UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

10182 -83

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JUN 7 2000

Ms. Saundra M. O'Bryan Zeneca Inc., Zeneca Ag Products 1800 Concord Pike P.O. Box 15458 Wilmington, DE 19850-5458

Dear Ms. O'Bryan:

SUBJECT:

Label Amendment Revising Geographical Region 4 to Include the Entire Southern

Peninsula of Michigan

REFLEX® Herbicide

EPA File Symbol: 10182-83

Your Submission Dated May 3, 2000

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, is acceptable provided you make the following change:

1. Include the entire Spray Drift Management advisory which the Agency currently requires for all products that may be aerially applied. At the same time, you should delete the last two General Use Precautions at the bottom of page 10 regarding spray drift. The required language is as follows:

#### **AERIAL SPRAY DRIFT MANAGEMENT**

#### SPRAY DRIFT MANAGEMENT

AVOIDING SPRAY DRIFT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR. The interaction of many equipment-and-weather-related factors determine the potential for spray drift. The applicator is responsible for considering all these factors when making decisions.

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

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SURNAME >	S. Stanton	]	j			
DATE >	Jun 7, 2000			<u> </u>		

EPA Form 1320-1 (12-70)

OFFICIAL FILE COPY

- 1. The distance of the outer most nozzles on the boom must not exceed 3/4 the length of the wingspan or rotor.
- 2. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.

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

The applicator should be familiar with and take into account the information covered in the <u>Aerial Drift Reduction Advisory</u>.

### Aerial Drift Reduction Advisory

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

#### INFORMATION ON DROPLET SIZE

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

#### CONTROLLING DROPLET SIZE

- Volume Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- Pressure Do not exceed the nozzle manufacturer's recommended pressures. For many
  nozzle types lower pressure produces larger droplets. When higher flow rates are
  needed, use higher flow rate nozzles instead of increasing pressure.
- Number of nozzles Use the minimum number of nozzles that provide uniform coverage.
- Nozzle Orientation Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential.



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

#### **BOOM LENGTH**

For some use patterns, reducing the effective boom length to less than 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 should compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase with increasing drift potential (higher wind, smaller drops, etc.).

#### WIND

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

#### TEMPERATURE AND HUMIDITY

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

#### TEMPERATURE INVERSIONS

Applications should not occur during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by

increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

#### SENSITIVE AREAS

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

A stamped copy is enclosed for your records. Submit one copy of the final printed labeling before you release the product for shipment.

The Agency has recently revised its recommended First Aid statements for pesticide products (refer to PR Notice 2000-3: First Aid Statements on Pesticide Product Labels). The new statements were developed as part of the Consumer Labeling Initiative in close cooperation with poison control center personnel and other medical experts. While it is not mandatory that you revise your label at this time, you are strongly encouraged to substitute the revised statements (see next page) for those statements currently on the label at your next label printing. If you wish to receive a stamped copy of the label with the revised First Aid statements, submit an application for amendment (EPA Form 8570-1) and 4 copies of draft labeling for our review.

Sincerely yours,

Joanne I. Miller

Product Manager (23)

Herbicide Branch

Registration Division (7505C)

and Stanton, for

Enclosure

	FIRST AID F
If in eyes:	<ul> <li>Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing.</li> <li>Call a poison control center or doctor for treatment advice.</li> </ul>
If swallowed:	<ul> <li>Call 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 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>

## HOT LINE NUMBER

Have the product container or label with you when calling a poison control center or doctor or going for treatment.

FOR 24-HOUR EMERGENCY MEDICAL ASSISTANCE, CALL (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

### NOTE TO PHYSICIAN

Probable mucosal damage may contraindicate the use of gastric lavage.

### REFLEX® HERBICIDE

For Control of Weeds in Soybeans

#### **COMPLETE DIRECTIONS FOR USE**

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Sodium salt of fomesafen

EPA Reg. No. 10182-083 U.S. Patent No. 4,285,723 ACCEPTED
with COMMENTS
In EPA Letter Dated

JUN 7 2000

Under the Federal Insecticide, Fundicide, and Redemicide Act as amended, for the posticide registered under EPA Reg. No.

### KEEP OUT OF REACH OF CHILDREN

**DANGER - PELIGRO** 

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.)

Made in U.S.A.
ZENECA Ag Products
ZENECA Ag Products Inc.
Wilmington, DE 19850-5458

<sup>\*</sup>Equivalent to 21.7% formesafen or 2 pounds formesafen active ingredient per gallon.

# 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 Seller or ZENECA, 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 EXCLUSIVE 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 HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE 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.

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#### STATEMENT OF PRACTICAL TREATMENT

IF IN EYES: Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

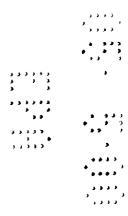
**IF SWALLOWED:** Call a doctor or get medical attention. Do not induce vomiting. Drink promptly a large quantity of milk, egg whites, gelatin solution, or if these are not available, drink large quantities of water. Avoid alcohol.

**IF ON SKIN:** Immediately remove contaminated clothing and wash thoroughly with plenty of soap and water. Get medical attention.

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

FOR 24-HOUR EMERGENCY MEDICAL ASSISTANCE, CALL (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

#### **DANGER**

This product contains formesafen which has been determined to cause tumors in laboratory animals (mice). Risks can be reduced by closely following use directions and precautions and by wearing the protective clothing specified elsewhere on this label.

CORROSIVE. CAUSES IRREVERSIBLE EYE DAMAGE. DUE TO CORROSIVE NATURE, MAY BE HARMFUL OR FATAL IF SWALLOWED. HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. Do not get in eyes, on skin or on clothing. Avoid breathing vapors or spray mist.

#### PERSONAL PROTECTIVE EQUIPMENT

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants.
- Waterproof gloves.
- Shoes plus socks.
- Protective eyewear.

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.

### **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**

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 washwaters. Do not apply when weather conditions favor drift from target area.

This chemical is known to leach through soil into ground water under certain conditions as a result of label use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground-water contamination.

#### **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.

#### 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 24 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. Open dumping is prohibited. Do not reuse empty container.

STORAGE: Store above 32°F in original containers only. If product freezes, return to room temperature and agitate to reconstitute. Keep container closed when not in uses. Do not store near food or feed. In case of spill or leak on floor or paved surfaces, soak up with sand, rearth or synthetic absorbent. Remove to chemical waste area.

PESTICIDE DISPOSAL: Pesticide wastes are acutely hazardous. 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:**

**Metal Containers:** Triple rinse (or equivalent); then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by other procedures approved by state and local authorities.

**Plastic Containers:** Triple rinse (or equivalent); then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, by incineration or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Glass Containers: Triple rinse (or equivalent); then dispose of in a sanitary landfill or by other approved State and local procedures.

### FOR BULK AND MINI-BULK CONTAINERS:

**Container Disposal:** Reseal container and offer for reconditioning, or triple <del>rinse</del> (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.

**REFILL ONLY WITH REFLEX.** The contents of this container cannot be completely removed by cleaning. Refilling with materials other than REFLEX 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.

#### **GENERAL INFORMATION**

Read all label directions before using.

REFLEX is a selective herbicide which may be applied preplant, preemergence and/or postemergence for control and suppression of broadleaf weeds, grasses and sedges in soybeans. Soybean plants are tolerant to REFLEX when applied according to labeled rates and uses.

REFLEX is generally most effective and consistent when used postemergence, working through contact action. Therefore, emerged weeds must be thoroughly covered with spray. Some bronzing, crinkling or spotting of labeled crop leaves may occur following postemergent applications, but labeled crops soon outgrow these effects and develop normally.

Optimum broadspectrum weed control is achieved by postemergent applications of REFLEX to young actively growing broadleaf weeds that are not under stress from moisture, temperature, low soil fertility, mechanical or chemical injury.

Certain germinating broadleaf weeds, grasses and sedges may be controlled or suppressed by soil residual activity from either preplant, preemergent or postemergent applications if rainfall occurs shortly after application. The extent and consistency of soil activity is dependent upon soil type, ground cover at time of application, amount of rainfall and the rate of REFLEX used.

#### **APPLICATION DIRECTIONS**

**Timing** - Best broadspectrum postemergence control of susceptible broadleaf weeds is obtained when REFLEX is applied early to actively growing weeds. This usually occurs 14 to 28 days after planting. Refer to the weed tables for specific recommendations on weed growth stages, rates, and regions.

Spray Additives - Only spray additives cleared for use on growing crops under 40 CFR 180.1001 may be used in spray mixture.

In soybeans, for best broadspectrum postemergence control of susceptible broadleaf weeds in Regions 2, 3, 4 and 5 (see Regional Use Maps), REFLEX can be used with a minimum of 2.5% liquid nitrogen (28% or similar) or a minimum of 10 pounds ammonium sulfate per 100 gallons of spray volume.

FOR POSTEMERGENCE APPLICATIONS ALWAYS ADD ONE OF THE FOLLOWING: except in tankmix with products prohibiting spray additives (see Tankmix Directions for Use).

Nonionic Surfactant (NIS) - Use NIS containing at least 75% surface active agent at 0.25 to 0.5% (½ to 1 pint per 25 gallons) of the finished spray volume. (For soybeans, use in Region 1 and East of Interstates 79 and 77 for Regions 2 and 3.)

Crop Oil Concentrate (COC) - Use a nonphytotoxic COC or a once-refined vegetable oil concentrate (VOC, MSO) containing 15-20% approved emulsifier, at 0.5-1% (1-2 pints per 25 gallons) of the finished spray volume. COC can improve weed control but may slightly reduce crop tolerance.

Other Adjuvants - Adjuvants other than COC or NIS may be used providing the product meets the following criteria:

- 1. Contains only EPA exempt ingredients.
- 2. Is nonphytotoxic to the target crop.
- 3. Is compatible in mixture. (May be established through a jar test).
- 4. Is supported locally for use with REFLEX on the target crop through proven field trials and through university and extension recommendations.

Note: no adjuvants are needed for preplant or preemergence applications unless REFLEX is being used in a burndown.

## Recommended Mixing Order:

Half required amount of water, begin agitation.\*



- 2. Dry pesticide formulations.
- 3. REFLEX herbicide.
- 4. Liquid pesticide formulation.
- 5. Adjuvant (COC or NIS) and fertilizer.

\*Compatibility agent, 1 gallon/500 gallons of water or 0.2% v/v, may be added as needed.

**GROUND APPLICATION** - Use sufficient spray volume and pressure to ensure complete coverage of the target. A spray volume of 10-20 gallons per acre and 30-60 psi at the nozzle tip is recommended. On large weeds and/or dense foliage, use 60 psi and a minimum of 20 gallons per acre to ensure coverage of weed foliage.

Use only hollow cone or flat fan nozzles. The sprayer must be calibrated to provide the proper volume and rate per acre. In addition, the boom and nozzle height must be adjusted to provide complete coverage of the target.

DO NOT USE FLOOD TYPE OR OTHER SPRAY NOZZLES, WHICH DELIVER COARSE, LARGE DROPLET SPRAYS.

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

BAND APPLICATIONS - Thorough weed coverage is important for postemergent control. Best coverage is obtained with a minimum of two nozzles, one directed to each side of the planted row. Application with a single nozzle directed over the top of the row is not recommended for postemergence applications but is suitable for preemergence applications. Cultivation of untreated areas may be needed following band applications. When making postemergence band applications and cultivating in the same operation, position nozzles in advance of the cultivation device. This will reduce dust in the spray area. Dust can intercept spray, reducing weed coverage, resulting in less than adequate weed control.

Calculate the amount of herbicide and water volume needed for postemergence band treatment by the following formulas:

Band width in inches row width in inches	X	broadcast rate per acre		Band herbicide rate per acre
Band width in inches row width in inches	X	broadcast volume per acre	=	Band water volume per acre

AERIAL APPLICATION - Use sufficient spray volume and pressure to ensure complete coverage of the target. A minimum of 5 gallons per acre of spray mixture should be applied with a maximum of 40 PSI pressure. When broadleaf weed foliage is dense, use a minimum of 10 gallons per acre to ensure coverage of weed foliage.

CULTIVATION - Cultivation prior to application is not recommended. Cultivation may put welds under stress, reducing weed control. Timely cultivation 1-3 weeks after applying REFLEX may assist weed control.

#### **GENERAL USE PRECAUTIONS**

- A maximum of 1.5 pints of REFLEX herbicide (or a maximum of 0.375 lb ai/A of fomesafen from any product containing fomesafen) may be applied per acre per year in Region 1 (see Regional Use Map).
- A maximum of 1.5 pints of REFLEX herbicide (or a maximum of 0.375 lb ai/A of fomesafen from any product containing fomesafen) may be applied per acre in ALTERNATE years in Region 2 (see Regional Use Map).
- A maximum of 1.25 pints of REFLEX herbicide (or a maximum of 0.313 lb ai/A of fomesafen from any product containing fomesafen) may be applied per acre in ALTERNATE years in Region 3 (see Regional Use Map).
- A maximum of 1 pint of REFLEX herbicide (or a maximum of 0.25 lb ai/A of fomesafen from any product containing fomesafen) may be applied per acre in ALTERNATE years in Region 4 (see Regional Use Map).
- A maximum of 0.75 pint of REFLEX herbicide (or a maximum of 0.1875 lb ai/A of fomesafen from any product containing fomesafen) may be applied per acre in alternate years in Region 5 (see Regional Use Map).
- Thoroughly clean the spray system with water and a commercial tank cleaner before and after each use.
- Tankmixes of REFLEX herbicide with other pesticides, fertilizers or any other additives
  except as specified on this label or other approved ZENECA supplemental labels may result
  in tankmix incompatibility, unsatisfactory performance or unsatisfactory crop injury.
- REFLEX herbicide requires a 1-hour rain-free period for best results when applied postemergence.
- Apply postemergence to actively growing weeds. Avoid applying REFLEX to weeds or labeled crops which are under stress from moisture, temperature, low soil fertility, mechanical or chemical injury, as reduced weed control and/or increased crop injury may result.
- Avoid overlapping spray swaths, as injury may occur to rotational crops.
- Avoid drift to all other crops and nontarget areas. Crops other than soybeans may be severely injured by drift. Do not make ground or aerial application during temperature inversions. Drift potential is lowest between wind speeds of 2-10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. NOTE: Local terrain can influence wind patterns. Every applicator; should be familiar with local wind patterns and how they affect spray drift. Avoiding spray drift at the application site is the responsibility of the applicator.
- Applications should not occur during temperature inversion because drift pofential is high,
   Temperature inversions restrict vertical air mixing, which causes small suppended droplets
- \* to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions.

- To provide adequate coverage, it is recommended that ground speed not exceed 10 mph during application.
- Apply REFLEX before soybeans bloom.
- Do not graze treated areas or harvest for forage or hay.

#### **ROTATIONAL CROP RESTRICTIONS**

The following rotational crops may be planted after applying REFLEX at recommended rates:

Crop To Be Planted	Minimum Rotation Interval (Months After Last REFLEX Application)
Small grains such as wheat, barley, rye	4
Beans, corn*, cotton, peanuts, peas, rice,	seed corn 10 —
To avoid crop injury do not plant alfalfa, su sugar beets, sorghum** or any other crop	

Do not graze rotated small grain crops or harvest forage or straw for livestock. In the event of a crop loss due to weather conditions soybeans can be replanted.

- \* Use a 12 month minimum rotation interval for popcorn in the states of Ohio, Kentucky, Illinois, Indiana, Iowa, and Region 4 when applied at rates of 1.0 pints per acre or more.
- \* Use 18 month minimum rotation interval for sweet corn in the states of Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, Vermont and Region 5.
- \*\* Sorghum may be planted back after 10 months in Region 1.

**REFLEX REGIONAL USE MAP** 

#### REFLEX USE RATES AND WEEDS CONTROLLED

# REFER TO MAP FOR DEFINITION OF SPECIFIED GEOGRAPHIC REGIONS

# REGION 1 (Maximum Rate 1.5 pints per acre per year)

REGION 1 - Includes the following states or portion of states where REFLEX may be applied: Alabama, Arkansas, Georgia, Louisiana, Mississippi, Missouri (counties of Bollinger, Butler, Cape, Giradeau, Dunklin, Madison, Mississippi, New Madrid, Pemiscot, Perry, Ripley, Scott, Stoddard and Wayne), North Carolina, Oklahoma (East of U.S. Highway 75 and East of Indian Nation Parkway), South Carolina, Tennessee, and Texas (includes area east of U.S. Highway 77 to State Road 239 including all of Calhoun County).

(Insert Region 1 Use Map Here)

# REGION 2 (Maximum Rate 1.5 pints per acre, alternate years)

REGION 2 - Includes the following states or portion of states where REFLEX may be applied: Delaware, Kentucky, Maryland, Virginia, West Virginia, South of Interstate 70 in the following states: Illinois, Indiana and Ohio and all areas South of Interstate 80 to the intersection of U.S. Highway 15 and East of U.S. Highway 15 and U.S. Highway 522 in Pennsylvania. (Insert Region 2 Use Map Here)

# REGION 3 (Maximum Rate 1.25 pints per acre, alternate years)

REGION 3 - Includes the following states or portion of states where REFLEX may be applied: Connecticut, Iowa, Maine, Massachusetts, Missouri (all counties except for those listed in Region 1), New Hampshire, New Jersey, New York, Pennsylvania (all areas except those listed in Region 2), Rhode Island, Vermont and Wisconsin (South of U.S. Highway 18 between Prairie Du Chien and Madison, and South of Interstate 94 between Madison and Milwaukee), and North of Interstate 70 in following states: Indiana, Illinois and Ohio.

(Insert Region 3 Use Map Here)

# REGION 4 (Maximum Rate 1 pint per acre, alternate years)

REGION 4 - Includes the following states or portion of states where REFLEX may be applied: Kansas (all counties east of or intersected by U.S. Highway 281), Michigan (all areas south of Interstate 94), Nebraska (all counties east of or intersected by U.S. Highway 281), and Wisconsin (all areas, exception those in Region 3, South of Interstate 94 from Minnesota state line to Eau Claire and South of U.S. Highway 29 from Eau Claire to Green Bay plus Door and Kewaunee counties. The following counties are excluded: Clark, Marathon, Wood, Portage, Adams, Shawano, Waupaca, Waushara and Marquette). North Dakota (all areas East of Interstate 29 from Fargo South to the South Dakota state line). South Dakota (all areas East of Interstate 29 from the North Dakota state line to Watertown, all areas east of Highway 81 from Watertown to Madison and all areas East and South of State Road 34 and U.S. Highway 281 to the Nebraska state line).

(Insert Region 4 Use Map Here)

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# REGION 5 (Maximum Rate 0.75 pint per acre, alternate years)

REGION 5 - Includes the following states or portion of states where REFLEX may be applied:
North Dakota (all areas East of U.S. Highway 281 except those areas in Region 4), South
Dakota (all areas East of U.S. Highway 281 except those areas in Region 4) and Minnesota (all
areas South of U.S. Highway 2 except those areas in Region 4).

(Insert Region 5 Use Map Here)

# **APPLICATION RATES FOR WEED GROWTH STAGES**

(1)		RE	FLEX Rate (Pts/	A)
		Maximum Growth 8	Stage Controlled A	At
Weed	3/4 Pt/A # of True Leaves	1 Pt/A # of True Leaves	1.25 Pts/A # of True Leaves	1.5 Pts/A # of True Leaves
Anoda, Spurred				2
Balloonvine		_	2°	2
Carpetweed		6" Diameter Size	Multi-leaf 6" Diameter	Unlimited Size
Citron (Wild Watermelon)		2	2	4
Cocklebur, Common <sup>a,b,d</sup>		-	2	4
Copperleaf, Hophornbeamd		2	, 2	4
Copperleaf, Virginia	<del></del>	2	2	4
Crotalaria, Showy		4	4	6
Croton, Tropic <sup>d</sup>		2	2	4
Cucumber, Volunteer		4	4	6
Eclipta		2	2	4
Groundcherry, Cutleaf		4	4	6
Hemp <sup>b</sup>			4	6
Horsenettle <sup>b</sup>		2°	3°	4°
Jimsonweed <sup>d</sup>	2	4	6	8
Ladysthumb		2	2	4
Lambsquarters, Common <sup>c</sup>	<del></del>	2	2	2
Mexicanweed		2°	2° -	2
Morningglory <sup>d</sup>				
Cypressvine		4	4	6
Entireleaf var.	2°	2	2	,,4,
lvyleaf	2 <sup>c</sup>	2	2	3,43,
Purple Moonflower		2	4	3.4
Red (Scarlet)		2	2 ; ; ;	4
Smallflower		2	2 **;;	. 4
Pitted (Smallwhite)		4	4 '';''	4 *
Tall (Common)	2°	2	2	, '3'.
Palmleaf (Willowleaf)		2	2	.4.

		RE	FLEX Rate (Pts/	A)		
		Maximum Growth Stage Controlled At				
Weed	3/4 Pt/A # of True Leaves	1 Pt/A # of True Leaves	1.25 Pts/A # of True Leaves	1.5 Pts/A # of True Leaves		
Mustard, Wild	2	4	6	8		
Nightshade, Black	2	4	4	4		
Nutsedge, Yellow⁴	<b></b>			Suppression Only		
Pigweed, spp.d						
Amaranth, Palmer	2°	4	4	6		
Amaranth, Spiny	2°	2	2 +	4		
Redroot	2°	4	6	6		
Smooth	2°	4	4	6		
Waterhemp, Common	2°	2	2	4		
Waterhemp, Tall	2°	2	2	4		
Poinsettia, Wild				3		
Purslane, Common		<b>M</b> ulti-Leaf 6" Diameter	Multi-Leaf 6" Diameter	Multi-Leaf 8" Diameter		
Pusley, Florida				2		
Ragweed, Common <sup>d</sup>	2	4	4	6		
Ragweed, Giant <sup>b</sup>			4	4		
Redweed				3°		
Sesbania, Hemp		6	6	12		
Sicklepod				Cotyledon <sup>c</sup>		
Sida, Prickly <sup>d</sup>				Cotyledon <sup>c</sup>		
Smartweed, Pennsylvania	2°	4	4	6		
Smellmelon		_		2		
Spurge, Prostrate				1" Diàmeter		
Spurge, Spotted				, 2c, ;		
Starbur, Bristly		2	2 ,,,,	1		
Sunflower, Common			- ;	2		
Velvetleaf <sup>b</sup>			2 ,,,	, ' , ', ', ', ', ', ', ', ', ', ', ', '		
Venice Mallow	2	4	4	0		
Witchweed		Multi-leaf Up to 7"	Multi-leaf Up to 7"	Multi-leaf Up to 10"		

		REFLEX Rate (Pts/A)				
	N	Maximum Growth Stage Controlled At				
Weed	3/4 Pt/A # of True Leaves	1 Pt/A # of True Leaves	1.25 Pts/A # of True Leaves	1.5 Pts/A # of True Leaves		
Yellow Rocket	2	4	6	6		

<sup>a</sup> Do not apply in cotyledon stage.

b It is necessary to use 1% MSO and 2.5% UAN v/v as an adjuvant in Regions 2 and 3, in soybeans.

<sup>c</sup> Suppression only.

d REFLEX may provide preemergence activity at 1-1.5 pints/A.

# SPECIAL USE DIRECTIONS FOR ADDITIONAL WEED PROBLEMS IN SOYBEANS

## Suppression of Annual Grasses:

The grasses listed below may be suppressed by postemergence applications and controlled or suppressed by preemergence applications of REFLEX at 1-1½ pints/acre. Consult Use Rate Table for maximum rate in each region. For full-season broad-spectrum annual grass control, FUSILADE® DX or FUSION® herbicide should be used alone or in tankmix with REFLEX. Consult tankmix section.

Barnyardgrass
Broadleaf Signalgrass
Crabgrass
Foxtail
Giant
Green
Yellow
Goosegrass
Johnsongrass, Seedling
Panicum, Fall
Panicum, Texas

### **Suppression of Perennial Weeds:**

Use of REFLEX postemergence at rates of 1 to 1½ pints/acre will aid in suppressing the above-ground portions of the weeds listed below until crop canopy can assist in suppression. Perennial weeds continue to regrow from underground rootstocks even if above-ground foliage is temporarily controlled or retarded. Even though REFLEX and crop competition can suppress perennial weeds for a growing season, the rootstocks will continue to live and reestablishment will occur in subsequent years.

Milkweed, Climbing Milkweed, Honeyvine Bindweed, Field Bindweed, Hedge Trumpetcreeper



#### TANKMIX AND SEQUENTIAL APPLICATIONS FOR SOYBEANS

REFLEX can be used sequentially or in tankmix with one or more of the following-products: FUSILADE® DX, FUSION®, GRAMOXONE® EXTRA, TOUCHDOWN®, Assure II®, Basagran®, Butyrac®, Classic®, Concert®, FirstRate®, Option® II, Pinnacle®, Pursuit®, Poast®, Poast Plus®, Raptor®, Reliance™ STS® SP, Resource®, Roundup®, Roundup Ultra®, Select®, Scepter® and Synchrony® STS®.

Under certain conditions, the mixture of REFLEX with one or more of the above mentioned broadleaf herbicides may cause a reduction in activity of any postemergence grass herbicide in the mixture.

For sequential applications allow 2-3 days after the application of the grass herbicide before applying REFLEX or REFLEX mixtures. In case REFLEX or the REFLEX mixture is applied first, apply the grass herbicide when the grass weeds begin to develop new leaves (generally around 7 days).

#### NOTE:

- Tankmix applications can result in increases in crop injury as compared to either product used alone.
- Do not exceed 0.25 oz/acre of Synchrony STS herbicide in the tank with labeled rates of REFLEX on non-STS varieties. This tank mix can be applied postemergence to any soybean variety for additional broadleaf weed control. Refer to the Synchrony STS label for more information and crop rotation restrictions.
- Always read and follow the recommendations, restrictions and limitations for all products whether used alone, sequentially or in a tankmix. The most restrictive labeling of any product used applies.

# SPECIAL USE DIRECTIONS FOR TANKMIX WITH TOUCHDOWN 5 OR ROUNDUP ULTRA FOR USE ON ROUNDUP READY® SOYBEANS

REFLEX at 6-12 ounces per acre, can be tank mixed with Touchdown 5, at 1.2-1.6 pints per acre for improved postemergence control in Roundup Ready Soybeans of many weeds such as morning-glory spp., hemp sesbania, waterhemp, and black nightshade which are known to have tolerance to Touchdown 5, but are susceptible to RELFEX.

REFLEX at 6-12 ounces per acre, can be tankmixed with Roundup Ultra, at 1.5-2 pints per acre, for improved postemergence control in Roundup Ready Soybeans of many weeds such as morning-glory spp., hemp sesbania, waterhemp, and black nightshade which are known to have tolerance to Roundup Ultra, but are susceptible to REFLEX.

FOLLOW THE RECOMMENDATIONS ON THE TOUCHDOWN 5 OR ROUNDUP ULTRA LABEL FOR THE USE OF SPRAY ADDITIVES IN THIS TANKMIX. Roundup Ultra does not allow the addition of surfactants, additives containing surfactants, buffering agents or pH adjusting agents. Ammonium sulfate may be used.

Apply REFLEX tankmix before bloom. Do not allow this tankmix to be applied or to move off target as contact by even minute quantities can cause severe damage or death to any non-target vegetation.

NOTE: Postemergence application of this tankmix on soybean varieties which do not contain the Roundup Ready gene will result in severe crop injury or death of the soybean crop. Always read and follow the recommendations, restrictions and limitations for all products used. The most restrictive labeling of any product applies.

## **APPENDIX**

Scientific names are listed for those weeds referred to in the REFLEX label.

COMMON NAME	SCIENTIFIC NAME
Amaranth, Palmer	Amaranthus palmeri
Amaranth, Spiny	Amaranthus spinosus
Anoda, Spurred	Anoda cristata
Balloonvine	Cardiospermum halicacabum
Barnyardgrass	Echinochloa crus-galli
Bindweed, Field	Convolvulus arvensis
Bindweed, Hedge	Calystegia sepium
Broadleaf Signalgrass	Brachiaria platyphylla
Carpetweed	Mollugo verticillata
Citron (Wild Watermelon)	Citrullus vulgaris
Cocklebur, Common	Xanthium strumarium
Copperleaf, Hophornbeam	Acalypha ostryifolia
Copperleaf, Virginia	Acalypha virginica
Crabgrass	Digitaria spp.
Crotalaria, Showy	Crotalaria spectabilis
Croton, Tropic	Croton glandulosus
Cucumber, Volunteer	Cucumis sativas
Eclipta	Eclipta prostrata
Foxtail, Giant	Setaria faberi
Foxtail, Green	Setaria viridis
Foxtail, Yellow	Setaria glauca
Goosegrass	Eleusine indica
Groundcherry, Cutleaf	Physalis angulata , , , , , , , , , , , , , , , , , ,
Hemp	Cannabis sativa
Horsenettle	Solanum carolinense
Jimsonweed	Datura stramonium
Johnsongrass, Seedling	Sorghum halepense
Ladysthumb	Polygonum persicaria
Lambsquarters, Common	Chenopodium album

COMMON NAME	SCIENTIFIC NAME		
Mexicanweed	Caperonia castaniifolia		
Milkweed, Climbing	Sarcostemma cyanchoides		
Milkweed, Honeyvine	Ampelamus albidus		
Morningglory, Cypressvine	Ipomoea quamoclit		
Entireleaf	Ipomoea hederacea var. integriuscula		
lvyleaf	Ipomoea hederacea var. hederacea		
Purple Moonflower	Ipomoea turbinata		
Red (Scarlet)	Ipomoea coccinea		
Smallflower	Jacquemontia tamnifolia 🗻		
Pitted (Smallwhite)	Ipomoea lacunosa		
Tall (Common)	Ipomoea purpurea		
Palmleaf (Willowleaf)	Ipomoea wrightii		
Mustard, Wild	Brassica kaber		
Nightshade, Black	Solanum nigrum		
Nutsedge, Yellow	Cyperus esculentus		
Panicum, Fall	Panicum dichotomiflorum		
Panicum, Texas	Panicum texanum		
Pigweed, Redroot	Amaranthus retroflexus		
Pigweed, Smooth	Amaranthus hybridus		
Poinsettia, Wild	Euphorbia heterophylla		
Purslane, Common	Portulaca oleracea		
Pusley, Florida	Richardia scabra		
Ragweed, Common	Ambrosia artemisiifolia		
Ragweed, Giant	Ambrosia trifida		
Redweed	Melochia corchorifolia		
Sesbania, Hemp	Sesbania exaltata		
Sicklepod	Cassia obtusifolia ;**;;		
Sida, Prickly	Sida spinosa		
Smartweed, Pennsylvania	Polygonum pennsylvanicum		
Smelimelon	Cucumis melo		
Spurge, Prostrate	Euphorbia humistrata		



COMMON NAME	SCIENTIFIC NAME
Spurge, Spotted	Euphorbia maculata
Starbur, Bristly	Acanthospermum hispidum
Sunflower, Common	Helianthus annuus
Trumpetcreeper	Campsis redicans
Velvetleaf	Abutilon theophrasti
Venice Mallow	Hibiscus trionum
Waterhemp, Common	Amaranthus rudis
Waterhemp, Tall	Amaranthus tuberculatos
Witchweed	Striga asiatica 🗻
Yellow Rocket	Barbarea vulgaris

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