

PM 25

241-279

8/20/98

P9 1/24

AUG 20 1998

Desire L. Little  
American Cyanamid Company  
P.O. Box 400  
Princeton, NJ 08543-0400

Dear Ms. Little:

Subject: Revised Crop Rotation Statement and Labeling  
Raptor Herbicide  
EPA Registration No 241-379  
Your Submission Dated June 30, 1998

The amendment referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended is acceptable provided that you:

1. Make the labeling changes listed below before you release the product for shipment bearing the amended labeling:

a. Modify the corn rotation statement to specify a period of 8½ months. If you wish a shorter period, you will have to submit a rotational crop study to support the shorter rotation period.

b. Either retain the spray drift statements that appear on the last accepted labeling for this product or update the Spray Drift Section so it complies with language recommended by the Industry - EPA Spray Drift Task Force.

For your information, the following are spray drift management statements that appear on a recently registered pesticide product:

#### SPRAY DRIFT

Avoid spray drift. Do not apply when weather conditions may cause drift. Do not allow this product to drift on to non-target areas. Drift may result in illegal residues or injury to adjacent crops and vegetation. To avoid spray drift, DO NOT apply aeriaily when wind speed is greater than 10 mph or during periods of temperature inversions. Use of larger droplet size will also reduce spray drift.

AVOID SPRAY DRIFT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR.

The interaction of many equipment-and-weather-related factors determine the potential for spray drift. The applicator is responsible for considering all these factors when making decisions.

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

The distance of the outer most nozzles on the boom must not exceed 1/4 the length of the wingspan or rotor.

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.

The applicator should be familiar with and take into account the information covered in the Aerial Drift Reduction Advisory below:

**AERIAL DRIFT REDUCTION ADVISORY**

[This section is advisory in nature and does not supersede the mandatory label requirements.]

**INFORMATION ON DROPLET SIZE**

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

**CONTROLLING DROPLET SIZE**

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

Pressure - Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.

Number of nozzles - Use the minimum number of nozzles that provide uniform coverage.

Nozzle Orientation - Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential.

Nozzle Type - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

**BOOM LENGTH**

For some use patterns, reducing the effective boom length to less than 1/4 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 target plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

**SWATH ADJUSTMENT**

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

**WIND**

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

**TEMPERATURE AND HUMIDITY**

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

**TEMPERATURE INVERSIONS**

Applications should not occur during a 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 pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

Where states have more stringent regulations, they should be observed.

2. Submit one (1) copy of your final printed labeling before you release the product for shipment.

A stamped copy of the labeling is enclosed for your records.

Sincerely yours,

James A. Tompkins  
Product Manager (25)  
Herbicide Branch  
Registration Division (7505C)

Enclosure

5/24

**RAPTOR®  
herbicide**

**FOR USE ONLY IN SOYBEANS**

**ACCEPTED**  
*with comment*  
**AUG 20 1998**  
Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No. **241-379**

**ACTIVE INGREDIENT:**

Ammonium salt of imazamox 2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-5-(methoxymethyl)-3-pyridinecarboxylic acid\* ..... 12.1%

**INERT INGREDIENTS** ..... 87.9%

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

\*Equivalent to 11.4% 2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-5-(methoxymethyl)-3-pyridinecarboxylic acid

(1 gallon contains 1.0 pound of active ingredient as the free acid)

Patent No. 5,334,576  
EPA Reg. No. 241- 379

EPA Est. No.

**KEEP OUT OF REACH OF CHILDREN**

**CAUTION/PRECAUCION**

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

**STATEMENT OF PRACTICAL TREATMENT**

- IF ON SKIN:** Wash with plenty of soap and water. Get medical attention if irritation persists.
- IF IN EYES:** Flush eyes with plenty of water. Call a physician if irritation persists.
- IF INHALED:** Remove victim to fresh air.

In case of an emergency endangering life or property involving this product, call collect, day or night, area code 973-683-3100.

See Next Page for Additional Precautionary Statements

American Cyanamid Company  
North America Agricultural Products Division  
Crop Protection Products Department  
One Campus Drive  
Parsippany, NJ 07054 ©1998

Net Contents: 1 quart  
(0.946 liter)

6/24

## PRECAUTIONARY STATEMENTS

### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

#### CAUTION!

Harmful if absorbed through skin or inhaled. Avoid breathing spray mist. Avoid contact with skin, eyes or clothing.

#### Personal Protective Equipment (PPE):

Applicators and other handlers must wear:

- long-sleeved shirt and long pants
- waterproof gloves
- shoes plus socks

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

#### 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.

### ENVIRONMENTAL HAZARDS

This pesticide may be hazardous to plants outside the treated area. DO NOT apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Offsite movement from spray drift, volatilization, and runoff may be hazardous to neighboring crops and vegetative habitat utilized for food and cover by wildlife and aquatic organisms. DO NOT contaminate water when disposing of equipment washwaters.

### DIRECTIONS FOR USE

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

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

This labeling must be in the possession of the user at the time of pesticide application.

Observe all cautions and limitations on this label and on the labels of products used in combination with RAPTOR herbicide. Do not use RAPTOR other than in accordance with the instructions set forth on this label. The use of RAPTOR not consistent with this label may result in injury to crops. Keep containers closed to avoid spills and contamination.

DO NOT apply this product through any type of irrigation system.

7/24

### 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. Exception: if the product is soil-injected or soil-incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

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
- waterproof gloves
- shoes plus socks

### STORAGE AND DISPOSAL

#### PROHIBITIONS:

KEEP FROM FREEZING

DO NOT store below 32°F.

DO NOT contaminate water, food or feed by storage or disposal.

**PESTICIDE DISPOSAL:** Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

**CONTAINER DISPOSAL:** Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, by incineration or, if allowed by State and local authorities by burning. If burned, stay out of smoke.

8/24

## DISCLAIMER

The label instructions for the use of this product reflect the opinion of experts based on research and field use. The directions are believed to be reliable and should be followed carefully. However, it is impossible to eliminate all risks inherently associated with use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, herbicide resistant weed populations, or the use of, or application of the product contrary to label instructions, all of which are beyond the control of American Cyanamid Company. All such risks shall be assumed by the user.

American Cyanamid Company shall not be responsible for losses or damages resulting from use of this product in any manner not set forth on this label. User assumes all risks associated with the use of this product in any manner not specifically set forth on this label.

American Cyanamid Company warrants only that the material contained herein conforms to the chemical description on the label and is reasonably fit for the use therein described when used in accordance with the directions for use, subject to the risks referred to above. **CYANAMID DOES NOT MAKE OR AUTHORIZE ANY AGENT OR REPRESENTATIVE TO MAKE ANY OTHER WARRANTIES, EXPRESS OR IMPLIED AND EXPRESSLY EXCLUDES AND DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

**BUYER'S EXCLUSIVE REMEDY AND AMERICAN CYANAMID'S EXCLUSIVE LIABILITY, WHETHER IN CONTRACT, TORT, NEGLIGENCE, STRICT LIABILITY OR OTHERWISE, SHALL BE LIMITED TO REPAYMENT OF THE PURCHASE PRICE OF RAPTOR HERBICIDE.** In no case shall Cyanamid or the seller be liable for consequential, special or indirect damages resulting from the use or handling of this product.

## USES WITH OTHER PRODUCTS (TANK-MIXES)

If this product is used in combination with any other product except as specifically recommended in writing by American Cyanamid Company, then American Cyanamid Company shall have no liability for any loss, damage or injury arising out of its use in any such combination not so specifically recommended. If used in combination recommended by American Cyanamid Company, the liability of American Cyanamid Company shall in no manner extend to any damage, loss or injury not directly caused by the inclusion of the American Cyanamid Company product in such combination use, and in any event shall be limited to return of the amount of the purchase price of the American Cyanamid Company product.

## GENERAL INFORMATION

RAPTOR® herbicide is effective in controlling weeds in conservation tillage and conventional production systems. RAPTOR can be applied early postemergence in soybeans but before the bloom stage. Refer to the specific treatment under the "APPLICATION INFORMATION" section of the label.

The mode of weed killing activity involves uptake of RAPTOR herbicide by foliage and/or weed roots and rapid translocation to the growing points. After RAPTOR application, susceptible weeds may show yellowing and weed growth will stop. Susceptible weeds stop growing and either die or are not competitive with the crop. Adequate soil moisture is important for optimum RAPTOR activity. When adequate soil moisture is present, RAPTOR will provide residual activity of susceptible germinating weeds; activity on established weeds will depend on the weed species and the location of its root system in the soil. A timely cultivation after a RAPTOR application may improve general weed control.

Use of RAPTOR herbicide is expected to result in normal growth of rotational crops in most situations; however, various environmental and agronomic factors make it impossible to eliminate all risks associated with the use of this product and, therefore, rotational crop injury is always possible.

Occasionally, internode shortening and/or temporary yellowing of crop plants may occur following RAPTOR applications. These effects can be more pronounced if crops are growing under stressful environmental or hot and humid conditions. These effects occur infrequently and are temporary. Normal growth and appearance should resume within days.

Replanting: If replanting is necessary in a field previously treated with RAPTOR, the field may be replanted to soybeans. Rework the soil no deeper than 2 inches. DO NOT apply a second treatment of RAPTOR.

Naturally occurring biotypes\* of some of the weeds listed on this label may not be effectively controlled by this and/or other products with either the ALS/AHAS enzyme inhibiting mode of action. Other herbicides with the ALS/AHAS enzyme inhibiting mode of action include the sulfonylureas (e.g., Accent<sup>1</sup>, Basis<sup>1</sup>, Classic<sup>1</sup>, Concert<sup>1</sup>, Exceed<sup>2</sup>, Permit<sup>3</sup>, Pinnacle<sup>1</sup>, etc.), the sulfonamides (e.g., Broadstrike<sup>4</sup>, etc.) and the pyrimidyl benzoates (e.g. Staple<sup>1</sup>, etc.). If naturally occurring ALS/AHAS resistant biotypes are present in a field, RAPTOR and/or any other ALS/AHAS enzyme inhibiting mode of action herbicide should be tank-mixed or applied sequentially with an appropriate registered herbicide having a different mode of action to ensure control.

\*A weed biotype is a naturally occurring plant within a given species that has a slightly different, but distinct, genetic makeup from other plants.

## MIXING INSTRUCTIONS

POSTEMERGENCE APPLICATIONS OF RAPTOR REQUIRE THE ADDITION OF AN ADJUVANT AND A NITROGEN FERTILIZER SOLUTION.

### I. ADJUVANTS

**CROP OIL CONCENTRATE:** A petroleum or vegetable seed based crop oil concentrate (such as SUN-IT II<sup>5</sup>) may be used. SUN-IT II is recommended when weeds are under moisture or temperature stress. Use SUN-IT II, other methylated seed oils, or crop oil concentrate at a rate of 1.0% volume per volume (%v/v).

OR

10/24

**SURFACTANTS:** Use a nonionic surfactant containing at least 80% active ingredient. Apply the surfactant at the rate of 1 quart per 100 gallons of spray solution. An organo-silicone surfactant may be used in place of a non-ionic surfactant.

**AND**

**II. NITROGEN FERTILIZER SOLUTION**

Recommended nitrogen based fertilizers include liquid fertilizers (such as 28%N, 32%N or 10-34-0) at the rate of 1-2 quarts per acre. Use the higher rate when weeds are under moisture or temperature stress. Instead of a liquid fertilizer, spray grade ammonium sulfate may be used at the rate of 2.5 pounds per acre.

**NOTE:** Nitrogen fertilizer solution is not required when applied in use areas south of Interstate Highway 40.

Fill the spray tank one-half to three-quarters full with clean water. Use a calibrated measuring device to measure the required amount of RAPTOR herbicide. Add RAPTOR to the spray tank while agitating. Add adjuvants and fill the remainder of the tank with water.

**TANK MIX COMBINATIONS WITH OTHER HERBICIDES**

If other herbicides or other spray tank components are tank-mixed with RAPTOR, while agitating, add components in the following order and thoroughly mix after adding each component:

- 1) Fill spray tank 1/2 to 3/4 full with clean water.
- 2) Add soluble packet products and thoroughly mix.
- 3) Add WP (wetable powder), DG (dispersible granule), DF (dry flowable) or liquid flowable formulations not in soluble packets.
- 4) Add RAPTOR and thoroughly mix.
- 5) Add other aqueous solution products.
- 6) Add EC (emulsifiable concentrate) products.
- 7) Add surfactant or crop oil to the spray tank.
- 8) Add nitrogen fertilizer solution.
- 9) While agitating, fill the remainder of the tank with water.

To avoid injury to sensitive crops, spray equipment used for RAPTOR applications must be drained and thoroughly cleaned with water before being used to apply other products.

When RAPTOR is used in combination with another herbicide, refer to the respective label for rates, methods of application, proper timing, weeds controlled, restrictions and precautions. Always use in accordance with the more restrictive label restrictions and precautions. No label dosages should be exceeded. RAPTOR cannot be mixed with any product containing a label prohibiting such mixtures.

## SPRAYING INSTRUCTIONS

DO NOT apply if wind conditions, temperature inversion conditions, or other conditions may cause drift onto adjacent areas or sensitive crops. Sensitive crops include but are not limited to leafy vegetables and sugarbeet.

### GROUND APPLICATION:

Uniformly apply with properly calibrated ground equipment in 10 or more gallons of water per acre. A spray pressure of 20 to 40 psi is recommended.

To ensure thorough coverage, use a minimum of 20 gallons of water per acre when applying RAPTOR herbicide to minimum or no-till crops. Use higher gallonage for fields with dense vegetation or heavy crop residues.

Adjust the boom height to ensure proper coverage of weed foliage (according to the manufacturer's recommendation). Use flat-fan nozzle tips or similar appropriate nozzle tips to ensure adequate coverage.

Avoid overlaps when spraying.

### GROUND APPLICATION WITH A LOW VOLUME SPRAYER

RAPTOR may be applied to soybeans with a low volume (Spra-Coupe<sup>®</sup>-type) sprayer. When applying RAPTOR with a low volume sprayer, spray the weeds before they reach the maximum size listed in this label. Adequate control of weeds is dependent upon good spray coverage of the weeds. The sprayer must be calibrated to deliver the recommended spray volume and pressure to ensure adequate spray coverage of the weeds.

When applying RAPTOR with a low volume sprayer, apply a minimum of 10 gallons per acre of spray solution with a nozzle pressure between 40-60 psi for optimum coverage.

### AERIAL APPLICATION:

RAPTOR herbicide may be applied by air to soybeans.

Uniformly apply with properly calibrated aerial equipment in 5 or more gallons of water per acre. The addition of an adjuvant AND fertilizer solution are required for optimum weed control. Apply a non-ionic surfactant at the rate of 1 quart per 100 gallons of spray solution OR a crop oil concentrate at the rate of 1.25 gallons per 100 gallons of spray solution AND a nitrogen fertilizer solution at the rate of 1 quart per acre. (See instructions under MIXING INSTRUCTIONS).

To avoid injury to sensitive crops from drift, aerial applicators must adhere to the following SPECIAL AERIAL USE DIRECTIONS AND PRECAUTIONS.

- Nozzle height above ground must be a maximum of 10 feet.
- Nozzles must be pointed toward the rear of the aircraft. The downward angle of the nozzle should not be greater than 20 degrees.
- To minimize wing-tip vortex roll, nozzles or spray boom must not be located any closer to end of wing or rotor than three-fourths the distance from the center of the aircraft.
- Use a maximum spray pressure of 40 psi.
- A buffer zone must be established between the area to be sprayed and sensitive crops.

- 12 of 24
- DO NOT spray when wind velocity is greater than 5 mph.
  - Coarse sprays (larger droplets) are less likely to drift.

Applicator is responsible for any loss or damage which results from spraying RAPTOR® herbicide in a manner other than recommended in this label. In addition, applicator must follow all applicable state and local regulations and ordinances in regard to spraying.

### APPLICATION INFORMATION

Apply RAPTOR herbicide as a postemergence treatment when weeds are actively growing and before they exceed a height of 5 inches, unless otherwise indicated. Delay application until the majority of the weeds are at the recommended growth stage. Application timing should be based on weed size and not crop growth stage. Apply RAPTOR to crops and weeds that are actively growing.

An adjuvant (either a surfactant or a crop oil concentrate) and a nitrogen fertilizer must be added to the spray solution for optimum weed control activity. See the ADJUVANT section under MIXING INSTRUCTIONS for specific instructions.

When RAPTOR is applied postemergence, absorption will occur through both the roots and foliage. Susceptible weeds stop growing and either die or are not competitive with the crop. RAPTOR not only controls many existing broadleaf and grass weeds when applied postemergence, it also provides activity on susceptible weeds that may emerge shortly after application.

For maximum weed control, cultivate 7 - 10 days following a postemergence RAPTOR application. This timely cultivation will enhance residual weed activity, especially under dry conditions.

RAPTOR should be applied a minimum of one hour before rainfall or overhead irrigation.

Unusually cool temperatures (50° F or less) reduce photosynthesis and transpiration and thus reduce uptake, translocation, and efficacy of RAPTOR herbicide in weeds. Delaying a RAPTOR application for 48 hours from the time the temperature increases to above 50° F, if air temperature has been below 50° F for 10 or more hours, will improve weed control and reduce crop response.

### NO-TILL/MINIMUM TILLAGE AND DOUBLE CROP SOYBEANS

RAPTOR herbicide controls existing weeds and provides residual activity on some weeds when applied early postemergence to soybeans in no-till or minimum tillage and double crop soybean production systems. The application must be applied after emergence of the crop. (Refer to the WEEDS CONTROLLED chart for weeds controlled and recommended weed size).

To ensure thorough coverage, use a minimum of 20 gallons of water per acre in no-till or minimum tillage systems. Use higher gallonage for fields with dense vegetation or heavy crop residues.

Prior to planting or emergence of soybeans, Touchdown<sup>7</sup> (sulfosate) or Roundup Ultra<sup>3</sup> or any glyphosate-containing product registered for that use may be applied to control emerged weeds. See specific product labeling for rates, recommendations, precautions and restrictions.

## USE RATES

13/24  
6

**APPLY 4 FLUID OUNCES OF RAPTOR HERBICIDE PER ACRE WHEN PRECEDED BY  
A FULL RATE OF A REGISTERED SOIL APPLIED GRASS HERBICIDE LIKE  
PROWL® 3.3 EC HERBICIDE**

**OR**

**APPLY 5 FLUID OUNCES OF RAPTOR HERBICIDE PER ACRE IN A TOTAL  
POSTEMERGENCE HERBICIDE PROGRAM**

RAPTOR may be applied postemergence at a broadcast rate of 4 fluid ounces per acre when it is preceded with a full labeled rate of a soil applied grass herbicide such as PROWL 3.3 EC herbicide. At this rate one quart of RAPTOR will treat 8 acres of soybeans. RAPTOR may be applied postemergence at a broadcast rate of 5 fluid ounces per acre (including minimum and no-till). At this broadcast rate, one quart of RAPTOR will treat 6.4 acres of soybeans.

NOTE: Only one application of RAPTOR may be made during the season.

## WEEDS CONTROLLED

When applied as directed, RAPTOR will control or suppress the weeds listed below as indicated. Refer to the MIXING INSTRUCTIONS section for recommendations when weeds are at the maximum recommended growth stage, or are under stress.

## BROADLEAF WEEDS CONTROLLED USING A SEQUENTIAL\* PROGRAM

14/24  
6

\*Soil applied grass herbicide such as PROWL® 3.3EC herbicide followed by a postemergence application of RAPTOR® herbicide at a broadcast rate of 4 fluid ounces per acre.

BROADLEAF WEEDS	RECOMMENDED HEIGHT (inches)
-----------------	-----------------------------

Artichoke, Jerusalem	3-8
Carpetweed	2-4
Chickweed, common	2-5
Cocklebur, common	2-8
Jimsonweed	2-6
Kochia**	1-4
Lambsquarters, common	2-5
Marshelder	2-4
Mustard spp.	2-8
Nightshade,	
black	2-5
Eastern black	2-5
hairy	2-5
Pigweed,	
Palmer amaranth**	2-4
prostrate	2-5
redroot	2-8
smooth	2-8
spiny	2-5
Purslane, common	1-3
Pusley, Florida	2-4
Radish, wild	2-4
Ragweed, giant	2-5
Smartweed,	
ladysthumb	2-5
Pennsylvania	2-5
Spurge, annual	2-4
Sunflower	2-8
Velvetleaf	2-8
Waterhemp,**	
tall	1-3
common	1-3

\*\* Control of light to moderate populations of ALS susceptible biotypes only. For control of heavier populations and ALS tolerant biotypes see the HERBICIDE COMBINATION section.

15/24

## BROADLEAF WEEDS SUPPRESSED USING A SEQUENTIAL PROGRAM

---

<u>BROADLEAF WEEDS</u>	<u>RECOMMENDED HEIGHT (inches)</u>
Bindweed	
field (seedling)	2-4
hedge (seedling)	2-4
Buckwheat, wild	1-3
Mallow, Venice*	1-4
Morningglory,	
entireleaf*	2-4
ivyleaf*	2-4
pitted	2-4
smallflower*	2-4
tall*	2-4
Ragweed, common*	2-5
Sida, prickly	2-4
Sowthistle, annual	2-4
Thistle, Canada	2-5

\*For control see the 5 ounce rate and HERBICIDE COMBINATION section.

GRASS WEEDS CONTROLLED USING A SEQUENTIAL PROGRAM

16/24

GRASS WEEDS	RECOMMENDED HEIGHT (inches)
Barley, wild	2-4
Barnyardgrass	2-5
Crabgrass,	
large	2-4
smooth	2-4
Crowfoot grass	2-5
Cupgrass, woolly	2-4
Foxtail,	
giant	2-6
green	2-6
yellow	2-6
Goosegrass	2-5
Johnsongrass,	
seedling	4-8
Millet, wild proso	2-4
Oats, wild	2-6
Panicum,	
fall	2-6
Texas	2-6
Sandbur, field*	2-5
Shattercane	2-8
Signalgrass, broadleaf	2-5
Volunteer corn**	2-8
Volunteer wheat	2-4
Witchgrass	2-5

\*For control a dinitroaniline (DNA) herbicide such as PROWL 3.3EC herbicide must be soil applied at a full labeled rate.

\*\*Except imidazolinone tolerant corn.

GRASSES AND SEDGES SUPPRESSED USING A SEQUENTIAL PROGRAM

---

17/24

WEEDS RECOMMENDED HEIGHT (inches)

GRASSES

Itchgrass	2-5
Johnsongrass, rhizome	6-12
Quackgrass	4-8
Red rice	2-5

SEDGES

Nutsedge, purple	1-3
yellow	1-3

**BROADLEAF WEEDS CONTROLLED USING RAPTOR HERBICIDE  
POSTEMERGENCE AT A BROADCAST RATE OF 5 FLUID OUNCES PER ACRE**

18/24

<b>BROADLEAF WEEDS</b>	<b>RECOMMENDED HEIGHT (inches)</b>
Artichoke, Jerusalem	3-8
Chickweed, common	2-5
Cocklebur, common	2-8
Jimsonweed	2-6
Kochia**	1-4
Lambsquarters, common	2-5
Mallow, Venice	1-4
Marshelder	2-4
Morningglory,	
entireleaf	2-4
ivyleaf	2-4
smallflower	2-4
tall	2-4
Mustard spp.	2-8
Nightshade,	
black	2-5
Eastern black	2-5
hairy	2-5
Pigweed,	
Palmer amaranth*	2-4
prostrate	2-5
redroot	2-8
smooth	2-8
spiny	2-5
Puncturevine	1-3
Purslane, common	1-3
Radish, wild	2-4
Ragweed,	
giant	2-5
common*	2-5
Smartweed,	
ladysthumb	2-5
Pennsylvania	2-5
Sunflower	2-8
Velvetleaf	2-8

\*Control of light to moderate populations only. For control of heavier populations see the HERBICIDE COMBINATION section.

\*\* Control of light to moderate populations of ALS susceptible biotypes only. For control of heavier populations and ALS tolerant biotypes see the HERBICIDE COMBINATION section.

BROADLEAF WEEDS SUPPRESSED USING RAPTOR HERBICIDE POSTEMERGENCE  
AT A BROADCAST RATE OF 5 FLUID OUNCES PER ACRE

---

19/24

BROADLEAF WEEDS                      RECOMMENDED HEIGHT (inches)

Bindweed	
field (seedling)	2-4
hedge (seedling)	2-4
Buckwheat, wild	1-3
Morningglory,	
pitted	2-4
Sida, prickly	2-4
Sowthistle, annual	2-4
Thistle, Canada	2-5

20/24

**GRASS WEEDS CONTROLLED USING RAPTOR HERBICIDE POSTEMERGENCE AT A  
BROADCAST RATE OF 5 FLUID OUNCES PER ACRE**

---

**GRASS WEEDS** RECOMMENDED HEIGHT (inches)

Barley, wild	2-4
Barnyardgrass*	2-5
Foxtail,	
giant	2-6
green	2-6
yellow	2-6
Johnsongrass, seedling	4-8
Millet, wild proso*	2-4
Oats, wild	2-6
Panicum, fall	2-6
Shattercane	2-8
Signalgrass, broadleaf*	2-5
Volunteer corn**	2-8
Volunteer wheat	2-4

\* Control of light to moderate populations only. For control of heavier populations use a SEQUENTIAL APPLICATION with a soil applied grass herbicide as described above.

\*\*Except imidazolinone tolerant corn.

**GRASS WEEDS AND SEDGES SUPPRESSED USING RAPTOR POSTEMERGENCE AT A  
BROADCAST RATE OF 5 FLUID OUNCES PER ACRE**

---

**WEEDS** RECOMMENDED HEIGHT (inches)

**GRASSES**

Crabgrass,	
large	2-4
smooth	2-4
Cupgrass, woolly	2-4
Goosegrass	2-4
Johnsongrass, rhizome	6-12
Quackgrass	4-8
Stinkgrass	2-4

**SEDGES**

Nutsedge,	
purple	1-3
yellow	1-3

## HERBICIDE COMBINATIONS

21/24

### GRASS WEEDS

Use a soil applied grass herbicide (such as PROWL 3.3 EC herbicide) if heavy infestations of some grass weeds exist or if RAPTOR herbicide does not control the species present. Refer to the PROWL 3.3EC (or other grass herbicide) label for specific use recommendations, rates and precautions.

Roundup Ultra may be tank-mixed with RAPTOR to aid in control of certain grasses only in Roundup Ready Soybeans. See the Roundup Ultra label for rates and weeds controlled. If a selective postemergence grass herbicide such as PRESTIGE<sup>8</sup>, Poast Plus<sup>8</sup>, Fusilade<sup>7</sup> 2000, Fusilade<sup>7</sup> DX, Fusion<sup>7</sup>, Assure<sup>1</sup>, Select<sup>9</sup> or Option<sup>10</sup> is mixed with RAPTOR to control species that are not controlled with RAPTOR alone, SUN-IT II (1.5 - 2 pints per acre) or a crop oil concentrate (2 pints per acre) AND liquid fertilizer (1-2 quarts per acre) should be added to the tank-mixture. In some cases the activity of the grass herbicide may be reduced when mixed with RAPTOR. The reduction in activity may be overcome by delaying the application of the postemergence grass herbicide 7 days following the application of RAPTOR. If the postemergence grass herbicide is applied first, wait 3 days before applying RAPTOR. Refer to the respective grass herbicide label for recommended application rate, weed size and restrictions.

### BROADLEAF WEEDS

Roundup Ultra may be tank-mixed with RAPTOR to aid in control of certain broadleaf weeds only in Roundup Ready Soybeans. See the Roundup Ultra label for rates and weeds controlled.

Tank-mixing RAPTOR and certain broadleaf herbicides (e.g. diphenylethers and Basagran<sup>8</sup>) can reduce grass control, therefore a sequential program including a soil applied grass herbicide such as PROWL 3.3 EC is recommended for optimal control.

#### Enhanced Control of common ragweed, Palmer amaranth, waterhemp, and Kochia.

Use a soil application of PROWL 3.3 EC herbicide followed by a postemergence application of RAPTOR herbicide at a broadcast rate of 4 to 5 fluid ounces per acre plus a diphenylether such as STATUS<sup>8</sup> (acifluorfen) or Roundup Ultra for enhanced control of common ragweed, Palmer amaranth, waterhemp, and kochia. Refer to the PROWL 3.3 EC and STATUS or Roundup Ultra labels for specific use recommendations, rates, restrictions and precautions.

When tank-mixing RAPTOR and STATUS, apply RAPTOR at a broadcast rate of 5 fluid ounces per acre or 4 fluid ounces per acre when preceded by a full rate of a registered soil applied grass herbicide. Apply STATUS at the following rates depending on weed height:

Weed	STATUS Rate (ounces per acre):*		
	8-10 oz.	12-14 oz.	16-20 oz.
Ragweed, common	2-4"	4-6"	6-8"
Palmer amaranth	2-4"	4-6"	6-8"
Waterhemp spp.	2-4"	4-6"	6-8"
Kochia	2-4"	4-6"	6-8"

Use the higher rate if common ragweed is present or the weed population is high.

When applying STATUS following a RAPTOR application, apply STATUS at the following rates:

Weed	STATUS Rate (ounces per acre):*		
	10-12 oz.	14-16 oz.	18-24 oz.
Ragweed, common	2-4"	4-6"	6-8"
Palmer amaranth	2-4"	4-6"	6-8"
Waterhemp spp.	2-4"	4-6"	6-8"
Kochia	2-4"	4-6"	6-8"

\* Use the higher rate if common ragweed is present or the weed population is high.

**Enhanced control of common ragweed and giant ragweed.**

Firstrate<sup>4</sup> may be tank-mixed with RAPTOR to aid in the control of common ragweed and giant ragweed. See the Firstrate label for recommended rates and precautions.

## ROTATIONAL CROPS

23/24

The following rotational crops may be planted after applying up to 5 fluid ounces per acre of RAPTOR herbicide in soybeans:

1. **Anytime**  
Soybeans
2. **Three months after a RAPTOR application:**  
Wheat
3. **Four months after a RAPTOR application:**  
Barley  
Rye
4. **Eight months after a RAPTOR application:**  
Corn (field, pop, seed, sweet)
5. **Nine months after a RAPTOR application:**

Alfalfa	Edible Beans	Pumpkin
Broccoli	Grain Sorghum	Rice
Cabbage	Oat	Squash
Cantaloupe	Onion	Sunflower
Carrot	Pea	Tobacco
Cotton	Peanut	Tomato
Cucumber	Pepper	Turnip
	Potato	Watermelon
6. **Eighteen months after a RAPTOR application:**  
Sugar beet and table beet if the soil pH is uniformly 6.2\* or greater  
All other crops including canola
7. **Twenty-six months after a RAPTOR application:**  
Sugar beet and table beet if the soil pH is less than 6.2\*

\*Sugar beet yields can be reduced when grown in soil conditions with a pH less than 6.5. If the soil is limed to adjust the soil pH, apply the lime at least 18 months prior to planting sugar beets or other rotational crops under the 18 month rotational interval.

Use of RAPTOR herbicide in accordance with label directions is expected to result in normal growth of rotational crops in most situations; however, various environmental and agronomic factors, such as arid conditions, make it impossible to eliminate all risks associated with the use of this product and, therefore, rotational crop injury is always possible.

### PRECAUTIONS

DO NOT make more than one application per growing season.

Only rotational crops harvested at maturity may be used for feed or food.

There should be an interval of at least 85 days between an application of RAPTOR and soybean harvest.

RAPTOR applications must be made before soybean bloom.

DO NOT graze or feed treated soybean forage, hay or straw to livestock.

If soybeans are furrow irrigated, till the soil prior to planting winter wheat or barley. The beds should be broken up and the soil mixed with tillage equipment set to cut 4-6 inches deep.

Application of products containing chlorimuron ethyl (Classic, Canopy<sup>1</sup>, Synchrony<sup>1</sup>, Gemini<sup>1</sup>, Lorox Plus<sup>1</sup>, Preview<sup>1</sup>, etc.), flumetsulam (Broadstrike + Dual<sup>2</sup>, Broadstrike + Treflan<sup>4</sup>), imazaquin (SCEPTER<sup>®</sup>, SQUADRON<sup>®</sup>, TRI-SCEPT<sup>®</sup>, SCEPTER<sup>®</sup> O.T.<sup>®</sup>, SCEPTER<sup>®</sup> 70DG, STEEL<sup>®</sup> or DETAIL<sup>®</sup>), imazethapyr (PURSUIT<sup>®</sup>, PURSUIT<sup>®</sup> DG, PURSUIT<sup>®</sup> PLUS, PASSPORT<sup>®</sup>) the same year as RAPTOR may increase the risk of injury to sensitive rotational crops. Consult all pertinent labels for recommended uses of these products in combinations.

If arid conditions occur during the year of application rotational crop injury may occur.

In the event of a crop loss due to weather, soybeans can be replanted.

<sup>1</sup>Accent, Basis, Classic, Concert, Pinnacle, Staple, Synchrony, Assure, Lorox Plus, Canopy, Gemini, and Preview are trademarks of E.I. duPont de Nemours & Co., Inc.

<sup>2</sup>Dual and Exceed are trademarks of Novartis .

<sup>3</sup>Permit and Roundup Ultra are trademarks of Monsanto Agricultural Company.

<sup>4</sup>Broadstrike, Firstrate and Treflan are trademarks of DowElanco.

<sup>5</sup>SUN-IT II is a trademark of Agsco, Inc.

<sup>6</sup>Spra-Coupe is a trademark of Melroe Agricultural Products.

<sup>7</sup>Touchdown, Fusilade 2000, Fusilade DX, and Fusion are trademarks of Zeneca Group Company.

<sup>8</sup>Basagran, Poast Plus, Prestige and STATUS are trademarks of BASF Corporation.

<sup>9</sup>Select is a trademark of Valent Chemical Co.

<sup>10</sup>Option is a trademark of AgrEvo USA Company.

®/™ Trademarks of American Cyanamid Company.

8166

For additional information regarding the use of RAPTOR herbicide, call telephone no. 800-942-0500.

American Cyanamid Company  
North America Agricultural Products Division  
Crop Protection Products Department  
One Campus Drive  
Parsippany, NJ 07054 ©1998