



Department of Agriculture  
STATE OF HAWAII

21183A5-1/53

**LICENSED**

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PERIOD **2015-2017** LIC. NO.

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Department of Agriculture  
STATE OF HAWAII

**LICENSED**

PERIOD **2012-2014** LIC. NO.



**Roundup**  
**ULTRA MAX**  
HERBICIDE



Department of Agriculture  
STATE OF HAWAII

**LICENSED**

PERIOD **2009-2011** LIC. NO.



(91)021183025153



Department of Agriculture  
STATE OF HAWAII

**LICENSED**

PERIOD **2006-2008** LIC. NO.

## Complete Directions for Use

For control of annual and perennial weeds in Arizona, California, Colorado, Florida, Hawaii, Idaho, Kansas\*, Minnesota\*, Montana, Nebraska\*, Nevada, New Mexico\*, North Dakota, Oklahoma\*, Oregon, Puerto Rico, South Dakota, Texas\*, Utah, Washington and Wyoming.

EPA Reg. No. 524-512

2003-1

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## Complete Directions for Use

EPA Reg. No. 524-512

For control of annual and perennial weeds in Arizona, California, Colorado, Florida, Hawaii, Idaho, Kansas\*, Minnesota\*, Montana, Nebraska\*, Nevada, New Mexico\*, North Dakota, Oklahoma\*, Oregon, Puerto Rico, South Dakota, Texas\*, Utah, Washington and Wyoming.

### **Herbicide for Roundup Ready® Crops.**

Selective broad-spectrum weed control in Roundup Ready crops. Non-selective, broad-spectrum weed control for many cropping systems, farmsteads and Conservation Reserve Program acres.

2003-1

**COUNTIES****2**

AVOID CONTACT OF HERBICIDE WITH FOLIAGE, GREEN STEMS, EXPOSED NON-WOODY ROOTS OR FRUIT OF CROPS (EXCEPT AS SPECIFIED FOR INDIVIDUAL ROUNDUP READY® CROPS), DESIRABLE PLANTS AND TREES, BECAUSE SEVERE INJURY OR DESTRUCTION MAY RESULT.

Not all products recommended on this label are registered for use in California. Check the registration status of each product in California before using.

For control of annual and perennial weeds in Arizona, California, Colorado, Florida, Hawaii, Idaho, Kansas\*, Minnesota\*, Montana, Nebraska\*, Nevada, New Mexico\*, North Dakota, Oklahoma\*, Oregon, Puerto Rico, South Dakota, Texas\*, Utah, Washington and Wyoming.

**\*COUNTY RESTRICTIONS**

In **KANSAS, MINNESOTA, NEBRASKA, NEW MEXICO, OKLAHOMA** and **TEXAS**, this product can be used **ONLY** in those counties listed below:

**KANSAS:**

Barber, Barton, Butler, Chautauqua, Cheyenne, Clark, Cloud, Comanche, Cowley, Decatur, Edwards, Elk, Ellis, Ellsworth, Finney, Ford, Gove, Graham, Grant, Gray, Greeley, Greenwood, Hamilton, Harper, Harvey, Haskell, Hodgeman, Jewell, Kearny, Kingman, Kiowa, Lane, Lincoln, Logan, McPherson, Meade, Mitchell, Morton, Ness, Norton, Osborne, Ottawa, Pawnee, Phillips, Pratt, Rawlins, Reno, Republic, Rice, Rooks, Rush, Russell, Saline, Scott, Sedgwick, Seward, Sheridan, Sherman, Smith, Stafford, Stanton, Stevens, Sumner, Thomas, Trego, Wallace, Wichita

**MINNESOTA:**

Becker, Clay, Douglas, Kittson, Lake Of The Woods, Mahnomon, Marshall, Norman, Otter Tail, Pennington, Polk, Red Lake, Roseau, Wilkin

**NEBRASKA:**

Arthur, Banner, Box Butte, Chase, Cheyenne, Custer, Dawes, Dawson, Deuel, Dundy, Frontier, Furnas, Garden, Gosper, Grant, Hayes, Hitchcock, Hooker, Keith, Kimball, Lincoln, Logan, McPherson, Morrill, Perkins, Red Willow, Scotts Bluff, Sheridan, Sioux, Thomas

**NEW MEXICO:**

Colfax, Rio Arriba, San Juan, Taos, Union

**OKLAHOMA:**

Alfalfa, Beaver, Blaine, Canadian, Cimarron, Custer, Dewey, Ellis, Garfield, Grant, Harper, Kay, Kingfisher, Logan, Major, Noble, Pawnee, Payne, Roger Mills, Texas, Woods, Woodward

**TEXAS:**

Dallam, Hansford, Hartley, Hemphill, Hutchinson, Lipscomb, Moore, Ochiltree, Roberts, Sherman

Read the entire label before using this product.

Use only according to label instructions.

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

Read the "LIMIT OF WARRANTY AND LIABILITY" statement at the end of the label before buying or using. If terms are not acceptable, return at once unopened.

THIS IS AN END-USE PRODUCT. MONSANTO DOES NOT INTEND AND HAS NOT REGISTERED IT FOR REFORMULATION. SEE INDIVIDUAL CONTAINER LABEL FOR REPACKAGING LIMITATIONS.

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## PRECAUTIONARY STATEMENTS 6

### 1.0 INGREDIENTS

#### ACTIVE INGREDIENT:

*Glyphosate, N-(phosphonomethyl)glycine, in the form of its isopropylamine salt	50.2%
OTHER INGREDIENTS:	49.8%
	100.0%

\*Contains 600 grams per litre or 5 pounds per U.S. gallon of the active ingredient glyphosate, in the form of its isopropylamine salt.

This product is protected by U.S. Patent Nos. 5,683,958; 5,703,015; 6,063,733; 6,121,199; 6,121,200. No license granted under any non-U.S. patent(s).

### 2.0 IMPORTANT PHONE NUMBERS

1. FOR **PRODUCT INFORMATION** OR ASSISTANCE IN USING THIS PRODUCT, CALL TOLL-FREE,

1-800-332-3111.

2. IN CASE OF AN EMERGENCY INVOLVING THIS HERBICIDE PRODUCT, OR FOR **MEDICAL ASSISTANCE**, CALL COLLECT, DAY OR NIGHT,

(314)-694-4000.

### 3.0 PRECAUTIONARY STATEMENTS

#### 3.1 Hazards to Humans and Domestic Animals

Keep out of reach of children.

#### CAUTION!

CAUSES MODERATE EYE IRRITATION.

Avoid contact with eyes or clothing.

**FIRST AID:** Call a poison control center or doctor for treatment advice.

**IF IN EYES**

- Hold eye open and rinse slowly and gently with water for 15 - 20 minutes.
- Remove contact lenses if present after the first 5 minutes then continue rinsing eye.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. This product is identified as **Roundup UltraMAX™ Herbicide, EPA Registration No. 524-512**. You may also contact **(314) 694-4000**, collect day or night, for emergency medical treatment information.

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

#### Personal Protective Equipment (PPE)

**Applicators and other handlers must wear:** long-sleeved shirt and long pants, shoes plus socks.

Follow manufacturer's instructions for cleaning/maintaining Personal Protective Equipment (PPE). If there are no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

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

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### User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

## 3.2 Environmental Hazards

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

## 3.3 Physical or Chemical Hazards

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

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

## DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling. This product can only be used in accordance with the Directions for Use on this label or in separately published Monsanto Supplemental Labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulations.

### Agricultural Use Requirements

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

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 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 and chemical resistant gloves greater

than 14 mils in thickness composed of materials such as butyl rubber, natural rubber, neoprene rubber, or nitrile rubber.

### Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries or greenhouses.

Keep people and pets off treated areas until spray solution has dried to prevent transfer of this product onto desirable vegetation.

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## STORAGE AND DISPOSAL 10

### 4.0 STORAGE AND DISPOSAL

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

Keep container closed to prevent spills and contamination.

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

Emptied container retains vapor and product residue. Observe all labeled safeguards until container is cleaned, reconditioned, or destroyed.

See container label for STORAGE AND DISPOSAL instructions.

### 5.0 GENERAL INFORMATION (How this product works)

**Product Description:** This product is a postemergent, systemic herbicide with no soil residual activity. It is generally non-selective and gives broad-spectrum control of many annual weeds, perennial weeds, woody brush and trees. It is formulated as a water-soluble liquid. It may be applied through most standard industrial or field-type sprayers after dilution and thorough mixing with water or other carriers according to label instructions.

Do not add surfactants, additives containing surfactants, buffering agents or pH adjusting agents to the spray solution when Roundup UltraMAX herbicide is the only pesticide used unless otherwise directed. Ammonium sulfate, drift control additives, or dyes and colorants may be used. See the "MIXING" section of this label for instructions.

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

ground growth and deterioration of underground plant parts.

**Stage of Weeds:** Annual weeds are easiest to control when they are small. Best control of most perennial weeds is obtained when treatment is made at late growth stages approaching maturity. Refer to the "ANNUAL WEEDS", "PERENNIAL WEEDS" and "WOODY BRUSH AND TREES RATE TABLES" for recommendations for specific weeds.

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

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

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

**Rainfastness:** Heavy rainfall soon after application may wash this product off of the foliage and a repeat application may be required for adequate control.

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

**Mode of Action:** The active ingredient in this product inhibits an enzyme found only in plants and microorganisms that is essential to formation of specific amino acids.

**No Soil Activity:** Weeds must be emerged at the time of application to be controlled by this product. Weeds germinating from seed after application will not be controlled. Unemerged plants arising from unattached underground rhizomes or root stocks of perennials will not be affected by the herbicide and will continue to grow.

**Biological Degradation:** Degradation of this product is primarily a biological process carried out by soil microbes.

**Tank Mixing:** This product does not provide residual weed control. For subsequent residual weed control, follow a label-approved herbicide

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program. Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used. Use according to the most restrictive label directions for each product in the mixture.

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

**Annual Maximum Use Rate:** Except as otherwise specified in a crop section of this label, the combined total of all treatments must not exceed 6.5 quarts of this product per acre per year. For applications in non-crop sites or in tree, vine, or shrub crops, the combined total of all treatments must not exceed 8.5 quarts of this product per acre per year. The maximum use rates stated throughout this product's labeling apply to this product combined with the use of all other herbicides containing glyphosate or sulfosate as the active ingredient, whether applied as mixtures or separately. Calculate the application rates and ensure that the total use of this and other glyphosate or sulfosate containing products does not exceed stated maximum use rate.

**NOTE:** Use of this product in any manner not consistent with this label may result in injury to persons, animals or crops, or other unintended consequences.

## 6.0 MIXING

Use the following conversion table to help determine application rates of Roundup UltraMAX herbicide based on commonly used rates of Roundup Ultra® herbicide.

*ROUNDUP ULTRAMAX CONVERSION TABLE*

Roundup ULTRAMAX (Ounces)	Roundup ULTRA (Ounces)	Roundup ULTRA (Pints)
20	24	1.5
26	32	2.0
32	40	2.5

Clean sprayer parts immediately after using this product by thoroughly flushing with water.

**NOTE:** REDUCED RESULTS MAY OCCUR IF WATER CONTAINING SOIL IS USED, SUCH AS VISIBLY MUDDY WATER OR WATER FROM PONDS AND DITCHES THAT IS NOT CLEAR.

## 6.1 Mixing with Water

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

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## 6.2 Tank Mixing Procedure

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

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

Maintain good agitation at all times until the contents of the tank are sprayed. If the spray mixture is allowed to settle, thorough agitation is required to resuspend the mixture before spraying is resumed.

Keep by-pass line on or near the bottom of the tank to minimize foaming. Screen size in nozzle or line strainers should be no finer than 50 mesh.

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

Refer to the "Tank Mixing" section of "GENERAL INFORMATION" for additional precautions.

## 6.3 Mixing for Hand-Held Sprayers

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

### Spray Solution

Desired Volume	Amount of Roundup UltraMAX					
	0.4%	0.8%	1.2%	1.6%	4%	8%
1 gal	0.5 oz	1 oz	1.6 oz	2.1 oz	5.2 oz	10.5 oz
25 gal	13. oz	0.8 qt	1.2 qt	1.6 qt	4 qt	8 qt
100 gal	1.6 qt	0.8 gal	1.2 gal	1.6 gal	4 gal	8 gal

2 tablespoons = 1 fluid ounce

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

## 6.4 Ammonium Sulfate

The addition of 1 to 2 percent dry ammonium sulfate by weight or 8.5 to 17 pounds per 100 gallons of water may increase the performance of this product, particularly under hard water conditions, drought conditions or when tank mixed with certain residual herbicides, on annual and perennial weeds. The equivalent rate of ammonium sulfate in a liquid formulation may also be used. Ensure that dry ammonium sulfate is completely dissolved in the spray tank before adding herbicides. Thoroughly rinse the spray system with clean water after use to reduce corrosion.

**NOTE:** When using ammonium sulfate, apply this product at rates recommended in this label. Lower rates will result in reduced performance.

## 6.5 Colorants or Dyes

Agriculturally approved colorants or marking dyes may be added to this product. Colorants or dyes used in spray solutions of this product may

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reduce performance, especially at lower rates or dilutions. Use colorants or dyes according to the manufacturer's recommendations.

**6.6 Drift Control Additives**

Drift control additives may be used with all equipment types, except wiper applicators, sponge bars and Controlled Droplet Applicator (CDA) equipment. When a drift control additive is used, read and carefully observe the cautionary statements and all other information appearing on the additive label. The use of drift control additives can affect spray coverage which may result in reduced performance.

**7.0 APPLICATION EQUIPMENT AND TECHNIQUES**

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

This product may be applied with the following application equipment:

**Aerial**—Fixed Wing and Helicopter

**Ground Broadcast Spray**—Boom or boomless systems, pull-type sprayer, floaters, pick-up sprayers, spray coupes and other ground broadcast equipment.

**Hand-Held or High-Volume Spray Equipment**—Knapsack and backpack sprayers, pump-up pressure sprayers, handguns, handwands, mistblowers\*, lances and other hand-held and motorized spray equipment used to direct the spray onto weed foliage.

\*This product is not registered in California or Arizona for use in mistblowers.

**Selective Equipment**—Recirculating sprayers, shielded and hooded sprayers, wiper applicators and sponge bars.

**Injection Systems**—Aerial or ground injection sprayers.

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

APPLY THESE SPRAY SOLUTIONS IN PROPERLY MAINTAINED AND CALI-

BRATED EQUIPMENT CAPABLE OF DELIVERING DESIRED VOLUMES.

**7.1 Aerial Equipment**

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

Use the recommended rates of this herbicide in 3 to 15 gallons of water per acre unless otherwise specified on this label. Unless otherwise specified, do not exceed 26 fluid ounces per acre. Refer to the individual use area sections of this label for recommended volumes, application rates, and further instructions.

FOR AERIAL APPLICATION IN CALIFORNIA, REFER TO THE SUPPLEMENTAL LABEL FOR AERIAL APPLICATIONS FOR SPECIFIC INSTRUCTIONS, RESTRICTIONS AND REQUIREMENTS.

This product plus dicamba tank mixtures may not be applied by air in California.

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

**AERIAL SPRAY DRIFT MANAGEMENT**

The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops.

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

**Importance of Droplet Size**

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

**APPLICATION EQUIPMENT****17**

## APPLICATION EQUIPMENT 18

“**Temperature and Humidity**”, and “**Temperature Inversions**” sections of this label).

### Controlling Droplet Size

- **Volume:** Use high-flow-rate nozzles to apply the highest practical spray volume. Nozzles with the higher rated flows produce larger droplets.
- **Pressure:** Use the lower spray pressures recommended for the nozzle. Higher pressure reduces droplet size and does not improve canopy penetration. When higher flow rates are needed, use higher-flow-rate nozzles instead of increasing pressure.
- **Number of nozzles:** Use the minimum number of nozzles that provide uniform coverage.
- **Nozzle orientation:** Orienting nozzles so that the spray is released backwards, parallel to the airstream, will produce larger droplets than other orientations. Significant deflection from the horizontal will reduce droplet size and increase drift potential.
- **Nozzle type:** Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce larger droplets than other nozzle types.
- **Boom length:** For some use patterns, reducing the effective boom length to less than 3/4 of the wingspan or rotor length may further reduce drift without reducing swath width.
- **Application height:** Applications should not be made at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces the exposure of the droplets to evaporation and wind.

### Swath Adjustment

When applications are made with a crosswind, the swath will be displaced 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 droplets, etc.).

### Wind

Drift potential is lowest between wind speeds of 2 to 10 miles per hour. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 2 miles per hour due to variable wind direction and high inversion potential. **NOTE:** Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect drift.

### Temperature and Humidity

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

### Temperature Inversions

Applications should not occur during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

### Sensitive Areas

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

Avoid direct application to any body of water.

## APPLICATION EQUIPMENT 19

## APPLICATION EQUIPMENT 20

### Aircraft Maintenance

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

## 7.2 Ground Broadcast Equipment

Use the recommended rates of this product in 3 to 40 gallons of water per acre as a broadcast spray unless otherwise specified. As density of weeds increases, spray volume should be increased within the recommended range to ensure complete coverage. Carefully select proper nozzles to avoid spraying a fine mist. For best results with ground application equipment, use flat spray nozzles. Check for even distribution of spray droplets.

## 7.3 Hand-Held or High-Volume Equipment

Apply to foliage of vegetation to be controlled. For applications made on a spray-to-wet basis, spray coverage should be uniform and complete. Do not spray to the point of runoff. Use coarse sprays only. For recommended rates and timing, refer to the "ANNUAL WEEDS—Hand-Held or High-Volume Equipment" section of this product label.

## 7.4 Selective Equipment

This product may be applied through recirculating spray systems, shielded applicators, hooded sprayers, wiper applicators or sponge bars, after dilution and thorough mixing with water, to listed weeds growing in any non-crop site specified on this label.

In cropping systems, hooded sprayers, shielded sprayers, and wipers may be used in row middles (in between rows of crop plants) where any

dripping or leaking will not contact crop foliage. Such equipment must be capable of preventing all crop contact with herbicide solutions and operated without leakage of spray mists or dripping onto crop. Wipers over-the-top of crops may be used only when specifically recommended in this product's labeling.

### AVOID CONTACT OF HERBICIDE WITH DESIRABLE VEGETATION.

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

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

### Recirculating Spray System

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

### Shielded and Hooded Applicators

When applied under the conditions described in the following paragraphs for shielded and hooded applications, this product at recommended rates will control those weeds listed in the "ANNUAL WEEDS RATE TABLE" and "PERENNIAL WEEDS RATE TABLE" sections of this label. A hooded sprayer is a type of shielded applicator where the spray pattern is fully enclosed including top, sides, front and back, thereby shielding the crop from the spray solution. Keep shields on these sprayers adjusted to protect desirable vegetation. When applying to crops grown on raised beds, ensure that the hood is designed to completely enclose the spray solution. If necessary, extend the front and rear flaps of the hoods to reach the ground in deep furrows. **EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF HERBICIDE WITH DESIRABLE VEGETATION.**

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This equipment must be set up and operated in a manner that avoids bouncing or raising the hoods off the ground in any way. If the hoods are raised, spray particles may escape and come into contact with the crop, causing damage or destruction of the crop. Avoid operation on rough or sloping ground where the spray hoods might be raised off the ground.

Use hoods designed to minimize excessive dripping or run-off down the insides of the hoods. A single, low pressure/ low drift flat-fan nozzle with an 80 to 95 degree spray angle positioned at the top center of the hood is recommended. Spray volume should be 20 to 30 gallons per acre.

These procedures will reduce the potential for crop injury:

- The spray hoods must be operated on the ground or skimming across the ground.
- Leave at least an 8-inch untreated strip over the drill row. For example, if the crop row width is 38 inches, the maximum width of the spray hood should be 30 inches.
- Maximum tractor speed: 5 miles per hour to avoid bouncing of the spray hoods.
- Maximum wind speed: 10 miles per hour.
- Use low-drift nozzles that provide uniform coverage within the treated area.

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

### Wiper Applicators

When applied under the conditions described in the following paragraphs, this product **CONTROLS** many weeds, including volunteer corn, Texas panicum, common rye, shattercane, sicklepod, spanishneedles and bristly starbur; and **SUPPRESSES** many weeds including Florida beggarweed, Bermudagrass, hemp dogbane, dogfennel, guineagrass, johnsongrass, milkweed, silverleaf nightshade, redroot pigweed, giant ragweed, smutgrass, sunflower, Canada thistle, musk thistle, vaseygrass, velvetleaf.

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

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

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

Do not use wiper equipment when weeds are wet.

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

Do not add surfactant to the herbicide solution.

**For Rope or Sponge Wick Applicators**—Solutions ranging from 33 to 75 percent of this product in water may be used. Apply this solution to weeds listed above in this section.

**For Panel Applicators**—Solutions ranging from 33 to 100 percent of this product in water may be used in panel wiper applicators.

## 7.5 Injection Systems

This product may be used in aerial or ground injection spray systems. It may be used as a liquid concentrate or diluted prior to injecting into the spray stream. Do not mix this product with the concentrate of other products when using injection systems.

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### 7.6 CDA Equipment

The rate of this product applied per acre by vehicle-mounted CDA equipment must not be less than the amount recommended in this label when applied by conventional broadcast equipment. For vehicle-mounted CDA equipment, apply 2 to 15 gallons of water per acre.

For the control of annual weeds with hand-held CDA units, apply a 20 percent solution of this product at a flow rate of 2 fluid ounces per minute and a walking speed of 1.5 miles per hour (1 quart per acre). For the control of perennial weeds, apply a 20 to 40 percent solution of this product at a flow rate of 2 fluid ounces per minute and a walking speed of 0.75 miles per hour (2 to 4 quarts per acre).

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

### 8.0 ANNUAL AND PERENNIAL CROPS (Alphabetical)

**NOTE:** THIS SECTION GIVES GENERAL DIRECTIONS THAT APPLY TO ALL LISTED CROPS WITHIN SECTION 8 GROUPED ALPHABETICALLY BELOW. SEE THE INDIVIDUAL CROP CATEGORIES FOR SPECIFIC INSTRUCTIONS, PREHARVEST INTERVALS, AND ADDITIONAL PRECAUTIONS AND RESTRICTIONS.

See the "ROUNDUP READY CROPS" section of this label or separately published Monsanto Supplemental Labeling for instructions for treating Roundup Ready crops.

**TYPES OF APPLICATIONS:** Chemical Fallow, Preplant Fallow Beds, Preplant, Preemergence, At-Planting, Hooded Sprayers in Row-Middles, Shielded Sprayers in Row-Middles, Wiper Applicators in Row-Middles, and Post-Harvest Treatments.

**GENERAL USE INSTRUCTIONS:**

Apply this product during fallow intervals preceding planting, prior to planting or transplanting, at-planting, or preemergent to annual and

perennial crops listed in this label, except where specifically limited. For any crop not listed in this label, applications must be made at least 30 days prior to planting. Unless otherwise specified, weed control applications may be made according to the rates listed in the "ANNUAL WEEDS", "PERENNIAL WEEDS", and "WOODY BRUSH AND TREES RATE TABLES" in this label. Repeat applications may be made up to a maximum of 6.5 quarts per acre per year.

Post-directed hooded sprayers and wiper equipment capable of preventing all crop contact with herbicide solutions may be used in mulched or unmulched row middles after crop establishment. Where specifically noted below, wipers may also be used above certain crops to control tall weeds. Refer to the "Selective Equipment" section of this label for essential precautions when using hooded sprayers or wipers to avoid crop injury caused by leakage of spray mists or dripping onto crops. Crop injury is possible with these applications and shall be the sole responsibility of the applicator.

The maximum use rates stated throughout this product's labeling apply to this product combined with the use of all other herbicides containing glyphosate or sulfosate as the active ingredient, whether applied as mixtures or separately. Calculate the application rates and ensure that the total use of this and other glyphosate or sulfosate containing products does not exceed stated maximum use rate.

**GENERAL PRECAUTIONS, RESTRICTIONS:** Avoid contact of herbicide with foliage, green shoots or stems, bark, exposed roots (including those emerging from plastic mulch), or fruit of crops because severe injury or destruction may result. When making preemergence and at-planting applications, applications must be made before crop emergence to avoid severe crop injury. Broadcast applications made at emergence will result in injury or death to emerged seedlings. Apply before seed germination in coarse sandy soils to further minimize the risk of injury. Unless otherwise specified in this product's labeling, treatments with selective equipment including wipers and hooded sprayers must be made at least 14 days prior to harvest. Post-harvest or fallow applications must be made at least 30 days prior to planting any non-labeled crop. See "APPLICATION EQUIPMENT AND TECHNIQUES" section of this label for additional information.

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In crops where spot treatments are allowed, do not treat more than 10 percent of the total field to be harvested. The crop receiving spray in treated area will be killed. Take care to avoid drift or spray outside the target area for the same reason.

For broadcast postemergent treatments, do not harvest or feed treated vegetation for 8 weeks following application, unless otherwise specified.

**8.1 Cereal and Grain Crops**

**LABELED CROPS:** Barley, Buckwheat, Millet (pearl, proso), Oats, Rice, Rye, Quinoa, Teff, Teosinte, Triticale, Wheat (all types), Wild Rice.

**PRECAUTIONS, RESTRICTIONS:** Do not treat rice fields or levees when field contains water.

**TYPES OF APPLICATIONS:** Those listed in Section 8.0 plus the following: Red Rice Control Prior to Planting Rice, Spot Treatment (except Rice), Wiper Applications Over-the-Top (Feed Barley and Wheat only), Preharvest (Feed Barley and Wheat only).

**Preplant, Preemergence, At-Planting**

**USE INSTRUCTIONS:** This product may be applied before, during or after planting of cereal crops. Applications must be made prior to emergence of the crop.

**Red Rice Control Prior to Planting Rice**

**USE INSTRUCTIONS:** Apply 40 fluid ounces of this product in 5 to 10 gallons of water per acre. Flush fields prior to application to obtain uniform germination and stand of red rice. Make application when the majority of the red rice plants are in the 2-leaf stage and no more than 4 inches tall. Red rice plants with less than 2 true leaves may be only partially controlled.

**PRECAUTIONS, RESTRICTIONS:** Avoid spraying during low humidity conditions, as reduced control may result. Do not treat rice fields or levees when the fields contain floodwater. Do not re-flood treated fields for 8 days following application.

**Spot Treatment (except Rice)**

**USE INSTRUCTIONS:** This product may be applied as a spot treatment in cereal crops. Apply this product before heading in small grains.

**PRECAUTIONS, RESTRICTIONS:** Do not treat more than 10 percent of the total field area to be harvested. The crop receiving spray in the treated area will be killed. Take care to avoid drift or spray outside target area for the same reason.

**Wiper Applications Over-the-Top (Feed Barley and Wheat only)**

**USE INSTRUCTIONS:** Wiper applications may be used in feed barley and wheat. To control common rye or cereal rye, apply after the weeds have headed and achieved maximum growth, and when the rye is at least 6 inches above the wheat crop.

**PRECAUTIONS, RESTRICTIONS:** Allow at least 35 days between application and harvest. Do not use roller applicators.

**Preharvest (Feed Barley and Wheat only)**

**USE INSTRUCTIONS:** This product provides weed control when applied prior to harvest of feed barley or wheat. For wheat, apply after the hard-dough stage of grain (30 percent or less grain moisture). For feed barley, apply after the hard-dough stage and when the grain contains 20 percent moisture or less. Stubble may be grazed immediately after harvest. This product may be applied using either aerial or ground spray equipment. For ground applications, apply this product in 10 to 20 gallons of water per acre. For aerial applications, apply this product in 3 to 10 gallons of water per acre.

**PRECAUTIONS, RESTRICTIONS:** Do not apply more than 26 fluid ounces of this product per acre. Allow 7 days between application and harvest or grazing. Preharvest application is not recommended for wheat or barley grown for seed, as a reduction in germination or vigor may occur.

**Post-Harvest**

**USE INSTRUCTIONS:** This product may be applied after harvest of cereal crops. Higher rates may be required for control of large weeds which were growing in the crop at the time of harvest. Tank mixtures with 2,4-D or dicamba may be used.

**PRECAUTIONS, RESTRICTIONS:** For any crop not listed on this label, applications must be made at least 30 days prior to planting the next crop. Allow a minimum of 7 days between treatment and harvest or feeding of treated vegetation.

**CROPS****27**

**CROPS****28****8.2 Corn**

**TYPES OF CORN:** Field Corn, Seed Corn, Silage Corn, Sweet Corn and Popcorn.

**TYPES OF APPLICATIONS:** Those listed in Section 8.0 plus the following: Spot Treatment, Preharvest.

For Roundup Ready corn, see the "ROUNDUP READY CROPS" section of this label.

**Preplant, Preemergence, At-Planting**

**USE INSTRUCTIONS:** This product may be applied alone or in a tank-mixture before, during or after planting corn. Applications must be made prior to emergence of the crop.

**TANK MIXTURES:** Apply these tank mixtures in 10 to 20 gallons of water or 10 to 60 gallons of nitrogen solution per acre.

2,4-D	Frontier™/Outlook™
Aim™	Fultime™
Atrazine	Guardman™/Leadoff™
Axiom™	Harness®
Balance™	Harness Xtra
Banvel™/Clarity™	Harness Xtra 5.6L
Bicep MAGNUM™	Lariat®
Bicep II MAGNUM™	Lasso™/Alachlor
Bullet®	Linex™/Lorox™
Degree™	Marksman™
Degree Xtra™	Micro-Tech®
Distinct™	Prowl™
Dual MAGNUM™	Python™
Dual II MAGNUM™	Simazine
Epic™	TopNotch™

For difficult-to-control annual weeds such as fall panicum, barnyardgrass, crabgrass, shattercane and broadleaf signalgrass up to 2 inches tall, and Pennsylvania smartweed up to 6 inches tall, apply this product at 26 fluid ounces per acre in these tank mixtures. For other labeled annual weeds, apply 20 to 26 fluid ounces of this product per acre when

weeds are less than 6 inches tall, and 26 to 40 fluid ounces when weeds are over 6 inches tall. When using nitrogen solutions as the carrier, use rate may need to be increased for acceptable weed control.

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

For Southern states, do not apply in nitrogen solutions to tough-to-control grasses such as barnyardgrass, fall panicum, broadleaf signalgrass, annual ryegrass and any perennial weeds. The area covered by this recommendation includes the following states: Florida, Oklahoma, and Texas.

**Hooded Sprayers**

**USE INSTRUCTIONS:** This product may be used through hooded sprayers for weed control between the rows of corn. Only hooded sprayers that completely enclose the spray pattern may be used. See additional instruction for the use of hooded sprayers in the "APPLICATION EQUIPMENT AND TECHNIQUES" section of this label.

**PRECAUTIONS, RESTRICTIONS:** Corn must be at least 12 inches tall, measured without extending leaves. Contact of this product in any manner to any vegetation to which treatment is not intended may cause damage. Such damage shall be the sole responsibility of the applicator. Do not apply more than 26 fluid ounces of this product per acre for each application and no more than 2.4 quarts per acre per year for hooded sprayer applications.

**Spot Treatment**

**USE INSTRUCTIONS:** For spot treatments, apply this product prior to silking of corn.

**PRECAUTIONS, RESTRICTIONS:** Do not treat more than 10 percent of the total field area to be harvested. The crop receiving spray in the treated area will be killed. Take care to avoid drift or spray outside target area for the same reason.

**Preharvest**

**USE INSTRUCTIONS:** Make applications at 35 percent grain moisture or less. Ensure that maximum kernel fill is complete and the corn is physiologically mature (black layer formed). For ground applications, apply up to 2.4 quarts of this product per acre. For aerial applications, apply up to

**CROPS****29**

**CROPS****30**

52 fluid ounces of this product per acre.

**PRECAUTIONS, RESTRICTIONS:** Allow a minimum of 7 days between application and harvest. Preharvest application is not recommended for corn grown for seed, as a reduction in germination or vigor may occur.

**Post-Harvest**

**USE INSTRUCTIONS:** This product may be applied after harvest of corn. Higher rates may be required for control of large weeds that were growing in the crop at the time of harvest. Tank mixtures with 2,4-D or dicamba may be used.

**PRECAUTIONS, RESTRICTIONS:** Allow a minimum of 7 days between treatment and harvest or feeding of treated vegetation.

**8.3 Cotton**

**TYPES OF APPLICATIONS:** Those listed in Section 8.0 plus the following: Selective Equipment, Spot Treatment, Preharvest.

For Roundup Ready cotton, see the "ROUNDUP READY CROPS" section of this label.

**Preplant, Preemergence, At-Planting**

**USE INSTRUCTIONS:** This product may be applied before, during or after planting cotton. Applications must be made prior to emergence of the crop.

**Hooded Sprayer, Selective Equipment**

**USE INSTRUCTIONS:** This product may be applied through hooded sprayers, recirculating sprayers, shielded applicators or wiper applicators in cotton. Allow at least 7 days between application and harvest.

**PRECAUTIONS, RESTRICTIONS:** See the "Selective Equipment" part of the "APPLICATION EQUIPMENT AND TECHNIQUES" section of this label for information on proper use and calibration of this equipment.

**Spot Treatment**

**USE INSTRUCTIONS:** For spot treatments, apply this product prior to boll opening of cotton.

**PRECAUTIONS, RESTRICTIONS:** Do not treat more than 10 percent of the total field area to be harvested. The crop receiving spray in treated area will be killed. Take care to avoid drift or spray outside target area for the same reason.

**Preharvest**

**USE INSTRUCTIONS:** This product provides weed control and cotton regrowth inhibition when applied prior to harvest of cotton. For weed control, apply at rates given in the "ANNUAL WEEDS", "PERENNIAL WEEDS" and "WOODY BRUSH AND TREES RATE TABLES" sections of this label. For cotton regrowth inhibition, apply 13 to 52 fluid ounces of this product per acre.

Up to 52 fluid ounces of this product may be applied using either aerial or ground spray equipment. Apply after sufficient bolls have developed to produce the desired yield of cotton. Applications made prior to this time could affect maximum yield potential.

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

**PRECAUTIONS, RESTRICTIONS:** Allow a minimum of 7 days between application and harvest of cotton. Preharvest application is not recommended for cotton grown for seed, as a reduction in germination or vigor may occur.

**8.4 Fallow Systems**

**LABELED CROPS:** This product may be applied during the fallow period prior to planting or emergence of any crop on this label.

**TYPES OF APPLICATIONS:** Chemical Fallow, Preplant Fallow Beds, Aid-to-Tillage.

**Chemical Fallow**

**USE INSTRUCTIONS:** This product may be applied during the fallow period prior to planting or emergence of any crop listed on this label. This product may be used as a substitute for tillage to control annual weeds in fallow fields. Also, broadcast or spot treatments will control or suppress many perennial weeds in fallow fields. Ground or aerial application equipment may be used. Tank mixtures with 2,4-D and dicamba may be used. Applications up to 52 fluid ounces per acre may be made by aerial

**CROPS****31**

**CROPS****32**

application in fallow sites where there is sufficient buffer to prevent injury due to drift onto adjacent crops.

**PRECAUTIONS, RESTRICTIONS:** For any crop not listed on this label, applications must be made at least 30 days prior to planting. Do not apply dicamba tank mixtures by air in California.

Refer to the specific product labels for crop rotation restrictions and cautionary statements of all products used in tank mixtures. Some crop injury may occur if dicamba is applied within 45 days of planting.

**Preplant Fallow Beds**

**USE INSTRUCTIONS:** This product may be applied to fallow beds prior to planting or emergence of any crop listed on this label. For any crop not listed on this label, applications must be made at least 30 days prior to planting. This product will control weeds listed in the "ANNUAL WEEDS", "PERENNIAL WEEDS", and "WOODY BRUSH AND TREES RATE TABLES" sections of this label.

**TANK MIXTURES:** In addition, 10 fluid ounces of this product plus 2 to 3 fluid ounces of Goal™ 2XL per acre will control the following weeds with the maximum height or length indicated: 3 inches—common cheeseweed, chickweed, groundsel; 6 inches—London rocket, shepherd's-purse.

13 fluid ounces of this product plus 2 to 3 fluid ounces of Goal 2XL per acre will control the following weeds with the maximum height or length indicated: 6 inches—common cheeseweed, groundsel, marestalk (*Coryza canadensis*), 12 inches—chickweed, London rocket, shepherd's-purse.

**Aid-to-Tillage**

**USE INSTRUCTIONS:** This product may be used in conjunction with tillage practices in fallow systems or preplant to labeled crops to control downy brome, cheat, volunteer wheat, tansy mustard and foxtail. Apply 10 fluid ounces of this product in 3 to 10 gallons of water per acre. Make applications before weeds are 6 inches in height. Application must be followed by conventional tillage practices no later than 15 days after treatment and before regrowth occurs. Allow at least 1 day after application before tillage.

**PRECAUTIONS, RESTRICTIONS:** Tank mixtures with residual herbicides may result in reduced performance.

**8.5 Grain Sorghum (Milo)**

**TYPES OF APPLICATIONS:** Those listed in Section 8.0 plus the following: Spot Treatment, Over-the-Top Wiper Applications, Preharvest.

**Preplant, Preemergence, At-Planting**

**USE INSTRUCTIONS:** This product may be applied alone or in tank-mixture before, during or after planting grain sorghum. Applications must be made prior to emergence of the crop.

**TANK MIXTURES:** Apply these tank mixtures in 10 to 20 gallons of water or 10 to 60 gallons of nitrogen solution per acre.

Atrazine	Lariat
Bicep II MAGNUM	Lasso
Bullet	Micro-Tech
Dual II MAGNUM	

For difficult-to-control annual weeds such as fall panicum, barnyard-grass, crabgrass, shattercane and broadleaf signalgrass up to 2 inches tall, and Pennsylvania smartweed up to 6 inches tall, apply this product at 26 fluid ounces per acre in these tank mixtures. For other labeled annual weeds, apply 20 to 26 fluid ounces of this product per acre when weeds are less than 6 inches tall, and 26 to 40 fluid ounces when weeds are over 6 inches tall. When using nitrogen solutions as the carrier, the use rate may need to be increased for acceptable weed control.

**Spot Treatment, Over-the-Top Wiper Applications**

**USE INSTRUCTIONS:** This product may be applied as a spot treatment in grain sorghum. Make spot treatments before heading of milo. This product may be applied with wiper applicators to control or suppress the weeds listed under "Wiper Applicators" in the "Selective Equipment" section of this label.

**PRECAUTIONS, RESTRICTIONS:** For spot treatment, do not treat more than 10 percent of the total field area to be harvested. The crop receiving spray in treated area will be killed. Take care to avoid drift or spray outside target area for the same reason.

For wiper applicators, allow at least 40 days between application and

**CROPS****33**

**CROPS****34**

harvest. Do not use roller applicators. Do not feed or graze treated milo fodder. Do not ensile treated vegetation.

**Hooded Sprayers**

USE INSTRUCTIONS: This product may be used through hooded sprayers for weed control between the rows of milo. Only hooded sprayers that completely enclose the spray pattern may be used. See additional instruction for the use of hooded sprayers in the "APPLICATION EQUIPMENT AND TECHNIQUES" section of this label.

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

PRECAUTIONS, RESTRICTIONS: Milo must be at least 12 inches tall, measured without extending leaves. Treat before milo sends tillers between the drill rows. If such tillers are contacted with the spray solution, the main plant may be killed. Contact of this product in any manner to any vegetation to which treatment is not intended may cause damage. Such damage shall be the sole responsibility of the applicator. Do not graze or feed milo forage or fodder following applications of this product through hooded sprayers. Do not apply more than 26 fluid ounces of this product per acre per application and no more than 2.4 quarts per acre per year for hooded sprayer applications.

**Preharvest**

USE INSTRUCTIONS: Make applications at 30 percent grain moisture or less.

PRECAUTIONS, RESTRICTIONS: Do not apply more than 52 fluid ounces of this product per acre. As with other herbicides that cause sudden plant death, avoid preharvest applications of this product to milo infected with charcoal rot as lodging can occur. Allow a minimum of 7 days between application and harvest of sorghum. Preharvest application is not recommended for sorghum grown for seed, as a reduction in germination or vigor may occur. The use of this product for preharvest grain sorghum (milo) is not registered in California

**Post-Harvest**

USE INSTRUCTIONS: This product may be applied after harvest of grain sorghum. Higher rates may be required for control of large weeds which were growing in the crop at the time of harvest. Tank mixtures with 2,4-D or dicamba may be used.

This product may be applied to grain sorghum (milo) stubble following harvest to suppress or control regrowth. Apply 26 fluid ounces of this product per acre for control, or 20 fluid ounces of this product per acre for suppression.

PRECAUTIONS, RESTRICTIONS: Allow a minimum of 7 days between treatment and harvest or feeding of treated vegetation.

**8.6 Herbs and Spices**

LABELLED CROPS: Allspice, Angelica, Star anise, Annatto (seed), Balm, Basil, Borage, Burnet, Camomile, Caper buds, Caraway, Black caraway, Cardamom, Cassia bark, Cassia buds, Catnip, Celery seed, Chervil (dried), Chive, Chinese chive, Cinnamon, Clary, Clove buds, Coriander leaf (cilantro or chinese parsley), Coriander seed (cilantro), Costmary, Culantro (leaf), Culantro (seed), Cumin, Curry (leaf), Dill (dillweed), Dill (seed), Epazote, Fennel seed (common and Florence), Fenugreek, White ginger flower, Grains of paradise, Horehound, Hyssop, Juniper berry, Lavender, Lemongrass, Lovage (leaf and seed), Mace, Marigold, Marjoram (including oregano), Mexican oregano, Mioga flower, Mustard (seed), Nasturtium, Nutmeg, Parsley (dried), Pennyroyal, Pepper (black and white), Pepper leaves, Peppermint, Perilla, Poppy (seed), Rosemary, Rue, Saffron, Sage, Savory (summer and winter), Spearmint, Stevia leaves, Sweet bay, Tansy, Tarragon, Thyme, Vanilla, Wintergreen, Woodruff, Wormwood.

TYPES OF APPLICATIONS: Those listed in Section 8.0 plus the following: Over-the-Top Wiper Applicators (Peppermint and Spearmint only), Spot Treatments (Peppermint and Spearmint only).

PRECAUTIONS, RESTRICTIONS: When applying this product prior to transplanting or direct-seeding crops into plastic mulch, care must be taken to remove residues of this product, which could cause crop injury,

**CROPS****35**

**CROPS****36**

from the plastic prior to planting. Residues can be removed by a single 0.5-inch application of water, either by natural rainfall or via a sprinkler system. Care should be taken to insure that the washwater flushes off the plastic mulch and does not enter transplant holes.

**Over-the-Top Wiper Applicators, Spot Treatments (Peppermint and Spearmint only)**

**USE INSTRUCTIONS:** This product may be used as a spot treatment or wiper application in spearmint and peppermint. Apply spot treatments on a spray-to-wet basis with hand-held equipment, such as backpack and knapsack sprayers, pump-up pressure sprayers, hand-guns, hand-wands or any other hand-held or motorized spray equipment used to direct the spray solution to a limited area. In wiper applications, the applicator should be adjusted so that the wiper contact point is at least 2 inches above the crop. Weeds should be a minimum of 6 inches taller than the crop.

**PRECAUTIONS, RESTRICTIONS:** Allow at least 7 days between application and harvest. Further applications may be made in the same area at 30-day intervals. In spot treatment applications, no more than 10 percent of the total field area to be harvested should be treated at one time. The crop receiving spray in the treated area will be killed. Take care to avoid drift or spray outside the target area for this reason. In wiper applications, contact of the herbicide solution with the crop may result in damage or destruction.

**8.7 Oil Seed Crops**

**LABELED CROPS:** Borage, Buffalo gourd (seed), Canola, Crambe, Flax, Jojoba, Lesquerella, Meadowfoam, Mustard (seed), Rape, Safflower, Sesame, Sunflower.

For Roundup Ready canola, see the "ROUNDUP READY CROPS" section of this label.

**TYPES OF APPLICATIONS:** Those listed in Section 8.0.

**USE INSTRUCTIONS:** This product may be applied before, during or after planting oil seed crops. Broadcast applications must be made prior to

emergence of the listed oil seed crops. Wiper applicators or hooded sprayers may be used between the rows once the crop is established.

**TANK MIXTURES:** For sunflowers, a tank mixture with Prowl may be applied before, during or after planting in conventional tillage systems, into a cover crop, established sod or in previous crop residue.

**PRECAUTIONS, RESTRICTIONS:** Do not apply more than 52 fluid ounces of this product per acre on canola. Do not apply more than 26 fluid ounces of this product per acre for sunflowers as a single preplant or preemergent application per year. Do not feed or graze sunflower forage following application of this product.

**8.8 Soybeans**

**TYPES OF APPLICATIONS:** Those listed in Section 8.0 plus the following: Spot Treatment, Preharvest, Selective Equipment.

For Roundup Ready soybeans, see the "ROUNDUP READY CROPS" section of this label.

**Preplant, Preemergence, At-Planting**

**USE INSTRUCTIONS:** This product may be applied alone or in a tank-mixture before, during or after planting soybeans. Applications must be made prior to emergence of the crop.

**TANK MIXTURES:** Apply these tank mixtures in 10 to 20 gallons of water per acre.

Aim™	Gauntlet™
Amplify™	Lasso
Assure II™	Linex™
Authority™	Lorox/Linuron
Boundary™	Lorox Plus™
Canopy™	Micro-Tech
Canopy XL™	Prowl
Command™	Pursuit™
Command Xtra™	Pursuit Plus
Domain™	Reflex™
Dual MAGNUM	Scepter™

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Dual II MAGNUM	Sencor™/Lexone™
Firstrate™	Squadron™
Flexstar™	Steel™
Frontier™/Outlook™	Valor™
Fusion™	

This product may be tank-mixed with 2,4-D or 2,4-DB. See the 2,4-D label for intervals between application and planting.

For difficult-to-control annual weeds such as fall panicum, barnyard-grass, crabgrass, shattercane and broadleaf signalgrass up to 2 inches tall, and Pennsylvania smartweed up to 6 inches tall, apply this product at 26 fluid ounces per acre in these tank mixtures. For other labeled annual weeds, apply 20 to 26 fluid ounces of this product per acre when weeds are less than 6 inches tall, and 26 to 40 fluid ounces when weeds are over 6 inches tall.

**PRECAUTIONS, RESTRICTIONS:** Tank-mixtures with some of the above listed herbicides may result in reduced weed control due to antagonism. Read and carefully observe the cautionary statements and all other information appearing on the product labels, supplemental labeling or fact sheets published separately for all herbicides used. Use according to the most restrictive directions for each product in the mixture.

**Spot Treatment**

**USE INSTRUCTIONS:** For spot treatments, apply this product prior to initial pod set in soybeans.

**PRECAUTIONS, RESTRICTIONS:** Do not treat more than 10 percent of the total field area to be harvested. The crop receiving spray in treated area will be killed. Take care to avoid drift or spray outside target area for the same reason.

**Preharvest**

**USE INSTRUCTIONS:** This product provides weed control when applied prior to harvest of soybeans.

Apply at rates given in the "ANNUAL WEEDS", "PERENNIAL WEEDS" and "WOODY BRUSH AND TREES RATE TABLES". This product may be applied using either aerial or ground spray equipment. Apply after pods have set and lost all green color. Care should be taken to avoid excessive

seed shatter loss due to ground application equipment.

**PRECAUTIONS, RESTRICTIONS:** Do not apply more than 4 quarts per acre of this product for preharvest applications. Do not apply more than 52 fluid ounces per acre of this product by air. Allow a minimum of 7 days between application and harvest of soybeans. Do not graze or harvest treated hay or fodder for livestock feed within 25 days of last preharvest application. (If the application rate is 26 fluid ounces per acre or lower, the grazing restriction is reduced to 14 days after last preharvest application.) Preharvest application is not recommended for soybeans grown for seed, as a reduction in germination or vigor may occur.

**Selective Equipment**

**USE INSTRUCTIONS:** This product may be applied through recirculating sprayers, shielded applicators, hooded sprayers, wiper applicators or sponge bars in soybeans. Allow at least 7 days between application and harvest.

**PRECAUTIONS, RESTRICTIONS:** See the "Selective Equipment" part of the "APPLICATION EQUIPMENT AND TECHNIQUES" section of this label for information on proper use and calibration of this equipment.

**8.9 Sugarcane**

**TYPES OF APPLICATIONS:** Those listed in Section 8.0 plus Spot Treatment.

**Preplant, Preemergence, At-Planting**

**USE INSTRUCTIONS:** This product may be applied in or around sugarcane fields or in fields prior to the emergence of plant cane.

**PRECAUTIONS, RESTRICTIONS:** Do not apply to vegetation in or around ditches, canals or ponds containing water to be used for irrigation.

**Spot Treatment**

**USE INSTRUCTIONS:** This product may be applied as a spot treatment in sugarcane. For control of volunteer or diseased sugarcane, make a 1 percent solution of this product in water and spray-to-wet the foliage of vegetation to be controlled. Volunteer or diseased sugarcane should have at least 7 new leaves.

**PRECAUTIONS, RESTRICTIONS:** Avoid spray contact with healthy cane

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plants since severe damage or destruction may result. Do not feed or graze treated sugarcane foliage following application.

**Fallow Treatments**

**USE INSTRUCTIONS:** This product may be used as a replacement for tillage in fields that are lying fallow between sugarcane crops. This product may also be used to remove the last stubble of ratoon cane. For removal of last stubble of ratoon cane, apply 3.2 to 4 quarts of this product in 10 to 40 gallons of water per acre to new growth having at least 7 new leaves. Allow 7 or more days after application before tillage. Ground or aerial application equipment may be used. Applications up to 2.4 quarts of this product per acre may be made by aerial application in fallow sites where there is sufficient buffer to prevent injury due to drift onto adjacent crops. Tank mixtures with 2,4-D and dicamba may be used.

**Hooded Sprayers**

**USE INSTRUCTIONS:** This product may be used through hooded sprayers for weed control between the rows of sugarcane. See the "APPLICATION EQUIPMENT AND TECHNIQUES" section of this label for additional use instructions.

**PRECAUTIONS, RESTRICTIONS:** Do not allow treated weeds to come into contact with the crop. Droplets, mist, foam or splatter of the herbicide solution settling on the crop may result in discoloration, stunting or destruction. Such damage shall be the sole responsibility of the applicator.

## 8.10 Vegetable Crops

**NOTE:** THIS "VEGETABLE CROPS" SECTION GIVES GENERAL DIRECTIONS THAT APPLY TO ALL LISTED VEGETABLE CROPS WITHIN SECTION 8.10 GROUPED ALPHABETICALLY BELOW. SEE THE INDIVIDUAL CROP CATEGORIES FOR SPECIFIC INSTRUCTIONS, PREHARVEST INTERVALS, PRECAUTIONS AND RESTRICTIONS.

**TYPES OF APPLICATIONS:** Chemical Fallow, Preplant Fallow Beds, Preplant, Preemergence, Prior to Transplanting Vegetables, At-Planting, Hooded Sprayers in Row-Middles, Shielded Sprayers in Row-Middles, Wiper Applications in Row-Middles, and Post-Harvest, Directed Applications (Nonbearing Ginseng), Over-the-Top Wipers (Rutabagas only).

**PRECAUTIONS, RESTRICTIONS:** When applying this product prior to transplanting or direct-seeding crops into plastic mulch, care must be taken to remove residues of this product, which could cause crop injury, from the plastic prior to planting. Residues can be removed by a single 0.5-inch application of water, either by natural rainfall or via a sprinkler system. Care should be taken to insure that the wash water flushes off the plastic mulch and does not enter transplant holes. Applications made at emergence will result in injury or death to emerged seedlings.

Avoid contact of herbicide with foliage, green shoots or stems, bark, exposed roots (including those emerging from plastic mulch), or fruit of crops because severe injury or destruction may result. When making preemergence and at-planting applications, applications must be made before crop emergence to avoid severe crop injury. Apply before seed germination in coarse sandy soils to further minimize the risk of injury. In crops with vines, hooded sprayer, shielded sprayer and wiper applications to row middles should be made prior to vine development otherwise severe injury or destruction may result. Unless otherwise specified in this product's labeling, treatments with selective equipment including wipers and hooded sprayers must be made at least 14 days prior to harvest. Post-harvest or fallow applications must be made at least 30 days prior to planting any non-labeled crop. See "APPLICATION EQUIPMENT AND TECHNIQUES" section of this label for additional information.

### 8.10.1 Brassica Vegetables

**LABELED CROPS:** Broccoli, Chinese broccoli (gai lon), Broccoli raab (rapini), Brussels sprouts, Cabbage, Chinese cabbage (bok choy), Chinese cabbage (napa), Chinese mustard cabbage (gai choy), Cauliflower, Cavalo broccolo, Collards, Kale, Kohlrabi, Mizuna, Mustard greens, Mustard spinach, Rape greens.

### 8.10.2 Bulb Vegetables

**LABELED CROPS:** Garlic, Great-headed garlic, Leek, Onion (dry bulb and green), Welsh Onion, Shallot.

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## 8.10.3 Cucurbit Vegetables and Fruits

**LABELED CROPS:** chayote (fruit), Chinese waxgourd (Chinese preserving melon), Citron melon, Cucumber, Gherkin, Edible gourd (includes hyotan, cucuzza, hechima, Chinese okra), Melons (all), *Momordica spp* (includes balsam apple, balsam pear, bittermelon, Chinese cucumber), Muskmelon (includes cantaloupe, casaba, crenshaw melon, golden pershaw melon, honeydew melon, honey ball melon, mango melon, Persian melon, pineapple melon, Santa Claus melon, snake melon), Pumpkin, Summer squash (includes crookneck squash, scallop squash, straight-neck squash, vegetable marrow, zucchini), Winter squash (includes butternut squash, calabaza, hubbard squash, acorn squash, spaghetti squash), Watermelon.

**PRECAUTIONS, RESTRICTIONS:** For Cantaloupe, Casaba melon, Crenshaw melon, Cucumber, Gherkin, Gourds, Honeydew melon, Honey ball melon, Mango melon, Melons (all), Muskmelon, Persian melon, Pumpkin, Squash (summer, winter), and Watermelon, allow at least 3 days between application and planting.

## 8.10.4 Leafy Vegetables

**LABELED CROPS:** Amaranth (Chinese spinach), Arugula (rocket), Beet greens, Cardoon, Celery, Chinese celery, Celuce, Chaya, Chervil, Edible-leaved chrysanthemum, Garland chrysanthemum, Corn salad, Cress (garden and upland), Dandelion, Dock (sorrel), Dokudami, Endive (escarole), Florence fennel, Gow kee, Lettuce (head and leaf), Orach, Parsley, Purslane (garden and winter), Radicchio (red chicory), Rhubarb, Spinach, New Zealand spinach, Vine spinach, Swiss chard, Watercress (upland), Water spinach.

**PRECAUTIONS, RESTRICTIONS:** For Watercress, avoid applications within 3 days prior to seeding and during the period between seeding and emergence to minimize the risk of injury.

## 8.10.5 Fruiting Vegetables

**LABELED CROPS:** Eggplant, Groundcherry (*Physalis spp*), Pepino, Pepper (includes bell pepper, chili pepper, cooking pepper, pimento, sweet pepper), Tomatillo, Tomato.

**PRECAUTIONS, RESTRICTIONS:** For Eggplant, Ground cherry, Pepper (all), and Tomatillo, allow at least 3 days between application and planting. For Tomato, do not make hooded or shielded sprayer applications in row middles because of the potential for crop injury.

## 8.10.6 Legume Vegetables (succulent or dried)

**LABELED CROPS:** Bean (*Lupinus*: includes grain lupin, sweet lupin, white lupin, and white sweet lupin), Bean (*Phaseolus*: includes field bean, kidney bean, lima bean, navy bean, runner bean, snap bean, tepary bean, wax bean), Bean (*Vigna*: includes adzuki bean, asparagus bean, blackeyed pea, catjang, Chinese longbean, cowpea, crowder pea, moth bean, mung bean, rice bean, southern pea, urd bean, yardlong bean), Broad bean (fava), Chickpea (garbanzo), Guar, Jackbean, Lablab bean, Lentil, Pea (*Pisum*: includes dwarf pea, edible-podded pea, English pea, field pea, garden pea, green pea, snowpea, sugar snap pea), Pigeon pea, Soybean (immature seed), Sword bean.

## 8.10.7 Root and Tuber Vegetables

**LABELED CROPS:** Arracacha, Arrowroot, Chinese artichoke, Jerusalem artichoke, Beet (garden), Burdock, Canna, Carrot, Cassava (bitter and sweet), Celeriac, Chayote (root), Chervil (turnip-rooted), Chicory, Chufa, Dasheen (taro), Galangal, Ginger, Ginseng, Horseradish, Leren, Kava (turnip-rooted), Parsley (turnip-rooted), Parsnip, Potato, Radish, Oriental radish, Rutabaga, Salsify, Black salsify, Spanish salsify, Skirret, Sweet potato, Tanier, Turmeric, Turnip, Wasabi, Yacon, Yam bean, True yam.

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**CROPS****44****Directed Applications (Non-bearing Ginseng only)**

**USE INSTRUCTIONS:** This product may be used for general weed control in established non-bearing ginseng. Applications may be made with boom equipment, CDA, shielded sprayers, hand-held and high volume wands, lances, and orchard guns or with wiper application equipment.

**PRECAUTIONS, RESTRICTIONS:** Direct applications so that there is no contact of this product with the ginseng plant. Applications must be made at least one year prior to harvest.

**Over-the-Top Wiper Applications (Rutabagas only)**

**USE INSTRUCTIONS:** Wiper applicators may be used over-the-top of rutabagas.

**PRECAUTIONS, RESTRICTIONS:** Allow at least 14 days between application and harvest of rutabagas.

**8.11 Miscellaneous Crops**

**LABELED CROPS:** Aloe vera, Asparagus, Bamboo shoots, Globe artichoke, Okra, Peanut (ground nut), Pineapple, Strawberry, Sugar beet.

**TYPES OF APPLICATIONS:** Those listed in Section 8.0 plus the following: General Weed Control, Site Preparation, Spot Treatment (Asparagus).

For Roundup Ready sugar beets, see the "ROUNDUP READY CROPS" section of this label.

**PRECAUTIONS, RESTRICTIONS:** Avoid contact of herbicide with foliage, green shoots or stems, bark, exposed roots (including those emerging from plastic mulch), or fruit of crops because severe injury or destruction may result. When making preemergence and at-planting applications, applications must be made before crop emergence to avoid severe crop injury. Apply before seed germination in coarse sandy soils to further minimize the risk of injury. In crops with vines, hooded sprayer, shielded sprayer and wiper applications to row middles should be made prior to vine development otherwise severe injury or destruction may result. Unless otherwise specified in this product's labeling, treatments with selective equipment including wipers and hooded sprayers must be made at least 14 days prior to harvest. Post-harvest or fallow applications must be made at least 30 days prior to planting any non-labeled crop. See "APPLICATION EQUIPMENT AND TECHNIQUES" section of this

label for additional information.

**General Weed Control, Site Preparation**

**USE INSTRUCTIONS:** This product may be applied for general weed control or for site preparation prior to planting or transplanting crops listed in this section.

**PRECAUTIONS, RESTRICTIONS:** When applying this product prior to transplanting or direct-seeding crops into plastic mulch, care must be taken to remove residues of this product, which could cause crop injury, from the plastic prior to planting. Residues can be removed by a single 0.5-inch application of water, either by natural rainfall or via a sprinkler system. Care should be taken to insure that the wash water flushes off the plastic mulch and does not enter transplant holes. Applications made at emergence will result in injury or death to emerged seedlings.

Do not apply within a week before the first asparagus spears emerge. Do not feed or graze treated pineapple forage following application.

**Spot Treatment (Asparagus)**

**USE INSTRUCTIONS:** This product may be applied immediately after cutting, but prior to the emergence of new spears.

**PRECAUTIONS, RESTRICTIONS:** Do not treat more than 10 percent of the total field area to be harvested. Do not harvest within 5 days of treatment.

**Post-Harvest (Asparagus)**

**USE INSTRUCTIONS:** This product may be applied after the last harvest and all spears have been removed. If spears are allowed to regrow, delay application until ferns have developed. Delayed treatments should be applied as a directed or shielded spray in order to avoid contact of the spray with ferns, stems or spears.

**PRECAUTIONS, RESTRICTIONS:** Direct contact of the spray with the asparagus may result in serious crop injury. Select and use recommended types of spray equipment for postemergence post-harvest applications. A directed spray is any application where the spray pattern is aligned in such a way as to avoid direct contact of the spray with the crop. A shielded spray is any application where a physical barrier is positioned and maintained between the spray and the crop to prevent contact of spray with the crop.

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### 9.0 TREE, VINE, AND SHRUB CROPS (Alphabetical)

**NOTE:** THIS SECTION GIVES GENERAL DIRECTIONS THAT APPLY TO ALL LISTED TREE, VINE, AND SHRUB CROPS WITHIN SECTION 9 GROUPED ALPHABETICALLY BELOW. SEE THE INDIVIDUAL CROP CATEGORIES FOR SPECIFIC INSTRUCTIONS, PREHARVEST INTERVALS, PRECAUTIONS AND RESTRICTIONS.

**TYPES OF APPLICATIONS:** Preplant (Site Preparation) Broadcast Sprays, General Weed Control, Middles (between rows of trees, vines or bushes), Strips (within rows of trees, vines or bushes), Selective Equipment (shielded sprayers, wiper treatments), Directed Sprays, Spot Treatments, Perennial Grass Suppression, Cut Stump.

Applications may be made with boom equipment, CDA equipment, shielded sprayers, hand-held and high-volume wands, lances, orchard guns or with wiper applicator equipment, except as directed.

**GENERAL USE INSTRUCTIONS:** This product may be applied in middles (between rows of trees or vines), strips (within rows of trees or vines), and for general weed control or perennial grass suppression in established tree fruit and nut groves, orchards, berries, and vineyards. It may also be used for site preparation prior to planting or transplanting these crops. Apply 13 fluid ounces to 4 quarts per acre according to the "ANNUAL WEEDS" and "PERENNIAL WEEDS RATE TABLES" sections of this label. Utilize rates at the higher end of the recommended rate range when weeds are stressed, growing in dense populations or are greater than 12 inches tall. Repeat applications may be made up to a maximum of 8.5 quarts per acre per year.

The maximum use rates stated throughout this product's labeling apply to this product combined with the use of all other herbicides containing glyphosate or sulfosate as the active ingredient, whether applied as mixtures or separately. Calculate the application rates and ensure that the total use of this and other glyphosate or sulfosate containing products does not exceed stated maximum use rate.

**GENERAL PRECAUTIONS, RESTRICTIONS:** Extreme care must be exer-

cised to avoid contact of herbicide solution, spray, drift or mist with foliage or green bark of trunk, branches, suckers, fruit or other parts of trees, canes and vines. Avoid applications when recent pruning wounds or other mechanical injury has occurred. Contact of this product with other than matured brown bark can result in serious crop damage or destruction. Only shielded or directed sprayers may be used in crops with potential for crop contact, and then only where there is sufficient clearance. For applications in strips (within rows of trees), only selective equipment (directed sprays, hooded sprayers, shielded applicators, or wipers) should be used to minimize the potential for leakage or drift of herbicide sprays onto crop. For berry crops, hooded or shielded sprayers must be fully enclosed including top, sides, front and back. Only wipers or shielded applicators capable of preventing all contact with crop may be used. See "APPLICATION EQUIPMENT AND TECHNIQUES" section of this label for additional directions and precautions.

Allow a minimum of 3 days between application and transplanting.

#### Middles (between rows)

**USE INSTRUCTIONS:** This product will control or suppress annual and perennial weeds and ground covers growing between the rows of labeled tree and vine crops. If weeds are under drought stress, irrigate prior to application. Reduced control may result if weeds have been mowed prior to application.

**TANK MIXTURES:** A tank mixture of this product plus Goal 2XL may be used for annual weeds in middles between rows of citrus crops, tree fruits, tree nuts and vine crops. This mixture is recommended when weeds are stressed or growing in dense populations. 13 to 26 fluid ounces per acre of this product plus 3 to 12 fluid ounces per acre of Goal 2XL will control annual weeds with a maximum height or diameter of 6 inches, including crabgrass, common groundsel, junglerice, common lambsquarters, redroot pigweed, London rocket, common ryegrass, shepherd's-purse, annual sowthistle, filaree (suppression), horse-weed/marestail, stinging nettle and common purslane (suppression). 13 to 26 fluid ounces per acre of this product plus 3 to 12 fluid ounces per acre of Goal 2XL will control common cheeseweed (malva) or hairy fleabane with a maximum height or diameter of 3 inches.

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### Strips (in rows)

TANK MIXTURES: This product may be applied in rows of tree or vine crops in tank mixtures with the following products:

Devrino™ 50 DF	Simazine 4L
Direx™ 4L	Simazine 80W
Goal 2XL	Sim-Trol™ 4L
Karmex™ DF	Solicam™ DF
Krovlar I	Surflan™ AS
Prowl	Surflan™ 75W
Princep Caliber™ 90	

Do not apply these tank mixtures in Puerto Rico.

Refer to the individual product labels for specific crops, rates, geographic restrictions and precautionary statements.

### Perennial Grass Suppression

This product will suppress perennial grasses such as bahiagrass, Bermudagrass, tall fescue, orchardgrass, Kentucky bluegrass, and quackgrass that are grown as ground covers in tree and vine crops.

For suppression of tall fescue, fine fescue, orchardgrass and quackgrass, apply 6.5 fluid ounces of this product in 10 to 20 gallons of water per acre.

For suppression of Kentucky bluegrass covers, apply 5 fluid ounces of this product per acre. Do not add ammonium sulfate.

For best results, mow cool season grass covers in the spring to even their height and apply this product 3 to 4 days after mowing.

For suppression of vegetative growth and seedhead inhibition of bahiagrass for approximately 45 days, apply 5 fluid ounces of this product in 10 to 25 gallons of water per acre. Apply 1 to 2 weeks after full green-up or after mowing to a uniform height of 3 to 4 inches. This application must be made prior to seedhead emergence.

For suppression up to 120 days, apply 3.25 fluid ounces of this product per acre, followed by an application of 1.5 to 3.25 fluid ounces per acre about 45 days later. Make no more than 2 applications per year.

For burndown of Bermudagrass, apply 26 to 52 fluid ounces of this product in 3 to 20 gallons of water per acre. Use this treatment only if reduc-

tion of the Bermudagrass stand can be tolerated. When burndown is required prior to harvest, allow at least 21 days to ensure sufficient time for burndown to occur.

For suppression of Bermudagrass, apply 5 to 13 fluid ounces of this product per acre east of the Rocky Mountains and 13 fluid ounces of this product per acre west of the Rocky Mountains. Apply in a total spray volume of 3 to 20 gallons per acre, no sooner than 1 to 2 weeks after full green-up. If the Bermudagrass is mowed prior to application, maintain a minimum of 3 inches in height. Sequential applications may be made when regrowth occurs and Bermudagrass injury and stand reduction can be tolerated. East of the Rocky Mountains, rates of 5 to 8 fluid ounces of this product per acre should be used in shaded conditions or where a lesser degree of suppression is desired.

### Cut Stump (Tree Crops)

USE INSTRUCTIONS: Cut stump applications of this product may be made during site preparation or site renovation, prior to transplanting tree crops. This product will control regrowth of cut stumps and resprouts of many types of tree species, some of which are listed below.

**Citrus Trees:** Calamondin, Chironja, Citron, Citrus hybrids, Grapefruit, Kumquat, Lemon, Lime, Mandarin (Tangerine), Orange (all), Pummelo, Tangelo, Tangor.

**Fruit Trees:** Apple, Apricot, Cherry (sweet, sour), Crabapple, Loquat, Mayhaw, Nectarine, Olive, Peach, Pear, Plum/Prune (all), Quince.

**Nut Trees:** Almond, Beechnut, Brazil Nut, Butternut, Cashew, Chestnut, Chinquapin, Filbert (hazelnut), Hickory Nut, Macadamia, Pecan, Pistachio, Walnut (black, English).

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

PRECAUTIONS, RESTRICTIONS: DO NOT MAKE CUT STUMP APPLICATIONS WHEN THE ROOTS OF ADJACENT DESIRABLE TREES MAY BE

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**GRAFTED TO THE ROOTS OF THE CUT STUMP. INJURY RESULTING FROM ROOT GRAFTING MAY OCCUR IN ADJACENT TREES.** Some sprouts, stems, or trees may share the same root system. Adjacent trees having a similar age, height and spacing may signal shared roots. Whether grafted or shared, injury is likely to occur to non-treated stems/trees when one or more trees sharing common roots are treated.

### 9.1 Berry Crops

**LABELED CROPS:** Blackberry (including bingleberry, black satin berry, boysenberry, Cherokee blackberry, chesterberry, Cheyenne blackberry, coryberry, darrowberry, dewberry, Dirksen thornless berry, Himalayaberry, hullberry, juneberry, lavacaberry, lowberry, lucretiaberry, marionberry, nectarberry, olallieberry, Oregon evergreen berry, phenomenalberry, rangeberry, ravenberry, rossberry, Shawnee blackberry, and youngberry), Blueberry, Cranberry, Currant, Elderberry, Gooseberry, Huckleberry, Loganberry, Salal.

**TYPES OF APPLICATIONS:** Those listed in Section 9.0 plus Spot Treatment in Cranberry Production and Post-Harvest Treatments in Cranberry Production.

**PRECAUTIONS, RESTRICTIONS:** To avoid damage, herbicide sprays must not be allowed to contact desirable vegetation, including green shoots, canes, or foliage. Allow a minimum of 30 days between last application and harvest in cranberries. Allow a minimum of 14 days between last application and harvest in other berry crops. Do not make directed sprays within the cranberry bush areas prior to berry harvest.

#### Spot Treatment in Cranberry Production

**USE INSTRUCTIONS:** Spot treatments may be used to control weeds growing in dry ditches (interior and perimeter) of cranberry production areas. Hand-held sprayers or other appropriate application equipment listed under "APPLICATION EQUIPMENT AND TECHNIQUES" in this label may be used. Drop water level to remove standing water in ditches prior to application. In hand-held sprayers, use 0.8 to 1.6 percent solution of this product. Spray to wet vegetation, not to run-off.

**PRECAUTIONS, RESTRICTIONS:** For treatments after draw-down of water in dry ditches, allow 2 or more days after treatment before reintroduction of water to achieve maximum weed control. Apply this product within 1

day after draw-down to ensure application to actively growing weeds. Allow a minimum of 30 days between last application and harvest of cranberries. Do not apply this material through the irrigation system. Do not make applications by air. Do not apply directly to water. Use nozzles that emit medium- to large-sized droplets to minimize drift in order to avoid crop injury.

#### Post-Harvest Treatments in Cranberry Production

**USE INSTRUCTIONS:** Application of this product may be made after the harvest of cranberries to control weeds growing within the field. Best results will be obtained if applications are made to vines that appear dormant (after they have turned red). Hand-held sprayers, wipers, or other appropriate application equipment listed under "APPLICATION EQUIPMENT AND TECHNIQUES" in this label may be used. If using hand-held sprayers, use a 0.4 to 0.8 percent solution of this product. Spray to wet vegetation, not to run-off. If using hand-held boom sprayers, apply 1.75 to 3.25 quarts of this product per acre.

**PRECAUTIONS, RESTRICTIONS:** Make applications only after cranberries have been harvested. Do not treat more than 10 percent of the total bog. Allow a minimum of 6 months after last application and next harvest of cranberries. Do not apply this product through the irrigation system. Do not make applications by air. Do not apply directly to water. Even though vines appear dormant, contact of the herbicide solution with desirable vegetation may result in damage or severe plant injury. Cranberry plants that are directly sprayed may be killed.

### 9.2 Citrus

**LABELED CROPS:** Calamondin, Chironja, Citron, Citrus Hybrids, Grapefruit, Kumquat, Lemon, Lime, Mandarin (tangerine), Orange (all), Pummelo, Satsuma Mandarin, Tangelo (ugli), Tangor.

**TYPES OF APPLICATIONS:** Those listed in Section 9.0.

**USE INSTRUCTIONS:** Florida only: For burndown or control of the weeds listed below, apply the recommended rates of this product in 3 to 30 gallons of water per acre. Where weed foliage is dense, use 10 to 30 gallons of water per acre.

For goatweed, apply 1.75 to 2.5 quarts of this product per acre. Apply in

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20 to 30 gallons of water per acre when plants are actively growing. Use 1.75 quarts per acre when plants are less than 8 inches tall and 2.5 quarts per acre when plants are greater than 8 inches tall. If goatweed is greater than 8 inches tall, the addition of Krovar™ I or Karmex™ may improve control. Refer to the individual product labels for specific crops, rates, geographic restrictions and precautionary statements.

Perennial weeds:

S = Suppression

B = Burndown

PC = Partial control

C = Control

WEED SPECIES	Roundup UltraMAX RATE PER ACRE			
	1 QT	1.75 QT	2.5 QT	4 QT
Bermudagrass	B	—	PC	C
Guineagrass				
Florida Ridge	B	C	C	C
Florida Flatwoods	—	B	C	C
Paragrass	B	C	C	C
Torpedograss	S	—	PC	C

PRECAUTIONS, RESTRICTIONS: Allow a minimum of 1 day between last application and harvest in citrus crops. For citron groves, apply as directed sprays only.

### 9.3 Miscellaneous Tree Food Crops

LABELED CROPS: Cactus (fruit and pads), Palm (heart, leaves), Palm (oil).

TYPES OF APPLICATIONS: Those listed in Section 9.0.

### 9.4 Non-food Tree Crops

LABELED CROPS: Pine, Poplar, Eucalyptus, Christmas trees, Other non-food tree crops.

TYPES OF APPLICATIONS: Those listed in Section 9.0.

#### Post-Directed, Spot Treatment, Wiper Applications

USE INSTRUCTIONS: This product may be used as a post-directed spray

and spot treatment around established poplar, eucalyptus, Christmas trees and other non-food tree crops.

PRECAUTIONS, RESTRICTIONS: Care must be exercised to avoid contact of spray, drift or mist with foliage or green bark of established Christmas trees and other pine trees. Desirable plants may be protected from the spray solution by using shields or coverings made of cardboard or other impermeable material. THIS PRODUCT IS NOT RECOMMENDED FOR USE AS AN OVER-THE-TOP BROADCAST SPRAY IN CHRISTMAS TREES AND OTHER PINE TREES.

#### Site Preparation

USE INSTRUCTIONS: This product may be used prior to planting Christmas trees.

PRECAUTIONS, RESTRICTIONS: Precautions should be taken to protect nontarget plants during site preparation applications.

### 9.5 Pome Fruit

LABELED CROPS: Apple, Crabapple, Loquat, Mayhaw, Pear (including oriental pear), Quince.

TYPES OF APPLICATIONS: Those listed in Section 9.0.

PRECAUTIONS, RESTRICTIONS: Allow a minimum of 1 day between last application and harvest in pome crops.

### 9.6 Stone Fruit

LABELED CROPS: Apricot, Cherry (sweet, tart), Nectarine, Olive, Peach, Plum/Prune (all types), Plumcot.

TYPES OF APPLICATIONS: Those listed in Section 9.0.

PRECAUTIONS, RESTRICTIONS: Allow a minimum of 17 days between last application and harvest in stone fruit crops. For olive groves, apply as directed sprays only.

#### Restrictions on Application Equipment

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

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

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

### 9.7 Tree Nuts

**LABELED CROPS:** Almond, Beechnut, Betelnut, Brazil nut, Butternut, Cashew, Chestnut, Chinquapin, Coconut, Filbert (hazelnut), Hickory nut, Macadamia, Pecan, Pine nut, Pistachio, Walnut (black, English)

**TYPES OF APPLICTIONS:** Those listed in Section 9.0.

**PRECAUTIONS, RESTRICTIONS:** Allow a minimum of 3 days between last application and harvest of tree nuts, except coconut. Allow 14 days between application and harvest in coconut.

### 9.8 Tropical and Subtropical Trees and Fruits

**LABELED CROPS:** Ambarella, Atemoya, Avocado, Banana, Barbados cherry (acerola), Biriba, Blimbe, Breadfruit, Cacao (cocoa) bean, Canistel, Carambola (starfruit), Cherimoya, Coffee, Custard apple, Dates, Durian, Feijoa, Figs, Governor's plum, Guava, Ilama, Imbe, Imbu, Jaboticaba, Jackfruit, Longan, Lychee, Mamey apple, Mango, Mangosteen, Marmaladebox (genip), Mountain papaya, Papaya, Pawpaw, Plantain, Persimmon, Pomegranate, Pulasan, Rambutan, Rose apple, Sapodilla, Sapote (black, mamey, white), Spanish lime, Soursop,

Star apple, Sugar apple, Surinam cherry, Tamarind, Tea, Ti (roots and leaves), Wax jambu.

**TYPES OF APPLICTIONS:** Those listed in Section 9.0 plus Bananacide (Banana only).

**PRECAUTIONS, RESTRICTIONS:** Allow a minimum of 1 day between last application and harvest in banana, guava, papaya, and plantain crops. Allow a minimum of 14 days between last application and harvest for any other tropical or subtropical tree fruit. Allow a minimum of 28 days between last application and harvest in coffee crops. In coffee and banana, delay applications 3 months after transplanting to allow the new coffee or banana plant to become established.

#### Bananacide (Banana only)

**USE INSTRUCTIONS:** This product may be used to destroy banana plants infected with the Banana Bunchy Top Virus as well as non-infected banana plants to establish disease free buffers around plantations. Remove all fruit from the plants within the treatment area prior to treatment. Inject 0.04 fluid ounce (1 mL) of this product's concentrate per 2 to 3 inches of pseudostem diameter. Make the injection at least one foot above the ground, except for very small plants, which should be injected vertically into the top. Any subsequent regrowth must also be destroyed. All plants and mats (or units) adjacent (within a 4-foot radius) to a treated mat shall be mechanically destroyed.

For control of the Banana Bunchy Top Virus, it is critical that the grower follow a strict control program involving monitoring for diseased plants, spraying to control the aphid vector, and destruction of all infected mats (or units). An infected plant may not show symptoms of the banana bunchy top virus for up to 125 days, therefore it is critical that the entire mat (or unit) containing the diseased plant be destroyed immediately.

**PRECAUTIONS, RESTRICTIONS:** Do not apply more than 0.5 fluid ounce (15 mL) of this product's concentrate per mat (or unit). Remove all fruit from plants and mats (or units) prior to treatment. Do not harvest any fruit or plant materials from treated mats (or units) following injection. Do not allow livestock to consume treated plant materials. Following transplant of new banana plants into treated areas, allow plants to become established for 3 months before applying this product for gen-

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eral weed control.

### 9.9 Vine Crops

**LABELED CROPS:** Grapes (raisin, table, wine), Hops, Kiwi, Passion fruit.

**TYPES OF APPLICATIONS:** Those listed in Section 9.0.

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

**PRECAUTIONS, RESTRICTIONS:** Allow a minimum of 14 days between last application and harvest in vine crops. Do not use selective equipment in kiwi.

## 10.0 PASTURE GRASSES, FORAGE LEGUMES AND RANGELANDS

**GENERAL USE INSTRUCTIONS:** This product may be applied to turf or pasture grasses, forage legumes, and rangelands for weed control as directed below. Apply 10 fluid ounces to 4 quarts per acre according to the "ANNUAL WEEDS", "PERENNIAL WEEDS", and "WOODY BRUSH AND TREES RATE TABLES".

**GENERAL PRECAUTIONS, RESTRICTIONS:** Follow the specific limitations below with regard to application methods, timing, treatment rates, and post-application intervals. All applications must be made at least 30 days before planting any crop that is not specified for treatment in this label.

### 10.1 Alfalfa, Clover, and Other Forage Legumes

**LABELED CROPS:** Alfalfa, Clover, Kenaf, Kudzu, Lespedeza, Leucaena, Lupin, Sainfoin, Trefoil, Velvet bean, Vetch (all types).

**TYPES OF APPLICATIONS:** Preplant, Preemergence, At-Planting, Preharvest (except Kenaf and Leucaena), Spot Treatment, Wiper Applications Over-the-Top, Renovation.

#### Preplant, Preemergence, At-Planting

**USE INSTRUCTIONS:** This product may be applied before, during or after planting crops listed in this section. Applications must be made prior to emergence of the crop.

**PRECAUTIONS, RESTRICTIONS:** Remove domestic livestock before application. The crop may be fed or grazed as soon as it reaches sufficient maturity.

#### Preharvest (except Kenaf and Leucaena)

**USE INSTRUCTIONS:** This product may be used in declining stands or any stand where severe crop injury or destruction is acceptable. This product will control annual and perennial weeds, including quackgrass, when applied prior to crop harvest. Applications may be made at any time of the year. For control of quackgrass, apply in the spring, late summer or fall when quackgrass is actively growing. Treatments for quackgrass must be followed by deep tillage for complete control.

**PRECAUTIONS, RESTRICTIONS:** Make only one application to an existing crop stand per year. The treated crop and weeds can be harvested and fed to livestock according to the intervals below.

	Maximum Single Application Rate Per Acre	Minimum Interval between application and harvest/ grazing
Alfalfa	52 fluid ounces	36 hours
All other labeled legumes above	40 fluid ounces	3 days

This application may destroy an alfalfa stand and may severely injure or destroy other labeled crops such as clover. Preharvest application is not recommended for alfalfa grown for seed, as a reduction in germination or vigor may occur.

#### Spot Treatment, Wiper Applications Over-the-Top

**USE INSTRUCTIONS:** This product may be applied as a spot treatment or with wiper applicators. For wipers, see the "Wiper Applicators" in the "Selective Equipment" section of this label. Applications may be made in the same area at 30-day intervals.

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**PRECAUTIONS, RESTRICTIONS:** For spot treatment and wiper applications, apply in areas where the movement of domestic livestock can be controlled. No more than 10 percent of the total field area should be treated at one time. Remove domestic livestock before application and wait 3 days after application before grazing livestock or harvesting.

### Renovation

**USE INSTRUCTIONS:** This product may be applied as a broadcast spray to renovate existing stands of alfalfa, clover, and other labeled forage legumes. If the crop is to be grazed or harvested for feed, use up to 52 fluid ounces per acre in alfalfa and up to 40 fluid ounces per acre in other labeled legumes. For complete removal of established stands of clover, it may be necessary to use the higher treatment rates listed in the "PERENNIAL WEEDS RATE TABLE".

**PRECAUTIONS, RESTRICTIONS:** When treatment rates of 52 fluid ounces per acre for alfalfa or 40 fluid ounces per acre for other forage legumes are used, remove domestic livestock before application and wait 3 days after application before reintroduction. If treatment rates above these levels are necessary, do not graze or harvest treated foliage for livestock feed. Crops listed for treatment in this label may be planted into the treated area at any time; for other crops, wait 30 days between application and planting.

## 10.2 Conservation Reserve Program (CRP)

**TYPES OF APPLICATIONS:** Renovation (Rotating out of CRP), Site Preparation, Postemergence Weed Control in Dormant CRP Grasses, Wiper Applications Over-the-Top.

### Renovation (Rotating out of CRP), Site Preparation

**USE INSTRUCTIONS:** This product may be used to prepare CRP land for crop production. Refer to Federal, state or local use guides for CRP renovation recommendations. For any crop not listed for treatment in this label, applications must be made at least 30 days prior to planting.

### Postemergence Weed Control in Dormant CRP Grasses, Wiper Applications Over-the-Top

**USE INSTRUCTIONS:** This product may be used to suppress competitive growth and seed production of undesirable vegetation in CRP acres. Such applications may be made with wiper application equipment or as a broadcast or spot treatment to dormant CRP grasses. For selective applications with broadcast spray equipment, apply 10 to 13 fluid ounces of this product per acre in early spring before desirable CRP grasses, such as crested and tall wheatgrass, to break dormancy and initiate green growth. Late fall applications can be made after desirable perennial grasses have reached dormancy.

**PRECAUTIONS, RESTRICTIONS:** Some stunting of CRP perennial grasses will occur if broadcast applications are made when plants are not dormant. No waiting period is required between application and grazing or harvesting for feed. Do not apply more than 2.25 quarts per acre per year onto CRP grasses.

## 10.3 Grass Seed or Sod Production

**LABELED CROPS:** Any grass (*Gramineae* family) except Corn, Sorghum, Sugarcane and those listed in this label under "CEREAL and GRAIN CROPS".

**TYPES OF APPLICATIONS:** Preplant, Preemergence, At-Planting, Renovation, Site Preparation, Shielded Sprayers, Wiper Applications Over-the-Top, Spot Treatments, Creating Rows in Annual Ryegrass.

### Preplant, Preemergence, At-Planting, Renovation, Site Preparation

**USE INSTRUCTIONS:** This product controls most existing vegetation prior to renovating turf or forage grass seed areas or establishing turf grass grown for sod. Make applications before, during or after planting or for renovation. For maximum control of existing vegetation, delay planting to determine if any regrowth from escaped underground plant parts occurs. Where existing vegetation is growing under mowed turfgrass management, apply this product after omitting at least one regular mowing to allow sufficient growth for good interception of the spray. Where repeat treatments are necessary, sufficient regrowth must be attained prior to application. For warm-season grasses, such as Bermudagrass, summer or fall applications provide best control. Broadcast equipment may be

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used to control sod remnants or other unwanted vegetation after sod is harvested.

**PRECAUTIONS, RESTRICTIONS:** Do not disturb soil or underground plant parts before treatment. Tillage or renovation techniques such as vertical mowing, coring or slicing should be delayed for 7 days after application to allow proper translocation into underground plant parts. If application rates total 2.25 quarts per acre or less, no waiting period between treatment and feeding or livestock grazing is required. If the rate is greater than 2.25 quarts per acre, remove domestic livestock before application and wait 8 weeks after application before grazing or harvesting. For any crop not listed for treatment in this label, applications must be made at least 30 days prior to planting. Applications must be made prior to the emergence of the crop to avoid crop injury.

### Shielded Sprayers

**USE INSTRUCTIONS:** Apply 26 fluid ounces to 2.25 quarts of this product in 10 to 20 gallons of water per acre to control weeds between grass seed rows. Uniform planting in straight rows aid in shielded sprayer applications. Best results are obtained when the grass seed crop is small enough to easily pass by the protective shields. For additional instructions, see "Hooded and Shielded Applicators" in the "Selective Equipment" section of this label.

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

### Wiper Applications Over-the-Top

**USE INSTRUCTIONS:** Applicators should be adjusted so that the wiper contact point is at least 2 inches above the desirable vegetation. Weeds should be a minimum of 6 inches above the desirable vegetation. Better results may be obtained when more of the weed is exposed to the herbicide solution. Weeds not contacted by the herbicide solution will not be affected. This may occur in dense clumps, severe infestations, or when height of weeds varies so that not all weeds are contacted. In these instances, repeat treatments may be necessary. For additional instructions, see "Wiper Applicators" in the "Selective Equipment" section of this label.

**PRECAUTIONS, RESTRICTIONS:** Contact of the herbicide solution with

desirable vegetation may result in damage or destruction.

### Spot Treatments

**USE INSTRUCTIONS:** Use a 1.0-to 1.6 percent solution.

**PRECAUTIONS, RESTRICTIONS:** Apply this product prior to heading of grasses grown for seed. The crop receiving the spray in the treated area will be killed. Take care to avoid drift or spray outside the target area for the same reason. Hand-held equipment may be used to control sod remnants or other unwanted vegetation after sod is harvested.

### Creating Rows in Annual Ryegrass

**USE INSTRUCTIONS:** Use 13 to 26 fluid ounces of this product per acre. Use the higher rate when the ryegrass is greater than 6 inches tall. Best results are obtained when applications are made before the ryegrass reaches 6 inches in height.

**PRECAUTIONS, RESTRICTIONS:** Set nozzle heights to allow the establishment of the desired row spacing while preventing spray droplets, spray fines, or drift to contact the ryegrass plants not treated. Use of low-pressure nozzles, or drop nozzles designed to target the application over a narrow band are recommended.

**Grower assumes all responsibility for crop losses from misapplication.**

## 10.4 Pastures

**LABELLED CROPS:** Any grass (*Gramineae* family) except Corn, Sorghum, Sugarcane and those listed in this label under "CEREAL and GRAIN CROPS" including Bahiagrass, Bermudagrass, Bluegrass, Brome, Fescue, Guineagrass, Kikuyugrass, Orchardgrass, Pangola grass, Ryegrass, Timothy, Wheatgrass.

**TYPES OF APPLICATIONS:** Preplant, Preemergence, Pasture Renovation, Spot Treatment, Wiper Applications Over-the-Top, Postemergent Weed Control (Broadcast Treatments).

### Preplant, Preemergence, Pasture Renovation

**USE INSTRUCTIONS:** This product may be applied prior to planting or emergence of forage grasses. In addition, this product may be used to control perennial pasture species listed on this label prior to re-planting.

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**PRECAUTIONS, RESTRICTIONS:** If application rates total 2.25 quarts per acre or less, no waiting period between treatment and feeding of livestock grazing is required. If the rate is greater than 2.25 quarts per acre, remove domestic livestock before application and wait 8 weeks after application before grazing or harvesting. Crops listed for treatment in this label may be planted into the treated area at any time; for other crops, wait 30 days between application and planting.

### Spot Treatment, Wiper Applications Over-the-Top

**USE INSTRUCTIONS:** This product may be applied as a spot treatment or with wiper applicators in pastures. Applications may be made in the same area at 30-day intervals.

**PRECAUTIONS, RESTRICTIONS:** For spot treatments or wiper application methods using rates of 2.25 quarts per acre or less, the entire field or any portion of it may be treated. When spot treatments or wiper application are made using rates above 2.25 quarts per acre, no more than 10 percent of the total pasture may be treated at any one time. To achieve maximum performance, remove domestic livestock before application and wait 7 days after application before grazing livestock or harvesting.

### Postemergent Weed Control (Broadcast Treatments)

**USE INSTRUCTIONS:** This product may be used to suppress competitive growth and seed production of annual weeds and undesirable vegetation in pastures. For selective applications with broadcast spray equipment, apply 10 to 13 fluid ounces of this product per acre in early spring before desirable perennial grasses break dormancy and initiate green growth. Late fall applications can be made after desirable perennial grasses have reached dormancy.

**PRECAUTIONS, RESTRICTIONS:** Some stunting of perennial grasses will occur if broadcast applications are made when plants are not dormant. No waiting period is required between application and grazing or harvesting for feed. Use of higher application rates will cause stand reductions. Do not apply more than 2.25 quarts per acre per year onto pasture grasses except for renovation uses (see instructions above). If replanting is needed due to severe stand reduction, applications must be made at least 30 days prior to planting any crop not listed for treatment in this label.

## 10.5 Rangelands

**TYPES OF APPLICATIONS:** Postemergence.

This product will control or suppress many annual weeds growing in perennial cool and warm-season grass rangelands.

Preventing viable seed production is key to the successful control and invasion of annual grassy weeds in rangelands. Follow-up applications in sequential years should eliminate most of the viable seeds.

Grazing of treated areas should be delayed to encourage growth of desirable perennials. Allowing desirable perennials to flower and reseed in the treated area will encourage successful transition.

**USE INSTRUCTIONS:** Apply 10 to 13 fluid ounces of this product per acre to control or suppress many weeds, including downy brome, cheatgrass, cereal rye and jointed goatgrass in rangelands. Apply when most brome plants are in early flower and before the plants, including seedheads, turn color. Allowing for secondary weed flushes to occur in the spring following rain events further depletes the seed reserve and encourages perennial grass conversion on weedy sites. Fall applications are possible, and recommended, where spring moisture is usually limited and fall germination allows for good weed growth.

For medusahead, apply 13 fluid ounces of this product per acre at the 3-leaf stage. Delaying applications beyond this stage will result in reduced or unacceptable control. Controlled burning may be useful in eliminating the thatch layer produced by slow decaying culms prior to application. Allow new growth to occur before spraying after a burn. Repeat applications in subsequent years may be necessary to eliminate the seedbank before reestablishing desirable perennial grasses in medusahead-dominated rangelands.

**PRECAUTIONS, RESTRICTIONS:** Slight discoloration of the desirable grasses may occur, but they will regreen and regrow under moist soil conditions as effects of this product wear off. Do not use ammonium sulfate when spraying rangeland grasses with this product. No waiting period between treatment and feeding of livestock grazing is required. Do not apply more than 2.25 quarts per acre per year.

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# 11.0 ROUNDUP READY CROPS

The following instructions or those separately published on Monsanto Supplemental labeling include all applications which can be made onto the specified Roundup Ready crops during the complete cropping season. Do NOT combine these instructions with other recommendations made for crop varieties that do not contain the Roundup Ready gene, in the "ANNUAL AND PERENNIAL CROPS (ALPHABETICAL)" section of this label.

MONSANTO COMPANY RECOMMENDS USE OF THIS PRODUCT FOR POSTEMERGENCE APPLICATION ONLY ON CROP VARIETIES DESIGNATED AS CONTAINING THE ROUNDUP READY GENE.

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

The Roundup Ready designation indicates that the crop variety contains a patented gene that provides tolerance to this product. Information on Roundup Ready crop varieties may be obtained from your seed supplier or Monsanto representative. Roundup Ready crop varieties must be purchased from an authorized licensed seed supplier.

**NOTE: Roundup Ready seed, and the method of selectively controlling weeds in a Roundup Ready crop by applying glyphosate to the weeds and Roundup Ready crop are protected under several U.S. Patents, including 5,352,605 and 5,633,435. A license to use Roundup Ready seed must be obtained prior to use.** Monsanto retains ownership of the gene and process technologies, and the Purchaser of the seed receives the right to use the licensed genes and technologies subject to the limited use license conditions. Seed containing the Roundup Ready trait cannot be used for research and demonstration, reverse engineering or in connection with herbicide registration. Progeny seed containing the Roundup Ready trait cannot be saved for replanting or transferred to others for replanting. Contact your Authorized Monsanto Retailer for information on obtaining a limited use license.

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

**For aerial applications**, apply this product in 3 to 15 gallons of water per acre. See the "APPLICATION EQUIPMENT AND TECHNIQUES" section of this label for procedures to avoid spray drift that may cause injury to any vegetation not intended for treatment. Use of appropriate buffer zones will help prevent injury to adjacent vegetation.

For proper stewardship of aerial applications over-the-top of Roundup Ready crops, Monsanto recommends that growers and applicators read and follow all precautions and procedures contained in the use guide "A Guide to On-Target Aerial Application" available by calling 1-800-ROUNDUP (1-800-768-6387) or on the internet at [www.FARMSOURCE™.com](http://www.FARMSOURCE™.com).

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

See the "MIXING" and "APPLICATION EQUIPMENT AND TECHNIQUES" sections of this label for additional directions and restrictions on the application of this product.

Tank mixtures with other herbicides, insecticides, fungicides, micronutrients or foliar fertilizers may result in reduced weed control or crop injury and are NOT recommended for over-the-top applications of this product unless otherwise noted in this product label, supplemental labeling or fact sheets published separately by Monsanto.

Ammonium sulfate may be mixed with this product for applications to Roundup Ready crops. Refer to the "MIXING" section for use instructions for ammonium sulfate.

**Sprayer Preparation:** It is important that sprayer and mixing equipment be clean and free of pesticide residue before making applications of this product. Follow the cleaning procedures specified on the label of the prod-

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uct(s) previously used. THOROUGHLY CLEAN THE SPRAY TANK AND ALL LINES AND FILTERS TO ELIMINATE POTENTIAL CONTAMINATION FROM OTHER HERBICIDES PRIOR TO MIXING AND APPLYING THIS PRODUCT.

**NOTE:** The following recommendations are based on a clean start at planting by using a burndown application or tillage to control existing weeds before crop emergence. In no-till and stale seedbed systems, a preplant burn-down treatment of this product is recommended to control existing weeds prior to crop emergence. Some weeds, such as black nightshade, broadleaf signalgrass, sicklepod, Texas panicum, sandbur, annual morningglory, woolly cupgrass, shattercane, wild proso millet, burcucumber, and giant ragweed with multiple germination times or suppressed (stunted) weeds may require a second application of this product for complete control. The second application should be made after some regrowth has occurred and at least 10 days after a previous application of this product.

### 11.1 Canola with the Roundup Ready Gene

TYPES OF APPLICATIONS: Preplant, At-Planting, Preemergence, Postemergence.

#### DO NOT USE THIS PRODUCT ON CANOLA WITH THE ROUNDUP READY GENE PLANTED IN FLORIDA.

**NOTE:** The use of this product for in-crop applications over Roundup Ready canola may not be practiced in California unless the applicator has at the time of application a California-approved Supplemental Label specifying the accepted Directions for Use.

<b>Maximum Allowable Combined Application Quantities Per Season</b>	
Preplant, At-planting, Preemergence applications	52 fluid ounces per acre
Total in-crop application from emergence to 6-leaf stage	26 fluid ounces per acre

#### Preplant, Preemergence, At-Planting

USE INSTRUCTIONS: This product may be applied before, during or after planting canola.

#### Postemergence

USE INSTRUCTIONS: This product may be applied postemergence to Roundup Ready canola from emergence through the 6-leaf stage of development. Applications made during bolting or flowering may result in crop injury and yield loss. To maximize yield potential, make applications early to eliminate competing weeds.

Weeds Controlled: For specific rates of application and instructions, refer to the "ANNUAL WEEDS" and "PERENNIAL WEEDS RATE TABLES" in this booklet.

**Single Application**—Apply 13 to 20 fluid ounces per acre no later than the 6-leaf stage for the control of annual weeds. Avoid overlapping applications that may result in temporary yellowing, delayed flowering, and or growth reduction. Similar injury may result when applications of more than 13 fluid ounces per acre are applied after the 4-leaf stage.

**Sequential Application**—Apply 13 fluid ounces per acre to 1- to 3-leaf canola followed by a sequential application at a minimum interval of 10 days, but no later than the 6-leaf stage. Sequential applications are recommended for early emerging annual weeds and perennial weeds such as Canada thistle and quackgrass or when controlling weeds with multiple application times.

PRECAUTIONS, RESTRICTIONS: See the "ROUNDUP READY CROPS" section of this label for general precautionary instructions for use in Roundup Ready crops. No more than two over-the-top broadcast applications may be made from crop emergence through the 6-leaf stage of development and the total in-crop application should not exceed 26 fluid ounces per acre. Allow a minimum of 60 days between last application and canola harvest.

### 11.2 Corn with the Roundup Ready Gene

TYPES OF APPLICATIONS: Preplant, At-Planting, Preemergence, Postemergence (in-crop), Spot Treatment, Preharvest, Post-Harvest.

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### Maximum Allowable Combined Application Quantities Per Season

Combined total per year for all applications	6.5 quarts per acre
Preplant, At-Planting, Preemergence applications	4 quarts per acre
Total in-crop applications from emergence through the V8 stage or 30 inches	52 fluid ounces per acre
Maximum preharvest application rate after maximum kernel fill is complete and the crop is physi- ologically mature (black layer formation) until 7 days before harvest	26 fluid ounces per acre

### Preplant, Preemergence, At-Planting

USE INSTRUCTIONS: This product may be applied alone or in a tank-mixture before, during or after planting corn.

TANK MIXTURES: This product may be tank mixed with Bullet, Degree, Degree Xtra, Harness, Harness Xtra, Harness Xtra 5.6L, Lariat, Lasso or Micro-Tech at 50 to 100 percent of labeled rate. Refer to the specific product label and observe all precautions and limitations on the label for any preemergence herbicide application, including application timing restrictions, soil restrictions, minimum recropping interval and rotational guidelines—the more restrictive requirements apply.

**NOTE:** For maximum weed control, a postemergence (in-crop) application of this product should be applied following the use of less than labeled rates of the preemergence residual products listed above.

### Postemergence (In-crop)

USE INSTRUCTIONS: This product may be applied postemergence to Roundup Ready corn from emergence through the V8 stage (8 leaves with collars) or until corn height reaches 30 inches, whichever comes first.

When applied as directed, this product controls labeled annual grass and broadleaf weeds in Roundup Ready corn. Many perennial grasses and broadleaf weeds will be controlled or suppressed with one or more application of this product. The postemergent application of 20 to 26 fluid ounces per acre of this product should be made before the weeds reach a height and/or density that the weeds become competitive with the crop, generally 4 inch tall weeds or less.

This product may be applied alone as a postemergence in-crop application to provide control of emerged weeds listed on this label. If new flushes of weeds occur, a sequential application of this product at 20 to 26 fluid ounces per acre will control the labeled grasses and broadleaf weeds.

TANK MIXTURES: This product may be applied in tank mixture with Bullet, Degree, Degree Xtra, Harness, Harness Xtra, Harness Xtra 5.6L, and Micro-Tech at 50 to 100 percent of labeled rate. This product may be applied in tank mixture with Permit® and atrazine at labeled rates. Refer to the specific product label and observe all precautions and limitations on the label for all products used in tank mixtures, including application timing restrictions, soil restrictions, minimum recropping interval and rotational guidelines; the more restrictive requirements apply.

Tank-Mix Partner	Maximum Height of Corn For Application
Degree Degree Xtra Harness Harness Xtra Harness Xtra 5.6L	11 inches
Bullet* Micro-Tech*	5 inches
Permit	30 inches
atrazine	12 inches

\*Bullet and Micro-Tech are not registered for use as a postemergence application in Texas.

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**PRECAUTIONS, RESTRICTIONS:** See the "ROUNDUP READY CROPS" section of this label for general precautionary instructions for use in Roundup Ready crops. Single in-crop applications of this product are not to exceed 26 fluid ounces per acre. Sequential in-crop applications of this product from emergence through the V8 stage or 30 inches must not exceed 52 fluid ounces per acre per growing season. Allow a minimum of 10 days between in-crop applications of this product. Allow a minimum of 50 days between application of this product and harvest of corn forage.

### Preharvest

**USE INSTRUCTIONS:** In Roundup Ready corn, up to 26 fluid ounces per acre of this product can be applied preharvest. Make applications at 35 percent grain moisture or less. Ensure that maximum kernel fill is complete and the corn is physiologically mature (black layer formed).

**PRECAUTIONS, RESTRICTIONS:** Allow a minimum of 7 days between application and harvest.

### Post-Harvest

**USE INSTRUCTIONS:** This product may be applied after harvest of corn. Higher rates may be required for control of large weeds that were growing in the crop at the time of harvest. Tank mixtures with 2,4-D or dicamba may be used.

**PRECAUTIONS, RESTRICTIONS:** Allow a minimum of 7 days between treatment and harvest or feeding of treated vegetation.

## 11.3 Cotton with the Roundup Ready Gene

**TYPES OF APPLICATIONS:** Preplant, At-Planting, Preemergence, Over-the-Top, Selective Equipment, Preharvest.

### Maximum Allowable Combined Application Quantities Per Season

Combined total per year for all applications	6.5 quarts per acre
Preplant, At-Planting, Preemergence applications	4 quarts per acre
Total in-crop applications from ground cracking to layby	3.2 quarts per acre
Maximum preharvest application rate	52 fluid ounces per acre

**PRECAUTIONS, RESTRICTIONS:** See the "ROUNDUP READY CROPS" section of this label for general precautionary instructions for use in Roundup Ready crops. The combined total application of this product from cotton emergence until harvest must not exceed 4.8 quarts per acre. NO MORE THAN TWO OVER-THE-TOP BROADCAST APPLICATIONS MAY BE MADE FROM CROP EMERGENCE THROUGH THE 4-LEAF (NODE) STAGE OF DEVELOPMENT. NO MORE THAN TWO APPLICATIONS SHOULD BE MADE FROM THE 5-LEAF STAGE THROUGH LAYBY. SEQUENTIAL IN-CROP OVER-THE-TOP OR POST-DIRECTED APPLICATIONS OF THIS PRODUCT MUST BE AT LEAST 10 DAYS APART AND COTTON MUST HAVE AT LEAST TWO NODES OF INCREMENTAL GROWTH BETWEEN APPLICATIONS. ALLOW A MINIMUM OF 7 DAYS BETWEEN APPLICATION AND HARVEST.

### Preplant, Preemergence, At-Planting

**USE INSTRUCTIONS:** This product may be applied before, during or after planting cotton.

### Over-the-Top

**USE INSTRUCTIONS:** This product may be applied by aerial or ground application equipment at rates up to 26 fluid ounces per acre per application postemergence to Roundup Ready cotton from the ground cracking stage until the 4-leaf (node) stage of development (until the fifth true leaf reaches the size of a quarter). Over-the-top applications made after the 4-leaf (node) stage of development may result in boll loss, delayed maturity and/or yield loss.

## ROUNDUP READY CROPS 71

## ROUNDUP READY CROPS 72

**Salvage Treatment.** This treatment may be used after the 4-leaf stage of development and should only be used where weeds threaten to cause the loss of the crop. 26 fluid ounces per acre of this product may be applied either as an over-the-top application or as a post-directed treatment sprayed higher on the cotton plants and over the weeds. **NOTE:** SALVAGE TREATMENTS WILL RESULT IN SIGNIFICANT BOLL LOSS, DELAYED MATURITY AND/OR YIELD LOSS. NO MORE THAN ONE SALVAGE TREATMENT SHOULD BE USED PER GROWING SEASON.

**NOTE:** For specific rates of application and instructions, refer to the "ANNUAL WEEDS" and "PERENNIAL WEEDS RATE TABLES" in this booklet.

**PRECAUTIONS, RESTRICTIONS:** See the "ROUNDUP READY CROPS" section of this label for general precautionary instructions for use in Roundup Ready crops.

### Selective Equipment

**USE INSTRUCTIONS:** This product may be applied using precision post-directed or hooded sprayers at rates up to 26 fluid ounces per acre per application to Roundup Ready cotton through layby. At this stage, post-directed equipment should be used which directs the spray to the base of the cotton plants. Contact of the spray with cotton leaves should be avoided to the maximum extent possible. To minimize spray onto the leaves of the cotton plants, place nozzles in a low position directing a horizontal spray pattern under the cotton leaves to contact weeds in the row, and maintain low spray pressure (less than 30 psi). For best results, make applications while weeds are small (less than 3 inches).

**PRECAUTIONS, RESTRICTIONS:** See the "Selective Equipment" part of the "APPLICATION EQUIPMENT AND TECHNIQUES" section of this label for information on proper use and calibration of this equipment.

### Preharvest

**USE INSTRUCTIONS:** This product may be applied for preharvest annual and perennial weed control as a broadcast treatment to Roundup Ready cotton after 20 percent boll crack. Up to 52 fluid ounces of this product may be applied using either aerial or ground spray equipment. **NOTE:** This product will not enhance the performance of harvest aids when applied to Roundup Ready cotton.

**PRECAUTIONS, RESTRICTIONS:** Allow a minimum of 7 days between application and harvest of cotton. Do not apply this product to cotton grown for seed, as a reduction in germination or vigor may occur.

**ATTENTION: USE OF THIS PRODUCT IN ACCORDANCE WITH LABEL DIRECTIONS IS EXPECTED TO RESULT IN NORMAL GROWTH OF ROUNDUP READY COTTON, HOWEVER, VARIOUS ENVIRONMENTAL CONDITIONS, AGRONOMIC PRACTICES AND OTHER FACTORS MAKE IT IMPOSSIBLE TO ELIMINATE ALL RISKS ASSOCIATED WITH THIS PRODUCT, EVEN WHEN APPLICATIONS ARE MADE IN CONFORMANCE WITH THE LABEL SPECIFICATIONS. IN SOME CASES, THESE FACTORS CAN RESULT IN BOLL LOSS, DELAYED MATURITY AND/OR YIELD LOSS.**

## 11.4 Soybeans with the Roundup Ready Gene

**TYPES OF APPLICATIONS:** Preplant, At-Planting, Preemergence, Postemergence, Preharvest, Post-Harvest.

**NOTE:** The use of this product for in-crop applications over Roundup Ready soybeans may not be practiced in California unless the applicator has at the time of application a California-approved Supplemental Label specifying the accepted Directions for Use.

### Maximum Allowable Combined Application Quantities Per Season

Combined total per year for all applications	6.5 quarts per acre
Preplant, At-planting, Preemergence applications	4 quarts per acre
Total in-crop applications from cracking throughout flowering	2.4 quarts per acre
Maximum preharvest application rate	26 fluid ounces per acre

## ROUNDUP READY CROPS 73

## ROUNDUP READY CROPS 74

**PRECAUTIONS/RESTRICTIONS:** See the "ROUNDUP READY CROPS" section of this label for general precautionary instructions for use in Roundup Ready crops.

### Preplant, Preemergence, At-Planting

**USE INSTRUCTIONS:** This product may be applied before, during or after planting soybeans.

### Postemergence

**USE INSTRUCTIONS:** When applied as directed, this product will control labeled annual grasses and broadleaf weeds in Roundup Ready soybeans. Applications of this product can be made in Roundup Ready soybeans from emergence (cracking) throughout flowering. Refer to the "ANNUAL WEEDS RATE TABLE" in this label for rate recommendations for specific annual weeds. In general, an initial application of 26 fluid ounces per acre on 2 to 8 inch tall weeds is recommended. Weeds will generally be 2 to 8 inches tall, 2 to 5 weeks after planting. If the initial application is delayed and weeds are larger, apply a higher rate of this product. This product may be used up to 52 fluid ounces per acre in any single in-crop application for control of annual weeds and where heavy weed densities exist.

A 26- to 52-fluid-ounce per acre rate (single or multiple applications) of this product will control or suppress perennial weeds such as: Bermudagrass, Canada thistle, common milkweed, field bindweed, hemp dogbane, horsenettle, maretail (horseweed), nutsedge, quackgrass, rhizome johnsongrass, redvine, trumpetcreeper, swamp smartweed and wirestem muhly. For best results, allow perennial weed species to achieve at least 6 inches of growth before spraying with this product.

Under adverse growing conditions such as drought, hail, wind damage or a poor soybean stand that slows or delays canopy closure, a sequential application of this may be necessary to control late flushes of weeds. IN THE SOUTHERN STATES, A SEQUENTIAL APPLICATION OF THIS PRODUCT WILL BE REQUIRED TO CONTROL NEW FLUSHES OF WEEDS IN THE ROUNDUP READY SOYBEAN CROP. To control giant ragweed, it is recommended that 26 fluid ounces per acre of this product be applied when the weed is 8 to 12 inches tall to increase control and possibly avoid the

need for a sequential application.

**PRECAUTIONS, RESTRICTIONS:** The combined total application from crop emergence through harvest must not exceed 2.4 quarts per acre. The maximum rate for any single in-crop application is 52 fluid ounces per acre. The maximum combined total of this product that can be applied during flowering is 52 fluid ounces per acre.

### Preharvest

**USE INSTRUCTIONS:** This product provides weed control when applied prior to harvest of soybeans. Up to 26 fluid ounces per acre of this product can be applied by aerial or ground application.

**PRECAUTIONS, RESTRICTIONS:** Care should be taken to avoid excessive seed shatter loss due to ground application equipment. Allow a minimum of 14 days between final application and harvest of soybean grain or feeding of soybean grain, forage or hay.

### Post-Harvest

**USE INSTRUCTIONS:** This product may be applied after harvest of Roundup Ready soybeans. Higher rates may be required for control of large weeds which were growing in the crop at the time of harvest. Tank mixtures with 2,4-D or dicamba may be used.

## 11.5 Sugar Beets with the Roundup Ready Gene

**TYPES OF APPLICATIONS:** Preplant, At-Planting, Preemergence, Postemergence.

## ROUNDUP READY CROPS 75

## ROUNDUP READY CROPS 76

### Maximum Allowable Combined Application Quantities Per Season

Combined total per year for all applications	6.5 quarts per acre
Preplant, At-planting, Preemergence applications	4 quarts per acre
Emergence to 8-leaf stage	2 quarts per acre
Between 8-leaf stage and canopy closure	52 fluid ounces per acre

PRECAUTIONS, RESTRICTIONS: See the "ROUNDUP READY CROPS" section of this label for general precautionary instructions for use in Roundup Ready crops. The combined total application from crop emergence through harvest must not exceed 3.6 quarts per acre. The maximum rate for any single application from crop emergence until the 8-leaf stage is 40 fluid ounces per acre. The maximum rate for any single application between the 8-leaf stage and canopy closure is 26 fluid ounces per acre. Allow a minimum of 30 days between last application and sugar beet harvest.

#### **Preplant, Preemergence, At-Planting**

USE INSTRUCTIONS: This product may be applied before, during or after planting of Roundup Ready sugar beets.

#### **Postemergence**

USE INSTRUCTIONS: This product may be applied postemergent over-the-top to Roundup Ready sugar beets from emergence to 30 days prior to harvest. To maximize yield potential spray sugar beets early to eliminate competing weeds. Up to 4 sequential applications of this product may be made with at least 10 days between applications. Refer to the "ANNUAL WEEDS RATE TABLES" in this label for rate recommendations for specific annual weeds. This product will control or suppress most perennial weeds. For some perennial weeds, repeat applications may be required to eliminate crop competition throughout the growing season.

## 12.0 NONCROP USES AROUND THE FARMSTEAD

TYPES OF APPLICATIONS: General Non-Selective Weed Control, Trim-and-Edge, Greenhouse/Shadehouse, Chemical Mowing, Cut Stumps, Habitat Management.

### 12.1 General Weed Control and Trim-and-Edge

USE INSTRUCTIONS: This product may be used to control annual weeds, perennial weeds and woody brush which are found in any part of the farmstead, including building foundations, along and in fences, in dry ditches and canals, along ditchbanks, farm roads, shelterbelts, prior to landscape plantings and equipment storage areas.

TANK MIXTURES: This product may be tank-mixed with the following products. Refer to these product labels for approved farmstead sites and application rates. For annual weeds, use 26 fluid ounces per acre of this product when weeds are less than 6 inches tall, 40 fluid ounces per acre when weeds are 6 to 12 inches tall and 52 fluid ounces per acre when weeds are greater than 12 inches tall. For perennial weeds, apply 52 fluid ounces to 4 quarts per acre in these tank-mixes. For tank-mixtures with these products through backpack sprayers, handguns or other high-volume spray-to-wet applications, see the "ANNUAL WEEDS—Hand-Held or High-Volume Equipment" section of this label for recommended rates.

Arsenal	Plateau™
Banvel/Clarity	Princep DF
Barricade™ 65WG	Princep™ Liquid
Diuron	Ronstar™ 50 WP
Endurance™	Sahara™
Escort™	Simazine
Karmex DF	Surflan
Krovax I DF	Telar™
Oust™	Vanquish™
Pendulum™ 3.3 EC	2,4-D
Pendulum WDG	

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This product plus dicamba tank mixtures may not be applied by air in California.

### 12.2 Greenhouse/ Shadehouse

This product may be used to control weeds in and around greenhouses and shadehouses. Desirable vegetation must not be present during application and air circulation fans must be turned off.

### 12.3 Chemical Mowing

**USE INSTRUCTIONS:** This product will suppress perennial grasses listed in this section to serve as a substitute for mowing. Use 5 fluid ounces of this product per acre when treating Kentucky bluegrass. Use 6.5 fluid ounces of this product per acre when treating tall fescue, fine fescue, orchardgrass, bahiagrass or quackgrass covers. Use 13 fluid ounces of this product per acre when treating Bermudagrass. Use 52 fluid ounces of this product per acre when treating torpedograss or paragrass. Apply treatments in 10 to 20 gallons of spray solution per acre. Chemical mowing applications may be made along farm ditches and other parts of farmsteads.

**PRECAUTIONS, RESTRICTIONS:** Use only in areas where some temporary injury or discoloration of perennial grasses can be tolerated.

### 12.4 Cut Stumps

**TYPES OF APPLICATION:** Treating cut stumps in any non-crop site listed on this label

**USE INSTRUCTIONS:** This product will control regrowth of cut stumps and resprouts of many types of woody brush and tree species, some of which are listed below. Apply this product using suitable equipment to ensure coverage of the entire cambium. Cut trees or resprouts close to the soil surface. Apply a 50 to 100 percent solution of this product to the freshly cut surface immediately after cutting. Delays in application may result in reduced performance. For best results, applications should be made during periods of active growth and full leaf expansion

Alder  
Eucalyptus  
Madrone  
Oak  
Pepper, Brazilian  
Pine, Austrian

Reed, giant  
Saltcedar  
Sweetgum  
Tan oak  
Willow

**PRECAUTIONS, RESTRICTIONS:** Do not make cut stump applications when the roots of desirable woody brush or trees may be grafted to the roots of the cut stump. Some sprouts, stems, or trees may share the same root system. Adjacent trees having a similar age, height and spacing may signal shared roots. Whether grafted or shared, injury is likely to occur to non-treated stems/trees when one or more trees sharing common roots are treated.

### 12.5 Habitat Management

**TYPES OF USES:** Habitat Restoration and Maintenance, Wildlife Food Plots.

#### Habitat Restoration and Maintenance

**USE INSTRUCTIONS:** This product may be used to control exotic and other undesirable vegetation in habitat management areas. Applications can be made to allow recovery of native plant species, prior to planting desirable native species, and for similar broad-spectrum vegetation control requirements in habitat management areas. Spot treatments can be made to selectively remove unwanted plants for habitat maintenance and enhancement.

#### Wildlife Food Plots

**USE INSTRUCTIONS:** This product may be used as a site preparation treatment to control annual and perennial weeds prior to planting wildlife food plots. Any wildlife food species may be planted after applying this product, or native species may be allowed to repopulate the area. If tillage is needed to prepare a seedbed, wait 7 days after application before tillage.

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## ANNUAL WEEDS RATE TABLE 80

### 13.0 ANNUAL WEEDS RATE TABLE

(Alphabetically by Species)

WATER CARRIER VOLUMES OF 3 TO 10 GALLONS PER ACRE FOR GROUND APPLICATIONS AND 3 TO 5 GALLONS PER ACRE FOR AERIAL APPLICATIONS ARE RECOMMENDED.

Apply to actively growing annual weeds. Annual weeds are generally easiest to control when they are small.

Older, mature (hardened) annual weed species may require higher rates even if they meet the size requirements.

Do not tank mix with soil residual herbicides when using these rates unless otherwise specified.

For weeds that have been mowed, grazed or cut, allow regrowth to occur prior to treatment.

This product may be used up to 40 fluid ounces per acre where heavy weed densities exist.

#### ANNUAL WEEDS RATE TABLE

WEED SPECIES	RATE (fluid ounces per acre)				
	13	20	26	32	40
	Maximum height/length (in inches)				
Ammannia, purple	3	6	12	-	18
Annoda, spurred	-	2	3	5	8
Barley	18	18+	-	-	-
Barnyardgrass	-	3	6	7	9
Bassia, fivehook	-	-	6	-	-
Beggarweed, Florida	-	5	8	-	-
Bittercress	12	20	-	-	-
Bluegrass, annual	10	-	-	-	-

Bluegrass, bulbous	6	-	-	-	-
Brome, downy <sup>1,2</sup>	6	12	-	-	-
Brome, Japanese	6	12	24	-	-
Browntop panicum	6	8	12	-	24
Buckwheat, wild <sup>3</sup>	-	1	2	-	-
Burcucumber	-	6	12	-	18
Buttercup	12	20	-	-	-
Carolina geranium	-	-	4	-	9
Carpetweed	-	6	12	-	-
Cheat <sup>2</sup>	6	20	-	-	-
Chervil	20	-	-	-	-
Chickweed	-	12	18	-	-
Cocklebur	12	18	24	-	36
Copperleaf, hophornbeam	-	2	4	-	6
Copperleaf, Virginia	-	2	4	-	6
Coreopsis, plains	-	6	12	-	18
Corn, volunteer	6	12	20	-	-
Corn speedwell	12	-	-	-	-
Crabgrass	3	6	12	-	-
Crowfootgrass	-	-	6	-	12
Cutleaf evening primrose	-	-	3	-	6
Devilsclaw (unicorn plant)	-	3	6	-	-
Dwarfdandelion	12	-	-	-	-
Eastern manna grass	8	12	-	-	-
Eclipta	-	4	8	12	-
Fall panicum	4	-	6	-	12
Falsedandelion	-	20	-	-	-
Falseflax, smallseed	12	-	-	-	-
Fiddleneck	-	6	12	-	-
Field pennycress	6	12	-	-	-
Filaree	-	-	6	-	12
Fleabane, annual	6	20	-	-	-
Fleabane, hairy ( <i>Coryza bonariensis</i> )	-	-	6	-	10

## ANNUAL WEEDS RATE TABLE 81

## ANNUAL WEEDS RATE TABLE 82

### ANNUAL WEEDS RATE TABLE

WEED SPECIES	RATE (fluid ounces per acre)				
	13	20	26	32	40
	Maximum height/length (in inches)				
Fleabane, rough	3	6	12	-	-
Florida pusley	-	-	4	-	6
Foxtail, giant, bristly, yellow	6	12	20	-	-
Foxtail, Carolina	10	-	-	-	-
Foxtail, green	12	-	-	-	-
Goatgrass, jointed	6	12	-	-	-
Goosegrass	-	3	6	-	12
Grain sorghum (milo)	6	12	20	-	-
Groundcherry	-	3	6	-	9
Groundsel, common	-	6	10	-	-
Hemp sesbania	-	2	4	6	8
Henbit	-	-	6	-	12
Horseweed/ Marestalk ( <i>Coryza canadensis</i> )	-	6	12	-	18
Itchgrass	6	8	12	-	18
Jimsonweed	-	-	12	-	18
Johnsongrass, seedling	6	12	18	-	24
Junglerice	-	3	6	7	9
Knotweed	-	-	6	-	12
Kochia <sup>4</sup>	-	3 to 6	12	-	-
Lambsquarters	-	6	12	-	20
Little barley	6	12	-	-	-
London rocket	6	-	24	-	-
Mayweed	-	2	6	12	18
Morningglory, annual ( <i>Ipomoea spp</i> )	-	-	3	-	6
Mustard, blue	6	12	18	-	-
Mustard, tansy	6	12	18	-	-
Mustard, tumble	6	12	18	-	-

Mustard, wild	6	12	18	-	-
Nightshade, black	-	4	6	-	12
Nightshade, hairy	-	4	6	-	12
Oats	3	6	18	-	-
Pigweed species	-	12	18	24	-
Prickly lettuce	-	6	12	-	-
Purslane	-	-	3	-	6
Ragweed, common	-	6	12	-	18
Ragweed, giant	-	6	12	-	18
Red rice	-	-	4	-	-
Rye, volunteer/cereal <sup>2</sup>	6	18	18+	-	-
Ryegrass	-	-	6	-	12
Sandbur, field	6	12	-	-	-
Sandbur, longspine	6	12	-	-	-
Shattercane	6	12	20	-	-
Shepherd's-purse	6	12	-	-	-
Sicklepod	-	2	4	-	8
Signalgrass, broadleaf	-	3	6	7	9
Smartweed, ladysthumb	-	-	6	-	9
Smartweed, Pennsylvania	-	-	6	-	9
Sowthistle, annual	-	-	6	-	12
Spanishneedles	-	-	6	-	12
Speedwell, purslane	12	-	-	-	-
Sprangletop	6	12	20	-	-
Spurge, prostrate	-	6	12	-	-
Spurge, spotted	-	6	12	-	-
Spurry, umbrella	6	-	-	-	-
Stinkgrass	-	12	-	-	-
Sunflower	12	18	-	-	-
Swinecress	-	5	12	-	-
Teaweed/Prickly sida	-	2	4	-	6
Texas panicum	6	8	12	-	24
Thistle, Russian <sup>5</sup>	-	6	12	-	-
Velvetleaf	-	-	6	-	12

## ANNUAL WEEDS RATE TABLE 83

**ANNUAL WEEDS RATE TABLE 84****ANNUAL WEEDS RATE TABLE**

WEED SPECIES	RATE (fluid ounces per acre)				
	13	20	26	32	40
	Maximum height/length (in inches)				
Virginia pepperweed	-	18	-	-	-
Waterhemp	-	-	6	-	12
Wheat <sup>2</sup>	6	12	18	-	-
Wheat (overwintered) -	6	12	-	18	-
Wild oats	3	6	18	-	-
Wild proso millet	-	6	12	-	18
Witchgrass	-	12	-	-	-
Woolly cupgrass	-	6	12	-	-
Yellow rocket	-	12	20	-	-

<sup>1</sup> For control of downy brome in no-till systems, use 20 fluid ounces per acre.

<sup>2</sup> Performance is better if application is made before this weed reaches the boot stage of growth.

<sup>3</sup> Use 20 fluid ounces per acre of this product to control wild buckwheat in the cotyledon to 2-leaf stage. Use 26 fluid ounces per acre to control 2- to 4-leaf wild buckwheat. For improved control of wild buckwheat over 2 inches in size, use sequential treatments of 26 fluid ounces followed by 26 fluid ounces of this product per acre.

<sup>4</sup> Do not treat Kochia in the button stage.

<sup>5</sup> Control of Russian Thistle may vary based on environmental conditions and spray coverage. Whenever possible, a tank mixture with 2,4-D as described below may improve control.

**13.1 Annual Weeds—Rates for 10 to 40 Gallons per Acre**

Apply 26 to 52 fluid ounces of this product per acre. Use 26 fluid ounces per acre if weeds are less than 6 inches tall, 40 fluid ounces per acre if weeds are 6 to 12 inches tall and 52 fluid ounces per acre if weeds are

greater than 12 inches tall. These rates will provide control of weeds listed in the "ANNUAL WEEDS RATE TABLE" when water carrier volumes are 10 to 40 gallons per acre for ground applications. Older, mature (hardened) annual weed species may require higher rates even if they meet the size requirements.

**13.2 Annual Weeds—Tank Mixtures with 2,4-D, Dicamba, or Tordon 22K**

10 to 13 fluid ounces of this product plus 0.25 pound of dicamba or 0.5 pound of 2,4-D or 1 to 2 fluid ounces of Tordon 22K per acre will control the following weeds with the maximum height or length indicated: 6 inches—prickly lettuce, marehail/horseweed, morningglory, Kochia (dicamba only) wild buckwheat (Tordon 22K only); 12 inches—cocklebur, lambsquarters, pigweed, Russian thistle (2,4-D only).

13 fluid ounces of this product plus 0.5 pound of 2,4-D per acre will control the following weeds when they are a maximum height or length of 6 inches: common ragweed, giant ragweed, Pennsylvania smartweed, and velvetleaf.

Refer to the specific product labels for crop rotation restrictions and cautionary statements of all products used in tank mixtures. Some crop injury may occur if dicamba or Tordon 22K is applied within 45 days of planting.

DO NOT APPLY DICAMBA TANK MIXTURES BY AIR IN CALIFORNIA.

**13.3 Annual Weeds—Hand-Held or High-Volume Equipment**

For control of weeds listed in the "ANNUAL WEEDS RATE TABLES", apply a 0.4 percent solution of this product to weeds less than 6 inches in height or runner length. Apply prior to seedhead formation in grass or bud formation in broadleaf weeds. For annual weeds over 6 inches tall, or unless otherwise specified, use a 0.8 percent solution.

For best results, use a 1.6 percent solution on harder-to-control perenni-

## ANNUAL WEEDS RATE TABLE 86

als, such as Bermudagrass, dock, field bindweed, hemp dogbane, milkweed and Canada thistle.

When using application methods that result in less than complete coverage, use a 4 percent solution for annual and perennial weeds and a 4 to 8 percent solution for woody brush and trees.

### 13.4 Annual Weeds—Tank Mixtures with Atrazine for Fallow and Reduced Tillage Systems

For use only in Colorado, Kansas, Nebraska, Oklahoma, Oregon, South Dakota, and Washington. In Oregon and Washington, do not exceed 1 pound of atrazine per acre.

20 to 24 fluid ounces of this product plus 1 to 2 pounds of atrazine per acre will control the following weeds: Barnyardgrass (requires 24 fluid ounces for control), Downy brome, Green foxtail, Lambsquarters, Prickly lettuce, Tansy mustard, Pigweed, Field sandbur, Stinkgrass, Russian thistle, Volunteer wheat, Witchgrass and Kochia (add 0.125 pound of dicamba for control).

### 14.0 PERENNIAL WEEDS RATE TABLE (Alphabetically by Species)

Apply to actively growing perennial weeds.

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

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

Unless otherwise stated, allow 7 or more days after application before tillage.

Best results are obtained when soil moisture is adequate for active weed growth.

Weed Species	Rate (QT/A)	Water Volume (GPA)	Hand-Held % Solution
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Alfalfa	1-1.75	3-10	1.6%
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Make applications after the last hay cutting in the fall. Allow alfalfa to regrow to a height of 6 to 8 inches or more prior to treatment. Applications should be followed with deep tillage at least 7 days after treatment, but before soil freeze-up.

Alligatorweed	3.2	3-20	1.2%
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For partial control, apply when most of the plants are in bloom. Repeat applications will be required to maintain control.

Anise (fennel)	1.75-3.2	3-20	0.8-1.6%
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For hand held, apply as a spray-to-wet treatment. Optimum results are obtained when plants are treated at the bud to full-bloom stage of growth.

Bahiagrass	2.5-4	3-20	1.6%
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Apply when most plants have reached the early head stage.

Bentgrass	1.25	10-20	1.6%
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For suppression in grass seed production areas. For ground applications only. Ensure entire crown area has resumed growth prior to a fall application. Bentgrass should have at least 3 inches of growth. Tillage prior to treatment should be avoided. Tillage 7 to 10 days after application is recommended for best results.

Bermudagrass	2.5-4	3-20	1.6%
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For control, apply 4 quarts of this product per acre. For partial control, apply 2.5 quarts per acre. Treat when Bermudagrass is actively growing and seedheads are present. Retreatment may be necessary to maintain control.

Bermudagrass, water (knotgrass)	1-1.25	5-10	1.6%
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Apply 40 fluid ounces of this product in 5 to 10 gallons of water per acre. Apply when water Bermudagrass is 12 to 18 inches in length. Allow 7 or more days before tilling, flushing or flooding the field.

Fall applications only: Apply 32 fluid ounces of this product in 5 to 10 gallons of water per acre. Fallow fields should be tilled prior to application. Apply prior to frost on water Bermudagrass that is 12 to 18 inches in length.

This product is not registered in California for use on water Bermudagrass.

## PERENNIAL WEEDS RATE TABLE 87

## PERENNIAL WEEDS RATE TABLE 88

Weed Species	Rate (QT/A)	Water Volume (GPA)	Hand-Held % Solution
Bindweed, field	0.5-4	3-20	1.6%

Do not treat when weeds are under drought stress as good soil moisture is necessary for active growth.

For control, apply 3.25 to 4 quarts of this product per acre west of the Mississippi River and 2.5 to 3.25 quarts east of the Mississippi River. Apply when the weeds are at or beyond full bloom. For best results, apply in late summer or fall. Fall treatments must be applied before a killing frost.

Also for control, apply 52 fluid ounces of this product plus 0.5 pound of dicamba in 10 to 20 gallons of water per acre. Do not apply by air.

For suppression on irrigated agricultural land, apply 26 to 52 fluid ounces of this product plus 1.0 pound of 2,4-D in 10 to 20 gallons of water per acre with ground equipment only. Applications should be made following harvest or in fall fallow ground when the bindweed is actively growing and the majority of runners are 12 inches or more in length. The use of at least one irrigation will promote active bindweed growth.

For suppression, apply 13 fluid ounces of this product plus 0.5 pound of 2,4-D in 3 to 10 gallons of water per acre for ground applications and 3 to 5 gallons of water per acre for aerial applications. Apply by air in fallow and reduced tillage systems only. Applications should be delayed until maximum emergence has occurred and when vines are between 6 to 18 inches in length.

**In California only,** apply 1 to 4 quarts of this product per acre. Actual rate needed for suppression or control will vary within this range depending on local conditions. For suppression on irrigated land where annual tillage is performed, apply 32 fluid ounces of this product in 3 to 10 gallons of water per acre. Apply to bindweed that has reached a length of 12 inches or greater. Allow maximum weed emergence and runner growth. Allow 3 or more days after application before tillage.

Bluegrass, Kentucky	1-1.75	3-40	1.6%
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Apply 52 fluid ounces of this product in 10 to 40 gallons of water per acre when most plants have reached boot-to-early seedhead stage of development. For partial control in pasture or hay crop renovation, apply 32 to 40 fluid ounces of this product in 3 to 10 gallons of water per acre. Apply to actively growing plants when most have reached 4 to 12 inches in height.

Blueweed, Texas	2.5-4	3-40	1.6%
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Apply 3.25 to 4 quarts of this product per acre west of the Mississippi River and 2.5 to 3.25 quarts per acre east of the Mississippi River. Apply when plants are at

or beyond full bloom. New leaf development indicates active growth. For best results, apply in late summer or fall. Fall treatments must be applied before a killing frost.

Brackenfern	2.5-3.25	3-40	0.8-1.2%
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Apply to fully expanded fronds that are at least 18 inches long.

Bromegrass, smooth	1-1.75	3-40	1.6%
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Apply 52 fluid ounces of this product in 10 to 40 gallons of water per acre when most plants have reached boot-to-early seedhead stage of development. For partial control in pasture or hay crop renovation, apply 32 to 40 fluid ounces of this product in 3 to 10 gallons of water per acre. Apply to actively growing plants when most have reached 4 to 12 inches in height.

Bursage, woolly-leaf	—	3-20	1.6%
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For control, apply 52 fluid ounces of this product plus 0.5 pound of dicamba per acre. For partial control, apply 32 fluid ounces of this product plus 0.5 pound of dicamba per acre. Apply when plants are producing new active growth which has been initiated by moisture for at least 2 weeks and when plants are at or beyond flowering.

Canarygrass, reed	1.75-2.5	3-40	1.6%
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For best results, apply when most plants have reached the boot-to-head stage of growth.

Cattail	2.5-4	3-40	1.6%
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Apply when most plants have reached the early head stage.

Clover; red, white	2.5-4	3-20	1.6%
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Apply when most plants have reached the early bud stage.

Also for control, apply 13 to 26 fluid ounces of this product plus 0.5 to 1 pound of 2,4-D in 3 to 10 gallons of water per acre.

Cogongrass	2.5-4	10-40	1.6%
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Apply when cogongrass is at least 18 inches tall in late summer or fall. Due to uneven stages of growth and the dense nature of vegetation preventing good spray coverage, repeat treatments may be necessary to maintain control.

Dallisgrass	2.5-4	3-20	1.6%
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Apply when most plants have reached the early head stage.

Dandelion	2.5-4	3-40	1.6%
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Apply when most plants have reached the early bud stage of growth.

Also for control, apply 13 fluid ounces of this product plus 0.5 pound of 2,4-D in 3 to 10 gallons of water per acre.

## PERENNIAL WEEDS RATE TABLE 89

## PERENNIAL WEEDS RATE TABLE 90

Weed Species	Rate (QT/A)	Water Volume (GPA)	Hand-Held % Solution
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Dock, curly 2.5-4 3-40 1.6%

Apply when most plants have reached the early bud stage of growth.

Also for control, apply 13 to 26 fluid ounces of this product plus 0.5 to 1.0 pound of 2,4-D in 3 to 10 gallons of water per acre.

Dogbane, hemp 3.25 3-40 1.6%

Apply when most plants have reached the late bud to flower stage of growth. Following crop harvest or mowing, allow weeds to regrow to a mature stage prior to treatment. For best results, apply in late summer or fall.

For suppression, apply 13 fluid ounces of this product plus 0.5 pound of 2,4-D in 3 to 10 gallons of water per acre for ground applications and 3 to 5 gallons of water per acre for aerial applications. Delay applications until maximum emergence of dogbane has occurred.

Fescue (except tall) 2.5-4 3-20 1.6%

Apply when most plants have reached the early head stage.

Fescue, tall 1-2.5 3-40 1.6%

Apply 2.5 quarts of this product per acre when most plants have reached boot-to-early seedhead stage of development.

Fall applications only: Apply 32 fluid ounces of this product in 3 to 10 gallons of water per acre. Apply to fescue in the fall when plants have 6 to 12 inches of new growth. A sequential application of 16 fluid ounces per acre of this product will improve long-term control and control seedlings germinating after fall treatments or the following spring.

Guineagrass 1.75-2.5 3-40 0.8%

Apply when most plants have reached at least the 7-leaf stage of growth. Ensure thorough coverage when using hand-held equipment.

In Texas and ridge of Florida, use 52 fluid ounces for control. In the flatwoods region of Florida, 2.5 quarts is required for control.

Horsenettle 2.5-4 3-20 1.6%

Apply when most plants have reached the early bud stage.

Horseradish 3.25 3-40 1.6%

Apply when most plants have reached the late bud to flower stage of growth. For best results, apply in late summer or fall.

Iceplant 1.75 3-20 1.2-1.6%

Iceplant should be at or beyond the early bud stage of growth. Thorough coverage is necessary for best control.

Jerusalem artichoke 2.5-4 3-20 1.6%

Apply when most plants are in the early bud stage.

Johnsongrass 0.5-2.5 3-40 0.8%

In annual cropping systems apply 32 to 52 fluid ounces of this product per acre. Apply 32 fluid ounces of this product in 3 to 10 gallons of water per acre. Use 52 fluid ounces of this product when applying 10 to 40 gallons of water per acre. In non-crop, or areas where annual tillage (no-till) is not practiced, apply 1.75 to 2.5 quarts of this product in 10 to 40 gallons of water per acre.

For best results, apply when most plants have reached the boot-to-head stage of growth or in the fall prior to frost. Allow 7 or more days after application before tillage. Do not tank-mix with residual herbicides when using 32 fluid ounces of this product per acre.

For burndown of Johnsongrass, apply 13 fluid ounces of this product in 3 to 10 gallons of water per acre before the plants reach a height of 12 inches. For this use, allow at least 3 days after treatment before tillage.

Spot treatment (partial control or suppression)—Apply a 0.8 percent solution of this product when Johnsongrass is 12 to 18 inches in height. Coverage should be uniform and complete.

Kikuyugrass 1.75-2.5 3-40 1.6%

Spray when most kikuyugrass is at least 8 inches in height (3- or 4-leaf stage of growth). Allow 3 or more days after application before tillage.

Knapweed 3.25 3-40 1.6%

Apply when most plants have reached the late bud to flower stage of growth. For best results, apply in late summer or fall.

Lantana — — 1.2%

Apply at or beyond the bloom stage of growth. Use the higher application rate for plants that have reached the woody stage of growth.

Lespedeza 2.5-4 3-20 1.6%

Apply when most plants have reached the early bud stage.

Milkweed, common 2.5 3-40 1.6%

Apply when most plants have reached the late bud to flower stage of growth.

## PERENNIAL WEEDS RATE TABLE 91

## PERENNIAL WEEDS RATE TABLE 92

Weed Species	Rate (QT/A)	Water Volume (GPA)	Hand-Held % Solution
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Muhly, wirestem	1-1.75	3-40	1.6%
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Use 32 fluid ounces of this product in 3 to 10 gallons of water per acre. Use 52 fluid ounces of this product when applying 10 to 40 gallons of water per acre or in pasture, sod, or non-crop areas. Spray when the wirestem muhly is 8 inches or more in height. Do not till between harvest and fall applications or in the fall or spring prior to spring applications. Allow 3 or more days after application before tillage.

Mullein, common	2.5-4	3-20	1.6%
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Apply when most plants are in the early bud stage.

Napiergrass	2.5-4	3-20	1.6%
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Apply when most plants are in the early head stage.

Nightshade, silverleaf	1.75	3-10	1.6%
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Applications should be made when at least 60 percent of the plants have berries. Fall treatments must be applied before a killing frost.

Nutsedge, purple or yellow	0.5-2.5	3-40	0.8-1.6%
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Apply 2.5 quarts of this product per acre or apply a 0.8 to 1.6 percent solution for control of nutsedge plants and immature nutlets attached to treated plants. Treat when plants are in flower or when new nutlets can be found at rhizome tips. Nutlets that have not germinated will not be controlled and may germinate following treatment. Repeat treatments will be required for long-term control of ungerminated tubers.

Sequential applications: 32 to 52 fluid ounces of this product in 3 to 10 gallons of water per acre will also provide control. Make applications when a majority of the plants are in the 3- to 5-leaf stage (less than 6 inches tall). Repeat this application, as necessary, when newly emerging plants reach the 3- to 5-leaf stage. Subsequent applications will be necessary for long-term control.

For partial control of existing plants, apply 13 to 52 fluid ounces of this product in 3 to 40 gallons of water per acre. Treat when plants have 3 to 5 leaves and most are less than 6 inches tall. Repeat treatments will be required to control subsequent emerging plants or regrowth of existing plants.

Orchardgrass	1-1.75	3-40	1.6%
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Apply 52 fluid ounces of this product in 10 to 40 gallons of water per acre when most plants have reached boot-to-early seedhead stage of development. For partial control in pasture or hay crop renovation, apply 32 to 40 fluid ounces of this product in 3 to 10 gallons of water per acre. Apply to actively growing plants when most have reached 4 to 12 inches in height.

Orchardgrass sods going to no-till corn: Apply 32 to 40 fluid ounces of this product in 3 to 10 gallons of water per acre. Apply to orchardgrass that is a minimum of 12 inches tall for spring applications and 6 inches tall for fall applications. Allow at least 3 days following application before planting. A sequential application of atrazine will be necessary for optimum results.

Pampasgrass	2.5-4	3-20	1.2-1.6%
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Pampasgrass should be at or beyond the boot stage of growth. Thorough coverage is necessary for best control.

Paragrass	2.5-4	3-20	1.6%
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Apply when most plants are in the early head stage.

Phragmites	2.5-4	10-40	1.2-1.6%
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For partial control, and best results, treat during late summer or fall when plants are actively growing and in full bloom. Treatment before or after this stage may lead to reduced control. Due to the dense nature of the vegetation, which may prevent good spray coverage or uneven stages of growth, repeat treatments may be necessary to maintain control. Visual control symptoms will be slow to develop.

Poison hemlock	1.75-3.25	3-20	1.2-1.6%
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For hand held, apply as a spray-to-wet treatment. Optimum results are obtained when plants are treated at the bud to full-bloom stage of growth. Thorough coverage is necessary for best control.

Pokeweed, common	1.0	3-40	1.6%
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Apply to actively growing plants up to 24 inches tall.

Quackgrass	1-2.5	3-40	1.6%
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In annual cropping systems, or in pastures and sods followed by deep tillage: Apply 32 fluid ounces of this product in 3 to 10 gallons of water per acre. For 10 to 40 gallons of water per acre, apply 52 fluid ounces of this product. Do not tank mix with residual herbicides when using the 32-fluid-ounce rate. Spray when quackgrass is 6 to 8 inches in height. Do not till between harvest and fall applications or in fall or spring prior to spring application. Allow 3 or more days after application before tillage. In pastures or sods, use a moldboard plow for best results.

## PERENNIAL WEEDS RATE TABLE 93

## PERENNIAL WEEDS RATE TABLE 94

Weed Species	Rate (QT/A)	Water Volume (GPA)	Hand-Held % Solution
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In pastures, sods or noncrop areas where deep tillage does not follow application. Apply 1.75 to 2.5 quarts of this product in 10 to 40 gallons of water per acre when the quackgrass is greater than 8 inches tall.

Redvine	0.75-1.75	5-10	1.6%
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For suppression, apply 20 fluid ounces of this product per acre at each of two applications 7 to 14 days apart or a single application of 52 fluid ounces per acre. Apply recommended rates in 5 to 10 gallons of water per acre. Apply in late September or early October to plants that are at least 18 inches tall and have been growing 45 to 60 days since the last tillage operation. Make applications at least 1 week before a killing frost.

Reed, giant	3.25-4	3-20	1.6%
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Best results are obtained when applications are made in late summer to fall.

Ryegrass, perennial	1-2.5	3-40	0.8%
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In annual cropping systems apply 32 to 52 fluid ounces of this product per acre. Apply 32 fluid ounces of this product in 3 to 10 gallons of water per acre. Use 52 fluid ounces of this product when applying 10 to 40 gallons of water per acre. In noncrop, or areas where annual tillage (no-till) is not practiced, apply 1.75 to 2.5 quarts of this product in 10 to 40 gallons of water per acre.

For best results, apply when most plants have reached the boot-to-head stage of growth or in the fall prior to frost. Do not tank-mix with residual herbicides when using 32 fluid ounces of this product per acre.

Smartweed, swamp	2.5-4	3-40	1.6%
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Apply when most plants have reached the early bud stage of growth. Also for control, apply 13 fluid ounces of this product plus 0.5 pound of 2,4-D in 3 to 10 gallons of water per acre in the late summer or fall.

Sowthistle, perennial	1.75-2.5	3-40	1.6%
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Apply when most plants are at or beyond the bud stage of growth. After harvest, mowing or tillage in the late summer or fall, allow at least 4 weeks for initiation of active growth and rosette development prior to the application of this product. Fall treatments must be applied before a killing frost. Allow 3 or more days after application before tillage.

Spurge, leafy	—	3-10	1.6%
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For suppression, apply 13 fluid ounces of this product plus 0.5 pound of 2,4-D in 3 to 10 gallons of water per acre in the late summer or fall. If mowing has

occurred prior to treatment, apply when most of the plants are 12 inches tall.

Starthistle, yellow	1.75	10-40	1.6%
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Best results are obtained when applications are made during the rosette, bolting and early flower stages.

Sweet potato, wild	—	—	1.6%
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For partial control, apply to plants that are at or beyond the bloom stage of growth. Repeat applications may be required.

Thistle, artichoke	1.75-2.5	3-20	1.6%
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For partial control, apply to plants that are at or beyond the bloom stage of growth. Repeat applications may be required.

Thistle, Canada	1.75-2.5	3-40	1.6%
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Apply when most plants are at or beyond the bud stage of growth. After harvest, mowing or tillage in the late summer or fall, allow at least 4 weeks for initiation of active growth and rosette development prior to the application of this product. Fall treatments must be applied before a killing frost. Allow 3 or more days after application before tillage.

For suppression in the spring, apply 26 fluid ounces of this product, or 13 fluid ounces of this product plus 0.5 pound of 2,4-D, in 3 to 10 gallons of water per acre. Allow rosette regrowth to a minimum of 6 inches in diameter before treating. Applications can be made as long as leaves are still green and plants are actively growing at the time of application. Allow 3 or more days after application before tillage.

Timothy	1.75-2.5	3-40	1.6%
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For best results, apply when most plants have reached the boot-to-head stage of growth.

Torpedograss	3.25-4	3-40	1.6%
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For partial control, apply when most plants are at or beyond the seedhead stage of growth. Repeat applications will be required to maintain control. Fall treatments must be applied before frost.

Trumpet creeper	1.75	5-10	1.6%
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For partial control, apply in late September or October, to plants that are at least 18 inches tall and have been growing 45 to 60 days since the last tillage operation. Make applications at least 1 week before a killing frost.

Vaseygrass	2.5-4	3-20	1.6%
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Apply when most plants are in the early head stage.

## PERENNIAL WEEDS RATE TABLE 95

## PERENNIAL WEEDS RATE TABLE 96

Velvetgrass	2.5-4	3-20	1.6%
Apply when most plants are in the early head stage.			
Wheatgrass, western	1.75-2.5	3-40	1.6%

For best results, apply when most plants have reached the boot-to-head stage of growth.

## 15.0 WOODY BRUSH AND TREES RATE TABLE (Alphabetically by Species)

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

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

Unless otherwise directed, apply broadcast treatments in 3 to 40 gallons of water per acre. Ensure thorough coverage when using hand-held equipment. Symptoms may not appear prior to frost or senescence with fall treatments.

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

Weed Species	Rate (QT/A)	Hand-Held % Solution	Comments*
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\*PC=Partial Control; C=Control

Alder	2.5-3.25	1.2%	C
Ash	1.75-4	0.8-1.6%	PC
Aspen, quaking	1.75-2.5	1.2%	C
Bearmat (Bearclover)	1.75-4	0.8-1.6%	PC
Beech	1.75-4	0.8-1.6%	PC
Birch	1.75-2.5	1.2%	C
Blackberry	2.5-3.25	1.2%	C

Make applications after plants have reached full leaf maturity. Best results are obtained when applications are made in late summer or fall. Applications may also be made after leaf drop and until a killing frost or as long as stems are green. After berries have set or dropped in late fall, blackberry can be controlled by applying a 0.8 percent solution of this product. For control of blackberries after leaf drop and until killing frost or as long as stems are green, apply 2.5 to 3.25 quarts of this product in 10 to 40 gallons of water per acre.

Blackgum	1.75-4	0.8-1.6%	C
Bracken	1.75-4	0.8-1.6%	C
Broom; French, Scotch	1.75-4	0.8-1.6%	C
Buckwheat, California	1.75-3.25	0.8-1.6%	PC
Thorough coverage of foliage is necessary for best results.			
Cascara	1.75-4	0.8-1.6%	PC
Catsclaw	—	1.2%	PC
Ceanothus	1.75-4	0.8-1.6%	PC
Chamise	—	1.2%	C
Thorough coverage of foliage is necessary for best results.			
Cherry; bitter, black, pin	1.75-2.5	1.2%	C
Coyote brush	2.5-3.25	0.8-1.6%	C
Apply when at least 50 percent of the new leaves are fully developed.			
Dogwood	1.75-4	0.8-1.6%	PC
Elderberry	1.75-2.5	1.2%	C

## WOODY BRUSH AND TREES 97

## WOODY BRUSH AND TREES 98

Weed Species	Rate (QT/A)	Hand-Held % Solution	Comments*
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\*PC=Partial Control; C=Control

Elm	1.75-4	0.8-1.6%	PC
Eucalyptus	—	1.6%	C
For control of eucalyptus resprouts, apply when resprouts are 6 to 12 feet tall. Ensure complete coverage. Avoid application to drought-stressed plants.			
Florida holly (Brazilian Peppertree)	1.75-4	0.8-1.6%	PC
Gorse	1.75-4	0.8-1.6%	PC
Hasardia	1.75-3.25	0.8-1.6%	PC
Thorough coverage of foliage is necessary for best results.			
Hawthorn	1.75-2.5	1.2%	C
Hazel	1.75-2.5	1.2%	C
Hickory	1.75-4	0.8-1.6%	PC
Honeysuckle	2.5-3.25	1.2%	C
Hornbeam, American	1.75-4	0.8-1.6%	PC
Kudzu	3.25-4	1.6%	C
Repeat applications may be required to maintain control.			
Locust, black	1.75-3.25	0.8-1.6%	PC
Madrone resprouts	—	1.6%	PC
Apply to resprouts that are 3 to 6 feet tall. Best results are obtained with spring/early summer treatments.			
Manzanita	1.75-4	0.8-1.6%	PC
Maple, red	1.75-3.25	1.2%	C
Apply a 1.2 percent solution when at least 50 percent of the new leaves are fully developed. For partial control, apply 1.75 to 3.25 quarts of this product per acre.			
Maple, sugar	—	1.2%	C
Apply when at least 50 percent of the new leaves are fully developed.			
Monkey flower	1.75-3.25	0.8-1.6%	PC

Thorough coverage of foliage is necessary for best results.

Oak; black, white	1.75-3.25	0.8-1.6%	PC
Oak, post	2.5-3.25	1.2%	C
Oak; northern	—	1.2%	C
Apply when at least 50 percent of the new pin leaves are fully developed.			
Oak; southern red	1.75-2.5	1.2%	C
Persimmon	1.75-4	0.8-1.6%	PC
Pine	1.75-4	0.8-1.6%	C
Poison ivy/ Poison oak	3.25-4	1.6%	C
Repeat applications may be required to maintain control. Fall treatments must be applied before leaves lose green color.			
Poplar, yellow	1.75-4	0.8-1.6%	PC
Redbud, eastern	1.75-4	0.8-1.6%	C
Rose, multiflora	1.75	1.2%	C
Treatments should be made prior to leaf deterioration by leaf-eating insects.			
Russian olive	1.75-4	0.8-1.6%	PC
Sage, black	1.75-3.25	1.2%	C
Thorough coverage of foliage is necessary for best results.			
Sage, white	1.75-4	0.8-1.6%	PC
Sage brush, California	1.75-3.25	1.2%	C
Thorough coverage of foliage is necessary for best results.			
Salmonberry	1.75-2.5	1.2%	C
Saltcedar	1.75-4	0.8-1.6%	C
Sassafras	1.75-4	0.8-1.6%	PC
Sourwood	1.75-4	0.8-1.6%	PC
Sumac; poison, smooth, winged	1.75-3.25	0.8-1.6%	PC
Sweetgum	1.75-2.5	1.2%	C
Swordfern	1.75-4	0.8-1.6%	PC

## WOODY BRUSH AND TREES 99

**WOODY BRUSH AND TREES 100**

Weed Species	Rate (QT/A)	Hand-Held % Solution	Comments*
*PC=Partial Control; C=Control			
Tallowtree, Chinese	—	1.2%	C
Thorough coverage of foliage is necessary for best results.			
Tan oak resprouts	—	1.6%	PC
Apply to resprouts that are less than 3 to 6 feet tall. Best results are obtained with fall applications.			
Thimbleberry	1.75-2.5	1.2%	C
Tobacco, tree	1.75-3.25	0.8-1.6%	PC
Trumpet creeper	1.75-2.5	1.2%	C
Vine maple	1.75-4	0.8-1.6%	PC
Virginia creeper	1.75-4	0.8-1.6%	C
Waxmyrtle, southern	1.75-4	0.8-1.6%	PC
Willow	2.5-3.25	1.2%	C

**16.0 LIMIT OF WARRANTY AND LIABILITY**

This Company warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes set forth in the Complete Directions for Use label booklet ("Directions") when used in accordance with those Directions under the conditions described therein. NO OTHER EXPRESS WARRANTY OR IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY IS MADE. This warranty is also subject to the conditions and limitations stated herein.

Buyer and all users shall promptly notify this Company of any claims whether based in contract, negligence, strict liability, other tort or otherwise.

Buyer and all users are responsible for all loss or damage from use or handling which results from conditions beyond the control of this

Company, including, but not limited to, incompatibility with products other than those set forth in the Directions, application to or contact with desirable vegetation, unusual weather, weather conditions which are outside the range considered normal at the application site and for the time period when the product is applied, as well as weather conditions which are outside the application ranges set forth in the Directions, application in any manner not explicitly set forth in the Directions, moisture conditions outside the moisture range specified in the Directions, or the presence of products other than those set forth in the Directions in or on the soil, crop or treated vegetation.

This Company does not warrant any product reformulated or repackaged from this product except in accordance with this Company's stewardship requirements and with express written permission from this Company.

For over-the-top uses on Roundup Ready crop varieties crop safety and weed control performance are not warranted by Monsanto when this product is used in conjunction with "brown bag" or "bin run" seed saved from previous year's production and replanted.

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Upon opening and using this product, buyer and all users are deemed to have accepted the terms of this LIMIT OF WARRANTY AND LIABILITY which may not be varied by any verbal or written agreement. If terms are not acceptable, return at once unopened.

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