minimum of 21 days between applications.
- Maximum of 3.4 pts. (1.5 lbs. ae) per acre per crop cycle.
- Preplant or preemergence:  
 Limited to one preplant or preemergence application per crop cycle.  
 Maximum of 2.2 pts (1 lb. ae) per acre per application.
- Postemergence:  
 Limited to one postemergence application per crop cycle.  
 Maximum of 1.1pts. (1/2 lb. ae) per acre per application.

**SOYBEANS**

WEEDS	Amount Per Acre	DIRECTIONS
Preplant - emerged broadleaf weeds	1 to 2 pints *	After applying, plant soybean seed as deep as practical or at least 1-1/2 to 2 inches deep. Seed furrow must be completely closed or severe crop injury will result.

**RESTRICTIONS AND LIMITATIONS FOR SOYBEANS:**  
 Do not perform tillage for at least 7 days after application. Do not use on sandy soils or unacceptable crop injury may result. Do not replant treated fields in the same growing season with crops that are not labeled for 2,4-D preplant use. Use a minimum spray volume of 10 gallons per acre for ground applications and 2 gallons per acre for aerial applications.

- The maximum rate per crop cycle is 2.2 pts. (1 lb. ae) per acre.
- \*Preplant:  
 Limited to 2 preplant applications per crop cycle.  
 Maximum of 1.1 pts. (1/2 lb. ae) per acre per preplant application.  
 Apply not less than 15 days prior to planting soybeans.

OR

- \*Preplant:  
 Limited to 1 application per crop cycle.  
 Maximum of 2.2 pts. (1 lb. ae) per acre per preplant application.  
 Apply not less than 30 days prior to planting soybeans.

**PRECAUTIONS FOR PLANTING SOYBEANS:** Risk is greater if higher rates of product were applied and soil temperatures have been cold and/or soils have been excessively wet or dry in the days following application.

**SMALL GRAINS (wheat, barley, millet, oats and rye) - Not underseeded with legumes**

WEEDS	Amount Per Acre	DIRECTIONS
Postemergence Spring wheat, barley, millet and rye Annual and biennial weeds	2/3 to 1-1/3 pints *	Apply when grain is in full tiller stage (4 to 8 inches high) but before boot stage (Zadoks 2 <sub>5</sub> to 4 <sub>0</sub> ) when weeds are small and actively growing. Up to 1-1/3 pints per acre may be used for difficult weed problems, but do not use unless some crop damage is acceptable.
Perennial broadleaf weeds	2 to 2-1/2	Apply only in the spring when crop is fully tillered, but before grain is in boot



	pints **	stage (before Zadoks 4 <sub>0</sub> ). For improved control of difficult weeds, apply up to 3 pints per acre.
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**\*\* DO NOT USE THE HIGHER RATE IF POSSIBLE CROP INJURY IS NOT ACCEPTABLE.**

Spring and winter wheat and barley Resistant weeds		RUGGED Herbicide may be used in combination with a product of a different mode of action to control resistant weeds such as kochia and Russian thistle.  Follow application directions on each product label.
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Winter wheat and rye Annual weeds	1 to 1-1/3 pints **	Apply only in the spring when crop is fully tillered, but before grain is in boot stage (before Zadoks 4 <sub>0</sub> ). For improved control of difficult weeds, apply up to 1-1/3 pints per acre.
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**\*\* DO NOT USE THE HIGHER RATE IF POSSIBLE CROP DAMAGE IS NOT ACCEPTABLE.**

Emergency weed control in wheat Perennial broadleaf weeds	2-1/2 pints **	Apply when weeds are approaching bud stage, after grain dough stage. Do not apply during boot (Zadoks 2 <sub>5</sub> to 4 <sub>0</sub> ) to dough (Zadoks 8 <sub>3</sub> ) stage.
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**\*\* DO NOT USE THIS RATE UNLESS POSSIBLE CROP DAMAGE CAN BE TOLERATED.**

Spring-seeded oats Fall seeded oats grown for grain (Southern)	1/2 to 1 pint* 1 to 1-1/4 pints*	Apply at full tiller, but before early boot stage (Zadoks 2 <sub>5</sub> to 4 <sub>0</sub> ). Apply at full tiller, but before early boot stage (Zadoks 2 <sub>5</sub> to 4 <sub>0</sub> ).
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\* Difficult to control weeds may require higher rate, but some injury may occur since oats are less tolerant to 2,4-D than wheat or barley. DO NOT spray during or just after cold weather.

Preharvest - Cereal grains	1 pint*	Apply when grain is in hard dough stage (Zadoks 8 <sub>7</sub> ) to control large weeds that will interfere with harvest. Apply when soil moisture is adequate for weed growth for best results.
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\* Perennial weeds or hard-to-kill annual or biennial weeds may not be controlled at this rate.

<b>RESTRICTIONS AND LIMITATIONS FOR SMALL GRAINS:</b> <ul style="list-style-type: none"> <li>The preharvest interval (PHI) is 14 days.</li> <li>Postemergence: Limited to one postemergence application per crop cycle. Maximum of 2.8 pts. (1 1/4 lbs. ae) per acre per application.</li> <li>Preharvest: Limited to one preharvest application per crop cycle. Maximum of 1.1 pts. (1/2 lb. ae) per acre per application.</li> <li>Limited to 4.0 pts. (1 3/4 lbs. ae) per acre per crop cycle.</li> </ul>		
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**GRAIN SORGHUM**

WEEDS	Amount Per Acre	DIRECTIONS
Annual broadleaf weeds	1 pint	Apply to plants that are 5 to 15 inches tall. <b>DO NOT</b> treat plants less than 5 inches tall or from boot to early dough stage. Use drop nozzles when crop is 8 inches or taller.
Perennial broadleaf weeds	1-1/2 pints	The higher rate may be needed for some weeds, but chances of crop injury may increase.

**DO NOT** use oil. Some varieties and hybrids are 2,4-D sensitive. Crop injury may also be increased by high moisture and temperature conditions. Check with your seed company and Extension Service for advice.

<b>RESTRICTIONS AND LIMITATIONS FOR GRAIN SORGHUM:</b> <ul style="list-style-type: none"> <li>The preharvest interval (PHI) is 30 days.</li> <li>Do not permit meat or dairy animals to consume treated crop as fodder or forage for 30 days following application.</li> <li>Postemergence: Limited to 1 application per crop cycle. Maximum of 2.2 pts. (1 lb. ae) per acre per application.</li> </ul>		
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**GRASSES (TURF GROWN FOR SEED OR SOD) (Do not use in California)**

WEEDS	Amount Per Acre	DIRECTIONS
Annual broadleaf weeds	1 to 1-1/2 pints *	Apply to established stands before the seed head comes into the boot stage. Do not spray in boot stage of growth. For seedling grasses - apply in the spring after grass has at least 5 leaves, but before boot stage. Perennial regrowth may be treated in the fall.
Perennial and biennial weeds	2 to 4 pints *	

\* Use only the low rate on seedling grasses.

**RESTRICTIONS AND LIMITATIONS FOR GRASSES (TURF GROWN FOR SEED OR SOD):**

- Limited to 2 applications per year.
- Maximum of 4.5 pts. (2 lbs. ae) per acre per application.
- Minimum of 21 days between applications.

**FALLOWLAND (crop stubble on idle land, or postharvest to crops, or between crops)**

WEEDS	Amount Per Acre	DIRECTIONS
Annual broadleaf weeds	1 to 2 pints	Use the lower rate for small actively growing weeds. Use the higher rate on larger or weather-stressed weeds.
Biennial weeds	2 to 4 pints	Use the lower rate in the spring on biennial weeds such as the musk thistle during the rosette stage before stalks have formed. Use the higher rate after stalk formation or in the fall.
Perennial weeds	2 to 4 pints	Apply during the bloom to bud stage while weeds are actively growing. Do not till for 2 weeks after treatment or until the weeds start to die.
Wild onions and garlic	4 pints	Apply to regrowth in fall after harvest.

**RESTRICTIONS AND LIMITATIONS FOR FALLOWLAND:**

- Plant only labeled crops within 29 days following application.
- Limited to 2 applications per year.
- Maximum of 4.5 pints (2 lbs. ae) per acre per application.
- Minimum of 30 days between applications.

**PRECAUTIONS FOR PLANTING COTTON:** Following application of RUGGED Herbicide and following a minimum of 1" rainfall or irrigation in a 24 hr. period, wait an interval of 30 days prior to planting cotton. Failure to observe these precautions may result in crop injury.

**HOPS**

WEEDS	Amount Per Acre	DIRECTIONS
Annual broadleaf weeds	1 pint	Make directed applications to the row middles. Make up to 3 applications at 30-day intervals; however, the last application must be made at least 28 days before harvest.

**PRECAUTIONS:** Hop foliage, especially new growth, is susceptible to this product. Take care to avoid spray or drift outside target area. The use of shielded or hooded sprayers, coarse sprays and low pressure (30 psi or less) will minimize contact with foliage and plant injury.

**RESTRICTIONS AND LIMITATIONS FOR HOPS:**

- The preharvest interval (PHI) is 28 days.
- Postemergence:  
 Limited to 3 applications per crop cycle.  
 Maximum of 1.1 pints product (1/2 lb. ae) per acre per application.  
 Maximum of 3.4 pints product (1 1/2 lbs. ae) per acre per crop cycle.  
 Minimum of 30 days between applications.



**PASTURES, RANGELAND, CONSERVATION RESERVE PROGRAMS AND SET-ASIDE ACRES (not in agricultural production)**

WEEDS AND BRUSH	Amount Per Acre	DIRECTIONS
Annual broadleaf weeds	1 quart	Do not apply after heads form or when grass is in boot to milk stage when a seed crop is desired. <b>DO NOT</b> use on alfalfa, clover, other legumes, or newly seeded pastures. For aerial application, apply the specified amount in a minimum of 2 gallons of water per acre. For ground application, use a minimum of 10 gallons of water per acre.
Biennial and perennial weeds*	1 to 2 quarts	
Buckbrush, coyotebrush, rabbitbrush, sagebrush, and other chaparral species	2 quarts	Apply in 5 to 10 gallons of water plus 1-2 quarts of a crop oil concentrate with at least 17% emulsifiers per acre or a non-ionic surfactant at .25% v/v surfactant to water - (1 quart per 100 gallons of water) per acre. High surfactant oil concentrates must contain at least 25% emulsifier and should be applied at 1-2 pts. per acre.
Sand shinnery oak	2 quarts**	Apply 4 gallons of water plus 1-2 quarts of a crop oil concentrate with at least 17% emulsifiers per acre or a non-ionic surfactant at .25% v/v surfactant to water - (1 quart per 100 gallons of water) per acre. High surfactant oil concentrates must contain at least 25% emulsifier and should be applied at 1-2 pts. per acre.

\* Deep-rooted perennial weeds may require the higher rate or a repeat treatment. \*\* Woody plants and any regrowth may require a repeat treatment.

**RESTRICTIONS AND LIMITATIONS FOR PASTURES, RANGELAND, AND PROGRAM AREAS:**

- The preharvest interval (PHI) is 7 days (cut forage for hay).
- Postemergence:  
 Limited to 2 applications per year.  
 Maximum of 4.5 pints (2 lbs. ae) per acre per application.  
 Minimum of 30 days between applications.  
 If grass is to be cut for hay, Agricultural Use Requirements for the Worker Protection Standard are applicable.  
 For program lands, such as Conservation Reserve Program, consult program rules to determine whether grass or hay may be used. The more restrictive requirements of the program rules or this label must be followed.

**RICE (Do not use in California)**

WEEDS	Amount Per Acre	DIRECTIONS
Preplant – annual and biennial weeds	1 to 2 pints	Apply 4 or more weeks prior to planting
Postemergence – annual and biennial weeds	1 to 2-1/2 pints	Apply in the late tillering stage of rice development at the time of first joint development (first to second green ring) usually 6 to 9 weeks after emergence. Do not apply after panicle initiation, after rice internodes exceed 1/2 inch, at early seedling, early panicle, boot, flowering or early heading growth stages.
Perennial and hard-to-kill weeds	2 to 3 pints*	

**RESTRICTIONS AND LIMITATIONS FOR RICE:** Some rice varieties under certain conditions can be injured by 2,4-D. Consult with appropriate agencies prior to application of this product. \*DO NOT use this rate unless possible crop damage can be tolerated.

- The preharvest interval (PHI) is 60 days.
- Maximum of 3.4 pts. (1 1/2 lbs. ae) per acre per crop cycle.
- Preplant:  
 Limited to one preplant application per crop cycle.  
 Maximum of 2.2 pts. (1 lb. ae) per acre per preplant application.
- Postemergence:  
 Limited to one postemergence application per crop cycle.  
 Maximum of 3.4pts. (1-1/2 lbs. ae) per acre per postemergence application.



**WILD RICE** (For use in Minnesota only)

<b>WEEDS</b>	<b>Amount Per Acre</b>	<b>DIRECTIONS</b>
Common waterplantain	1/2 pint	Broadcast in 4 to 10 gallons total spray volume. Apply after waterplantain has emerged from the water and when wild rice is in the 1 to 2 aerial leaf to early tillering stage. Do not spray after wild rice has reached the boot stage.

**RESTRICTIONS AND LIMITATIONS FOR WILD RICE** – For use only on wild rice grown in commercial paddies. Do not apply to wild rice growing in lakes, rivers or streams. Water that is drained out of wild rice paddies is not to be used to irrigate other crops. In order to protect federally listed endangered or threatened species, the Minnesota Department of Agriculture has a program to pre-notify landowners where pesticide applications may affect federally listed endangered or threatened species.

- The preharvest interval (PHI) is 60 days.
- Postemergence:  
Limited to 1 application per crop cycle.  
Maximum of 0.57 pt. (1/4 lb. ae) per acre per application.

**STRAWBERRIES** (Established plantings only)

<b>WEEDS</b>	<b>Amount Per Acre</b>	<b>DIRECTIONS</b>
Annual broadleaf weeds - In established strawberry plantings only	2 to 3 pints	Apply in 25 to 50 gallons of water per acre. Apply in early spring when strawberries are dormant or immediately after the last picking. Do not apply unless possible injury to the crop is acceptable. Follow recommendations of State Extension Horticultural Specialist in the area.

**RESTRICTIONS AND LIMITATIONS FOR STRAWBERRIES:**

- Do not apply in California or Florida.
- Dormant or after last picking:  
Limited to 1 application per crop cycle.  
Maximum of 3.4 pts. (1.5 lbs. ae) per acre per application.

**SUGARCANE**

<b>WEEDS</b>	<b>Amount Per Acre</b>	<b>DIRECTIONS</b>
Preemergence – broadleaf weeds	2 quarts	Apply to emerged weeds before canes appear.
Postemergence – Annual and biennial weeds	2 quarts	Apply in the spring after canes emerge and through layby.

**RESTRICTIONS AND LIMITATIONS FOR SUGARCANE:**

- Do not harvest cane prior to crop maturity.
- Do not apply more than 9.1 pts. (4 lbs. ae) per acre per crop cycle.
- Preemergence:  
Limited to 1 application per crop cycle  
Maximum of 4.5 pints (2 lbs. ae) per acre per application.
- Postemergence:  
Limited to 1 application per crop cycle.  
Maximum of 4.5 pints (2 lbs. ae) per acre per application.

**NON-CROPLAND** (Fencerows, hedgerows, roadsides, ditches, rights-of-way, utility power lines, railroads, airports, and industrial sites)

**Spot Treatment:** To control broadleaf weeds or brush in small non-cropland areas, apply 6 fl. oz. in 3 gallons of water, mixing thoroughly, and spray to run-off. This high dosage rate may only be used where injury may be tolerated.



<b>WEEDS</b>	<b>Amount Per Acre</b>	<b>DIRECTIONS</b>
Annual broadleaf weeds	2 to 4 pints	Apply when weeds are young and growing vigorously.
Perennial and biennial broadleaf weeds	1 to 2 quarts	Spray perennial weeds when near the bud stage, but not flowering. Do not use on St. Augustine grass. Bentgrass, clover, legumes and dichondra may be injured. Do not apply to newly seeded areas until grass is well established. Deep-rooted perennials may require repeated treatments.
Tansy ragwort and musk thistle		Apply in rosette stage before bolting.
Wild onion and wild garlic		Treat in the early spring and fall when young and actively growing.

<b>TREE, BRUSH, WOODY PLANTS</b>	<b>Amount Per Acre</b>	<b>DIRECTIONS</b>
Southern wild rose	1 gallon	On roadsides and fencerows, apply with 4 to 8 fluid ounces of an agricultural surfactant per 100 gallons of water and spray thoroughly as soon as foliage is well developed.
Woody plants - Ground application	3 quarts	Apply in 20 to 100 gallons of water. For increased effectiveness, add a crop oil concentrate with at least 17% emulsifiers at 1-2 quarts per acre, or high surfactant oil concentrate with at least 25% emulsifier at 1-2 pts. per acre, or a non-ionic surfactant at 0.25% v/v surfactant to water -- 1 quart per 100 gallons of water. Spray volumes of up to 500 gallons per acre may be needed for control if brush is dense.
Woody plants - Aerial application	2 to 4 quarts	For solid stands of susceptible brush, apply in 3 to 12 gallons volume per acre. 2 to 4 quarts of fuel oil may be included in this mixture.

**RESTRICTIONS AND LIMITATIONS FOR NON-CROPLAND:**

- Postemergence (annual and perennial weeds):  
 Limited to 2 applications per year.  
 Maximum of 4.5 pts. (2 lbs. ae) per acre per application.  
 Minimum of 30 days between applications.
- Postemergence (woody plants):  
 Limited to 1 application per year.  
 Maximum of 9.1 pts. (4 lbs. ae) per acre per year.
- Applications to non-cropland areas are not applicable to treatment of commercial timber or other plants being grown for sale or other commercial use, or for commercial seed production, or for research purposes.

**TURF, ORNAMENTAL (golf courses, cemeteries, parks, sports fields, turfgrass, lawns, and other grass areas)**

<b>WEEDS</b>	<b>Amount Per Acre</b>	<b>DIRECTIONS</b>
Annual broadleaf weeds	2 pints	Do not apply to newly seeded areas until grass is well established. Where bentgrass predominates, apply 2 times using a 1 pint per acre rate at 3 week intervals. Do not use on susceptible southern grasses such as St. Augustine. Bentgrass, dichondra, legumes and clover may be injured by this treatment.
Biennial and perennial weeds	2 to 3.4 pints *	

\* Deep-rooted perennials may require repeat treatments.

**RESTRICTIONS AND LIMITATIONS FOR ORNAMENTAL TURF:**

- Postemergence:  
 Limited to 2 applications per year.  
 Maximum of 3.4 pts. (1 1/2 lbs. ae) per acre per application.  
 The maximum seasonal rate is 6.8 pts. (3 lbs. ae) per acre, excluding spot treatments.



**USES IN FOREST MANAGEMENT**

<b>Conifer Release</b>		
<b>BRUSH, HARDWOODS</b>	<b>Amount Per Acre</b>	<b>DIRECTIONS</b>
Alder	1-1/2 to 2 quarts	Apply in 8 to 25 gallons of water as a foliar spray. Treat when 3/4 of the brush foliage has attained full-sized leaves and before new conifer growth reaches 2 inches in length. This is usually between early May and mid-June. Adjust treatment date depending on stage of growth and brush species. Treatment may cause leader deformation on exposed firs, but firs should overcome this during the second year after spraying.
Ceanothus spp., chinquapin, madrone, manzanita, oak and tanoak	3 quarts	To release Douglas fir, hemlock, Sitka spruce or grand fir, apply in 8 to 25 gallons of water before new growth on Douglas fir is 2 inches long. To control manzanita and ceanothus in ponderosa pine, apply before pine growth begins in spring. To increase performance, add suitable approved agricultural surfactant at recommended label rate.
Alder, aspen, birch, willow, other competing hardwood species	1-1/2 to 3 quarts	After northern conifers, jack pine, red pine, black spruce, and white spruce cease growth and "harden off" (usually in mid-July), apply in 8 to 25 gallons of water by air. Since this treatment may cause occasional conifer injury, do not use if such injury cannot be tolerated. Consult regional or extension forester or State herbicide specialist for recommendations to fit local conditions.
<b>Tree Injections (Pine Release)</b>		
<b>HARDWOODS</b>	<b>Amount Per Acre</b>	<b>DIRECTIONS</b>
Oak, hickory, maple, pecan, elm, sumac, sweetgum, hawthorn, dogwood, blue beech, and ash	1 to 2 mL	Apply 1 to 2 mL undiluted product in a concentrate tree injector. Space injections 2 inches apart edge-to-edge, completely around the tree and close to the base. The injector bit must penetrate the inner bark. On hard-to-kill species such as hickory, dogwood, red maple, blue beech and ash, make injections 1 to 1-1/2 inches apart, edge-to-edge. Treatment may be made at any time of the year. For best results, injections should be made during growing season, May 15 to October 15. For dilute injections, mix 1 gallon of product in 19 gallons of water.
<b>Dormant Application (other than pine)</b>		
<b>BRUSH</b>	<b>Amount Per Acre</b>	<b>DIRECTIONS</b>
Alder, cascara, cherry poplar, and serviceberry	3 quarts	Apply product per acre in sufficient diesel, fuel oil or kerosene for good coverage. Application may be made by ground or air and should be made before conifer budbreak
<b>Pine Only</b>		
<b>BRUSH, HARDWOODS</b>	<b>Amount Per Acre</b>	<b>DIRECTIONS</b>
Alder, cascara, cherry poplar and serviceberry	2 quarts	Make application while pine buds are still dormant. Apply in sufficient water for good coverage by air or ground equipment. Do not use this application unless some pine injury is acceptable. Use of diesel, kerosene, or other oil, or addition of surfactants to spray mix may cause unacceptable pine injury.
<b>Herbaceous Weed Control</b>		
<b>WEEDS</b>	<b>Amount Per Acre</b>	<b>DIRECTIONS</b>
False dandelion, klamath weed, plantain, tansy ragwort	1 to 3 quarts	To control over-wintering weeds, apply in sufficient water for good coverage. Make application at rates and timing indicated above if pines are present.



Hazel brush and similar species (Lake States area)	2 quarts	Apply in 8 to 25 gallons of water when new shoot growth of hazel is complete (usually mid-July).
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**Site Preparation**

BRUSH	Amount Per Acre	DIRECTIONS
Alder	2 to 4 quarts	As budbreak spray: Prior to planting seedlings, apply 2 to 4 quarts in 8 to 25 gallons of water after alder budbreak but before foliage is 1/4 full size. Application may be made by air or ground. <b>OR</b> As foliage spray: Prior to planting seedlings, apply 2 quarts in 8 to 25 gallons of water after most alder leaves are full size. To increase penetration, a suitable approved agricultural surfactant at recommended label rates may be added to spray mixture.

**RESTRICTIONS AND LIMITATIONS FOR ALL FORESTRY USES:**

- Broadcast application:  
Limited to 1 broadcast application per year.  
Maximum of 9.1 pints (4 lbs. ae) per acre per broadcast application.
- Injection:  
Limit to one injection application per year.  
Maximum of 2 ml of 4 lbs. ae formulation per injection site.

**WEEDS ON IRRIGATION CANALS AND DITCH BANKS**

WEEDS	Amount Per Acre	DIRECTIONS
Annual broadleaf weeds Perennial weeds	1 quart 1 to 2 quarts*	Apply in approximately 20 to 100 gallons of total spray. Treat when weeds are young and actively growing before the bud or early bloom stage.
Brush and patches of perennial weeds	2 quarts	Apply in 150 gallons of water. Spray to thoroughly wet foliage, using about 1 gallon of spray solution per square rod.

**RESTRICTIONS AND LIMITATIONS FOR IRRIGATION CANALS AND DITCH BANKS:**

- Postemergence:  
Limited to 2 applications per season.  
Maximum of 4.5 pts. (2 lbs. ae) per acre per application.  
Minimum of 30 days between applications.  
Spot treatment permitted.  
Do not use on small canals with a flow rate less than 10 cubic feet per second (CFS) where water will be used for drinking purposes. CFS may be estimated by using the formula below. The approximate velocity needed for the calculation can be determined by observing the length of time that it takes a floating object to travel a defined distance. Divide the distance (ft.) by the time (sec.) to estimate velocity (ft. per sec.). Repeat 3 times and use the average to calculate CFS.  
Average Width (ft.) x Average Depth (ft.) x Average Velocity (ft. per sec.) = CFS

**SPRAYING INSTRUCTIONS**

Low pressure (10 to 40 PSI) power spray equipment should be used and mounted on a truck, tractor, or boat. Apply while traveling upstream to avoid accidental concentration of chemical into water.  
Spray when air is calm, 5 mph or less.  
For Ditch Bank Weeds: Do not spray cross-stream to opposite bank. Do not allow boom spray to be directed onto water.  
For Shoreline Weeds: Allow no more than 2 foot overspray onto water.



**AQUATIC SITES WITH EMERGENT WEEDS, SUCH AS WATER HYACINTH, IN QUIESCENT OR SLOW-MOVING WATERS (RIVERS, STREAMS, LAKES, PONDS, RESERVOIRS, BAYOUS, DRAINAGE DITCHES, NON-IRRIGATION CANALS AND MARSHES)**

WEEDS	Amount Per Acre	DIRECTIONS
Surface Application	2 to 4.2 quarts	Apply in 50 to 100 gallons of water per acre. Use power sprayers operated with a boom or spray gun mounted on a boat, tractor or truck. Spray to wet foliage thoroughly. Application should be made when leaves are fully developed, above water line and plants are actively growing. Avoid spray drift to sensitive crops with low pressure and large nozzles or by using drift control or thickening agents. The maximum rate may be needed for mature plants or dense growth.
Aerial Application	1 gallon	Apply in 5 to 15 gallons of water to cover one surface acre. Use drift control agents in the spray solution. Apply through standard boom systems with a minimum of 5 gallons of spray mix per acre.

**SPRAYING INSTRUCTIONS**

Do not apply to more than 1/3 to 1/2 of the water area in any one month because excessive decaying vegetation may deplete oxygen content of water and kill fish. Waters having limited and less dense weed infestations may not require partial treatments. Other local factors such as water exchange and sediment load can also influence the dissolved oxygen level. Begin treatments along the shore and proceed outwards in bands to allow fish to move into untreated areas. For large bodies of weed infested waters, leave buffer strips of at least 100 feet wide and delay treatment of these strips for 4 to 5 weeks or until the dead vegetation has decomposed. Repeat as necessary to kill regrowth and plants missed in previous application.

**RESTRICTIONS AND LIMITATIONS FOR SURFACE APPLICATIONS TO EMERGENT AQUATIC WEEDS:**

- Do not exceed 4.2 quarts (4 lbs. ae) per surface acre per application.
- Limited to 2 applications per season.
- Do not make a broadcast application within 21 days of previous broadcast application. Spot treatments are permitted.
- Do not contaminate water used for irrigation or domestic purposes except as indicated in directions for irrigation ditch banks.
- Coordination and approval of local and state authorities may be required, either by letter of agreement or issuance of special permits for aquatic application.

**Water Use following surface applications to emergent aquatic weeds:**

**1. Water for irrigation or sprays:**

- A. If treated water is intended to be used only for crops or non-crop areas that are labeled for direct treatment with 2,4-D such as pastures, turf or cereal grains, the treated water may be used to irrigate and/or mix sprays for these sites at anytime after the 2,4-D aquatic application.
- B. Due to potential phytotoxicity considerations, the following restrictions are applicable:  
Do not use water from treated areas for overhead sprinkler system to irrigate susceptible crops such as grapes, tomatoes, and cotton.  
If treated water is intended to be used to irrigate or mix sprays for plants grown in commercial nurseries and greenhouses; and other plants or crops that are not labeled for direct treatment with 2,4-D, the water must not be used unless one of the following restrictions has been observed:
  - i. A setback distance from functional water intake(s) of  $\geq 600$  ft. was used for the application, or,
  - ii. A waiting period of 7 days from the time of application has elapsed, or,



- iii. An approved assay indicates that the 2,4-D concentration is 100 ppb (0.1 ppm) or less at the water intake. Wait at least 3 days after application before initial sampling at water intake.

2. **Drinking water (potable water):**

- A. Consult with appropriate state or local water authorities before applying this product to public waters. State or local agencies may require permits.

The potable water use restrictions on this label are to ensure that consumption of water by the public is allowed only when the concentration of 2,4-D in the water is less than the MCL (Maximum Contaminant Level) of 70 ppb. Applicators should consider the unique characteristics of the treated waters to assure that 2,4-D concentrations in potable water do not exceed 70 ppb at the time of consumption.

- B. For floating and emergent weed applications, the drinking water setback distance from functioning potable water intakes is  $\geq 600$  ft.
- C. If no setback distance of  $\geq 600$  ft. is used for the application, applicators or the authorizing organization must provide a drinking water notification prior to a 2,4-D application to the party responsible for a public water supply or to individual private water users. Notification to the party responsible for a public water supply or to individual private water users must be done in a manner to assure that the party is aware of a water use restrictions when this product is applied to potable water.

The following is an example of an example of notification via posting, but other methods of notification which convey the above restrictions may be used and may be required in some cases under state or local law or as a condition of a permit.

Example:

Posting notification should be located every 250 feet including the shoreline of the treated area and up to 250 feet of shoreline past the application site to include immediate public access points. Posting must include the day and time of application. Posting may be removed if analysis of a sample collected at the intake 3 or more days following application shows that the concentration in the water is less than 70 ppb (100 ppb for irrigation or sprays), or after 7 days following application, whichever occurs first.

**Text of notification:** Wait 7 days before diverting functioning surface water intakes from the treated aquatic site to use as drinking water, irrigation, or sprays, unless water at functioning drinking water intakes is tested at least 3 days after application and is demonstrated by assay to contain not more than 70 ppb 2,4-D (100 ppb for irrigation or sprays).

Application Date: \_\_\_\_\_ Time: \_\_\_\_\_ .

- D. Following each application of this product, treated water must not be used for drinking water unless one of the following restrictions has been observed:
  - i. A setback distance from functional water intake(s) of  $\geq 600$  ft. was used for the application, or,
  - ii. A waiting period of at least 7 days from the time of application has elapsed, or,
  - iii. An approved assay indicates that the 2,4-D concentration is 70 ppb (0.07 ppm) or less at the water intake. Sampling for drinking water analysis should occur no sooner than 3 days after 2,4-D application. Analysis of samples must be completed by a laboratory that is certified under the Safe Drinking Water Act to perform drinking water analysis using a currently approved version of analytical Method Number 515, 555, other methods for 2,4-D as may be listed in Title 40CFR, Part 141.24, or Method Number 4015 (immunoassay of 2,4-D) from U.S. EPA Test Methods for Evaluating Solid Waste SW-846.
- E. Note: Existing potable water intakes that are no longer in use, such as those replaced by a connection to a municipal water system or a potable water well, are not considered to be functioning potable water intakes.
- F. Drinking water setback distances do not apply to terrestrial applications of 2,4-D adjacent to water bodies with potable water intakes.

3. **There are no restrictions** on using water from treated areas for swimming, fishing, watering livestock or domestic purposes.



**AQUATIC SITES WITH SUBMERGED WEEDS, INCLUDING EURASIAN WATER MILFOIL (*MYRIOPHYLLUM SPICATUM*), IN PONDS, LAKES, RESERVOIRS, MARSHES, BAYOUS, DRAINAGE DITCHES, CANALS, RIVERS AND STREAMS THAT ARE QUIESCENT OR SLOW MOVING, INCLUDING PROGRAMS OF THE TENNESSEE VALLEY AUTHORITY.**

WEEDS	Amount of RUGGED Herbicide Per Acre	DIRECTIONS
Submerged aquatic weeds, including Eurasian Water Milfoil	2-1/2 to 2-3/4 gallons	<p><b>Application Timing:</b> For best results, apply in spring or early summer when weeds start to grow. This timing can be checked by sampling the lake bottom in areas heavily infested with weeds the previous year. A second application may be needed when weeds show signs of recovery, but no later than mid August in most areas.</p> <p><b>Subsurface Application:</b> Apply RUGGED Herbicide undiluted directly to water through a boat mounted distribution system. Shoreline areas should be treated by subsurface injection application by boat to avoid aerial drift.</p> <p><b>Surface Application:</b> Use power operated boat mounted boom sprayer. If rate is less than 5 gallons per acre, dilute to a minimum spray volume of 5 gallons per surface area.</p> <p><b>Aerial Application:</b> Use drift control spray equipment or thickening agents mixed with sprays to reduce drift. Apply through standard boom systems in a minimum spray volume of 5 gallons per surface acre. For Microfoil® drift control spray systems, apply RUGGED Herbicide in a total spray volume of 12 to 15 gallons per acre.</p> <p>Apply to attain a concentration of 2 to 4 ppm (see Table 1 below.)</p>

**Dissolved Oxygen Rations:** Fish require oxygen dissolved in water for life processes and a favorable water-oxygen ration must be maintained. Decaying weeds use up dissolved oxygen in water. Fish kill resulting from decaying plant material can be prevented by:

1. Treating the entire area when the weed mass is sparse and the rate of decomposition will not be sufficient to disturb the water-oxygen ratio: or
2. If application is delayed until there is a dense weed mass, treat no more than one-half of a lake or pond at one time. For large bodies of weed-infested water, apply product in lanes, leaving buffers strips at least 100 feet wide which can be treated in 4 to 5 weeks or when vegetation in treated lanes has decomposed. During the growing season, decomposition of treated strips will usually occur in 2 to 3 weeks.

Table 1. Amount of 2,4-D to Apply for a Target Subsurface Concentration

Surface Area	Average Depth	For typical conditions -2 ppm 2,4-D ae/acre-foot	For difficult conditions* - 4 ppm 2,4-D ae/acre-foot
1 acre	1ft	5.4 lbs. (11.3 pints product)	10.8 lbs. (22.7 pints product)
	2ft	10.8 lbs. (22.7 pints product)	21.6 lbs. (45.4 pints product)
	3ft	16.2 lbs. (34.1 pints product)	32.4 lbs. (68.2 pints product)
	4ft	21.6 lbs. (45.4 pints product)	43.2 lbs. (90.9 pints product)
	5ft	27.0 lbs. (56.8 pints product)	54.0 lbs. (113.6 pints product)

\* Examples include spot treatment of pioneer colonies of Eurasian Water Milfoil and certain difficult to control aquatic species.

**RESTRICTIONS AND LIMITATIONS FOR APPLICATIONS TO SUBMERSED AQUATIC WEEDS:**

- Apply to aquatic weeds in ponds, lakes, reservoirs, marshes, bayous, drainage ditches, non-irrigation canals, rivers, and streams that are quiescent or slow moving.
- Do not treat areas that are not infested with aquatic weeds.
- When treating moving bodies of water, applications must be made while traveling upstream to prevent concentration of 2,4-D downstream from the application.



- Do not exceed 10.8 lb. (24.75 pints of RUGGED Herbicide) of acid equivalent per acre foot of treated water per application.
- Do not apply within 21 days of previous application.
- Do not make more than 2 applications per season.
- Coordination and approval of local and state authorities may be required, either by a letter of agreement or issuance of special permits for aquatic applications.
- Do not apply within 1500 ft of an active potable or irrigation water intake.
- Do not apply when wind speed is at or above 10 mph when making ground or surface applications. Do not aerially apply when wind speed is greater than 5 mph. Wind speed restrictions do not apply for subsurface applications used in submerged aquatic weed control programs.
- Unless an approved assay indicates that the 2,4-D concentration is 100 ppb (0.1 ppm) acid or less, do not use water from treated areas for;
  - 1) irrigation other than non-crop areas or those crops or plants labeled for direct application of 2,4-D; or
  - 2) mixing sprays for agricultural or ornamental plants.
- Unless an approved assay indicates that the 2,4-D concentration is 70 ppb (0.07 ppm) acid or less, do not use water from treated areas for potable water (drinking water).
- Except as stated above, there are no restrictions on use of water from treated areas for fishing, watering of livestock, or other domestic purposes.

### **Water Use following applications to submersed aquatic weeds:**

#### **1. Water for irrigation or sprays:**

- A. If treated water is intended to be used only for crops or non-crop areas that are labeled for direct treatment with 2,4-D such as pastures, turf or cereal grains, the treated water may be used to irrigate and/or mix sprays for these sites at anytime after the 2,4-D aquatic application.
- B. Due to potential phytotoxicity considerations and/or residue considerations, the following restrictions are applicable: If treated water is intended to be used to irrigate or mix sprays for unlabeled crops, noncrop areas or other plants not labeled for direct treatment with 2,4-D, the water must not be used unless one of the following restrictions has been observed:
  - i. A setback distance described in Table 2, Drinking Water Setback Table was used for the application, or,
  - ii. A waiting period of 21 days from the time of application has elapsed, or,
  - iii. An approved assay indicates that the 2,4-D concentration is 100 ppb (0.1 ppm) or less at the water intake. See Table 3 for the waiting period after application but before taking the initial sampling at water intake.

#### **2. Drinking water (potable water):**

- A. Consult with appropriate state or local water authorities before applying this product to public waters. State or local agencies may require permits.
 

The potable water use restrictions on this label are to ensure that consumption of water by the public is allowed only when the concentration of 2,4-D in the water is less than the MCL (Maximum Contaminant Level) of 70 ppb. Applicators should consider the unique characteristics of the treated waters to assure that 2,4-D concentrations in potable water do not exceed 70 ppb at the time of consumption.
- B. For submersed weed applications, the drinking water setback distances from functioning potable water intakes are provided in Table 2, Drinking Water Setback Distance (below).
- C. If no setback distance from the Drinking Water Setback Table (Table 2) is to be used for the application, applicators or the authorizing organization must provide a drinking water notification and an advisory to shut off all potable water intakes prior to a 2,4-D application. Notification to the party responsible for a public water supply or to individual private water users must be done in a manner to assure that the party is aware of the water use restrictions when this product is applied to potable water.
 

The following is an example of a notification via posting, but other methods of notification which convey the above restrictions may be used and may be required in some cases under state or local law or as condition of a permit.

#### **Example:**

Posting notification should be located every 250 feet including the shoreline of the treated area and up to 250 feet of shoreline past the application site to include immediate public access points. Posting should include the day and time of application. Posting may be removed if analysis of a sample collected at the intake no sooner than stated in Table 3 (below) shows that the concentration in the water is less than 70 ppb (100 ppb for irrigation or sprays), or after 21 days following application, whichever occurs first.

Text of notification: Wait 21 days before diverting functioning surface water intakes from the treated aquatic site to



use as drinking water, irrigation, or sprays, unless water at functioning drinking water intakes is tested no sooner than (insert days from Table 3) and is demonstrated by assay to contain not more than 70 ppb 2,4-D (100 ppb for irrigation or sprays).

Application Date: \_\_\_\_\_ Time \_\_\_\_\_

- D. Following each application of this product, treated water must not be used for drinking water unless one of the following restrictions has been observed:
    - i. A setback distance described in the Drinking Water Setback Distance Table was used for the application, or,
    - ii. A waiting period of at least 21 days from the time of application has elapsed, or,
    - iii. An approved assay indicates that the 2,4-D concentration is 70 ppb (0.07 ppm) or less at the water intake. Sampling for drinking water analysis should occur no sooner than stated in Table 3. Analysis of samples must be completed by a laboratory that is certified under the Safe Drinking Water Act to perform drinking water analysis using a currently approved version of analytical Method Number 515, 555, other methods for 2,4-D as may be listed in Title 40 CFR, Part 141.24, or Method Number 4015 (immunoassay of 2,4-D) from U.S. EPA Test Methods for Evaluating Solid Waste SW-846.
  - E. Note: Existing potable water intakes that are no longer in use, such as those replaced by a connection to a municipal water system or a potable water well, are not considered to be functioning potable water intakes.
  - F. Drinking water setback distances do not apply to terrestrial applications of 2,4-D adjacent to water bodies with potable water intakes.
3. **There are no restrictions** on using water from treated areas for swimming, fishing, watering livestock or domestic purposes.

Table 2. Drinking Water Setback Distance for Submersed Weed Application

Application Rate and Minimum Setback Distance (feet) from Functioning Potable Water Intake			
1 ppm*	2 ppm*	3 ppm*	4 ppm*
600	1200	1800	2400

\* ppm acid equivalent target water concentration

Table 3. Sampling for Drinking Water Analysis After 2,4-D Application for Submersed Weed Applications

Minimum Days After Application Before Initial Water Sampling at the Functioning Potable Water Intake			
1 ppm*	2 ppm*	3 ppm*	4 ppm*
5	10	10	14

\* ppm acid equivalent target water concentration

**STORAGE AND DISPOSAL**

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

**PESTICIDE STORAGE:** Store pesticides in a secure warehouse or storage building, in original container only. Store at temperatures above 32°F. If allowed to freeze, rewarm to 40°F; remix thoroughly before using. This does not alter this product. Containers should be opened in well ventilated areas. Keep container tightly sealed when not in use. Do not stack cardboard cases more than two pallets high. Do not store near open containers of fertilizer, seed or other pesticides.

**PESTICIDE DISPOSAL:** 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 according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.

**CONTAINER HANDLING:** [Use label language appropriate for container size and type.]

**Nonrefillable containers (1 qt., 1, & 2.5 gallon).** Do not reuse or refill this container. Clean container promptly after emptying.

**Nonrefillable container equal to or less than 5 gallons.** Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities such as burning of plastic containers. If burned, stay out of smoke.

**Nonrefillable container greater than 5 gallons.** Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll it



back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities such as burning of plastic containers. If burned, stay out of smoke.

**Refillable container.** Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities such as burning of plastic containers. If burned, stay out of smoke.

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

**WARRANTY DISCLAIMER**

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