

## UNITED STATES ENVIRONMENTAL PROTECTION AGENCY WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY AND POLLUTION PREVENTION

November 10, 2021

Lisa Mathias Registration Specialist Winfield Solutions, LLC P.O. Box 64589 St. Paul, MN 55164-0589

Subject: Registration Review Label Amendments for Atrazine Incorporating Mitigation

Measures from the Interim Decision and the Technical Registrants' Commitments

for the Endangered Species Act (ESA) Biological Evaluation

Product Name: ATRAZINE 90DF EPA Registration Number: 33270-9 Application Date: November 19, 2020

Decision Number: 568053

#### Dear Ms. Mathias:

The Agency, in accordance with the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended, has completed reviewing all the information submitted with your application to support the Registration Review of the above referenced product in connection with the Atrazine Interim Decision and with the technical registrants' commitments for the ESA Biological Evaluation. The Agency has concluded that your submission is acceptable. The label referred to above, submitted in connection with registration under FIFRA, as amended, is acceptable.

Should you wish to add/retain a reference to the company's website on your label, then please be aware that the website becomes labeling under the Federal Insecticide Fungicide and Rodenticide Act and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) list examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product's label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA's Office of Enforcement and Compliance.

A stamped copy of your labeling is enclosed for your records. This labeling supersedes all previously accepted labeling. You must submit one copy of the final printed labeling before you release the product for shipment with the new labeling. In accordance with 40

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CFR 152.130(c), you may distribute or sell this product under the previously approved labeling for 18 months from the date of this letter. After 18 months, you may only distribute or sell this product if it bears this new revised labeling or subsequently approved labeling. "To distribute or sell" is defined under FIFRA section 2(gg) and its implementing regulation at 40 CFR 152.3.

If you have any questions about this letter, please Natalie Bray at <a href="mailto:bray.natalie@epa.gov">bray.natalie@epa.gov</a>.

Sincerely,

Kelly Sherman

Kelly Sherman

Chief, Risk Management and Implementation Branch III (RMIB III)

Pesticide Re-Evaluation Division

Office of Pesticide Programs

U.S. Environmental Protection Agency

Enclosure

2/1013/1

#### RESTRICTED USE PESTICIDE (GROUND AND SURFACE WATER CONCERNS)

FOR RETAIL SALE TO AND USE ONLY BY THE CERTIFIED APPLICATORS OR PERSONS UNDER THEIR DIRECT SUPERVISION AND ONLY FOR THOSE USES COVERED BY THE CERTIFIED APPLICATOR'S CERTIFICATION.

THIS PRODUCT IS A RESTRICTED-USE HERBICIDE DUE TO GROUND AND SURFACE WATER CONCERNS. USERS MUST READ AND FOLLOW ALL PRECAUTIONARY STATEMENTS AND INSTRUCTIONS FOR USE IN ORDER TO MINIMIZE POTENTIAL FOR ATRAZINE TO REACH GROUND AND SURFACE WATER.

ACCEPTED 11/10/2021 Under the Federal Insecticide, Fungicide

and Rodenticide Act as amended, for the pesticide registered under EPA Reg. No. 33270-9

ATRAZINE **HERBICIDE** GROUP

# Atrazine 90DF

## [Herbicide]

For Season-Long Weed Control in Corn, Sorghum and for Weed Control in Certain Crops

Sale, use, and distribution of this product in Nassau and Suffolk Counties in the State of New York is prohibited.

#### **Active Ingredient:**

St. Paul, MN 55164-0589

Atrazine: 2-chloro-4-ethylamino-Related Compounds 2.28% Other Ingredients: 10.00% Total: 100.00%

This product is a water-dispersible granule.

### **KEEP OUT OF REACH OF CHILDREN CAUTION**

SEE BOOKLET FOR ADDITIONAL PRECAUTIONARY STATEMENTS, COMPLETE DIRECTIONS FOR USE, WARRANTY DISCLAIMER AND LIMITATION OF LIABILITY

EPA Reg. No. 33270-9 EPA Est. No. Est. Net Weight: Manufactured By: Winfield Solutions, LLC P.O. Box 64589

	FIRST AID
If swallowed	<ul> <li>Call a poison control center or doctor immediately for treatment advice.</li> <li>Have person sip a glass of water if able to swallow.</li> <li>Do not induce vomiting unless told to do so by a poison control center or doctor.</li> <li>Do not give anything by mouth to an unconscious person.</li> </ul>
If on skin or clothing	<ul> <li>Take off contaminated clothing.</li> <li>Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>Call a poison control center or doctor for treatment advice.</li> </ul>
If in eyes	<ul> <li>Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>Call a poison control center or doctor for treatment advice</li> </ul>
If inhaled	<ul> <li>Move person to fresh air.</li> <li>If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.</li> <li>Call a poison control center or doctor for treatment advice</li> </ul>
treatment.	ct container or label with you when calling a poison control center or doctor, or going for
in case of medi	cal emergency, call toll-free 1-877-424-7452.

## PRECAUTIONARY STATEMENTS Hazards to Humans and Domestic Animals

**CAUTION.** Harmful if swallowed. Harmful if absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing.

#### **Personal Protective Equipment (PPE)**

## Mixers, loaders, cleaners of equipment spills and other handlers exposed to the concentrate must wear:

- Coveralls over long-sleeved shirt and long pants
- Chemical-resistant gloves made of barrier laminate, nitrile rubber ≥ 14 mils, neoprene rubber ≥ 14 mils or viton ≥ 14 mils
- Chemical-resistant footwear plus socks
- Chemical-resistant apron
- A minimum of a NIOSH-approved particulate filtering facepiece respirator with any R or P filter; OR a NIOSH-approved elastomeric particulate respirator with any R or P filter; OR a NIOSH-approved powered air purifying respirator with HE filters.

#### Applicators using spray equipment mounted on their backs must wear:

- Coveralls over long-sleeved shirt and long pants
- Chemical-resistant gloves made of barrier laminate, nitrile rubber ≥ 14 mils, neoprene rubber ≥ 14 mils or viton ≥ 14 mils
- Chemical-resistant footwear plus socks

#### All other applicators and all other handlers exposed to the dilute must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks
- Chemical-resistant gloves made of barrier laminate, nitrile rubber ≥ 14 mils, neoprene rubber ≥ 14 mils or viton ≥ 14 mils

See Engineering Control Statements for additional requirements.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.

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

#### **Engineering Control Statements**

When applicators use enclosed cabs in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(5)], the handler PPE requirements may be reduced or modified as specified in the WPS.

## User Safety Recommendations Users should:

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

#### **ENVIRONMENTAL HAZARDS**

This pesticide is toxic to aquatic invertebrates. 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 apply when weather conditions favor drift from treated areas. Runoff and drift from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when disposing of equipment wash water.

Atrazine can travel (seep or leach) through soil and can enter ground water which may be used as drinking water. Atrazine has been found in ground water. Users are advised not to apply atrazine to sand and loamy sand soils where the water table (ground water) is close to the surface and where these soils are very permeable, i.e., well-drained. Your local agricultural agencies can provide further information on the type of soil in your area and the location of ground water.

This product must not be mixed or loaded within 50 feet of intermittent streams and rivers, natural or impounded lakes and reservoirs. This product may not be applied aerially or by ground within 66 feet of the points where field surface water runoff enters perennial or intermittent streams and rivers or within 200 feet around natural or impounded lakes and reservoirs. If this product is applied to highly erodible land, the 66 foot buffer or setback from runoff entry points must be planted to crop, seeded with grass or other suitable crop.

This product must not be mixed/loaded, or used within 50 feet of all wells, including abandoned wells, drainage wells, and sink holes. Operations that involve mixing, loading, rinsing, or washing of this product into or from pesticide handling or application equipment or containers within 50 feet of any well are prohibited, unless conducted on an impervious pad constructed to withstand the weight of the heaviest load that may be positioned on or moved across the pad. Such a pad shall be designed and maintained to contain any product spills or equipment leaks, container or equipment rinse or wash water, and rain water that may fall on the pad. Surface water shall not be allowed to either flow over or from the pad, which means the pad must be self-contained. The pad shall be sloped to facilitate material removal. An unroofed pad shall be of sufficient capacity to contain at a minimum 110% of the capacity of the largest pesticide container or application equipment on the pad. A pad that is covered by a roof of sufficient size to completely exclude precipitation from contact with the pad shall have a minimum containment capacity of 100% of the capacity of the largest pesticide container or application equipment on the pad. Containment capacities as described above shall be maintained at all times. The above-specified minimum containment capacities do not apply to vehicles when delivering pesticide shipments to the mixing/loading sites.

Additional State imposed requirements regarding well-head setbacks and operational area containment must be observed.

#### **Tile-Outletted Terraced Fields Containing Standpipes**

One of the following restrictions must be used in applying atrazine to tile-outletted fields containing standpipes.

- 1. Do not apply this product within 66 feet of standpipes in tile-outletted fields.
- 2. Apply this product to the entire tile-outletted field and immediately incorporate it to a depth of 2-3 inches in the entire tile-outletted field.
- 3. Apply this product to the entire tile-outletted field under a no-till practice only when a high crop residue management practice is practiced. High crop residue management practice is described as a crop management practice where little or no crop residue is removed from the field during and after crop harvest.
- 4. Ground water contamination may be reduced by diking and flooring of permanent liquid bulk storage sites with an impermeable material.

**Non-Target Organism Advisory:** This product is toxic to plants and may adversely impact the forage and habitat of non-target organisms, including pollinators, in areas adjacent to the treated site. Protect the forage and habitat of non-target organisms by following label directions intended to minimize spray drift.

#### **DIRECTIONS FOR USE**

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

ANY USE OF THIS PRODUCT IN AN AREA WHERE USE IS PROHIBITED IS A VIOLATION OF FEDERAL LAW. Before using this product, you must consult the Atrazine Watershed Information Center (AWIC) to determine whether the use of this product is prohibited in your watershed. AWIC can be accessed through <a href="https://www.atrazine-watershed.info">www.atrazine-watershed.info</a> or 1-866-365-3014. If use of this product is prohibited in your watershed, you may return this product to your point of purchase or contact Winfield Solutions, LLC for a refund.

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.

#### **ENDANGERED SPECIES**

It is a Federal offense to use any pesticide in a manner that results in an unauthorized "take" (e.g., kill or otherwise harm) of an endangered species under the Endangered Species Act section 9. When using this product, you must follow the measures contained in the Endangered Species Protection Bulletin for the area in which you are applying the product. You must obtain a Bulletin no earlier than six months before using this product. To obtain Bulletins, consult <a href="http://www.epa.gov/espp/">http://www.epa.gov/espp/</a>, call 1-844-447-3813, or email <a href="https://www.epa.gov/espp/">ESPP@epa.gov</a>. You must use the Bulletin valid for the month in which you will apply the product.

#### 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 12 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

- Shoes plus socks
- Chemical-resistant gloves made of barrier laminate, nitrile rubber ≥ 14 mils, neoprene rubber ≥ 14 mils or viton ≥ 14 mils

#### **NON-AGRICULTURAL USE REQUIREMENTS**

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

Do not enter or allow others to enter until sprays have dried.

#### PRODUCT INFORMATION

This herbicide controls many annual broadleaf and grass weeds in corn, sorghum, sugarcane, and certain other crops specified on this label. This product may be applied before or after weeds emerge.

Where the use directions give a range of rates, use the lower rate on coarse-textured soil and soil low in organic matter; use the higher rate on fine-textured soil and soil high in organic matter.

Since this product acts mainly through root absorption, its effectiveness depends on moisture to move it into the root zone. If weeds develop, a shallow cultivation or rotary hoeing will generally result in better weed control.

This product is noncorrosive to equipment and metal surfaces, nonflammable, and has low electrical conductivity.

Avoid using near adjacent desirable plants or in greenhouses, or injury may occur.

#### **RESTRICTIONS:**

- AERIAL APPLICATION IS PROHIBITED.
- CHEMIGATION PROHIBITION: Do not apply this product through any type of irrigation system.
- To prevent spray drift, do not apply under windy conditions. Avoid spray overlap, as crop injury may
  result. See the SPRAY DRIFT MANAGEMENT section of this label for spray drift management
  requirements and spray drift advisories.
- Do not apply in combination with other herbicides or oils, except as specifically described on the label.
- Areas where sale, use, or distribution of this product is prohibited includes (but is not limited to)
  Nassau and Suffolk counties in the State of NY, the states of Hawaii or Alaska, or in the U.S. territories
  (Puerto Rico, Guam, American Samoa, the U.S. Virgin Islands, and the North Mariana Islands).
- Use on Roadsides; Conservation Reserve Program (CRP) land; Conifers, including Christmas Tree plantings; Timber; Forestry; and Miscanthus and other perennial bioenergy crops is prohibited.
- Do not apply atrazine and propazine products to the same sorghum acre.
- Users must only apply to fallow land in the following states according to the prescribed rotation pattern in the table below:

Fallow Rotation Pattern	Fallow Use Authorized in these States only	
Wheat-Corn-Fallow	CO, KS, ND, NE, SD & WY	
Wheat-Fallow-Wheat	CO, KS, ND, NE, SD & WY	
Wheat-Sorghum-Fallow	AR, CO, GA, IL, KS, LA, MS, MO, NE, NM, NC, OK, SD & TX	

#### WEED RESISTANCE MANAGEMENT

Following many years of continuous use of this product and chemically related products, biotypes of some of the weeds listed on this label have been reported which cannot be effectively controlled by this and related herbicides. Where this is known or suspected, and weeds controlled by this product are expected to be present along with resistant biotypes, we recommend the use of this product in combinations or in sequence with other registered herbicides which are not solely a Group 5 Herbicide. If only resistant biotypes are expected to be present, use a registered herbicide which is not solely a Group 5 Herbicide. Consult with your state Agricultural Extension Service for specific recommendations.

For resistance management, Atrazine 90DF contains a Group 5 herbicide – atrazine. Any weed population may contain or develop plants naturally resistant to Atrazine 90DF and other Group 5 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Appropriate resistance management strategies should be followed.

To delay herbicide resistance, take one or more of the following steps:

- Rotate the use of Atrazine 90DF or other Group 5 herbicides within a growing season sequence or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group if such use is permitted; where information on resistance in target weed species is available, use the less resistance-prone partner at a rate that will control the target weed(s) equally as well as the more resistance-prone partner. Consult your local extension service or certified crop advisor if you are unsure as to which active ingredient is currently less prone to resistance.
- Adopt an integrated weed-management program for herbicide use that includes scouting and
  uses historical information related to herbicide use and crop rotation, and that considers tillage (or
  other mechanical control methods), cultural (e.g., higher crop seeding rates; precision fertilizer
  application method and timing to favor the crop and not the weeds), biological (weed-competitive
  crops or varieties) and other management practices.
- Fields should be scouted prior to application to identify the weed species present and their growth stage to determine if the intended application will be effective.
- Scout after herbicide application to monitor weed populations for early signs of resistance development. Indicators of possible herbicide resistance include:
  - 1) Failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds:
  - 2) A spreading patch of non-controlled plants of a particular weed species;
  - 3) Surviving plants mixed with controlled individuals of the same species.

If resistance is suspected, prevent weed seed production in the affected area by an alternative herbicide from a different group or by a mechanical method such as hoeing or tillage. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.

- If a weed pest population continues to progress after treatment with this product, discontinue use of this product, and switch to another management strategy or herbicide with a different mode of action, if available.
- Contact your local extension specialist, certified crop advisors, and/or Winfield Solutions, LLC representative for pesticide resistance management and/or integrated weed management recommendations for specific crops and resistant weed biotypes.
- For further information or to report suspected resistance, contact your Winfield Solutions, LLC representative.

#### **MIXING PROCEDURES**

#### All Uses:

- 1. Be sure sprayer is clean and not contaminated with any other materials, or crop injury or sprayer clogging may result.
- 2. Fill tank 1/4 full with clean water, nitrogen solution, or complete liquid fertilizer.
- 3. Start agitation.
- 4. Be certain that the agitation system is working properly and creates a rippling or rolling action on the liquid surface.
- 5. Pour product directly from bag into tank.
- 6. Continue filling tank until 90% full. Increase agitation if necessary to maintain surface action.
- 7. Add emulsifiable oil, oil concentrate, or tank mix herbicide(s) after this product is thoroughly suspended.
- 8. Finish filling tank.
- 9. Empty tank as completely as possible before refilling to prevent buildup of oil or emulsifiable concentrate residue. Maintain agitation to avoid separation of materials.
- 10. If an oil or emulsifiable concentrate film starts to build up in tank, drain it and clean with strong detergent solution or solvent.
- 11. Clean sprayer thoroughly immediately after use by flushing system with water containing a detergent.

#### **APPLICATION PROCEDURES**

**Ground application:** Use conventional ground sprayers equipped with nozzles that provide accurate and uniform application. Be certain that nozzles are uniformly spaced and are the same size.

Calibrate sprayer before use and recalibrate at the start of each season and when changing carriers. Unless otherwise specified, use a minimum of 10 gals. of spray mixture per acre for all preplant incorporated, preplant surface, preemergence, and postemergence applications (with or without oil or surfactant) with ground equipment.

Use a pump with capacity to:

- 1. Maintain 35-40 psi at nozzles.
- 2. Provide sufficient agitation in tank to keep mixture in suspension.
- 3. Provide a minimum of 20% bypass at all times. Use centrifugal pumps which provide propeller shear action for dispersing and mixing this product. The pump must provide a minimum of 10 gals./minute/100 gal. tank size circulated through a correctly positioned sparger tube or jets.

Use screens to protect the pump and to prevent nozzles from clogging. Screens placed on the suction side of the pump must be 16-mesh or coarser. Do not place a screen in the recirculation line. Use 50-mesh or coarser screens between the pump and boom, and where required, at the nozzles. Check nozzle manufacturer's recommendations.

#### For band applications, calculate amount to be applied per acre as follows:

<u>band width in inches</u> X broadcast rate = amount needed row width in inches per acre per acre of field

**Application in water or liquid fertilizer:** Nitrogen solution or complete liquid fertilizer may replace all or part of the water as a carrier for preemergence, preplant incorporated, or preplant surface ground application on corn and sorghum. Check the compatibility of this product with liquid fertilizer and/or nitrogen solution as shown below before use. Do not apply in nitrogen solution or complete liquid fertilizer after corn or sorghum emerges, or crop injury may occur.

Compatibility Test: Since liquid fertilizers can vary, even within the same analysis, always check compatibility with herbicide(s) each time before use. Be especially careful when using complete suspension or fluid fertilizers, as serious compatibility problems are more likely to occur. Commercial application equipment may improve compatibility in some instances. The following test assumes a spray

volume of 25 gals./A. For other spray volumes, make appropriate changes in the ingredients. Check compatibility using this procedure:

- 1. Add 1 pt. of fertilizer to each of 2 one-qt. jars with tight lids.
- 2. To one of the jars, add 1/4 tsp. or 1.2 milliliters of a compatibility agent approved for this use, such as Compex® (1/4 tsp. is equivalent to 2 pts./100 gals. spray). Shake or stir gently to mix.
- 3. To both jars, add the appropriate amount of herbicide(s). If more than one herbicide is used, add them separately with dry herbicides first, flowables next, and emulsifiable concentrates last. After each addition, shake or stir gently to thoroughly mix. The appropriate amount of herbicides for this test follows:

**Dry herbicides:** For each pound to be applied per acre, add 1.5 level teaspoons to each

jar.

**Liquid herbicides:** For each pint to be applied per acre, add 0.5 teaspoon or 2.5 milliliters to

each jar.

4. After adding all ingredients, put lids on and tighten, and invert each jar 10 times to mix. Let the mixtures stand 15 minutes and then look for separation, large flakes, precipitates, gels, heavy oily film on the jar, or other signs of incompatibility. Determine if the compatibility agent is needed in the spray mixture by comparing the 2 jars. If either mixture separates, but can be remixed readily, the mixture can be sprayed as long as good agitation is used. If the mixtures are incompatible, test the following methods of improving compatibility: (A) slurry the dry herbicide(s) in water before addition, or (B) add 1/2 of the compatibility agent to the fertilizer and the other 1/2 to the emulsifiable concentrate or flowable herbicide before addition to the mixture. If incompatibility is still observed, do not use the mixture.

**Application in water plus emulsifiable oil or oil concentrate:** Adding emulsifiable oil (petroleum-derived, petroleum-derived oil concentrate, or single or mixed crop-derived oil concentrate) to postemergence water-based sprays in corn and sorghum may improve weed control. However, under certain conditions the use of either type of oil may seriously injure the crop. To minimize this possibility, observe the following directions:

Use one of the following properly emulsified:

- 1. A suitable oil concentrate containing at least 1%, but not more than 20% suitable emulsifier or surfactant blend.
- 2. Petroleum-derived oil containing at least 1% suitable emulsifier.

**Note:** In the event of a compatibility problem when mixing oil with this product and water, use a compatibility agent such as Hi-Comp. Any of the above oils contaminated with water or other materials can cause compatibility problems and/or crop injury.

#### SPRAY DRIFT MANAGEMENT

#### MANDATORY SPRAY DRIFT MANAGEMENT

#### **Ground Boom Applications:**

- User must only apply with the release height recommended by the manufacturer, but no more than 4 feet above the ground or crop canopy.
- Applicators are required to use a coarse or coarser droplet size (ASABE S572).
- Do not apply when wind speeds exceed 10 miles per hour at the application site.
- User must maintain a 15 foot (4.6 m) in-field downwind buffer (in the direction in which the wind is blowing) from the edge of streams and rivers, as well as high-tide line for all estuarine/marine environments.
- Do not apply during temperature inversions.

#### **Boomless Ground Applications:**

- Applicators are required to use a coarse or coarser droplet size (ASABE S572).
- Do not apply when wind speeds exceed 10 miles per hour at the application site.
- User must maintain a 15 foot (4.6 m) in-field downwind buffer (in the direction in which the wind is blowing) from the edge of streams and rivers, as well as high-tide line for all estuarine/marine

- environments.
- Do not apply during temperature inversions.

#### **SPRAY DRIFT ADVISORIES**

THE APPLICATOR IS RESPONSIBLE FOR AVOIDING OFF-SITE SPRAY DRIFT. BE AWARE OF NEARBY NON-TARGET SITES AND ENVIRONMENTAL CONDITIONS.

#### Importance of Droplet Size

An effective way to reduce spray drift is to apply large droplets. Use the largest droplets that provide target pest control. While applying larger droplets will reduce spray drift, the potential for drift will be greater if applications are made improperly or under unfavorable environmental conditions.

#### **Controlling Droplet Size – Ground Boom**

- **Volume** Increasing the spray volume so that larger droplets are produced will reduce spray drift. Use the highest practical spray volume for the application. If a greater spray volume is needed, consider using a nozzle with a higher flow rate.
- **Pressure** Use the lowest spray pressure recommended for the nozzle to produce the target spray volume and droplet size.
- **Spray Nozzle** Use a spray nozzle that is designed for the intended application. Consider using nozzles designed to reduce drift.

#### **Boom Height – Ground Boom**

For ground equipment, the boom should remain level with the crop and have minimal bounce.

#### **Boomless Ground Applications**

Setting nozzles at the lowest effective height will help to reduce the potential for spray drift.

#### **Handheld Technology Applications**

Take precautions to minimize spray drift.

#### **Shielded Sprayers**

Shielding the boom or individual nozzles can reduce spray drift. Consider using shielded sprayers. Verify that the shields are not interfering with the uniform deposition of the spray on the target area.

#### **Temperature and Humidity**

When making applications in hot and dry conditions, use larger droplets to reduce effects of evaporation.

#### **Temperature Inversions**

Drift potential is high during a temperature inversion. Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. The presence of an inversion can be indicated by ground fog or 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.

#### Wind

Drift potential generally increases with wind speed. AVOID APPLICATIONS DURING GUSTY WIND CONDITIONS. Applicators need to be familiar with local wind patterns and terrain that could affect spray drift.

#### WEEDS CONTROLLED

#### THIS PRODUCT APPLIED ALONE - CORN OR GRAIN SORGHUM\*

Preplant Surface-Applied, Preplant Incorporated, or Preemergence (or Postemergence at 2.2 lbs./A with Oil)

#### **Broadleaf and Grass Weeds Controlled:**

barnyardgrass	witchgrass	kochia	pigweed
(watergrass)***	(Panicum	annual	purslane
giant foxtail**	capillare)***	morningglory	ragweed
green foxtail***	lambsquarters	mustards	sicklepod**
large (hairy) crabgrass**	cocklebur**	yellow foxtail***	velvetleaf
wild oats	groundcherry	nightshade	(buttonweed)***
	jimsonweed		

## Postemergence with Emulsifiable Oil or Oil Concentrate in Water (at 1.3 lbs./A) Broadleaf Weeds Controlled:

annual morningglory pigweed
cocklebur ragweed
jimsonweed smartweed
lambsquarters wild buckwheat
mustards velvetleaf\*\*

- \* Where there are state/local requirements regarding atrazine use (including lower maximum rates and/or greater setbacks) which are different from the label, the more restrictive/protective requirements must be followed. Certain states may have established rate limitations within specific geographical areas. Consult your state lead pesticide control agency for additional information. It is a violation of this label to deviate from state use regulations.
- \*\* Partial control only.
- \*\*\* Partial control only on medium- and fine-textured soils.

#### **ROTATIONAL CROPS**

#### All Uses:

- 1. Do not rotate to any crop except corn or sorghum until the following year, or injury may occur.
- 2. If applied after June 10, do not rotate with crops other than corn or sorghum the next year, or crop injury may occur.
- 3. In the High Plains and Intermountain areas of the West where rainfall is sparse and erratic or where irrigation is required, use only when corn or sorghum is to follow corn or sorghum or when a crop of untreated corn or sorghum is to precede other rotational crops.
- 4. In eastern parts of the Dakotas, KS, western MN, and NE, do not rotate to soybeans if the rate applied to corn or sorghum was more than 2.2 lbs./A or equivalent band application rate, or soybean injury may occur.
- 5. Injury may occur to soybeans planted the year following application on soils having a calcareous surface layer.
- 6. Do not plant sugar beets, tobacco, vegetables (including dry beans), spring-seeded small grains, or small-seeded legumes and grasses the year following application, or injury may occur.

#### **CROP APPLICATION INSTRUCTIONS**

#### CORN

#### **Preplant Surface-Applied**

**Broadleaf and grass control:** Use on medium- and fine-textured soil with minimum-tillage or no-tillage systems only in CO, IA, IL, IN, KS, KY, MN, MO, MT, ND, NE, SD, WI, and WY. Apply the specified rate of This product shown in "**Table 1**" up to 45 days prior to planting. If an unsatisfactory length of weed control results from adverse environmental conditions following early treatment, a follow-up application of an appropriately labeled herbicide may be used. If the follow-up treatment includes atrazine, do not exceed the labeled rate for corn indicated in "**Table 1**". On coarse-textured soils, do not apply more than 2 weeks prior to planting.

If weeds are present at the time of treatment, apply in tank mix combination with a contact herbicide (for example, paraquat or glyphosate). Observe directions for use, precautions, and restrictions on the label of the contact herbicide.

**Note:** To the extent possible, do not move treated soil out of the row or move untreated soil to the surface during planting, or weed control will be diminished.

#### **Preplant Incorporated**

**Broadleaf and grass control:** Broadcast in spring after plowing at rate in "**Table 1**". Apply to the soil and incorporate before, during, or after final seedbed preparation. Avoid deep incorporation. For best results, apply within 2 weeks prior to planting.

#### **Preemergence or At-Planting**

**Broadleaf and grass control:** Apply during or shortly after planting before weed emergence, at rate in "Table 1".

#### **Postemergence**

**Broadleaf and grass control**: Apply before weeds exceed 1.5 inches in height and before corn exceeds 12 inches in height at rate in "**Table 1**".

#### TABLE 1

#### **BROADLEAF AND GRASS WEED CONTROL ON CORN\***

#### FOR ALL SOIL APPLICATIONS PRIOR TO CROP EMERGENCE

#### On Highly Erodible Soils\*\*

If conservation tillage is practiced, leaving at least 30% of the soil covered with plant residues at planting, apply a maximum of 2.2 lbs/A of this product (2.0 lbs. a.i./A) as a broadcast spray. If the soil coverage with plant residue is less than 30% at planting, a maximum of 1.77 lbs/A of this product (1.6 lbs. a.i./A) may be applied.

#### On Soils Not Highly Erodible\*\*

Apply 2.2 lbs of this product./A (2.0 lbs. a.i./A) as a broadcast spray.

#### FOR POSTEMERGENCE APPLICATION

If no atrazine was applied prior to corn emergence, apply a maximum of 2.2 lbs./A of this product (2.0 lbs. a.i./A) broadcast. If a postemergence treatment is required following an earlier atrazine application, the total atrazine applied may not exceed 2.8 lbs./A of this product (2.5 lbs. a.i./A) per calendar year.

- \* Broadleaf control (eastern CO, western KS, western NE, NM, OK Panhandle, west TX, and eastern WY): On sand, loamy sand, sandy loam, mild to strongly alkaline soil, and all recently leveled soil, apply no more than 1.3 lbs./A of this product, either preplant surface, preplant incorporated, or preemergence. On other soils in these areas, apply rate in "Table 1" for broadleaf and grass control.
- \*\* As defined by the Natural Resources Conservation Service

Where there are state/local requirements regarding atrazine use (including lower maximum rates and/or greater setbacks) which are different from the label, the more restrictive/protective requirements must be

followed. Certain states may have established rate limitations within specific geographical areas. Consult your state lead pesticide control agency for additional information. It is a violation of this label to deviate from state use regulations.

#### **Postemergence**

With emulsifiable oil or oil concentrate in water: Add the following volume of one of the type oils indicated for ground application unless the oil label specifies otherwise:

Type Oil	Ground Application
Oil Concentrate	1 qt./A
(Crop or Petroleum-derived)	·
Petroleum-derived oil	1 gal./A

Crop-derived or petroleum-derived oil concentrates must contain at least 1%, but not more than 20%, suitable emulsifier or surfactant blend. Petroleum-derived oils must contain at least 1% suitable emulsifier.

**Broadleaf and grass control:** For postemergence control of those weeds listed under "**Preplant Incorporated and Preemergence**", broadcast 2.2 lbs./A of this product plus emulsifiable oil or oil concentrate after weed emergence, but before weeds reach 1.5 inches in height and before corn exceeds 12 inches in height.

**Broadleaf control:** For postemergence control of those weeds listed under "**Postemergence with emulsifiable oil or oil concentrate in water**", broadcast 1.3 lbs./A of this product plus emulsifiable oil or oil concentrate before pigweed and lambsquarters reach 6 inches in height and before all other weeds reach 4 inches in height. A cultivation may be necessary if all weeds are not controlled or if weeds regrow.

#### Use Precautions for Applications with Emulsifiable Oil or Oil Concentrate in Water to Corn:

- 1. Inbred lines or any breeding stock may be severely injured by applications with emulsifiable oil or oil concentrate.
- 2. Store and handle emulsifiable oil and oil concentrate carefully. Oil contaminated with even a small amount of water may not emulsify properly when added to the tank.

#### Use Restrictions for Applications with Emulsifiable Oil or Oil Concentrate in Water to Corn:

- 1. Do not apply when crop is under stress from prolonged cold, wet weather, poor fertility, or other factors, or when crop is wet and succulent from recent rainfall.
- 2. Do not apply more than 2.7 lbs./A of this product (2.5 lbs. a.i./A) per calendar year.
- 3. Do not add other insecticides, herbicides, liquid fertilizers, or other materials because they may cause compatibility problems or crop injury.
- 4. Postemergence applications to corn must be made before corn exceeds 12 inches in height.

#### TANK MIXTURES FOR CORN

This product may be tank mixed with these herbicides for control of certain broadleaf and grass weeds in corn:

Alachlor	Metolachlor + Simazine
Alachlor + Glyphosate	Metolachlor + Simazine + Glyphosate
Alachlor + Paraquat	Metolachlor + Simazine + Paraquat
Butylate 6.7E	Propachlor
Glyphosate	Paraquat
Metolachlor*	Propachlor
Metolachlor + Glyphosate	Simazine
Metolachlor + Paraquat	Simazine + Glyphosate
·	Simazine + Paraquat

<sup>\*</sup> Includes metolachlor and s-metolachlor

Use tank mix directions appearing on the labels of the above herbicides when tank mixing with this product. Observe all precautions and limitations on labeling of products used in a particular tank mix.

When tank mixing or sequentially applying atrazine or products containing atrazine to corn, do not exceed an application rate of 2 pounds atrazine active ingredient for any single application, and the total pounds of atrazine applied (lbs. a.i./A) must not exceed 2.5 pounds per acre per year.

When tank mixing or sequentially applying atrazine or products containing atrazine to crops other than corn or sorghum, the total pounds of atrazine applied (lbs. a.i./A) must not exceed the specific seasonal rate limits as noted in the use directions.

**Note:** When the labels of the above herbicides refer to Atrazine 4L, use equivalent active ingredient of this product. One pint of Atrazine 4L equals 0.55 lb. of Atrazine 90 DF.

#### This Product Plus Simazine 4L or 90 DF

In addition to the weeds listed under "This product Applied Alone – Corn or Grain Sorghum – Preplant Surface-Applied, Preplant Incorporated, or Preemergence", this combination also controls crabgrass, fall panicum, and carpetweed.

Broadcast tank mix before planting, at planting, or after planting, but before crop and weeds emerge at rates in "**Table 2**". Use the 1:1 ratio for control of most weeds. Use the 1:2 ratio for expected heavy infestations of crabgrass and fall panicum. Cultivate shallowly if weeds develop. Cultivate shallowly if weeds develop.

**Preplant Surface-Applied:** Use on medium- and fine-textured soils with minimum-tillage or no-tillage systems only in CO, IA, IL, IN, KS, KY, MN, MO, MT, ND, NE, SD, WI, and WY. Apply the specified rate of This product and simazine up to 45 days prior to planting. Refer to the "**This product Alone**" section for information if weeds should develop following early treatment. On coarse-textured soils, do not apply more than 2 weeks prior to planting. Refer to the "**This product Applied Alone-Preplant Surface-Applied**" corn section of the corn label for additional details.

If weeds are present at time of treatment, apply in a tank mix combination with a contact herbicide (for example, paraquat or glyphosate). Observe directions for use, precautions, and restrictions on the label of the contact herbicide.

**Note:** To the extent possible, do not move treated soil out of the row or move untreated soil to the surface during planting, or weed control will be diminished.

**Preplant Incorporated:** Apply to the soil and incorporate in the spring before, during, or after final seedbed preparation. Avoid deep incorporation. For best results, apply within 2 weeks prior to planting.

**Preemergence:** Apply during or shortly after planting, but before crop and weeds emerge.

Refer to Corn sections of this label and to simazine labels for further directions, limitations, and precautions.

TABLE 2				
TANK MIXTURES WITH SIMAZINE 4L OR 90 DF ON CORN				
Broadcast Rate/Acre				
	1:1 Ratio* 1:2 Ratio**			1:2 Ratio**
Soil Texture	This Product	Simazine 4L or 90 DF <sup>1</sup>	This product	Simazine 4L or 90 DF <sup>1</sup>
Sand, loamy sand, sandy loam	1.1 lbs.	2 pts. of 4L	0.73 lbs.	2.6 pts. of 4L
		or		or
		1.1 lbs, of 90 DF		1.46 lbs. of 90 DF
Loam, silt loam, silty clay loam,	1.3 lbs.	2.4 pts. of 4L	0.88 lbs.	3.2 pts. of 4L

sandy clay loam, silty clay loam, sandy clay, or silty clay with low organic matter		or 1.3 lbs. of 90 DF		or 1.76 lbs. of 90 DF
Loam, silt loam, silty clay loam, sandy clay loam, silty clay loam, sandy clay, or silty clay with medium to high organic matter, and clay (including dark prairie soils of the corn belt)	1.6 lbs.	3 pts. of 4L or 1.6 lbs. of 90 DF	1.07 lbs.	3.8 pts. of 4L or 2.14 lbs. of 90 DF

<sup>\*</sup> For control of most weeds.

This product Plus Simazine 4L or 90 DF plus Glyphosate: Use as tank mixture for preemergence and postemergence control of certain broadleaf and grass weeds where corn will be planted directly into a cover crop, established sod, or in previous crop residues. Refer to glyphosate label for all directions, weeds controlled, precautions, and limitations.

This Product Plus Simazine 4L or 90 DF plus Paraquat: Use as tank mixture with simazine and paraquat to kill existing vegetation and for residual weed control where corn will be planted directly into a cover crop, established sod, or in previous crop residues. Add this product and simazine to water in spray tank, agitating until thoroughly mixed. Then add paraquat and a nonionic surfactant, such as X-77®. Continue agitation during application. Broadcast 1.1 lbs. of this product plus 2 – 4 pts. of Simazine 4L, or 1.1 - 2.2 lbs. of Simazine 90DF) plus the specified amount of paraquat in 20-60 gals. of water per sprayed acre. Refer to the paraquat label for the appropriate rates to utilize in this tank mixture. Apply before, during, or after planting, but before corn emerges. Add a nonionic surfactant, such as X-77®, at the rate of 8 fl. oz. per 100 gals. of spray mixture. Use the higher rate of paraquat specified on the label if existing vegetation is 4-6 inches tall. This mixture will not control weeds taller than 6 inches.

Refer to further limitations and precautions on labels for this product, simazine, and paraquat.

#### **Use Precautions for all Applications to Corn:**

1. Following harvest, plow (moldboard or disk-plow) and thoroughly till soil in fall or spring to minimize possible injury to spring-seeded rotational crops, regardless of rate used.

#### **Use Restrictions for all Applications to Corn:**

- 1. Do not apply more than 2.8 lbs./A of this product per year.
- 2. When tank mixing or sequentially applying atrazine or products containing atrazine to Corn, do not exceed an application rate of 2 lbs. a.i./A for any single application, and the total pounds of atrazine applied must not exceed 2.5 lbs. a.i./A per year.
- 3. When tank mixing or sequentially applying atrazine or products containing atrazine crops other than corn or sorghum, the total pounds of atrazine (lbs. a.i./A) must not exceed the specific seasonal rate limits as noted in the use directions.
- 4. For best control of velvetleaf and cocklebur, the application rate cannot be less than 2 lbs./A active ingredient, either alone or in tank mix combinations.
- 5. Do not graze or feed forage from treated areas for 60 days for field corn, and 45 days for sweet corn following application, or illegal residues may result.
- 6. Do not make applications to sweet corn with mechanically pressurized handguns.

<sup>\*\*</sup> For control of expected heavy infestations of crabgrass and fall panicum.

<sup>&</sup>lt;sup>1</sup> When using Simazine 4L, use equivalent active ingredient rates. 2 pts. of Simazine 4L equals 1.1 lb. of Simazine 90DF.

#### SORGHUM AND SORGHUM-SUDAN HYBRIDS (GRAIN AND FORAGE TYPES)

Apply before panting, at-planting or after planting. See "Corn" section for weeds controlled.

#### **Preplant Surface-Applied**

**Broadleaf and grass control:** Use on medium- and fine-textured soil with minimum-tillage or no-tillage systems only in CO, IA, IL, IN, KS, KY, MN, MO, MT, ND, NE, SD, WI, and WY. Apply the specified rate of this product shown in "**Table 3**" up to 45 days prior to planting. If an unsatisfactory length of weed control results from adverse environmental conditions following early treatment, a follow-up application of an appropriately labeled herbicide may be used.

If the follow-up treatment includes atrazine, do not exceed the labeled rate for sorghum indicated in "Table 3".

Under dry conditions, irrigation after application is specified to move This product into the soil.

If weeds are present at time of treatment, apply in a tank mix combination with a contact herbicide (for example, paraquat or glyphosate). Observe directions for use, precautions, and restrictions on the label of the contact herbicide.

**Note:** To the extent possible, do not move treated soil out of the row or move untreated soil to the surface during planting, or weed control will be diminished.

#### **Preplant Incorporated**

**Broadleaf and grass control:** Broadcast in spring after plowing at rate shown in "**Table 3**". Apply before, during, or after final seedbed preparation. If soil is tilled or worked after application, avoid deep incorporation. For best results, apply within 2 weeks prior to planting.

#### **Preemergence or At-Planting**

**Broadleaf and grass control:** Apply during or shortly after planting, but prior to weed or crop emergence at rate shown in "**Table 3**".

#### **Postemergence**

**Broadleaf and grass control:** Apply at rate shown in "**TABLE 3**" before weeds exceed 1.5 inches in height and before sorghum exceeds 12 inches in height.

#### TABLE 3

#### BROADLEAF AND GRASS WEED CONTROL ON SORGHUM

# PRE-PLANT SURFACE, PRE-PLANT INCORPORATED AND PRE-EMERGENCE APPLICATIONS\* FOR ALL SOIL APPLICATIONS PRIOR TO CROP EMERGENCE

#### On Highly Erodible Soils\*\*

If conservation tillage is practiced, leaving at least 30% of the soil covered with plant residues at planting, apply a maximum of 2.2 lbs./A of this product (2.0 lbs. a.i./A) as a single broadcast spray.

If the soil coverage with plant residue is less than 30% at planting, a maximum of 1.8 lbs./A (1.6 lbs a.i./A) may be applied.

#### On Soils Not Highly Erodible\*\*

Apply a maximum of 2.2 lbs./A of this product (2.0 lbs. a.i./A) as a single broadcast spray.

#### FOR POSTEMERGENCE APPLICATION

If no atrazine was applied prior to sorghum emergence, apply a maximum of 2.2 lbs./A of this product (2.0 lbs. a.i./A) broadcast. If a postemergence treatment is required following an earlier atrazine application, the total atrazine applied may not exceed 2.5 lbs. active ingredient (2.8 lbs. of this product) per acre per calendar year.

\*Do not apply preplant surface or preplant incorporated in AL, AR, FL, GA, LA, MS, NC, NM, OK, SC, TN, or TX. Do not apply preemergence in NM, OK, or TX, except in northeast OK and the TX Gulf Coast and Blacklands areas.

#### \*\* As defined by the Natural Resources Conservation Service

Where there are state/local requirements regarding atrazine use (including lower maximum rates and/or greater setbacks) which are different from the label, the more restrictive/protective requirements must be followed. Certain states may have established rate limitations within specific geographical areas. Consult your state lead pesticide control agency for additional information. It is a violation of this label to deviate from state use regulations.

In case of planting failure, sorghum or corn may be replanted. Do not make a second broadcast application, or injury may occur. If originally applied in a band and sorghum or corn is replanted in untreated row middles, this product may be applied in a band to the second planting, provided the maximum application rate of 2.8 lbs/A. of this product (2.5 lbs. a.i./A) per calendar year is not exceeded.

#### Preemergence

Broadleaf Weed Control in Furrow-Irrigated Bedded Sorghum (AZ and CA only): For preemergence control of many broadleaf weeds, broadcast 0.9-1.3 lbs./A of this product after bed preparation, during or after planting, but before sorghum and weeds emerge and before the first furrow irrigation. Follow with several regular irrigations, making sure to thoroughly wet all soil.

#### Precautions for Preemergence Application to Furrow-Irrigated Bedded Sorghum in AZ and CA:

- 1. To avoid possible sorghum injury, do not use on sand or loamy sand soil or on sorghum planted in furrows.
- 2. Applications to sorghum growing on alkali soils or where cuts, fills, or erosion have exposed calcareous or alkali subsoils may cause crop injury. In case of crop failure, do not replant sorghum for 8 months following application. Corn may be planted immediately.

#### Postemergence

**Broadleaf and Grass Weed Control:** Apply before weeds exceed 1 inch in height at the rate indicated in "**Table 4**". Application may be made to sorghum reaching up to 12 inches in height.

TABLE 4 POSTEMERGENCE BROADLEAF GRASS WEED CONTROL ON SORGHUM			
Soil Texture	Minimum Height of Sorghum at Treatment	Maximum Broadcast Rate of this Product Per Acre*	
Sand or loamy sand	DO NOT USE		
Sandy loam	See directions for Broadleaf and Weed control below.		
Silt loam to Sandy clay loams	Completely emerged 2.2 lbs.		
Olton and Pullman clay soils	At least 6 inches high 2.2 lbs.		
Silty clay loams and heavier soils	Completely emerged	2.2 lbs.	

<sup>\*</sup> If no atrazine was applied prior to sorghum emergence, apply a maximum of 2.2 lbs./A of this product broadcast. If a postemergence treatment is required following an earlier herbicide application, the total atrazine applied may not exceed 2.8 lbs./A of this product (2.5 lbs. a.i./A) per calendar year.

#### **Postemergence**

**Broadleaf Weed Control with Emulsifiable Oil or Oil Concentrate in Water:** Broadcast 1.3 lbs./A of this product for control of many broadleaf weeds. Apply before pigweed and lambsquarters reach 6 inches in height and before all other weeds reach 4 inches in height. In CO, western KS, NM, OK, TX, and desert regions of AZ and CA, apply when sorghum is 6-12 inches in height, but before it reaches boot stage. In all other areas, apply after sorghum reaches the 3-leaf stage, but before it exceeds 12 inches in

height. Add 1 gal. of emulsifiable oil per acre or add 1 qt. of oil concentrate for ground application. A cultivation may be necessary if all weeds are not controlled or if weeds regrow.

For the list of weeds controlled, see "This Product Applied Alone – Corn or Grain Sorghum – Postemergence with Emulsifiable Oil or Oil Concentrate in Water".

Use Precautions and Restrictions for applications with emulsifiable oil or oil concentrate in water: See "Use Precautions for applications with emulsifiable oil or oil concentrate in water" and "Use Restrictions for applications with emulsifiable oil or oil concentrate in water" in Corn section.

#### **Postemergence**

Broadleaf Weed Control with Surfactant (CO, western KS, NM, OK, TX, and desert regions of AZ and CA only): Broadcast 1.3 lbs./A of this product plus 0.75-1.5 pts. of surfactant after sorghum reaches 6 inches in height, but before weeds exceed 1.5 inches in height. Apply only on sandy loam and finer textured soil.

#### **Use Precautions for all Applications on Sorghum:**

- 1. Application to sorghum growing under stress caused by minor element deficiency or to sorghum growing on highly calcareous soil may result in crop injury.
- 2. Following harvest, plow (moldboard or disk-plow) and thoroughly till soil in fall or spring to minimize possible injury to spring-seeded rotational crops, regardless of rate used.
- 3. Injury may occur if both this herbicide, pre plant surface, preplant incorporated, or preemergence, and an at-planting systemic insecticide applied in-furrow are used.

#### Use Restrictions for all Applications on Sorghum:

- 1. Do not apply more than 2.8 lbs./A of this product (2.5 lbs. a.i./A) per calendar year.
- Heavy rain immediately following application tends to cause excessive concentrations of herbicide in seed furrow, resulting in possible crop injury. Do not apply to furrow-planted sorghum until furrows are leveled (plowed in). Level deep planter marks or seed furrows before application.
- 3. For all soil applications prior to crop emergence, (except for preemergence use on bedded sorghum in AZ and CA), do not apply to coarse-textured soils, i.e., sand, loamy sand, sandy loam, or to medium- and fine-textured soils having less than 1% organic matter, or injury may occur.
- 4. For postemergence applications, do not apply to sand or loamy sand, or injury may occur.
- 5. Do not harvest for forage within 60 days for pre-emergence application and 45 days for post-emergence application. For applications to furrow-irrigated bedded sorghum in AZ and CA and for postemergence applications plus emulsifiable oil, see additional precautions under these sections of this label.
- 6. Do not apply atrazine and propazine products to the same sorghum acre.

#### TANK MIXTURES FOR GRAIN SORGHUM

This product Plus Metolachlor on Grain Sorghum (Cyometrinil-Treated Seed): Use as tank mixture with metolachlor for control of those weeds listed on the metolachlor label, as well as on this label. Refer to the metolachlor label for all directions, precautions, and limitations.

When tank mixing or sequentially applying atrazine or products containing atrazine to sorghum, do not exceed an application rate of 2 lbs. a.i. for any single application, and the total pounds of atrazine applied (lbs. a.i./A) must not exceed 2.5 lbs. a.i./A per year.

When tank mixing or sequentially applying atrazine or products containing atrazine to crops other than corn or sorghum, the total pounds of atrazine applied (lbs. a.i./A) must not exceed the specific seasonal rate limits as noted in the use directions.

#### **WINTER WEED CONTROL IN TEXAS**

For postemergence control of winter weeds only, such as henbit, seedling dock, and annual thistle on fall bedded land in the Gulf Coast and Blacklands of TX. Apply 0.9-1.1 lbs./A of this product postemergence to the weeds in November or December to land that will be planted to corn, grain sorghum, or forage sorghum the following spring. For best results, add a surfactant, such as X-77®, at the rate of 0.5% of the spray volume, an emulsifiable oil at the rate of 1.0% of the spray volume, or an oil concentrate at the rate of 1 qt./A.

Normal weed control programs may be used in the following corn, grain sorghum, or forage sorghum crop.

#### **Use Restrictions:**

1. Do not plant any crops, except corn, grain sorghum, or forage sorghum, the spring following this treatment, or illegal residues may result.

#### **CHEMICAL FALLOW - THIS PRODUCT ALONE**

Wheat-Sorghum-Fallow (For use only in AR, CO, GA, IL, KS, LA, MS, MO, NE, NM, NC, OK, SD & TX): To control annual broadleaf and grass weeds following wheat harvest and in the following sorghum crop when grown under minimum tillage, broadcast up to 2.5 lbs./A of this product to wheat stubble after harvest and before weed emergence. If weeds are present at application, remove them with a sweep plow or other suitable implement after application, or use an approved contact herbicide before or after the application of this product (see "TANK MIXTURES FOR CHEMICAL FALLOW" in the following section). Plant sorghum into wheat stubble the following spring with minimum soil disturbance. Use a surface planter or a planter leaving a shallow furrow. If weeds are present at planting, remove them with a sweep plow or other suitable implement before planting. Wheat-sorghum-fallow cropping sequence must be followed.

On soils in SD with pH greater than 7.5, do not apply more than 1.6 lbs./A of this product (1.5 lbs. a.i./A) for any application. For soils with pH less than 7.5 in SD, do not apply more than 2.2 lbs./A of this product (2 lbs. a.i./A) for any application.

For the list of weeds controlled, see "This Product Applied Alone – Corn or Grain Sorghum – Preplant Surface-Applied, Preplant Incorporated, or Preemergence".

Wheat-Corn-Fallow (For use only in CO, KS, ND, NE, SD, and WY): This product controls cheatgrass (downy brome, chess), kochia, mustards, pigweed, Russian thistle, wild lettuce, wild sunflower, and volunteer wheat during period after wheat harvest. Weed control may extend into following corn crop grown under minimum tillage.

On soils in ND and SD with pH greater than 7.5, do not apply more than 1.6 lbs./A of this product (1.5 lbs. a.i./A) for any application. For soils with pH less than 7.5 in ND and SD, apply 1.1 to 2.2 lbs./A of this product (1 to 2 lbs. a.i./A) for any application. Do not apply more than 2.2 lbs./A of this product (2.0 lbs. a.i/A) for any application. Use the higher rate on fine-textured soils and where heavy weed infestations are expected, use the lower rate on coarse-textured soils and where light weed infestations are expected. In the event grasses are present the following spring, use a grass herbicide registered for use on corn.

Follow directions for use, notes, and precautions in the "Wheat-Sorghum-Fallow" section above, substituting corn for references to sorghum.

Wheat-Fallow-Wheat (For use only in CO, KS, ND, NE, SD, and WY): For preemergence control of cheatgrass (downy brome, chess), common lambsquarters, field pennycress, kochia, mustard, Russian thistle, wild lettuce, and suppression of volunteer wheat during fallow period of a wheat-fallow-wheat rotation, broadcast 0.5-1.1 lbs./A of this product only on those soils listed in the "Use Restrictions for all Chemical Fallow – This Product Alone" section of "This Product Alone - Chemical Fallow".

For control of pigweed and wild sunflower, use the higher rate. Apply to stubble ground. Treat only once

during same fallow period. On soils in ND and SD with pH greater than 7.5, do not apply more than 1.6 lbs./A of this product (1.5 lbs. a.i./A) for any application. For soils with pH less than 7.5 in ND and SD, do not apply more than 2.2 lbs./A of this product (2 lbs. a.i./A) for any application.

#### Use Restrictions for all Chemical Fallow – This Product Alone:

- 1. Do not apply more than 2.5 lbs./A of this product (2.25 lbs. a.i./A) for any application.
- 2. Do not apply more than one application per cycle.
- 3. Use only on silt loam or fine-textured soil, or crop injury may result.
- 4. Do not apply following sorghum harvest.
- 5. To avoid illegal residues, do not graze of feed forage from treated area to livestock.
- 6. To avoid illegal residues and crop injury, do not plant any crop other than those on this label within 18 months following treatment.

#### TANK MIXTURES FOR CHEMICAL FALLOW

Use according to the most restrictive label requirements.

#### Wheat-Sorghum-Fallow or Wheat-Corn-Fallow (For use in KS, NE)

This product plus Paraquat: If weeds are present at application, a tank mix with paraquat may be used. Broadcast 2.5 lbs. of this product plus a specified amount of paraquat in 20-60 gals. of water per acre by ground equipment. Add 0.5-1 pt. of a nonionic surfactant, such as X-77®, per 100 gals. of spray mixture. Add this product to spray tank first and thoroughly mix with water. Then add paraquat, followed by surfactant. Use the higher rate of paraquat specified on the label if weeds are 4-6 inches tall. This mixture will not control weeds taller than 6 inches. Apply to stubble ground. Follow the directions for use and restrictions on the paraquat label.

#### Wheat-Fallow-Wheat (For use only in CO, KS, ND, NE, SD, and WY)

**This product plus Paraquat:** If weeds are present at application, a tank mix with paraquat may be used. Broadcast 0.5-1.1 lbs. of this product plus a specified amount of paraquat in 20-60 gals. of water per acre by ground equipment. Add 0.5-1 pt. of a nonionic surfactant, such as X-77® per 100 gals. of spray mixture. Add this product to spray tank first and thoroughly mix with water. Then add paraquat, followed by surfactant. Use the higher rate of paraquat specified on the label if weeds are 4-6 inches tall. This mixture will not control weeds taller than 6 inches. Apply to stubble ground.

On soils in ND and SD with pH greater than 7.5, do not apply more than 1.6 lbs./A of this product (1.5 lbs. a.i./A) for any application. For soils with pH less than 7.5 in ND and SD, do not apply more than 2.2 lbs./A of this product (2 lbs. a.i./A) for any application. Follow the directions for use and restrictions on the paraquat label.

If weeds are present at application and this product is used alone, use either an approved contact herbicide before or after treatment, or tillage after treatment.

Use tillage to control weeds which escape during fallow period. Till before planting. For this product applied alone or in tank mixture with paraquat, plant at least 2 inches deep and 12 months or more after application. Follow the directions for use and restrictions on the paraquat label.

#### **Use Restrictions for all Tank Mixes for Chemical Fallow:**

- 1. Do not apply more than 2.5 lbs./A of this product (2.25 lbs. a.i./A) for any application.
- 2. Do not apply more than one application per cycle.
- 3. Do not use on sandy soil.
- 4. Do not treat eroded hillsides, caliche and rocky outcroppings, or exposed calcareous subsoil.
- 5. Do not treat soils of the Rosebud and Canyon Series in western NE and adjoining counties in CO and WY.
- 6. Do not treat soils with calcareous surface layers.
- 7. Avoid spray overlap.
- 8. Do not graze treated areas within 6 months after application, or illegal residues may result.

#### **SUGARCANE**

#### **Application Instructions For All States**

For control of many broadleaf and grass weeds, including amaranths, crabgrass, fireweed, Flora's paintbrush, foxtails, junglerice, and wiregrass, broadcast 2.2-4.4 lbs./A of this product at time of planting or ratooning, but before sugarcane emerges.

Broadcast or band by ground equipment in a minimum of 20 gals./A, unless indicated otherwise. One additional application may be made over the sugarcane as it emerges, and 2 additional applications may be made interline after emergence as directed sprays. Repeat treatments, where needed, may be applied broadcast, band, or interline as suggested with the final application being prior to "close-in". Do not exceed the rate of herbicide suggested for any one crop of sugarcane.

**Note:** Where the higher specified rates of this product are used, apply in a minimum of 1 gal. of water for each 1 lb. of product applied per acre.

For specific weed problems, the following may be used. Other rate and application timings may be used for other weed spectrums and cultural practices, provided they are within the above "Application Instructions For All States" and are consistent with the "Use Precautions For All States and Uses" and "Use Restrictions For All States and Uses."

#### Florida

For control of emerged pellitory weed: Apply 0.4-0.6 lb./A of this product in at least 40 gals. of water as a directed spray by ground equipment prior to close-in. Add 4 qts. of surfactant for each 100 gals. of spray. Thoroughly cover weed foliage.

For control of alexandergrass, large crabgrass, pellitory (artillery) weed, and spiny amaranth, use one of the following methods at planting or ratooning:

- 1. Apply 4.4 lbs./A of this product preemergence. Follow with 1 or 2 applications, as needed, postemergence to sugarcane and weeds, at 2.2 lbs./A. of this product. Treat before weeds exceed 1.5 inches in height.
- 2. Apply 1-3 times, as needed, at 2.2 lbs./A of this product postemergence to sugarcane and weeds. Treat before weeds exceed 1.5 inches in height.

The total pounds of active ingredient applied by preemergence PLS postemergence applications cannot exceed 11.1 lbs./A of this product(10 lbs. a.i./A) per crop.

#### Louisiana

For control of annual weeds during the summer fallow period, apply 2.2 lbs./A of this product to weed-free beds immediately after bed formation. Follow normal weed control program after planting.

#### **Use Restrictions in LA:**

- 1. Do not apply more than 11 lbs./A of this product to any one crop of sugarcane.
- 2. If applying making a 2.2 lbs./A of this product during the summer fallow period, do not exceed 8.8 lbs./A of this product during the remainder of the growing season.

#### **Texas**

Use this product for control of barnyardgrass, pigweed, purslane, and sunflower, in plant or ratoon sugarcane.

Apply 4.4 lbs./A of this product preemergence. Follow with 1 or 2 applications, as needed, at 3.3 lbs./A of this product postemergence to sugarcane and weeds.

For best results when weeds are emerged, add a nonionic surfactant at a concentration of 2 qts./100 gals. to the spray and apply before weeds exceed 1.5 inches in height.

#### Use Precautions for All States on Sugarcane

1. Injury to sugarcane may occur when under moisture stress, when soil is of low adsorptive capacity, or when land is first cropped to sugarcane

#### **Use Restrictions for All States on Sugarcane:**

- 1. Do not apply more than 4.4 lbs./A of this product (4.0 lbs. a.i./A) for any application.
- 2. Do not apply more than 11 lbs./A of this product (10.0 lbs. a.i./A) per crop.
- 3. Do not apply after "close-in".

#### ST. AUGUSTINE GRASS, CENTIPEDEGRASS, AND DORMANT BERMUDAGRASS

This product controls Annual bluegrass, Florida betony, Spurweed and many other weeds in home lawn, ornamental and recreational turf. This product may be applied with any pump-up or compressed air type sprayer or with a hose-on type sprayer.

This product will control BOTH emerged weeds and weeds from seeds. Rain or watering within 2 to 3 days of application may decrease the effectiveness on emerged weeds. However, for control of weeds from seeds, rainfall or watering is necessary within 7 to 10 days after treatment.

#### **Weeds Controlled or Suppressed**

Annual bluegrass (*Poe annua*), Chickweed (Common and Mouseear), Crabgrass, Cransbill, Cudweed, Dichondra, Florida betony, Henbit, Knotweed, Lespedeza, Moneywort. Mustard, Narrowleaf vetch, Parsleypiert, Sandspur, Smutgrass, Spurge, Spurweed, Swinecress, Woodsorrel and various Annual clovers.

#### **Timing of Application**

The timing of applications to achieve maximum control may vary quite a bit with different weed species. The following application times are suggested for certain problem weeds.

**Spurweed**: Best control of Spurweed can be obtained by applying this product when Spurweed has emerged (December and January).

**Florida betony**: This weed emerges in the Fall, so an application of this product in mid-to-late October followed with a second application in mid-to-late February would give best control.

**Dichondra, Moneywort**: Best control of these weeds can be obtained by applying this product in early April followed with a second application in July.

Applications for Spurweed or Florida betony generally will give control or suppression of the other weeds listed. However, as a general rule, this product will give the best control when applied to young tender weeds or just prior to weed emergence. Do not apply to growing Bermudagrass.

#### Use Restrictions:

- 1. Do not apply within the active root zone of vegetables or desirable ornamental plants such as Azaleas, Boxwoods, Camellias, etc. However, treatments using this product should not normally cause injury to medium or large shrubs or trees in the landscape.
- 2. Do not plant any crop (flower or vegetable gardens) to treated areas for 18 months or injury may result.
- 3. Do not cut for hay or graze treated areas within 3 months following an application.
- 4. Do not seed or transplant species which are sensitive to this product within 18 months after application.
- 5. Applications made by backpack spray equipment to landscape turf are restricted to spot treatment only.

#### ST. Augustine Grass and Centipedegrass

This product may be applied to established St. Augustine grass and Centipedegrass during both the dormant and the growing season. Best results are usually obtained in the early Spring or dormant periods when weeds are small or have not emerged. Follow rates listed below, **except for residential uses, for** 

which the maximum application rate is 0.6 tsp. of this product per 1,000 sq. ft (1 lb. a.i./A). Applications made by backpack spray equipment to landscape turf are restricted to spot treatment only.

#### **Dormant Bermudagrass**

This product may be applied to Bermudagrass during the dormant season only. Applications to Bermudagrass during the growing season will cause injury. Follow rates below, **except for residential uses**, **for which the maximum application rate is 0.6 tsp. of this product per 1,000 sq. ft (1 lb. a.i./A).** Applications made by backpack spray equipment to landscape turf are restricted to spot treatment only.

#### Rate of Application

Determine the total area to be sprayed and base rate of application on the chart below. Apply overlapping spray pattern while treating.

Area to Be Treated	Amount of this product
500 sq. ft.	1.33 tbsp.
1,000 sq. ft.	2.75 tbsp. (1.33 ozs.)
3,000 sq. ft.	5 ozs.
5,450 sq. ft.	0.27 lb.
10,900 sq. ft. (0.25 acre)	0.55 lb.
1 acre	2.2 lbs.

#### TURFGRASSES FOR SOD (FLORIDA ONLY)

#### St. Augustinegrass, Centipedegrass, and Zoysiagrass

Broadcast 2.2 – 4.4 lbs./A of this product according to soil texture to control those weeds listed under "This Product Applied Alone – Corn or Grain Sorghum – Preplant Surface-Applied, Preplant Incorporated, or Preemergence".

		<b>Old beds:</b> Within 2 days after lifting sod.
Muck or peat	4.4 lbs./A of this product	<b>New beds:</b> 3-4 days after sprigging or plugging.
Sandy sail	2.2 lbs./A of this product	Old beds: Within 2 days after lifting sod.
Sandy soil	2.2 lbs./A of this product	<b>New beds:</b> 7-10 days after sprigging or plugging.

If weeds regrow, apply an additional 2.2 lbs./A on muck or peat, or 1.1 lbs./A on sandy soil.

#### **Use Precautions:**

- 1. Use only on turfgrass reasonably free of infestations of insects, nematodes, and diseases.
- 2. On newly sprigged turfgrass, temporary slowing of growth may follow application.

#### **Use Restrictions:**

- 1. For muck or peat soils: Do not apply more than 4.4 lbs./A of this product (4.0 lbs. a.i./A) for any application. Do not apply more than 6.7 lbs./A of this product (6.0 lbs. a.i./A) per year.
- 2. For sandy soils: Do not apply more than 2.2 lbs./A of this product (2.0 lbs. a.i./A) for any application. Do not apply more than 3.3 lbs./A of this product (3.0 lbs. a.i./A) per year.
- 3. Do not apply within 30 days prior to cutting or lifting.
- 4. Do not apply in combination with surfactants or other spray additives.

## TURFGRASSES FOR FAIRWAYS, SOD PRODUCTION\*, AND RESIDENTIAL SITES \* In states other than Florida

Note: For use on TURFGRASSES FOR SOD in Florida, see "TURFGRASSES FOR SOD (Florida only)" section above

#### Bermudagrass, Centipedegrass, St. Augustinegrass, and Zoysiagrass

Apply this product after October 1 before emergence of winter annual weeds for control of annual bluegrass, burclover, carpet burweed, chickweed, corn speedwell, henbit, hop clover, and spurweed. This product will control annual bluegrass even if it is emerged at time of treatment. For control of summer annual weeds listed in the preemergence section of the "This Product Applied Alone – Corn or Grain Sorghum" section of this label, also apply this product in late winter before the weeds emerge. Apply in a minimum of 15 gals. of water per acre or 1 gal./1,000 sq. ft.

**Turfgrass for Fairways and Sod Production (states other than Florida):** Where annual bluegrass is the major weed, use 1.1 lbs./A of this product (0.4 fl. oz. per 1,000 sq. ft.). Use 2.2 lbs./A of this product (0.8 fl. oz. per 1,000 sq. ft.) for control of other weeds named above. Do not exceed 1.1 lbs./A of this product per treatment on newly-sprigged turfgrass or on hybrid bermudagrass such as Tiflawn, Tifway, and Ormond. For continued summer annual weed control, apply another 1.1 lbs./A of this product at least 30 days after the previous application, but not after April 15. However, do not make more than 2 applications of this product per year. On newly sprigged turfgrass and hybrid bermudagrass, temporary slowing of growth and yellowing may occur following application.

Turfgrass for residential sites (including homes, daycare facilities, schools, playgrounds, parks, recreational areas, and sports fields): Use 1.1 lbs./A of this product (0.4 fl. oz. per 1,000 sq. ft.). For continued summer annual weed control, apply another 1.1 lbs./A of this product at least 30 days after the previous application, but not after April 15. However, do not make more than 2 applications of this product per year. On newly sprigged turfgrass and hybrid bermudagrass, temporary slowing of growth and yellowing may occur following application.

#### **Use Restrictions:**

- 1. For Turfgrass at residential sites including homes, daycare facilities, schools, playgrounds, parks, recreational areas, and sports fields, do not apply more than 1.1 lbs./A of this product (1.0 lbs. a.i./A) for any application. Do not apply more than 2.2 lbs./A of this product (2.0 lbs. a.i./A) per year.
- 2. Do not graze or feed turf clippings to animals or illegal residues may result.
- 3. Use only on turfgrass reasonably free of infestations of insects, nematodes, and diseases.
- 4. Do not use on golf greens.
- 5. Do not use north of NC (except in the VA Coastal Plains) or west of the high rainfall areas of eastern OK and eastern TX.
- 6. Do not use on muck or alkaline soils.
- 7. Do not apply over the rooting area of trees or ornamentals not listed on this label.
- 8. Do not overseed with desirable turfgrass within 4 months before or 6 months after treatment.
- 9. Do not apply this product to newly seeded bermudagrass or zoysiagrass until it has overwintered and has a well-developed rhizome system.
- 10. Do not exceed 2.2 lbs./A of this product within 12 months of seeding bermudagrass.
- 11. Applications made by backpack spray equipment to landscape turf are restricted to spot treatment only.

#### **MACADAMIA NUTS**

For preemergence control of many broadleaf and grass weeds, including crabgrass, foxtail, wiregrass, Flora's paintbrush, spanishneedles, and fireweed, broadcast 2.2-4.4 lbs./A of this product before harvest and before weeds emerge. Repeat as necessary.

#### **Use Restrictions:**

- 1. Do not apply more than 4.4 lbs./A of this product (4.0 lbs. a.i./A) for any application.
- 2. Do not apply more than 8.8 lbs./A of this product (8.0 lbs. a.i./A) per year.
- 3. Do not spray when nuts are on ground during harvest period.
- 4. Do not apply by mechanically pressurized handguns.

#### **GUAVA**

Use only on established plantings which are at least 18 months old. Apply as a directed spray at 2.2-4.4 lbs./A of this product in 20-50 gals. of spray mix preemergence or early postemergence to weeds. When applying postemergence, the use of a surfactant and greater spray volume (80-100 gals. of spray mix per acre) may enhance weed control. This product controls many annual broadleaf and grass weeds, including fireweed, purslane, scarlet pimpernel, spanishneedles, and sowthistle.

#### **Use Restrictions:**

- 1. Do not apply more than 4.4 lbs./A of this product (4.0 lbs. a.i./A) for any application.
- 2. Do not apply more than 8.8 lbs./A of this product (8.0 lbs. a.i./A) per year.
- 3. Do not allow spray to contact foliage or fruit.
- 4. Do not apply more frequently than at 4-month intervals.
- 5. Do not apply by mechanically pressurized handguns.

#### STORAGE AND DISPOSAL

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

**Pesticide Storage:** Store in a secure, dry place away from children and pets.

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

#### **Container Handling:**

Non-refillable container. Do not reuse or refill this container. Completely empty bag into application equipment. Then offer for recycling if available or dispose of empty bag in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

For minor spills, leaks, etc., follow all precautions indicated on this label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup procedures and disposal of wastes.

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

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