

PM 25 241-377

1/22

MAR 31 1997

Mrs. Desiree L. Little  
American Cyanamid Co.  
P.O. Box 400  
Princeton, NJ 08543

Dear Mrs. Little:

Subject: Supplemental Labeling for Use with Crop Oil  
LIGHTNING Herbicide  
EPA Reg. No. 241-377  
Your submission dated March 18, 1997

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, is acceptable and a stamped copy is enclosed for your records.

Sincerely yours,



Philip V. Errico  
Product Manager 25  
Fungicide-Herbicide Branch  
Registration Division (7505C)

2/22



# SUPPLEMENTAL LABEL

EPA Reg. No. 241-377

FOR USE ONLY ON IMI-CORN®

## DIRECTIONS FOR THE USE OF LIGHTNING™ HERBICIDE WITH CROP OILS AND METHYLATED SEED OILS AS ADJUVANTS FOR WEED CONTROL IN IMI-CORN

OBSERVE ALL PRECAUTIONARY STATEMENTS ON THE LIGHTNING LEAFLET LABEL BEFORE USING. SEE THE LIGHTNING LEAFLET LABEL FOR PRECAUTIONS, WORKER PROTECTION STANDARD REQUIREMENTS, APPLICATION INFORMATION, USES WITH OTHER PRODUCTS AND ROTATIONAL CROP RESTRICTIONS.

### GENERAL INFORMATION

Apply LIGHTNING herbicide only on selected field corn hybrids (IMI-CORN) warranted by the seed company to possess resistance/tolerance to direct application of LIGHTNING.

### DIRECTIONS FOR USE

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

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

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

Observe all cautions and limitations on this label and on the labels of products used in combination with LIGHTNING. Do not use LIGHTNING other than in accordance with the instructions set forth on this label. The use of LIGHTNING not consistent with this label may result in injury to crops.

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

### USE OF ADJUVANTS WITH LIGHTNING

APPLICATIONS OF LIGHTNING REQUIRE THE ADDITION OF AN ADJUVANT AND A LIQUID FERTILIZER SOLUTION\*.

#### I. ADJUVANTS

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

ACCEPTED  
with COMMENTS  
In EPA Letter Dated  
MAR 31 1997

OR

(see reverse side)

Under the Federal Insecticide,  
Fungicide, and Rodenticide Act  
as amended, for the pesticide

\* LIGHTNING application requires use of a surfactant only (liquid fertilizer not required) in the Bootheel of Missouri, Tennessee, South Carolina, Louisiana, and Georgia. 241-377

3/22

**CROP OIL CONCENTRATE:** Instead of a surfactant, a petroleum or vegetable seed based oil concentrate (such as SUN-IT II™) may be beneficial under arid conditions or when weeds are hardened off or reaching maximum labeled height. Use SUN-IT II or other methylated seed oils at the rate of 1.5 to 2 pints per acre (use the higher rate when weeds are at the maximum label size), or use a crop oil concentrate at 2 pints per acre.

**AND**

**II. LIQUID FERTILIZER SOLUTION**

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

Fill the spray tank one-half to three-fourths full with clean water. Add the required amount of LIGHTNING to the spray tank while agitating. Add adjuvants and fill the remainder of the tank with water. An antifoam agent may be added if needed.

DO NOT use liquid fertilizer as a carrier for postemergence applications of LIGHTNING herbicide.

**SLURRY PREPARATION**

LIGHTNING may be slurried prior to addition to the spray tank.

- 1). Add 1 to 2-water soluble packets per gallon of water.
- 2). Allow water soluble bags to dissolve for 3-5 minutes or until bags have ruptured.
- 3). Agitate slurry for 10 -15 minutes or until water soluble bags are completely in solution.
- 4). Transfer slurry to spray tank (begin spray tank agitation) filled half to three quarters full with clean water.

When tank-mixing LIGHTNING with recommended herbicides, add the other herbicides and other components in the following order, while agitating:

- 1). Fill spray tank 1/2 to 3/4 full with clean water.
- 2). Add LIGHTNING and thoroughly mix.
- 3). Add other aqueous solution products.
- 4). Add other soluble packet products and thoroughly mix.
- 5). Add WP (wetable powder), DG (dispersible granule), DF (dry flowable), or LF (liquid flowable) formulations.
- 6). Add EC (emulsifiable concentrate) products.
- 7). Add adjuvant to the spray tank.
- 8). Add liquid fertilizer.
- 9). While agitating, fill the remainder of the tank with water.

When LIGHTNING is used in combination with another herbicide, refer to the respective label for rates, methods of application, proper timing, weeds controlled, restrictions and precautions. Always use in accordance with the more restrictive label restrictions and precautions. No label dosages should be exceeded.

Use of crop oil concentrates or methylated seed oils as adjuvants in LIGHTNING herbicide combinations with Marksman™ herbicide may result in crop injury if applied during periods of cool, wet weather or hot and/or humid weather. Under these environmental conditions the use of a nonionic surfactant is recommended.



American Cyanamid Company  
North America Agricultural Products Division  
Crop Protection Products Department  
One Campus Drive  
Parsippany, NJ 07054 ©1997

PE-xxxxx 3/97

™LIGHTNING is a Trademark of American Cyanamid Company  
®IMI-CORN is a Registered Trademark of American Cyanamid Company  
™SUN-IT II is a Trademark of Agsco, Inc.  
™Marksman is a Trademark of Sandoz Crop Protection Corporation.

4/22



# SUPPLEMENTAL LABEL

EPA Reg. No. 241-377

FOR USE ONLY ON IMI-CORN®

## DIRECTIONS FOR THE USE OF LIGHTNING™ HERBICIDE IN COMBINATION WITH OTHER POSTEMERGENCE HERBICIDES FOR WEED CONTROL IN IMI-CORN

OBSERVE ALL PRECAUTIONARY STATEMENTS ON THE LIGHTNING LEAFLET LABEL BEFORE USING. SEE THE LIGHTNING LEAFLET LABEL FOR PRECAUTIONS, WORKER PROTECTION STANDARD REQUIREMENTS, APPLICATION INFORMATION, USES WITH OTHER PRODUCTS AND ROTATIONAL CROP RESTRICTIONS.

### GENERAL INFORMATION

Apply LIGHTNING herbicide only on selected field corn hybrids (IMI-CORN) warranted by the seed company to possess resistance/tolerance to direct application of LIGHTNING.

### DIRECTIONS FOR USE

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

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

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

Observe all cautions and limitations on this label and on the labels of products used in combination with LIGHTNING. Do not use LIGHTNING other than in accordance with the instructions set forth on this label. The use of LIGHTNING not consistent with this label may result in injury to crops.

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

### USES WITH OTHER PRODUCTS (TANK-MIXES)

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

ACCEPTED  
with COMMENTS  
In EPA Letter Dated

MAR 31 1997

Under the Federal Insecticide, Fungicide, and Rodenticide Act as amended, for the pesticide registered under EPA Reg. No.

241-377

5/22

### TANK-MIX HERBICIDE COMBINATIONS WITH LIGHTNING HERBICIDE

In addition to herbicides listed on the LIGHTNING leaflet label, the following products are also recommended tank-mix options with LIGHTNING when applied to IMI-Corn.

Atrazine  
Harness™  
Surpass™

Dual™  
Harness Extra™  
Surpass 100™

Use of crop oil concentrates or methylated seed oils as adjuvants in LIGHTNING herbicide combinations with Marksman™ herbicide may result in crop injury if applied during periods of cool, wet weather or hot and/or humid weather. Under these environmental conditions the use of a nonionic surfactant is recommended.

When LIGHTNING is used in combination with another herbicide, refer to the respective label for rates, methods of application, proper timing, weeds controlled, restrictions, and precautions. Always use in accordance with the more restrictive label restrictions and precautions.



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North America Agricultural Products Division  
Crop Protection Products Department  
One Campus Drive  
Parsippany, NJ 07054 ©1997

PE-xxxxx 3/97

™Marksman is a Trademark of Sandoz Crop Protection Corporation.

™Dual is a Trademark of Ciba Geigy Corporation.

™Harness and Harness Extra are Trademarks of Monsanto Agricultural Products Company.

™Surpass and Surpass 100 are Trademarks of Zeneca Agrochemicals.

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™LIGHTNING is a Trademark of American Cyanamid Company

6/22

US ENVIRONMENTAL PROTECTION AGENCY  
OFFICE OF PESTICIDES PROGRAMS  
REGISTRATION DIVISION (TS-767)  
WASHINGTON, DC 20460

EPA REGISTRATION NO.  
241-377

DATE OF ISSUANCE  
MAR 31 1997

TERM OF ISSUANCE

*until* MAR 31 2001

NAME OF PESTICIDE PRODUCT

LIGHTNING Herbicide

NOTICE OF PESTICIDE:  REGISTRATION  
 REREGISTRATION  
(Under the Federal Insecticide, Fungicide,  
and Rodenticide Act, as amended)

NAME AND ADDRESS OF REGISTRANT (Include ZIP code)

American Cyanamid Co.  
Agric. Products Research Div.  
P.O. Box 400  
Princeton, NJ 08543-0400

NOTE: Changes in labeling formula differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above U.S. EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby Registered/Reregistered under the Federal Insecticide, Fungicide, and Rodenticide Act.

A copy of the labeling accepted in connection with this Registration/Reregistration is returned herewith.

Registration is in no way to be construed as an indorsement or approval of this product by this Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is conditionally registered in accordance with FIFRA section 3(c)(7)(A) provided that you:

1. Submit/cite all data required for registration/ reregistration of your product under FIFRA Section 3(c)(5) and sec. 4 when the Agency requires all registrants of similar products to submit such data.
2. Make the labeling changes listed below before you release the product for shipment:
  - a. Add the phrase "EPA Registration No. 241-377" to your label before you release the product for shipment.
3. Provide the following additional data:
  - a. American Cyanamid must submit, upon EPA's request and according to a schedule determined by the Agency, such information as the Agency directs to be submitted in order to evaluate issues related to whether imazapyr shares a common mechanism of toxicity with any other substance and, if so, whether any tolerance for imazapyr needs to be modified or revoked.

ATTACHMENT IS APPLICABLE

SIGNATURE OF APPROVING OFFICIAL

DATE

MAR 31 1997

7/22

- b. Storage Stability. Additional storage stability data are required to support the 18 and 27 month storage stability tabulated data, including storage temperature, analysis, raw data, representative chromatograms, and quality assurance (good laboratory practices).
- c. The requirements in the memo of agreement as "Lightning Herbicide Conditional Requirements and Labeling Agreement dated March 18, 1997 herein attached, and referred to as the "agreement" is made part of this Conditional Registration. This Conditional Registration may be cancelled if any requirement in the "agreement" is not accomplished in the time frames-specified.

4. Submit five (5) copies of your final printed labeling before you release the product for shipment.

If these conditions are not complied with, this registration will be subject to cancellation in accordance with FIFRA sec. 6(e). Your release for shipment of the product constitutes acceptance of these conditions.

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

Sincerely yours,

*CV*  
Philip V. Errico  
Product Manager 25  
Fungicide-Herbicide Branch  
Registration Division (7505C)

) Enclosure

8/22

**LIGHTNING™ Herbicide**

**FOR USE IN IMI-CORN™ ONLY**

**ACTIVE INGREDIENTS:**

Imazethapyr (+)-2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-5-ethyl-3-pyridinecarboxylic acid .....	52.5%
Imazapyr 2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid .....	17.5%
<b>INERT INGREDIENTS</b> .....	<b>30.0%</b>
<b>TOTAL</b> .....	<b>100.0%</b>

**LIGHTNING in a water soluble bag.**

(1 bag contains 0.084 pounds of imazethapyr and 0.028 pounds of imazapyr as the free acid)

EPA Reg. No. 241-377

EPA Est. No. 65387-AR-003

**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 this label, find someone to explain it to you in detail).

**STATEMENT OF PRACTICAL TREATMENT**

- IF IN EYES:** Hold eyelids open and flush with a steady, gentle stream of water for 15 minutes. Get medical attention.
- IF ON SKIN:** Wash with plenty of soap and water. Get medical attention.
- IF SWALLOWED:** Call a doctor or get medical attention. Do not induce vomiting. Drink promptly a large quantity of milk, egg whites, gelatin solution, or if these are not available, drink large quantities of water. Avoid alcohol.

**NOTE TO PHYSICIAN:** Probable mucosal damage may contraindicate the use of gastric lavage.

In case of an emergency endangering life or property involving this product, call collect, day or night, area code 201-835-3100.

Do not remove package from container except for immediate use.  
See following pages for additional precautionary statements.

American Cyanamid Company  
North America Agricultural Products Division  
Crop Protection Products Department  
One Campus Drive  
Parsippany, NJ 07054 ©1997

**ACCEPTED**  
~~with COMMENTS~~  
In EPA Letter Dated

MAR 31 1997

Under the Federal Insecticide, Fungicide, and Rodenticide Act as amended, for the pesticide registered under EPA Reg. No. 241-377

Net Contents: 5 X 2.56 ounce packets.

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9/22

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

**WARNING!**

Causes substantial but temporary eye injury. Do not get in eyes, on skin or on clothing. Harmful if swallowed or absorbed through skin.

**Personal Protective Equipment (PPE):**

Applicators and other handlers must wear:

- long-sleeved shirt and long pants
- waterproof gloves
- shoes plus socks
- protective eyewear.

**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.

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

**ENVIRONMENTAL HAZARDS**

DO NOT apply directly to water, or areas where surface water is present, or to intertidal areas below the mean high water mark.

DO NOT contaminate water when disposing of equipment washwaters.

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

This product may not be mixed or loaded within 50 feet of any wells (including abandoned wells and drainage wells), sink holes, perennial or intermittent streams and rivers, and natural or impounded lakes or reservoirs. This setback does not apply to properly capped or plugged abandoned wells and does not apply to impervious pad or properly diked mixing/loading areas.

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 washwater, and rainwater 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

10/22

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 specific minimum containment capacities do not apply to vehicles when delivering pesticide shipments to the mixing/loading site. States may have in effect additional requirements regarding wellhead setbacks and operational containment.

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

Product must be used in a manner which will prevent back siphoning in wells, spills or improper disposal of excess pesticide, spray mixtures or rinsates.

11/22

### DIRECTIONS FOR USE

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

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

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

Observe all cautions and limitations on this label and on the labels of products used in combination with LIGHTNING. Do not use LIGHTNING other than in accordance with the instructions set forth on this label. The use of LIGHTNING not consistent with this label may result in injury to crops.

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. 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.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- coveralls
- waterproof gloves
- shoes plus socks
- protective eyewear

### STORAGE AND DISPOSAL

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

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

**CONTAINER DISPOSAL:** DO NOT reuse outer packaging. Dispose of outer packaging in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned stay out of smoke.

12/22

## DISCLAIMER

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

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

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

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

### Uses with Other Products (Tank-Mixes)

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

13/77

## GENERAL INFORMATION

LIGHTNING can be applied postemergence (including spike stage) on IMI-CORN hybrids. Apply only on selected field corn hybrids (IMI-CORN) warranted by the seed company to possess resistance/tolerance to direct application of certain imidazolinone herbicides. DO NOT apply LIGHTNING to corn hybrids which lack resistance/tolerance to imidazolinone herbicides. Contact your seed supplier, chemical dealer or American Cyanamid to obtain information regarding IMI-CORN hybrids.

LIGHTNING kills weeds by root and/or foliar uptake and rapid translocation to the growing points. Adequate soil moisture is important for optimum LIGHTNING activity. When adequate soil moisture is present, LIGHTNING will provide residual control of susceptible germinating weeds; activity on established weeds will depend on the weed species and the location of its root system in the soil.

Use of LIGHTNING herbicide in accordance with label directions is expected to result in normal growth of rotational crops in most situations; however, various environmental and agronomic factors make it impossible to eliminate all risks associated with the use of this product and, therefore, rotational crop injury is always possible. Under some conditions (such as heavy texture soil, high organic matter, low pH or low rainfall) LIGHTNING may cause injury to subsequent planted crops. See the ROTATIONAL CROP GUIDELINE section of this label for recommended rotation intervals to sensitive crops.

Crops growing under stressful environmental conditions can exhibit various injury symptoms which may be more pronounced if herbicides are used. Corn plants treated with LIGHTNING may exhibit yellowing on new growth. Such effects occur infrequently and are temporary. Normal growth and appearance should resume within 1 to 2 weeks.

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

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

**Replanting:** If replanting is necessary in a field previously treated with LIGHTNING, the field may be replanted only to IMI-CORN. Rework the soil no deeper than the treated zone. DO NOT apply a second treatment of LIGHTNING.

14/77

### MIXING INSTRUCTIONS

POSTEMERGENCE APPLICATIONS OF LIGHTNING REQUIRE THE ADDITION OF A SURFACTANT AND A LIQUID FERTILIZER SOLUTION\*.

#### I. SURFACTANTS:

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

#### II. LIQUID FERTILIZER SOLUTION

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

Fill the spray tank one-half to three-fourths full with clean water. Add the required amount of LIGHTNING to the spray tank while agitating. Add adjuvants and fill the remainder of the tank with water. An antifoam agent may be added if needed.

DO NOT use liquid fertilizer as a carrier for postemergence applications of LIGHTNING herbicide.

#### SLURRY PREPARATION

LIGHTNING may be slurried prior to addition to the spray tank.

- 1). Add 1 to 2-water soluble packets per gallon of water.
- 2). Allow water soluble bags to dissolve for 3-5 minutes or until bags have ruptured.
- 3). Agitate slurry for 10 -15 minutes or until water soluble bags are completely in solution.
- 4). Transfer slurry to spray tank (begin spray tank agitation) filled half to three quarters full with clean water.

When tank-mixing LIGHTNING with recommended herbicides, add the other herbicides and other components in the following order, while agitating:

- 1). Fill spray tank 1/2 to 3/4 full with clean water.
- 2). Add LIGHTNING and thoroughly mix.
- 3). Add other aqueous solution products.
- 4). Add other soluble packet products and thoroughly mix.
- 5). Add WP (wettable powder), DG (dispersible granule), DF (dry flowable), or LF (liquid flowable) formulations.
- 6). Add EC (emulsifiable concentrate) products.
- 7). Add surfactant to the spray tank.
- 8). Add liquid fertilizer.
- 9). While agitating, fill the remainder of the tank with water.

\*LIGHTNING applications may be made with a non-ionic surfactant only (liquid fertilizer not required) in the Bootheel of Missouri, Tennessee, South Carolina, Louisiana, and Georgia.

15/22

When LIGHTNING is used in combination with another herbicide, refer to the respective label for rates, methods of application, proper timing, weeds controlled, restrictions and precautions. Always use in accordance with the more restrictive label restrictions and precautions. No label dosages should be exceeded.

### PROCEDURE FOR CLEANING SPRAY EQUIPMENT

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

### SPRAYING INSTRUCTIONS

GROUND APPLICATIONS: Uniformly apply with properly calibrated ground equipment in 10 or more gallons of water per acre. A spray pressure of 20 to 40 psi is recommended. DO NOT apply when wind velocity is greater than 10 mph. (See SENSITIVE CROP PRECAUTIONS section on the next page for application guidelines near sensitive crops.)

To ensure thorough coverage a minimum of 10 gallons of water per acre is recommended when applying LIGHTNING herbicide to minimum till or no-till IMI-CORN. Use higher gallonage for fields with dense vegetation or heavy crop residues.

Avoid overlaps when spraying.

AERIAL APPLICATIONS: Uniformly apply with properly calibrated aerial equipment in 5 or more gallons of water per acre. Addition of a non-ionic surfactant AND fertilizer solution are required for optimum weed control; apply a non-ionic surfactant at the rate of 1 quart per 100 gallons of spray mixture AND a liquid fertilizer at the rate of 1 quart per acre. (See directions under MIXING INSTRUCTIONS.)

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

- Nozzle height above ground must be a maximum of 10 feet.
- Nozzles must be pointed towards the rear of the aircraft. The downward angle of the nozzle should not be greater than 20 degrees.
- To minimize wing-tip vortex roll, nozzles or spray boom must not be located any closer to end of wing or rotor than three-fourths the distance from the center of the aircraft.
- Use a maximum spray pressure of 40 psi.
- A buffer zone must be established between the area to be sprayed and sensitive crops.
- DO NOT spray when wind velocity is greater than 5 mph. Coarse sprays (larger droplets) are less likely to drift.

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

14/77

### SENSITIVE CROP PRECAUTIONS

LIGHTNING herbicide may cause injury to desirable trees and plants, particularly beans, cotton, flowers, fruit trees, grapes, ornamentals, peas, potatoes, soybeans, sugar beets, sunflowers, tobacco, tomatoes and other broadleaf plants when contacting their roots, stems or foliage. These plants are most sensitive to LIGHTNING herbicide during their development or growing stage. FOLLOW THE PRECAUTIONS LISTED BELOW WHEN USING LIGHTNING HERBICIDE.

- Do not treat areas where either possible downward movement into the soil or surface washing may cause contact of LIGHTNING herbicide with roots of desirable plants such as trees and shrubs.
- Avoid making applications when spray particles may be carried by air currents to areas where sensitive crops and plants are growing. Do not spray near sensitive plants if wind is gusty or in excess of 5 mph and moving in the direction of nearby sensitive crops. However, always make applications when there is some air movement to determine the direction and distance of possible spray drift. Leave an adequate buffer zone between area to be treated and sensitive plants. Coarse sprays are less likely to drift out of the target area than fine sprays.
- Use coarse sprays to avoid potential herbicide drift. Select nozzles which are designed to produce minimal amounts of fine spray particles such as Spraying Systems XR flat fans. A spray pressure of 20 psi and spray volume at or above 20 gpa, are recommended to reduce drift to sensitive crops.
- Agriculturally approved drift-reducing additives may be used.
- To avoid injury to desirable plants, equipment used to apply LIGHTNING herbicide should be thoroughly cleaned (see PROCEDURE FOR CLEANING SPRAY EQUIPMENT) before reusing to apply any other chemicals.

### USE RATE

Apply LIGHTNING at a broadcast rate of 1.28 ounces per acre. At this broadcast rate, one package of LIGHTNING will treat 2.0 acres of IMI-CORN.

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

### LIGHTNING HERBICIDE USE AREA

Not for use in California or New York.

17/22

## APPLICATION INSTRUCTIONS

LIGHTNING is effective in controlling weeds in conservation tillage as well as in conventional production systems. Apply LIGHTNING herbicide as a postemergence treatment to IMI-CORN when crop and weeds are actively growing. For optimal weed control apply LIGHTNING before weeds exceed a height of 4 inches, and ideally before corn is 12 inches, unless otherwise indicated. More restrictive crop growth stage limitations of tank-mix partners must be followed.

A nonionic surfactant and a liquid fertilizer must be added to the spray solution for optimum weed control activity. See the ADDITIVE section under MIXING INSTRUCTIONS for specific instructions.

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

Delay a LIGHTNING application for 48 hours from the time temperatures increase above 40°F if air temperatures reach or stay below 40°F for 10 or more hours. Unusually cool temperatures (40°F or less) reduce photosynthesis and transpiration and thus reduce the uptake and translocation (and effectiveness) of LIGHTNING herbicide in weeds.

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

### SEQUENTIAL HERBICIDE COMBINATIONS WITH LIGHTNING HERBICIDE

LIGHTNING controls many grass species. However, when heavy grass pressure is anticipated, a soil applied grass herbicide underlay (such as Dual<sup>2</sup>, Eradicane<sup>5</sup>, Frontier<sup>6</sup>, Harness<sup>3</sup>, Lasso<sup>3</sup>, Surpass<sup>5</sup>, or PROWL®) is recommended. LIGHTNING may also be used in sequential programs with registered burndown herbicides.

### TANK-MIX HERBICIDE COMBINATIONS WITH LIGHTNING HERBICIDE

Recommended Tank- Mix Postemergence Applications of LIGHTNING are:

2,4-D*	Clarity <sup>6</sup> *
Banvel <sup>6</sup> *	PROWL 3.3 EC
Buctril <sup>7</sup> **	Frontier

\*Use of crop oil concentrate or methylated seed oils in tank-mixes with LIGHTNING with 2,4-D, Banvel or Clarity may result in crop injury if applied during periods of cold, wet weather or hot and/or humid weather. Under these environmental conditions the use of a nonionic surfactant is recommended.

\*\*Do not use crop oil concentrate or methylated seed oils when Buctril is used in the tankmix with LIGHTNING.

LIGHTNING is active against many broadleaf and grass species. For long term weed management, use two herbicides with different modes of action to reduce the potential for weed resistance.

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

18/22

### WEEDS CONTROLLED

When applied as directed at the broadcast rate of 1.28 ounces per acre, LIGHTNING herbicide will control or reduce competition from the weeds listed below.

NOTE: R = Reduced Competition

The number under Maximum Leaf Stage indicates the MAXIMUM number of leaves at which weeds should be sprayed postemergence.

### BROADLEAF WEEDS

Weeds Controlled	POSTEMERGENCE	
	Maximum Leaf Stage	Size (inches)
Alligator weed	4	1-3
Anoda, spurred	2	1-2
Artichoke, Jerusalem	8	6-10
Buckwheat, wild	4	1-3
Buffalobur	4	1-3
Bristly starbur	2	1-2
Carpetweed	4	1-3
Cocklebur, common	8	1-8
Field Bindweed	R	1-3
Jimsonweed	4	1-3
Knotweed	4	1-3
Kochia	4	1-3
Lambsquarters, common	4	1-3
Marshelder	4	1-3
Milkweed, honeyvine	4	1-3
Morningglory		
entireleaf	2	1-2
ivyleaf	4	1-3
pitted	2	1-2
smallflower	4	1-3
tall	4	1-3
Mustard sp.	4	1-3
Nightshade		
black	4	1-3
Eastern black	4	1-3
hairy	4	1-3
Pigweed		
palmer	8	1-8
prostrate	8	1-8
redroot	8	1-8
smooth	8	1-8
spiny	8	1-8
Ragweed,		
common	R	1-3
giant	4	1-3
Sage, barnyard	R	1-3
Sicklepod*	4	1-3
Sida, prickly	4	1-3

19/22

BROADLEAF WEEDS (Continued)

Weeds Controlled	POSTEMERGENCE	
	Maximum Leaf Stage	Size (inches)
Smartweed, ladysthumb	4	1-3
Pennsylvania	4	1-3
Spurge prostrate	4	1-3
spotted	4	1-3
Sunflower	4	1-3
Velvetleaf	4	1-3
Thistle, Canada	R	1-3

DO NOT count cotyledon leaves when determining weed stage of growth.

\* Additional applications of other broadleaf herbicides may be necessary to control subsequent flushes of sickelpod.

GRASS WEEDS

Weeds Controlled	POSTEMERGENCE	
	Maximum Leaf Stage	Size (inches)
Barnyardgrass	3	1-3
Crabgrass, large	3	1-3
smooth	3	1-3
Cupgrass, woolly	3	1-3
Foxtail, giant	6	1-6
green	3	1-3
yellow	3	1-3
Goosegrass	3	1-3
Johnsongrass, seedling	6	1-8
rhizome	R	1-8
Millet, wild proso	3	1-3
Panicum, fall	3	1-3
Quackgrass	R	1-3
Red rice	3	1-3
Sandbur, field	3	≤1
Shattercane	6	1-8
Signalgrass, broadleaf	4	1-8
Sorghum alnum	6	1-3
Witchgrass	3	1-3

SEDGES

Nutsedge purple	R	1-3
yellow	R	1-3

## ROTATIONAL CROPS

The following rotational crops may be planted after applying LIGHTNING herbicide at the recommended rate in corn. Planting earlier than the recommended interval may result in crop injury: See page 13 for exceptions to the rotational crops guideline.

20/22

1. Anytime  
IMI-CORN
2. Four months after LIGHTNING application:  
Rye  
Wheat
3. Eight and one-half months after LIGHTNING application:  
Field Corn  
Field corn grown for seed<sup>a</sup>
4. Nine and one-half months after LIGHTNING application:  
Barley  
Edible beans and peas  
Peanuts  
Soybeans  
Tobacco  
Alfalfa
5. Eighteen months after LIGHTNING application:  
Cotton  
Lettuce  
Oats  
Popcorn  
Safflower  
Sorghum  
Sweet corn
6. Twenty six months after LIGHTNING application:  
Potatoes
7. Forty months after LIGHTNING application\*\*\*:  
All crops not listed elsewhere in this ROTATIONAL CROP GUIDELINE

\*\*\*Following forty months after a LIGHTNING application, and before any crop not listed in the ROTATIONAL CROP GUIDELINE, a successful field bioassay must be completed. The field bioassay consists of a test strip of the intended rotational crop planted across the previously treated field and grown to maturity. The test strip should include low areas and knolls, and include variations in soil such as type and pH. If no crop injury is evident in the test strip rotational crop may be planted the following year.

If the field is limed to adjust pH prior to planting rotational crops not listed in the ROTATIONAL CROP GUIDELINE, apply the lime at least 12 months prior to planting the rotational crop.

21/22

## EXCEPTIONS TO ROTATIONAL CROP GUIDELINE

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

\***Corn inbred lines:** Corn inbred seed lines may be planted the year following an application of LIGHTNING. Due to the proprietary nature of seed production, American Cyanamid has not been given access to the inbred data. Growers are directed to contact the seed company for information and recommendations regarding the planting of corn grown for seed in fields treated with LIGHTNING the previous year. Since growing conditions, environmental conditions, and grower practices are beyond the control of American Cyanamid Company, **ALL RISKS AND CONSEQUENCES ASSOCIATED WITH PLANTING SEED CORN INBREDS INTO FIELDS TREATED PREVIOUSLY WITH LIGHTNING SHALL BE ASSUMED BY THE USER.**

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

## PRECAUTIONS

In the event of a crop loss due to weather, IMI-CORN hybrids can be replanted following an application of LIGHTNING herbicide. If LIGHTNING was tank-mixed with other herbicides, the label restrictions for these herbicides must also be followed.

There should be an interval of at least 45 days between an application of LIGHTNING and corn harvest (silage, fodder, or grain). DO NOT graze or feed treated corn forage, silage, fodder, or grain for at least 45 days after an application of LIGHTNING.

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

American Cyanamid recommends products containing imazethapyr (CONTOUR<sup>®</sup>, PURSUIT, PURSUIT PLUS, RESOLVE<sup>®</sup>) NOT be applied to IMI-CORN the same year as LIGHTNING or injury to follow crops may occur.

All soil insecticides, including labeled banded or in-furrow applications, may be used in combination with Pioneer imidazolinone resistant (IR) corn hybrids and LIGHTNING.

Imidazolinone tolerant (IT) corn hybrids from seed companies may occasionally exhibit injury symptoms when soil insecticides are used in combination with LIGHTNING. Registered organophosphate soil insecticides may be used with LIGHTNING on imidazolinone tolerant corn. DO NOT use COUNTER<sup>®</sup> 15G systemic insecticide-nematicide, when LIGHTNING will be applied to imidazolinone tolerant corn hybrids. COUNTER<sup>®</sup> CR and THIMET<sup>®</sup> may be applied in a band only and used in combination with LIGHTNING on imidazolinone tolerant corn hybrids. Other registered carbamate or pyrethroid insecticides may also be used in combination with LIGHTNING applications. American Cyanamid has not tested all hybrids in which the imidazolinone tolerance trait is claimed and cannot be responsible for factors which are beyond its control, such as growing conditions, environmental conditions, grower practices and the specific genetics of each hybrid tolerance to herbicide and insecticide applications.

This label must be in the possession of the user at the time of herbicide application.

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

American Cyanamid Company  
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<sup>2</sup>Dual and Exceed are Trademarks of Ciba-Geigy Corporation.

<sup>3</sup>Harness, Lasso, and Permit are Trademarks of Monsanto Agricultural Products Company.

<sup>4</sup>Broadstrike and Stinger are Trademarks of DowElanco Company.

<sup>5</sup>Surpass and Eradicane are Trademarks of Zeneca Agrochemicals.

<sup>6</sup>Banvel, Clarity, and Frontier are Trademarks of Sandoz Crop Protection Corporation.

<sup>7</sup>Buctril is a Trademark of Rhone-Poulenc Company.