# Zeneca

# DIQUAT

# HERBICIDE TO PREVENT ACCIDENTAL POISONING, NEVER PUT INTO FOOD, DRINK, OR OTHER CONTAINERS, AND USE STRICTLY IN ACCORDANCE WITH ENTIRE LABEL DO NOT USE THIS PRODUCT FOR REFORMULATION

ACTIVE INGREDIENT

Diquat dibromide [6,7-dihydrodipyrido (1,2-a:2',1'-c)

 TOTAL
 100.0%

 Contains 2 pounds diquat cation per gallon as 3.73 pounds salt per gallon.

EPA Reg. No. 10182-353

# KEEP OUT OF REACH OF CHILDREN WARNING—AVISO

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

# STATEMENT OF PRACTICAL TREATMENT

**IF SWALLOWED: IMMEDIATELY** give water or milk to drink and induce vomiting by inserting finger in throat. Do not induce vomiting or give anything by mouth to an unconscious person. Take person and product container to the nearest hospital or physician fast. PROMPT TREATMENT IS ESSENTIAL TO COUNTERACT POISONING and should be initiated before signs and symptoms of injury appear.

**IF ON SKIN: IMMEDIATELY** wash with soap and water. See a doctor if diquat contacts a skin cut, abrasion, or area of irritation.

**IF IN EYES: IMMEDIATELY** wash eyes with water for at least 15 minutes and get medical attention.

**IF INHALED: IMMEDIATELY** get away from spray mist. Stop and check spray procedure. See a doctor if irritation persists.

**NOTE TO PHYSICIANS:** Call ZENECA Medical Emergency Information Network, 1-800-F-A-S-T-M-E-D (327-8633), at any hour to obtain toxicology information and a diquat analysis. To be effective, treatment for diquat poisoning must begin **IMMEDIATELY**. Treatment consists of binding diquat in the gut with suspensions of activated charcoal or bentonite clay, administration of cathartics to enhance elimination, and removal of diquat from the blood by charcoal hemoperfusion or continuous hemodialysis.

FOR 24-HOUR EMERGENCY MEDICAL ASSISTANCE, CALL 1-800-F-A-S-T-M-E-D (327-8633). FOR CHEMICAL EMERGENCY: Spill, leak, fire, exposure, or accident, call CHEMTREC, 1-800-424-9300.

### PRECAUTIONARY STATEMENTS

# HAZARDS TO HUMANS AND DOMESTIC ANIMALS WARNING

MAY BE FATAL IF SWALLOWED, INHALED, OR ABSORBED THROUGH THE SKIN. CAUSES SUBSTANTIAL, BUT TEMPORARY, EYE INJURY. CAUSES SKIN IRRITATION. CONTACT WITH IRRITATED SKIN, OR A CUT, OR REPEATED CONTACT WITH INTACT SKIN MAY RESULT IN POISONING. Do not get in eyes, on skin, or on clothing. Do not breathe spray mist. Do not feed forage from treated crops to livestock. Keep livestock and pets out of treated fields and crop areas.

#### Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

- Coveralls over short-sleeved shirt and short pants
- Waterproof gloves
- · Chemical-resistant footwear plus socks
- Protective eyewear
- · Chemical-resistant headgear for overhead exposure
- Chemical-resistant apron when cleaning equipment, mixing, or loading

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, use detergent and hot water. Keep and wash PPE separately from other laundry.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS. Mixers, loaders, and applicators using closed systems who meet these requirements may wear: long-sleeved shirt and long pants, protective eyewear, waterproof gloves, shoes plus socks, and a chemical-resistant apron when mixing, loading, or cleaning equipment. If handling tasks are performed from inside an enclosed cab or aircraft with enclosed cockpits that meet these requirements may wear: long-sleeved shirt, long pants,

shoes, and socks for the labeling-specified PPE. All labeling-specified PPE must be immediately available for use in an emergency. All applicable requirements as specified in 40 CFR 170.240(d)(4-6) must be followed.

# **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.
- 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 (TERRESTRIAL USES)

This pesticide is toxic to wildlife. Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash waters.

# CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

**NOTICE:** Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product should be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of ZENECA or Seller. All such risks shall be assumed by Buyer and User, and Buyer and User agree to hold ZENECA and Seller harmless for any claims relating to such factors.

ZENECA warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. This warranty does not extend to the use of this product contrary to label instructions, or under abnormal conditions or under conditions not reasonably foreseeable to or beyond the control of ZENECA or Seller, and Buyer and User assume the risk of any such use. ZENECA MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

In no event shall ZENECA or Seller be liable for any incidental, consequential or special damages resulting from the use or handling of this product. THE EX-CLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF ZENECA AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HAN-DLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PUR-CHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF ZENECA OR SELLER, THE REPLACEMENT OF THE PRODUCT.

ZENECA and Seller offer this product, and Buyer and User accept it, subject to the foregoing conditions of sale and limitations of warranty and of liability, which may not be modified except by written agreement signed by a duly authorized representative of ZENECA.

### 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.

#### READ ENTIRE LABEL. USE STRICTLY IN ACCORDANCE WITH PRE-CAUTIONARY STATEMENTS AND DIRECTIONS, AND WITH APPLI-CABLE STATE AND FEDERAL REGULATIONS.

DO NOT APPLY THIS PRODUCT THROUGH ANY TYPE OF IRRIGATION SYSTEM.

# 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 (REI). 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 24 hours.

 PPE required for early entry into 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 over short-sleeved shirt and short pants

 • Waterproof gloves

 • Chemical-resistant footwear plus socks

- Protective eyewear
- · Chemical-resistant headgear for overhead exposure

# **GENERAL INFORMATION**

Diquat herbicide is a nonvolatile herbicide for use as a preharvest aid to desiccate certain crops in order to facilitate harvesting. Diquat herbicide is also recommended for use as a general herbicide to control weeds in noncrop areas and nonbearing crops. Diquat is a contact-type herbicide and requires actively growing green plant tissue to function. Thorough coverage of all green plant tissue is essential for effective control. Diquat herbicide is rapidly absorbed by green plant tissue and interacts with the phytosynthetic process to produce compounds which destroy plant cells. Herbicidal activity is usually quite rapid with effects visible in a few days.

# AGRICULTURAL USE DIRECTIONS

#### APPLICATION

Since Diquat is a contact-type herbicide, it is essential to obtain complete coverage of the target weed or crop to achieve effective results. Improper application technique and/or application to large, stressed, or mowed weeds will generally result in unacceptable control. Complete coverage is also essential for effective performance in harvest aid applications. See details in the following table for additional information.

**Nozzle Selection:** The use of flat-fan nozzles will result in the most effective application of Diquat herbicide. The use of nozzles other than flat fans may result in reduced performance due to inadequate coverage.

**Spray Volume:** Follow recommended minimum spray volumes listed for each use of Diquat herbicide. These are minimum volumes only, and spray volumes should be increased as necessary to obtain complete coverage of the target weed or plant without runoff from the foliage. When spraying less than 20 gallons of spray carrier per acre, target weeds should not exceed 6 inches in height.

# SPRAY ADJUVANTS

#### ALWAYS ADD ONE OF THE FOLLOWING:

**Nonionic Surfactant (NIS):** Add a NIS containing 75% or greater surface active agent at 0.06% to 0.5% v/v ( $\frac{1}{2}$  to 4 pints per 100 gallons) of the finished spray volume.

**Other Adjuvants:** Adjuvants other than NIS may be used providing the product meets the following criteria:

1. Contains only EPA exempt ingredients.

- 2. Is compatible in mixture. Compatibility may be established through a jar test.
- 3. Is supported locally for use with Diquat herbicide through proven field trials and through university and extension recommendations.

#### RATES

Follow recommended rates listed with each use of Diquat herbicide. Use the higher label rates when weeds are large or dense. Also, use higher labeled rates for harvest aid when crop vegetation is dense.

#### APPLICATION TIMING

Diquat herbicide should be applied to emerged weeds when they are small. Weeds 1 inch to 6 inches in height are the easiest to control. When weeds have been grazed or mowed, thus removing much of the green foliage, allow the weeds to regrow to a height of 2 to 4 inches before spraying. For proper application timing of harvest aid applications, refer to each crop for recommendations.

Weeds emerging after application of Diquat herbicide will not be controlled or suppressed.

#### RAINFASTNESS

Because Diquat herbicide is rapidly absorbed by green plant tissue, rain occurring 30 minutes after application will have no effect on the activity of Diquat herbicide.

#### ENVIRONMENTAL CONDITIONS

Diquat herbicide is active over a wide range of environmental conditions. Cool weather (below 55°F) will slow the activity of Diquat herbicide, as will cloudy, overcast weather, but will not affect performance.

In dry areas, dust stirred up by high winds or equipment tires can coat target surface and reduce Diquat herbicide activity. Avoid applying Diquat herbicide in extremely dusty conditions.

#### SPECIFIC USE DIRECTIONS

The following table indicates use pattern, rates, minimum spray volumes, and preharvest interval for specific uses.

# SPECIFIC USE RECOMMENDATIONS

Сгор	Use Pattern	Diquat Herbicide Rate per Acre	Spray	um Total Volume Acre	Preharvest Interval (Days)
ALFALFA (seed crop only)	Preharvest desiccation broadcast	1 <sup>1</sup> / <sub>2</sub> to 2 pints (see precautions section for additional rate information)	Ground: Air:	15 gal. 5 gal.	3

		Diquat	Minimum Total	Preharvest		
Crop	Use Pattern	Herbicide Rate per Acre	Spray Volume per Acre	Interval (Days)		
	ictions, and Comme seed alfalfa use 1 pi					
<ul> <li>Desiccation is control of the second secon</li></ul>	<ul> <li>Desiccation is complete in 3 to 10 days.</li> <li>Do not graze or feed treated forage to livestock.</li> <li>Do not use seed from treated plants for food, feed, or oil purposes.</li> </ul>					
CLOVER (seed crop only)	Preharvest desiccation broadcast	$1^{1/2}$ to 2 pints	Ground: 15 gal. Air: 5 gal.	3		
	ictions, and Comme					
<ul> <li>Do not graze or f</li> </ul>	<ul> <li>Desiccation is complete in 3 to 10 days.</li> <li>Do not graze or feed treated forage to livestock.</li> <li>Do not use seed from treated plants for food, feed, or oil purposes.</li> </ul>					
ΡΟΤΑΤΟ	Preharvest desiccation broadcast	1 to 2 pints	Ground: 20 gal. Air: 5 gal.	7		
	ictions, and Comme		ł			
<ul> <li>Make a second ap For improved vine</li> </ul>		y to obtain additional erval is recommended	desiccation where vine gr between applications.	owth is dense.		
SORGHUM GRAIN (seed crop only)	Preharvest desiccation broadcast	$1^{1/2}$ to 2 pints	Ground: 15 gal. Air: 5 gal.	—		
	ictions, and Comme	nts:				
<ul> <li>Do not graze or f</li> </ul>	eed treated forage to		not more than 30% moist urposes.	ure.		
SOYBEAN (seed crop only)	Preharvest desiccation broadcast	$1\frac{1}{2}$ to 2 pints	Ground: 15 gal. Air: 5 gal.	—		
	ictions, and Comme	nts:	1			
	feed treated forage to	livestock. r food, feed, or oil pu	urposes.			
TREE, VINE, SMALL FRUIT, VEGETABLE CROPS—NON- BEARING Acerola (West Indian Cherry) Almonds Apple	Directed spray	11/2 to 2 pints	Ground: 15 gal.	Do not use for food or feed for 1 year after application.		
Apricots Artichokes Asparagus Avocados Bananas Blackberry Blueberry Boysenberry Cherries						
Coffee Conifers Crabapple Cranberry Dates Dewberry						
Elderberry Figs Filberts Ginseng						
Gooseberry Grapes Grapefruit Guava						
Huckleberry Jojoba Kiwi						
Lemons Limes Loganberry						
Macadamia Mango Nectarines						
Olives Oranges Papayas Passion Fruit						
Peaches Pears						
Pecans Persimmons Pistachios						
Plantains Plums Pomegranates Prunes						
Prunes Raspberry Tangelos Tangerines						
Walnuts						

Сгор	Use Pattern	Diquat Herbicide Rate per Acre	Minimum Total Spray Volume per Acre	Preharvest Interval (Days)	
Precautions, Restrictions, and Comments:					
<ul> <li>Diquat herbicide can be used during site preparation prior to planting and up to 1 year of harvest.</li> </ul>					
<ul> <li>Retreatment may be necessary for complete control of grasses and older established weeds.</li> </ul>					
• Do not allow spray to contact green stems foliage, or fruit as injury can occur					

Do not allow spray to contact green stems, ronage, or truit as injury can occur.
Use a shield or wrap plant when spraying around young trees or vines.

Do not graze treated areas.

#### NONAGRICULTURAL USES:

#### NONAGRICULTURAL USE REQUIREMENTS

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

Keep all unprotected persons out of operating areas or vicinity where there may be drift.

Do not allow people or pets to touch treated plants until the sprays have dried.

Do not allow entry of maintenance workers into treated areas, or allow contact with treated vegetation wet with spray, dew, or rain, without appropriate protective clothing until spray has dried.

Other Uses	Use Pattern	Diquat Herbicide Rate	Recommendations, Precautions, and Restrictions
NONCROP OR NONPLANTED AREAS ON FARMS Fence Lines, Farmyards, Farm Buildings, Fuel Storage Areas, Barrier Strips, Equipment Areas, and Nonflooded Portions of Ponds, Lakes, and Drainage Ditches on Farms	Broadcast or spot treatment	1 to 2 quarts/100 gals.	<ul> <li>Apply for full coverage and thorough weed contact.</li> <li>Retreatment may be necessary to control grasses and established weeds.</li> <li>Avoid spray contact with foliage of food crops or ornamental plants or other desirable vegetation.</li> </ul>

# SPRAY DRIFT MANAGEMENT

AVOIDING SPRAY DRIFT AT THE APPLICATION SITE IS THE RESPON-SIBILITY OF THE APPLICATOR AND THE GROWER.

The interaction of many equipment- and weather-related factors determine the potential for spray drift. The applicator and the grower are 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.

- 1. The distance of the outermost nozzles on the boom must not exceed  $\, \ensuremath{\mathscr{Y}}_4$  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.

#### **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 large 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  $\frac{3}{4}$  of the wingspan or rotor length may further reduce drift without reducing swath width.

#### Application height

Applications should not be made at a height greater than 10 feet above the top of the 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 crosswind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.).

#### Wind

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

### Temperature and humidity

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

#### **Temperature inversions**

Applications should not occur during a 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 and 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 wind is blowing away from adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, nontarget crops).

# LIMITATIONS AND PRECAUTIONS

Direct spray contact or drift of Diquat herbicide will cause severe plant injury or death. Avoid contact of desirable vegetation.

Weeds emerging after application of Diquat herbicide will not be controlled or suppressed.

Retreatment may be necessary to control large weeds or established weeds.

Use of dirty or muddy water for Diquat herbicide dilution may result in reduced control.

Do not apply this product through any type of irrigation system. Rinse all spray equipment thoroughly with water after use.

# STORAGE AND DISPOSAL

**PROHIBITIONS:** Do not contaminate water, food, or feed by storage, disposal, or cleaning of equipment. Open dumping is prohibited.

**STORAGE:** Keep pesticide in original container. Do not put concentrate or dilute into food or drink containers. Do not contaminate feed, foodstuffs, or drinking water. Do not store or transport near feed or food. Store at temperature above 32°F. For help with any spill, leak, fire, or exposure involving this material, call CHEMTREC (1-800-424-9300).

**PESTICIDE DISPOSAL:** Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

**CONTAINER DISPOSAL:** Triple rinse (or equivalent). Do not reuse container. Incinerate, burn, or puncture and dispose of in a sanitary landfill, or dispose of by other procedures allowed by State and local authorities. If burned, stay out of smoke.

#### FOR BULK AND MINI-BULK CONTAINERS

**CONTAINER DISPOSAL:** Reseal container and offer for reconditioning, or triple rinse (or equivalent) and offer for recycling or reconditioning, or clean in accordance with manufacturer's instructions.

**CONTAINER PRECAUTIONS:** Before refilling, inspect thoroughly for damage, such as cracks, punctures, bulges, dents, abrasions, and damaged or worn threads on closure devices.

**CONTAINER HANDLING:** After emptying, replace valve caps and tightly rebolt top hatch of tank car or truck. Follow ZENECA's instructions for the return of empty tank cars.

**REFILL ONLY WITH DIQUAT HERBICIDE.** The contents of this container cannot be completely removed by cleaning. Refilling with materials other than Diquat Herbicide will result in contamination and may weaken container.

After filling and before transporting, check for leaks.

Do not refill or transport damaged or leaking container.

**CONTAINER IS NOT SAFE FOR FOOD, FEED, OR DRINKING WATER!** © 1998. ZENECA Inc.

This is a specimen label which was not prepared by ZENECA Inc. ZENECA Inc. is not responsible for the accuracy of the information contained herein. As labels are subject to revision, always carefully read and follow the label on the product container.

049804

09-2581-026 R2 7/98