

PM 25

Reg # 55947-77

1922

JUN 16 1995

Mr. Frederick F. Piskiewicz  
Sandoz Agro, Inc.  
1300 East Touhy Avenue  
Des Plaines, IL 60018

Dear Mr. Piskiewicz:

Subject: Zorial Rapid 80\*  
EPA Registratin No. 55947-77  
Application Dated April 11, 1995, Request To  
Revise Product Labeling by Reorganization of  
Information, Addition of Section on Blending  
with Dry Bulk Fertilizer and Minor Editing of  
Label; Resubmission Letter Dated June 9, 1995

The proposed amendments to the registration of the subject  
pesticide product have been reviewed and found to be acceptable  
under the Federal Insecticide, Fungicide and Rodenticide Act  
(FIFRA) as amended provided that you:

o submit one (1) copy of the final printed label before  
releasing the product for shipment.

If this condition is not complied with, the registration  
will be subject to cancellation in accordance with FIFRA  
section 5(e). Your release for shipment of the product consti-  
tutes acceptance of this condition.

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

Sincerely yours,

Joanne I. Miller  
Product Manager (23)  
Fungicide-Herbicide Branch  
Registration Division (7505C)

Enclosure

CONCURRENCES

SYMBOL	Wilson:DisketteABC21:06-15-95						
SURNAME							
DATE							

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**ZORIAL RAPID 80<sup>®</sup> HERBICIDE**  
**FOR CONTROL OF GRASS AND BROADLEAF WEEDS IN**  
**COTTON, PEANUTS AND SOYBEANS**

**ACTIVE INGREDIENT:**

norflurazon [4-chloro-5-( <i>m</i> .ethylamino)-2-(alpha, alpha, alpha-trifluoro- <i>m</i> -tolyl)-3(2H)-pyridazinone] .....	78.6%
INERT INGREDIENTS.....	21.4%
	100%

\* Technical ingredient analysis by isomer specific method AM-0864.  
Previously 80% by method T-4295.

ACCEPTED  
with COMMENTS  
in EPA Letter Dated

**JUN 15 1995**

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

55947-77

**KEEP OUT OF REACH OF CHILDREN**  
**CAUTION**  
**PRECAUTIONARY STATEMENTS**

**HAZARDS TO HUMANS (AND DOMESTIC ANIMALS)**  
**CAUTION**

Harmful if swallowed or absorbed through the skin. Avoid contact with skin, eyes or clothing. In case of skin or eye contact, flush with plenty of water.

Mixers, loaders and applicators must wear long-sleeved shirt and long pants, waterproof gloves, coveralls and shoes plus socks.

**STATEMENT OF PRACTICAL TREATMENT**

**If swallowed:** Call a physician or poison control center. Drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger. Do not induce vomiting or give anything by mouth to an unconscious person.

**If on skin:** Wash with plenty of soap and water. Get medical attention if irritation persists.

**If in eyes:** Flush eyes with plenty of water. Get medical attention if irritation persists.

**Personal Protection Equipment:**

Applicators and other handlers must wear:

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

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.

**Engineering controls statements:**

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 apply when weather conditions favor run-off or drift from treated areas. Do not contaminate water by cleaning of equipment or disposal of wastes.

Norflurazon is known to leach through soil into groundwater under certain conditions as a result of agricultural use. Use of this chemical in areas where soils are highly permeable, particularly where the water table is shallow, may result in groundwater contamination with norflurazon.

**STORAGE AND DISPOSAL**

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

**Pesticide Disposal:** Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture or rinsate is a violation of Federal law. If waste cannot be disposed of by use of label instructions, contact your state pesticide or environmental control agency or hazardous waste representative at the nearest EPA Region Office for guidance.

**Container Disposal:** Completely empty and triple rinse container into application equipment. Then dispose of empty container in a sanitary landfill or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

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## WARRANTY AND CONDITIONS OF SALE

### Limited Warranty and Liability

Sandoz Agro, Inc. warrants that the chemical composition of this product conforms to the chemical description on the label and is reasonably fit for the purpose stated on the label when used in accordance with directions under normal conditions of use. Sandoz makes no other warranty, express or implied, concerning the use of this product other than as indicated on the label. Buyer assumes all risks of use, storage or handling of this material not in strict accordance with directions given on the label.

EPA Reg. No. 55947-77

EPA Est. No. 55618-SC-001

Net: 5 pounds

Manufactured by: Sandoz Agro, Inc., Des Plaines, IL 60018.

ZORIAL RAPID 80 and ZORIAL SPLIT are Registered Trademarks of Sandoz Ltd.

(DIRECTIONS FOR USE)

**ZORIAL RAPID 80® HERBICIDE**

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Use pesticides properly! Read and follow label directions.

NOTICE: Read "LIMITED WARRANTY AND LIABILITY" on the container before buying or using. If terms are not acceptable, return at once unopened.

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

**1. 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 12 hours.

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

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

- Coveralls
- Waterproof gloves
- Shoes plus socks

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ZORIAL RAPID 80 is a preemergence herbicide for the control of certain grass, broadleaf and sedge weeds in cotton, peanuts and soybeans (see specific use directions for each crop). ZORIAL RAPID 80 must be applied and incorporated by tillage, irrigation or rainfall before weeds germinate. Susceptible weeds may emerge and turn white before dying.

**Use Precautions**

- Do not apply this product through any type of irrigation system.
- Follow directions for each geographic region, soil type, and crop. Applications in geographic regions not specifically mentioned should follow directions for use for mid-South, Southeast, and Texas (East of I-35).
- Do not graze or feed cotton forage. Do not graze or harvest soybean forage or hay within 90 days of last ZORIAL RAPID 80 application.

**A. MULTIPLE APPLICATIONS**

Multiple or sequential applications can be made in certain geographic areas, but the total quantity of ZORIAL RAPID 80 applied in a year must not exceed the broadcast rate in pounds per acre for a given soil type. Follow Special Directions for each geographic region, soil type and crop.

Read mixing, application and specific crop sections for additional recommendations and precautions.

**B. MIXING INSTRUCTIONS**

ZORIAL RAPID 80 may be tank mixed with other herbicides and liquid fertilizer. Herbicides that may be tank mixed with ZORIAL RAPID 80 are listed in each crop section. All tank mix products must be approved for use on the respective crop.

Predetermine the compatibility of labeled tank mixes under local conditions by mixing small proportional quantities in advance.

Amount of Herbicide to Add to One Pint of Spray Carrier  
(Assuming Volume is 25 Gallons per Acre)

HERBICIDE FORMULATION	RATE PER ACRE	LEVEL TEASPOONS
Dry	1 lb	1.5
Liquid	1 pt	0.5

If herbicide(s) do not ball-up or form flakes, sludge, gels, oily films, layers or other precipitates, then the tested spray mix is compatible. Incompatibility in any of the above described forms will occur within 5 minutes after mixing.

If components are incompatible, the use of a compatibility agent approved for agricultural use on the respective crop is recommended. Rerun the above COMPATIBILITY TEST with

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a suitable compatibility agent (1/4 teaspoon is equivalent to 2 pints per 100 gallons of spray carrier).

Clean and calibrate the sprayer. Add ZORIAL RAPID 80 to the spray tank already filled with 1/4 the required volume of the water. This will eliminate or minimize foaming. Maintain agitation while filling and spraying. If a by-pass line is used, discharge at the bottom of the tank to minimize foaming.

Do not allow ZORIAL RAPID 80 spray mixture to remain in the spray tank overnight because settling could occur and resuspension would be difficult.

Begin adding wettable powders, flowable liquids, emulsifiable concentrates, and surfactants after the spray tank is 3/4 full. Continue agitation during the addition of all the materials and while filling and spraying.

Products should be added to the spray tank in the following order:

1. Wettable powders and water dispersible granules. Wettable powders should be premixed in a small amount of water. Water dispersible granules should be added during filling. Allow both to disperse before other products are added. The order of addition is not important.
2. Flowable liquids.
3. Emulsifiable concentrates.
4. Surfactants.

NOTE: In addition, ZORIAL RAPID 80 may not always be compatible with other formulations of dinitroaniline (DNA) herbicides. Always predetermine tank mix compatibility by mixing small proportional quantities in a quart jar or other small container. If after vigorous shaking there are large flakes, gel, sludge, or other signs of incompatibility, do not spray the combination. Always follow the order of addition given in the mixing instructions section of this label.

### C. APPLICATION EQUIPMENT

Ground Application: Apply the recommended rate of ZORIAL RAPID 80 in 10 or more gallons of water per acre. Apply accurately with a fixed boom sprayer. Equip sprayer with fan-jet nozzle tips or equivalent for broadcast application. Use nozzle tips which provide uniform coverage for band applications. Use screen size 50 mesh or larger.

Be sure to calculate the correct amount of product per acre for band applications. Use the following formulas to determine the appropriate rate and volume per treated acre needed for band applications:

$$\begin{array}{l}
 \text{Band Width} \\
 \text{in Inches}
 \end{array}
 \times
 \begin{array}{l}
 \text{Broadcast} \\
 \text{Rate} \\
 \text{per treated acre}
 \end{array}
 =
 \begin{array}{l}
 \text{Band Rate} \\
 \text{per planted acre}
 \end{array}$$

inches

$$\begin{array}{l} \text{Band Width} \\ \text{in Inches} \end{array} \times \begin{array}{l} \text{Broadcast} \\ \text{Volume} \\ \text{per treated acre} \end{array} = \begin{array}{l} \text{Band Volume} \\ \text{per planted acre} \end{array}$$

Row Width  
in inches

Aerial Application: Apply the recommended rate of ZORIAL RAPID 80 in 5 or more gallons of water per acre. To minimize drift, use ZORIAL RAPID 80 with a drift control agent such as Nalco-Trol®. Do not apply during periods of gusty winds or winds in excess of 5 mph. Aerial spray equipment, flying speed and flying height should be carefully adjusted to provide a uniform application to the soil surface. Use markers to avoid overlapping and possible crop injury.

**D: APPLICATION METHODS**

Preplant Incorporated Application (PPI), and Preplant applications (PPA) for cotton: Apply ZORIAL RAPID 80 at the recommended rate prior to planting. Incorporate PPI applications within one week after application and not deeper than 2-3 inches.

Preemergence Surface Applications (PRE) for cotton, soybeans and peanuts: Apply ZORIAL RAPID 80 at the recommended rate prior to the emergence of the crop and weeds. Do not apply when the crop is at or near emergence (soil cracking). Emerged weeds must be controlled by tillage prior to application or tank mixing with a postemergence herbicide such as Gramoxone® or Roundup®.

Split Application -THE ZORIAL SPLIT™ for cotton and soybeans: First apply one half of the ZORIAL RAPID 80 rate preplant incorporated, then apply the remaining half of the ZORIAL RAPID 80 rate preemergence surface as recommended above.

The soil surface should be free of clods and existing weeds prior to ZORIAL RAPID 80 application. Use tillage or a postemergence herbicide to control emerged weeds.

**E. DRY BULK FERTILIZER/ZORIAL RAPID 80 BLENDS FOR USE IN COTTON**

ZORIAL RAPID 80 may be coated onto dry bulk granular fertilizers for fall or spring early preplant surface, preplant incorporated or preemergence applications. Coating may be conducted by either an in-plant bulk system or the on-board system. Individuals or agents selling ZORIAL RAPID 80 in dry bulk fertilizer blends are responsible for following all state and local regulations regarding fertilizer/herbicide blending. Rate recommendations, restrictions and weeds controlled are the same as for the sprayable product.

Slurry the desired amount of ZORIAL RAPID 80 in an adequate amount of water (3 pints water per pound of ZORIAL RAPID 80) required to uniformly cover the fertilizer particle. Apply slurry to fertilizer using any closed rotary-drum mixer or other commonly used dry fertilizer blender. Spray nozzles must be positioned to provide uniform coverage of ZORIAL RAPID 80 onto fertilizer during mixing.

Addition of a drying agent may be necessary if the fertilizer/herbicide blend is too moist for uniform application due to high humidity, high urea concentration, and/or low fertilizer use rate. Slowly add the drying agent to the blend until a flowable mixture is obtained. Drying agents are not recommended for use with on-board systems.

Apply 200 to 750 pounds of fertilizer/herbicide blend per acre. Application must be made uniformly to the soil to prevent possible crop injury and to assure satisfactory weed



control. Coated fertilizer spread at half rate and overlapped to obtain a full rate will insure a more uniform distribution. A shallow (1-2 inch) incorporation is desirable for improved weed control. Deeper incorporation may result in unsatisfactory weed control.

Formula to determine herbicide used per ton of fertilizer:

$$\frac{\text{Pounds Product/Acre}}{\text{Pounds of Fertilizer/Acre}} \times 2000 = \frac{\text{Pounds of Herbicide Per}}{\text{Ton of Fertilizer}}$$

**F. GEOGRAPHIC INFORMATION**

The following geographic regions are described in this label:

mid-South, Southeast and Texas (East of I-35)

which includes the states of Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Missouri (boot heel only), North Carolina, South Carolina, Tennessee, and Texas (East of interstate I-35).

ZORIAL RAPID 80 can be applied preplant incorporated, preemergence surface, or as a split application (when allowed in specific use directions) in areas with 35 inches or more annual rainfall. In areas with less than 35 inches rainfall, apply only as preplant incorporated or split application (when allowed in specific use directions) unless irrigation is available for incorporation. ZORIAL RAPID 80 may be used in conventional or conservation (i.e., no-till, reduced till) tillage systems. (See special directions for conservation tillage below.)

Texas (West of I-35), Southwest Oklahoma and New Mexico

which includes the states of New Mexico, Oklahoma (West of interstate I-35 and South of interstate I-40), and Texas (West of interstate I-35).

• **Use Precaution**

ZORIAL RAPID 80 may not be used in conventional or conservation tillage cotton systems in areas with more than 65% sand. ZORIAL RAPID 80 should only be applied as a preemergence application as part of a program in sequence with Prowl, or in combination with Caparol 4L.

Arizona (Includes all areas within state boundaries)

• **Use Precaution**

ZORIAL RAPID 80 may be applied only as a preplant incorporated application. Shallow incorporation is required. When cotton is irrigated up, do not exceed 0.60 pounds per acre preplant incorporated when applied prior to listing and irrigate every other furrow. Do not exceed 0.60 pounds per acre on soils with 65% or more sand. Do not apply by air in Arizona.

G. WEEDS CONTROLLED

ZORIAL RAPID 80 Herbicide at recommended rates is effective for:

Controlling the following weeds:

- Anoda, Spurred (Cottonweed)
- Barnyardgrass
- Carpetweed
- Crabgrass
- Pusley, Florida
- Croton, Tropic
- Foxtails
- Goosegrass<sup>1</sup>
- Johnsongrass (seedling)
- Panicum spp.
- Pigweeds
- Purslane
- Sida, Prickly
- Signalgrass
- Velvetleaf

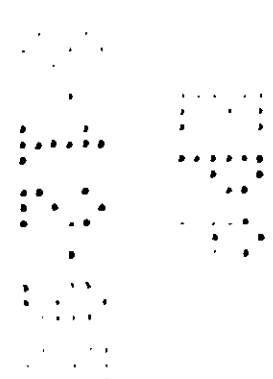
- Anoda cristata
- Echinochloa crus-galli
- Mullugo verticillata
- Digitaria spp.
- Richardia scabra
- Croton glandulosus
- Setaria spp.
- Eleusine indica
- Sorghum halepense
- Panicum spp.
- Amaranthus spp.
- Portulaca oleracea
- Sida spinosa
- Brachiaria platyphylla
- Abutilon theophrasti

Suppressing the following weeds:

- Beggarweed, Florida
- Bermudagrass
- Cocklebur, Common
- Johnsongrass (rhizome)
- Kochia
- Mallow, Venice
- Morningglory
- Nutsedge (Yellow and Purple)
- Ragweed, Common
- Sage, Lanceleaf (Mintweed)
- Senna, Coffee
- Sesbania, Hemp
- Sicklepod
- Smartweed, Pennsylvania
- Spurge, Spotted
- Thistle, Russian

- Desmodium tortuosum
- Cynodan dactylon
- Xanthium strumarium
- Sorghum halepense
- Kochia scoparia
- Hibiscus trionum
- Ipomoea spp.
- Cyperus esculentus
- C. rotundus
- Ambrosia artemisiifolia
- Salvia retroflexa
- Cassia occidentalis
- Sesbania exaltata
- Cassia obtusifolia
- Polygonum pensylvanicum
- Euphorbia maculata
- Salsola iberica

<sup>1</sup> Including dinitroaniline (DNA) tolerant goosegrass.



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**H. CROP SAFETY:**

If the cotton, peanuts or soybean plant is stressed during early development, application of ZORIAL RAPID 80 at the label rate may result in temporary bleaching or chlorosis of the leaves from which the plant will recover. Do not apply in areas with poor drainage.

**I. REPLACEMENT AND ROTATIONAL CROPS**

For 16 months following the last ZORIAL RAPID 80 application, treated acreage must only be rotated to cotton, soybeans or peanuts. Visual symptoms of injury (loss of pigment [whitening] in the leaf veins) and stand reduction may occur in rotational crops of soybeans or peanuts in Texas (West of I-35), Southwest Oklahoma and New Mexico planted within 16 months following the last ZORIAL RAPID 80 application. In Arizona, treated acreage must only be rotated to cotton.

Peanuts can be planted as a replacement crop (e.g. following hail damage) 30 days after the last ZORIAL RAPID 80 application. Soybeans can be planted as a replacement crop 45 days after the last ZORIAL RAPID 80 application. In areas of the mid South, Southeast and Texas (East of I-35), a light reworking of the soil is recommended to remove existing plant material and maintain herbicidal activity. ZORIAL RAPID 80 treated acreage may be planted to a cover crop to control soil erosion. Cover crops should be plowed under and not grazed or harvested for 16 months following the last application of ZORIAL RAPID 80. Small grain cover crops should be broadcast planted rather than drilled, to reduce risk of injury.

If replanting to cotton, peanuts or soybeans is necessary, a light reworking of the topsoil will retain the herbicidal activity of ZORIAL RAPID 80. In Arizona replanting will mean irrigating up, so irrigation must be every other furrow.

## 2. SPECIFIC COTTON DIRECTIONS

ZORIAL RAPID 80 can be used for weed control in all cotton producing states except California.

The specific Directions for Use of ZORIAL RAPID 80 are given below for each geographic region of use (see Section I. for description of geographic regions). Select the rate of ZORIAL RAPID 80 to be used based on soil texture and application type within each geographic region from the sections listed below. Follow the Special Direction sections for specific recommendations and precautions.

Do not graze or feed cotton forage.

### A. Special Directions for the Mid-South, Southeast, and Texas (East of I-35).

#### COTTON BROADCAST RATES IN POUNDS OF ZORIAL RAPID 80 PER ACRE<sup>1</sup>

SOIL TEXTURE	PPI	PRE	SPLIT PPI / PRE
clay loam, silty clay loam, silty clay, clay	2.5	2.5	1.25 / 1.25
loam, silty loam, silt, sandy clay loam, sandy clay	1.9	1.9	0.95 / 0.95
Coastal Plains Soils (Southeastern States)	1.25 <sup>3</sup>	1.9 <sup>2</sup>	0.95 <sup>2</sup> / 0.95 <sup>2</sup>
sand, loamy sand, sandy loam	1.25	1.25	0.625 / 0.625

<sup>1</sup> Rates shown are for broadcast or treated acres. Be sure to adjust amount of product per planted acre if using a band application (See section I-C).

<sup>2</sup> Higher recommended rates are listed for improved control on coarse textured Coastal Plains soils of Southeastern States.

<sup>3</sup> Do not use rates higher than 1.25 lbs PPI on coarse textured Coastal Plains Soils of Southeast.

**B. Special Directions for Texas (West of I-35), Southwest Oklahoma and New Mexico:**

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**BROADCAST RATES IN POUNDS OF ZORIAL RAPID 80 PER ACRE<sup>1</sup>**

SOIL TEXTURE	PRE
<b>FINE</b>	
clay loam, silty clay loam, silty clay, clay	0.6-1.0 <sup>2</sup>
<b>MEDIUM</b>	
loam, silty loam silt, sandy clay loam, sandy clay	0.6-1.0 <sup>2</sup>
<b>COARSE</b>	
sandy loam	0.6

<sup>1</sup> Rates shown are for broadcast or treated acres. Be sure to adjust amount of product per planted acre when using a band application (See section I-C).

<sup>2</sup> Applications must be made on a 10 to 14" band for ZORIAL RAPID 80 rates above 0.6 lbs/A. The 0.6 lb/A rate may be applied as a banded or broadcast application.

Visual symptoms of injury (loss of pigment [whitening] in the leaf veins) and stand reduction may occur in rotational crops of soybeans or peanuts in Texas (West of I-35), Southwest Oklahoma and New Mexico planted within 16 months following the last ZORIAL RAPID 80 application.

At the recommended rates for this geographic region, ZORIAL RAPID 80 should be applied preemergence in a tank mix with one of the herbicides listed below in order to give an adequate spectrum of weed control. ZORIAL RAPID 80 should be applied alone only at the 1.0 lb/A rate and only as a sequential overlay following a PPI treatment of Prowl or Treflan. See below for tank mix options.

Shallow incorporation with finger tines on the planter (scratch incorporation) at planting is recommended for all banded preemergence ZORIAL RAPID 80 applications.

Rotate only to cotton, soybean or peanuts within the first 16 months after the last application.

Do not use on soil with greater than 65% sand content. Do not use on cotton planted in furrow bottom. Do not use on glandless cotton varieties.

**C. Special Directions for Arizona**

ZORIAL RAPID 80 may be applied as a preplant incorporated (PPI) herbicide for added suppression of nutsedge and morningglory when used in tank mixtures with Caparol Herbicide. A banded preplant incorporated application can be made. Be sure to adjust the

amount of product per planted acre when using a band application (See section 1-C). In Arizona, apply ZORIAL RAPID 80 preplant incorporated only.

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**BROADCAST RATES IN POUNDS OF ZORIAL RAPID 80 PER ACRE**

SOIL TEXTURE	PPI
<b>FINE</b>	
clay loam, silty clay loam, silty clay, clay	1.25
<b>MEDIUM</b>	
loam, silty loam silt, sandy clay loam, sandy clay	0.95
<b>COURSE</b>	
sand, loamy sand, sandy loam	0.625

Do not exceed 0.60 pounds per acre on soils with 65% or more sand. Shallow incorporation to a depth of 1-2" is required. Seed placement must be below incorporation zone.

Cotton irrigated up should receive irrigation in every other furrow following planting to avoid crop injury.

Cotton replanted following ZORIAL RAPID 80 application should receive irrigation in every other furrow only.

ZORIAL RAPID 80 can be tank mixed with CAPAROL 4L, Treflan or Prowl as part of a PPI program. Follow labels of tank mix herbicide for specific rate recommendations, timing and use precautions.

In Arizona, treated acreage must only be rotated to cotton.

Do not use on glandless cotton varieties.

Failure to observe these directions may result in temporary whitening of cotton or stand thinning.

**D. ZORIAL RAPID 80 COMBINATIONS IN COTTON**

ZORIAL RAPID 80 herbicide tank mix or overlay combinations approved for cotton are Bladex®, fluometuron (Cotoran®, Meturon®), Gramoxone®, Lorox®, Prowl®, Roundup and trifluralin (Treflan®, Trilin®), Caparol®. Read and follow mixing instructions listed in section I-B. Follow labels of tank mix herbicide for specific rate recommendations, timing and use precautions.

**ZORIAL RAPID 80 plus Caparol 4L Tank Mix:**

Special Preemergence Tankmix for Improved Suppression of Annual Morningglory, Lanceleaf Sage, Prairie Sunflower, Annual Black Nightshade, and Nutsedge.

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**Areas of Texas (West of I-35), Southwest Oklahoma, and New Mexico.**

Observe all precautions listed under Special Directions for Areas of Texas (West of I-35), southwest Oklahoma, and New Mexico. Do not use ZORIAL RAPID 80 tank mix as a PPI or split application.

**ZORIAL RAPID 80 BROADCAST TANK MIX RATE PER TREATED ACRE<sup>1</sup>**

SOIL TEXTURE	ZORIAL RAPID 80 (lbs/A)	+	CAPAROL 4L <sup>2</sup> (pts/A)
<b>FINE</b>			
silty clay loam, clay loam, silty clay, and clay	0.6 - 1.0	+	2.4
<b>MEDIUM</b>			
loam, silt loam, silt, sandy clay loam, and sandy clay	0.6 - 1.0	+	2.4
<b>COARSE</b>			
sand and loamy sand	Do not use		
sandy loam	Do not use		

<sup>1</sup> Applications must be made on a 10 to 14" band for ZORIAL RAPID 80 rates above 0.6 lbs/A. The 0.6 lb/A rate may be applied as a banded or broadcast application. Rates shown are for tank mix broadcast (treated) acres. Be sure to adjust amount of product per planted acre when using a band application (See section I-C).

<sup>2</sup> Do Not Use ZORIAL RAPID 80 tank mix with CAPAROL 4L on soils containing more than 50% sand.

These combinations may be tank mixed with Prowl and applied preemergence, or applied as a sequential overlay following a trifluralin or Prowl application. Shallow incorporation with finger tines on the planter (scratch incorporation) at planting is recommended for all banded preemergence ZORIAL tankmix combinations.

**Areas of the Mid-South, Southeast, and Texas (East of I-35) and Arizona.**

ZORIAL RAPID 80 may also be tank mixed with Caparol in areas of the Mid South, Southeast and Texas (East of I-35), and Arizona. Note: Caparol has special restrictions as regards soil type. Carefully read and observe all the Directions for Use, precautions, limitations on the Caparol label.

**E. Special Directions for Conservation Tillage Programs:**

ZORIAL RAPID 80 may be used in conservation tillage programs such as no till, minimum till or reduced till. The following additional directions should be followed to avoid crop

injury and obtain optimum weed control with ZORIAL RAPID 80 in conservation tillage programs:

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- Do not use in Texas (West of I-35), southwest Oklahoma and New Mexico in conservation tillage programs where the soil is greater than 65% sand.
- Use a postemergence herbicide such as Gramoxone or Roundup prior to application of ZORIAL RAPID 80 or tankmix ZORIAL RAPID 80 with these products to control emerged weeds.
- Any cover crop must be killed using an appropriate postemergence herbicide prior to planting. Poor weed control may result if the cover crop is incompletely killed or excessive plant debris is present when ZORIAL RAPID 80 is applied.
- Cotton seed should be planted at least 1" deep using a planter having a bubble or ripple type coulter with a straight leading edge and press wheel (a fluted coulter should not be used). The seed must be covered with at least 1" of soil following the planter press wheel. Avoid situations where water will pond over the seed row. Crop injury will occur if seed is not adequately covered with soil or water ponds over the seed row.

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### 3. SPECIFIC SOYBEAN DIRECTIONS

ZORIAL RAPID 80 can be used for weed control in soybeans in the states of Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, Missouri, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia.

Soybeans should be planted to a depth of 1-2 inches and soil firmly packed above and around the seed bed.

Do not use in sand, loamy sand, or sandy loam soils, except in the Coastal Plains area of the Southeast (Do not use PPI or split treatments for soybeans in the Coastal Plains area). In other areas, do not use the PPI treatment for soybeans unless as part of the split application treatment. Do not use in soybeans in Texas (West of I-35) or southwest Oklahoma or New Mexico.

Do not graze or harvest soybean forage or hay within 90 days of last ZORIAL RAPID 80 application.

#### A. SOYBEAN BROADCAST RATES IN POUNDS OF ZORIAL RAPID 80 PER ACRE<sup>1</sup>

SOIL TEXTURE	PRE	SPLIT PPI / PRE
clay loam, silty clay loam, silty clay, clay	2.5	1.25 / 1.25
loam, silty loam, silt, sandy clay loam, sandy clay	1.9	0.95 / 0.95
Coastal Plains Soils (Southeastern States)	1.25	Do not use

<sup>1</sup> Rates shown are for broadcast or treated acres. Be sure to adjust amount of product per planted acre if using a band application (See section I-C).

Tank mix or overlay combinations may provide improved control of hard to control broadleaf weeds. See combination sections for specific recommendations.

#### B. ZORIAL RAPID 80 COMBINATIONS IN SOYBEANS

Approved ZORIAL RAPID 80 tank mix or overlay combinations for soybeans include acifluorfen (Blazer<sup>®</sup>, Tackle<sup>®</sup>), alachlor (Lasso<sup>®</sup>), Basagran<sup>®</sup>, Canopy<sup>®</sup>, Classic<sup>®</sup>, Dual<sup>®</sup>, Gramoxone, Lorox, metribuzin (Lexone<sup>®</sup>, Sencor<sup>®</sup>), Prowl, Roundup, Scepter<sup>®</sup>, Storm<sup>®</sup> and trifluralin (Treflan, Trilin). See tank mix product label for recommended rate, application timing and precautions. Read and follow mixing instructions in section I-B.

Special recommendations for certain ZORIAL RAPID 80 combinations are as follows:

**ZORIAL RAPID 80 plus Scepter or Canopy Preemergence Tank Mix**

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These combinations can be used alone PRE or as part of the SPLIT application. They are especially recommended for improved control of cocklebur, annual morningglories, hemp sesbania, sicklepod, smartweeds and common ragweed.

Apply a tankmix of ZORIAL RAPID 80 plus Scepter or Canopy preemergence at the rate per treated acre listed in the following table. Refer to respective Scepter or Canopy label for specific directions, rates and restrictions.

**Broadcast Product Use Rates**

SOIL TEXTURE	ZORIAL lbs/Acre	Scepter pints/Acre	Canopy ounces/Acre
Mississippi Delta only (fine textured soil)	1.25 - 1.50* - 1.90	See Scepter or Canopy for specific rates	
clay loam, silty clay loam, silty clay, clay	1.25 - 1.50* - 1.90		
loam, silty loam, silt, sandy clay loam, sandy clay	1.25 - 1.50		
Coastal Plains Soils (Coarse Texture Soils-SE)	1.25		

\* optimum rate

**ZORIAL RAPID 80 Preemergence plus Scepter or Classic -- Postemergence Overlay**

Postemergence overlay treatments of Classic or Scepter following ZORIAL RAPID 80 preemergence are recommended for increased control of problem broadleaf weeds such as cocklebur and annual morningglories. Apply ZORIAL RAPID 80 preemergence or as a Split application at the combination rates listed above. Apply Scepter or Classic at the proper rate and postemergence timing as directed by its respective use directions. Refer to overlay product label for specific use directions and restrictions.

**ZORIAL RAPID 80 plus Sencor or Lexone Preemergence Tank Mix**

This combination is recommended for improved control of hemp sesbania, common ragweed and Venice mallow and other broadleaf weeds.

Apply a tank mix of ZORIAL RAPID 80 plus Sencor or Lexone preemergence surface at the rates per acre (broadcast) recommended in the following table. These rates represent

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optimum ZORIAL RAPID 80 rates and 1/2 of the normal metribuzin rate. Use the metribuzin use rates (grower use rates) most applicable to local soil type and growing conditions.

SOIL TEXTURE	ZORIAL RAPID 80 lbs/Acre	Sencor DF/ Lexone DF lbs/acre		
		less than 2% OM	2-4% OM	over 4% OM
Mississippi Delta only (fine textured soil)	1.25 - 1.50* - 1.90	0.50 - 1.0	0.59-1.17	0.665-1.33
clay loam, silty clay loam, silty clay, clay	1.25 - 1.50* - 1.90	0.33-0.83	0.425-1.0	0.50-1.17
loam, silty loam, silt, sandy clay loam, sandy clay	1.25 - 1.50	0.25-0.66	0.33-0.83	0.425-1.0
Coastal Plains Soils (Coarse Texture Soils-SE)	1.25	Do not use	0.25-0.50	0.33-0.66

\* optimum rate

When using Sencor 4 or Lexone 4L convert to equivalent rates. The amount of Sencor DF or Lexone DF equals two thirds the amount of Sencor 4 or Lexone 4L. For example, one pint of Sencor 4 or Lexone 4L equals 2/3 pound Sencor DF or Lexone DF.

Refer to the Sencor or Lexone labels for further directions and precautions.

#### 4. SPECIFIC PEANUT DIRECTIONS

ZORIAL RAPID 80 can be used for the weed control in peanuts in the states of Alabama, Florida, Georgia, Mississippi, New Mexico, North Carolina, Oklahoma, South Carolina, Texas, and Virginia.

ZORIAL RAPID 80 will control certain grass and broadleaf weeds when applied preemergence at planting. (Section I-F Weeds Controlled). Only one application per crop is allowed in peanuts and this application must be made at planting.

For use only in the states of Alabama, Florida, Georgia, Mississippi, North Carolina, New Mexico, Oklahoma, South Carolina, Texas, and Virginia on runner type or Virginia type peanut cultivars including 'Florunner', 'GK-7', 'GA-Runner', 'Southern Runner', 'NC 7', 'VA 93B', 'NC 9', 'NC-V11', 'VA-C 92R', 'AgraTech VC-1', and 'NC 10C'.

Do not use ZORIAL RAPID 80 in other states or on spanish peanut cultivars. Crop tolerance of cultivars not listed on this label may not be acceptable.

#### A. RATE SELECTION:

Broadcast Rate:

East of the Mississippi River:

1.5 - 1.8 lbs ZORIAL RAPID 80 per treated acre  
(Apply preemergence only)

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**West of the Mississippi River:**

0.5 lbs ZORIAL RAPID 80 per treated acre  
(Apply preemergence only)

Use the higher recommended rate when ZORIAL RAPID 80 is used alone or on finer textured soils, or where populations of susceptible weeds are very heavy. Use of rates higher than 0.5 lbs ZORIAL RAPID 80 West of the Mississippi River will result in crop injury and are not recommended.

Apply as a preemergence surface application immediately after planting and before weeds or crop emerge.

**B. USE PRECAUTIONS**

- Do not use on peanuts that were treated pre-plant incorporated with Vernam as crop injury will result. Do not apply ZORIAL RAPID 80 when peanuts are near cracking, at cracking or emerged as crop injury may result. Make only one application per year.
- Crop injury may result from the use of ZORIAL RAPID 80 following Dual when used on very coarse textured soils, such as sand.
- Delaying applications of post-emergence herbicides such as Starfire may be advisable if severe crop whitening is observed (greater than 50%). Do not apply in areas with poor drainage

Temporary whitening of the peanut leaves may occur. If the peanut plant is not stressed by adverse environmental factors or diseases, this whitening generally dissipates within 4 to 6 weeks after planting. Early season whitening of peanuts from ZORIAL RAPID 80 does not result in significant crop stunting, stand reduction or yield loss, if the plants are not stressed by environmental conditions, improper cultural practices, or diseases. High levels of seedling disease, adverse environmental stress or improper application may result in increased levels of crop whitening or injury.

**C. SEQUENTIAL APPLICATIONS/TANK MIXES IN PEANUTS**

- Read and follow all label directions for other herbicides listed below used in either sequential applications or as tank mix partners with ZORIAL RAPID 80 for specific rate recommendations, application timing and precautions.

Application of ZORIAL RAPID 80 to freshly tilled soil will give optimum weed control with crop safety. However, if weeds are emerged at the time of application, use a suitable burndown agent such as Starfire (paraquat) to control emerged weeds. The burndown herbicide may be applied prior to or tank mixed with the ZORIAL RAPID 80 treatment.

ZORIAL RAPID 80 is especially useful for control of Florida beggarweed when in weed control programs that utilize cultivation or both preemergence and postemergence herbicides.

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ZORIAL RAPID 80 can be applied as a sequential overlay treatment following a pre-plant incorporated application of Balan, Sonalan, Prowl, or Dual. Do not apply ZORIAL RAPID 80 to peanuts that have been treated with Vernam® because of increased potential for crop injury. ZORIAL tank mixes with Lasso and Dual will increase preemergence control of the "difficult to control species" such as Florida beggarweed and yellow nutsedge and will broaden the spectrum of species controlled. ZORIAL RAPID 80 may be applied as a preemergence tank mix with Lasso and/or Dual.

Under most conditions, a burndown application of Starfire (or tank mixes of Starfire and Basagran and/or 2,4-DB) applied early postemergence will improve residual control of Florida beggarweed obtained with ZORIAL RAPID 80 by removing Florida beggarweeds that germinated or emerged prior to the activation of ZORIAL RAPID 80. Sequential applications of Classic, Pursuit and Butoxone (2,4DB) may be used following ZORIAL RAPID 80 to control tolerant weeds.

### STORAGE AND DISPOSAL

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

**Pesticide Disposal:** Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture or rinsate is a violation of Federal law. If waste cannot be disposed of by use of label instructions, contact your state pesticide or environmental control agency or hazardous waste representative at the nearest EPA Region Office for guidance.

**Container Disposal:** Completely empty and triple rinse container into application equipment. Then dispose of empty container in a sanitary landfill or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

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