



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

June 16, 1995

Steven E. Rogosheske  
Senior Registration Specialist  
Riverside/Terra Corporation  
P.O. Box 6000  
Sioux City, IA 51102-6000

SUBJECT: Labeling Amendments  
Riverside Diuron 80DF  
EPA Reg. No. 9779-318 ✓  
Riverside Diuron 4L  
EPA Reg. No. 9779-329  
Your Letters Dated 05/18/95 and 05/19/95

Dear Mr. Rogosheske:

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, are acceptable subject to the comments listed below. Submit one (1) copy each of your final printed labeling before you release the products for shipment.

Modify the label for Riverside Diuron 80DF (EPA Reg. No. 9779-318) to include the same or similar general tank mix directions that were revised for the Riverside Diuron 4L (EPA Reg. No. 9779-329) label, i.e. "Whenever tank mixing Diuron 80DF with other products, observe all precautions, limitations and directions on labels of products used in combination with Diuron 80DF."

If you have any questions, please contact Terri Stowe of my staff at (703) 305-6117.

Sincerely yours,

*Terri Stowe*

*for*

Robert J. Taylor  
Product Manager (25)  
Fungicide-Herbicide Branch  
Registration Division (7505C)

Enclosures



Printed on Recycled Paper

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# DIURON 80DF

For preemergence and postemergence weed control

29/14

ACCEPTED

WITH COMMENTS

JUN 16 1995

UNDER THE FEDERAL INSECTICIDE  
FUNGICIDE AND RODENTICIDE ACT  
FOR ECONOMIC POISON REGISTERED  
UNDER NO. 9779-318

<b>ACTIVE INGREDIENT</b>		
Diuron [3-(3,4-dichlorophenyl)-1,1-dimethylurea] .....	80%	
<b>INERT INGREDIENTS</b> .....	<u>20%</u>	
<b>Total</b>		<b>100%</b>

## KEEP OUT OF REACH OF CHILDREN

### CAUTION

#### STATEMENT OF PRACTICAL TREATMENT

- IF SWALLOWED:** Drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger. Get medical attention. Do not give anything by mouth to an unconscious person.
- IF ON SKIN:** Wash with plenty of soap and water. Get medical attention.
- IF IN EYES:** Flush with plenty of water. Get medical attention if irritation persists.

#### PRECAUTIONARY STATEMENTS

##### CAUTION

##### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

- Harmful if swallowed, absorbed through skin. Causes moderate eye injury. Avoid contact with skin, eyes or clothing.
- Do not apply in such a manner as to directly or by drift expose workers or other persons. The area being treated must be vacated by unprotected persons.
- Personal Protective Equipment**  
Applicators and other handlers must wear long-sleeved shirt and long pants, waterproof gloves, and shoes plus.
- Mixers and Loaders must wear long-sleeved shirt and long pants, waterproof gloves, shoes plus socks, protective eyewear, chemical-resistant headgear and chemical-resistant apron when mixing or loading.
- 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.

#### 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.

Read Additional PRECAUTIONARY STATEMENTS.

#### ENVIRONMENTAL HAZARDS

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters. Sweep up spills and bury in a safe place away from water supplies.

EPA Reg. No. 9779- 318

EPA Est. No. 9779-AR-13

Manufactured For  
**RIVERSIDE/TERRA CORP**  
 P.O. Box 6000, Sioux City, Iowa 51102-6000  
*Riverside Serves Agriculture. Agriculture Serves Everyone.*

NET CONTENTS  
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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 through any type of irrigation system.

Do not use in Kern County, California, except for non-cropland and citrus weed control.

For any requirements specific to your State or tribe, consult the agency responsible for pesticide regulation.

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.

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, and shoes plus socks.

NON-AGRICULTURAL USE REQUIREMENTS

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

Keep unprotected persons and pets out of treated areas until sprays have dried.

STORAGE AND DISPOSAL

DO NOT CONTAMINATE WATER, FOOD, OR FEED BY STORAGE OR DISPOSAL

STORAGE

Store in a dry location away from children, animals, foods, feeds, seeds, fertilizers, or other agricultural chemicals. Handle in accordance with information given under PRECAUTIONARY STATEMENTS. In the event of spillage, scrape up spillage. If spillage is not suitable for use, dispose of in accordance with information given under DISPOSAL. Repackage and relabel useable product in a sound container. In case of fire or other emergency, report at once by toll free telephone to 800-424-9300.

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

GENERAL INFORMATION

DIURON 80DF is a water dispersible granule to be mixed in water and applied as a spray for selective control of many annual broadleaf and grass weeds in corn, cotton, sorghum, sugarcane, fruit and nut trees, berries, and certain other crops. It is also effective in noncrop areas and industrial sites for control of most annual and many perennial broadleaf and grass weeds.

DIURON 80DF may be applied preemergence. Soils high in clay or organic matter require higher dosages than soils low in clay or organic matter. Moisture is necessary to activate DIURON 80DF applied preemergence. Best results occur if rainfall or sprinkler irrigation occurs within two weeks of application. With favorable moisture conditions, DIURON 80DF will control weeds over an extended period, after which secondary weed control procedures such as cultivation and postemergence herbicide applications should be implemented.

DIURON 80DF may also be used to control emerged weeds. Results are dependent on amount applied and favorable environmental conditions such as high humidity and temperatures of 70°F or higher. The addition of an approved non-ionic surfactant (minimum 80% active), where recommended, increases the contact effectiveness of DIURON 80DF.

Directed postemergence sprays may be made on the following crops: artichokes, field corn, cotton, sorghum, gooseberries, citrus, grapes, apples, caneberries, blueberries, sugarcane, bananas, plantains, macadamia nuts, olives, papayas, peaches, pears, pecans, walnuts, and certain tree plantings.

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Under the conditions given under "Directions for Use," DIURON 80DF without a surfactant may be applied over the top of established, dormant or semidormant alfalfa; established, dormant asparagus; sugarcane; wheat; pineapple; and established or mowed plumous fern.

**PRECAUTIONS**

Do not apply except as recommended on this label. Do not empty application equipment on or near desirable plants or trees, or to where their roots may extend, or to where the chemical might be washed or otherwise moved into contact with their roots. Do not use on any home plantings nor on lawns, walks, driveways, tennis courts, or similar areas. Do not allow spray to drift onto desirable plants.

Clean all traces of DIURON 80DF from application equipment by flushing thoroughly with several changes of water. Nozzle tips and screens should be cleaned separately.

**SELECTIVE USE IN CROPS**

Preemergence Use (Germinating Weeds): Diuron 80DF, at recommended rates, controls annual weeds such as:

Broadleaves		
¾ to 1 Lb/Acre	1½ to 2 Lbs/Acre	2 to 6 Lbs/Acre
Lamquarters Pigweed Purslane Ragweed	Annual groundcherry Annual morningglory Chickweed Corn spury Dogfennel Fiddleneck (emalnickia) Gromwell Knawel Pennycress Shepherdspurse Tansy-mustard Wild buckwheat Wild lettuce Wild mustard	Ageratum Annual smartweed Annual sowthistle Corn speedwell Dayflower Flora's paintbrush Hawksbeard Horseweed Kochia Marigold Mexican clover Pineappleweed Pokeweed Rabbit tobacco Spanishneedles Velvetleaf (buttonweed) Wild radish

Grasses		
¾ to 1 lb/Acre	1½ to 2 Lbs/Acre	2 to 6 Lbs/Acre
Barnyardgrass (watergrass) Crabgrass	Annual bluegrass Annual sweet vernalgrass Foxtail Rattail fescue Red sprangletop Velvetgrass	Annual lovegrass Annual ryegrass Kyllinga Orchardgrass Peppergrass Ricegrass Sandbur Seedling Johnsongrass

Partial control of the following weeds usually occurs at rates stated:

Broadleaves		Grasses	
1 Lb/Acre	4 Lbs/Acre	4 Lbs/Acre	8-10 Lbs/Acre
Annual morningglory Cocklebur Prickly sida (leafweed) Sesbania Sicklepod	Horsenettle	Quackgrass	Gurgrass Maidencane Pangolagrass

Postemergence Use (Emerged Seeding Weeds): DIURON 80DF, at recommended rates, controls annual weeds such as annual morningglory, barnyardgrass (watergrass), crabgrass, crowfoot, goosegrass, pigweed and purslane. Addition of an approved non-ionic surfactant (minimum 80% active) to the spray, where recommended, increases contact effectiveness. Best results are obtained on succulent weeds growing under conditions of high humidity and temperatures of 70°F or higher.

## EQUIPMENT SPRAY VOLUMES AND PRESSURES

Use a boom power sprayer properly calibrated to a constant speed and rate of delivery. Openings in screens should be equal to or larger than 50 mesh. Continuous agitation in the spray tank is required to keep the material in suspension. Agitate by mechanical or hydraulic means; if by-pass or return line is used, it should terminate at bottom of tank to minimize foaming. Avoid overlapping and shut off spray booms while starting, turning, slowing or stopping, or injury to the crop may result.

For preemergence application, use 25 to 40 gallons per acre and spray pressure of 30 to 40 psi. For postemergence application, use sufficient volume (min. 25 gals. per acre) for thorough coverage of weed foliage; use spray pressure of 20 to 25 psi to keep spray drift to a minimum.

Aerial: For alfalfa, asparagus, barley (winter), cotton (preplant or preemergence only), grass seed crops, pineapple, sugarcane and wheat (winter), application may be made by aircraft (5 to 10 gals. per acre); avoid overlapping of spray swath and avoid application under conditions where excessive drift may occur. Where land is bedded, make application parallel to rows.

## SPRAY PREPARATION

Mix proper amount of DIURON 80DF into necessary volume of water; where use of a surfactant is recommended, dilute with 10 parts of water and add as last ingredient to nearly full tank.

## USE RATES

All dosages are expressed as broadcast rates; for band treatment, use proportionately less. For example, use  $\frac{1}{3}$  of the broadcast rate when treating a 14" band where row spacing is 42". Where a range of dosages is given, use the lower rate on coarse textured soils (low in clay or organic matter) and the higher rate on the fine textured soils (high in clay or organic matter); for postemergence application, use the lower rate on smaller weeds and the higher rate on larger weeds.

## SOIL LIMITATIONS

Crop injury may result if used on sand, loamy sand, gravelly soils or exposed subsoils. Do not use on pecans where organic matter is less than  $\frac{1}{2}\%$ ; nor on alfalfa, apples, artichoke, barley (winter), bermudagrass pasture, citrus, cotton, grapes, oats, olives, papayas, peaches, pears, plumosus fern, sorghum, sugarcane, walnuts, and wheat (winter) where organic matter is less than 1%; nor on blueberries, birdsfoot trefoil, caneberries, gooseberries, macadamia nuts and peppermint where organic matter is less than 2%.

Preemergence weed control will be reduced on high organic matter soils (greater than 5%, such as peat or muck).

## REPLANTING

Unless otherwise directed, do not replant treated areas to any crop within 2 years after last application as injury to subsequent crops may result.

## FIELD CROPS (See Soil Limitation)

A good seedbed must be prepared before preemergence use of DIURON 80DF as crop injury may result if application is made to ground which is cloddy or compacted resulting in improperly planted seed. Plant seed to depth specified. Unless otherwise directed, surface of the soil should not be cultivated or disturbed after application and before emergence of the crop as weed control may be reduced and crop injury may result. However, if moisture is insufficient to activate the herbicide, a shallow cultivation (rotary hoe preferred) should be made after emergence of crops while weeds are small enough to be controlled by mechanical means.

**ALFALFA:** Treat only stands established for 1 year or more. Do not apply to seedling alfalfa nor to alfalfa grass mixtures; do not apply to alfalfa under stress from disease, insect damage, shallow root penetration (such as on shallow hard pans), alkali spots; nor to flooded fields as crop injury may result. Do not spray on snow-covered or frozen ground.

Idaho, Oregon, Washington: Use  $1\frac{1}{2}$  to 3 pounds per acre; for control of volunteer alfalfa, use 4 pounds per acre. Apply in fall after alfalfa becomes dormant but no later than mid-December.

California (Dormant and Semi-Dormant Varieties): Use  $1\frac{1}{2}$  to 3 pounds per acre; for control of volunteer alfalfa, use 4 pounds per acre. Apply in fall or winter after alfalfa becomes dormant or semi-dormant, but before growth begins in the spring. Crop injury may result if application is made to actively growing alfalfa. For best results, apply before weeds have emerged or become established (2" in height or diameter). Control of established weeds is improved by applying DIURON 80DF with a suitable contact herbicide registered for such use. Sufficient rainfall for soil activation of DIURON 80DF is unlikely in California after February 1. Treated areas may be replanted to any crop after one year from last application if rate does not exceed 2 pounds per acre.

Arizona, Nevada: Use  $1\frac{1}{2}$  to 3 pounds per acre; apply in fall after alfalfa becomes dormant but no later than January.

Eastern Colorado, Kansas: For control of tansymustard, apply 1 pound per acre shortly after emergence of mustard in the fall or winter; use 2 pounds per acre if weeds are 2" to 4" high. Alternatively, if other annual weeds are present, apply 2 to 3 pounds per acre in February or March.

Other Areas Where Alfalfa Becomes Winter Dormant: Use  $1\frac{1}{2}$  to 3 pounds per acre ( $1\frac{1}{2}$  to 2 pounds per acre east of Appalachian Mountains). Apply in March or early April, but before spring growth begins.



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DIURON 80DF Following Trifluralin:

Soil Texture	Product Per Acre - Preplant	
	Trifluralin 4EC	DIURON 80DF
Sandy loam, loam, silt loam, silt Sandy clay loam, clay loam, silty clay loam, sandy clay, clay	1 pt. 1½ pts.	$\frac{2}{3}$ to 1 lb. 1 to 1½ lbs

Note: Seedling disease may weaken plants and increase the possibility of injury from the use of trifluralin followed by DIURON 80DF. These treatments should be used only in conjunction with a standard fungicide seed treatment plus a good supplemental soil fungicide program, such as captan/PCNB mixture.

Preemergence—U.S., except Arizona, California: Use DIURON 80DF alone or apply as a separate operation following preplant treatment with trifluralin. Apply after planting but before cotton emerges. Do not treat cotton in deep furrows as crop injury may result; use only where cotton is planted on flat or raised seedbeds. Shallow incorporation (no deeper than ¼") with a rotary hoe or similar equipment following planting usually improves results especially during dry weather. A wide press wheel should be used on the planter to provide a level seedbed for subsequent early season postemergence treatments. If moisture is insufficient to activate DIURON 80DF or if soil becomes crusted before crop emerges, a shallow rotary hoeing (no deeper than ¼") should be made before weeds become established.

DIURON 80DF Alone: Make a single application as a broadcast or band spray, using the following broadcast rates; for band treatment, use proportionately less.

Soil Texture**	Pounds DIURON 80DF Per Acre
Loamy sand	$\frac{2}{3}$
Sandy loam, loam, silt loam, silt	1
Sandy clay loam, clay loam, silty clay loam, sandy clay	1½
Silty clay, clay	2

\*\*Do not use on sand or on soils with less than 1% organic matter as crop injury may result. For heavy clay soils (high in organic matter) use other weed killers. Do not treat cotton in deep furrows as crop injury may result. In Texas and Oklahoma west of I-35 and New Mexico do not apply to loamy sands or sandy loam soil (particularly where they have been deep plowed to change texture).

DIURON 80DF Following Trifluralin Preplant: Apply trifluralin prior to planting as a broadcast or band treatment; incorporate according to directions on trifluralin label. As a separate operation, apply DIURON 80DF as a band treatment (14" to 20" wide) after planting but before cotton emerges. Use at the following broadcast rates; for band treatment, use proportionately less. See "Note" under preplant above.

Soil Texture**	Product Per Acre	
	Preplant Trifluralin 4EC	Preemergence Diuron 80DF
Loamy sand	½ pt.	$\frac{2}{3}$ lb.
Sandy loam, loam, silt loam, silt	1 pt.	1 lb.
Sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, clay	1½ pts.	1½ - 2 lbs.

\*\*Do not use on soils with less than 1% organic matter as crop injury may result. For heavy clay soils (high in organic matter) use other weed killers. Do not treat cotton in deep furrows as crop injury may result. In Texas and Oklahoma west of I-35 and New Mexico do not apply to loamy sand and sandy loam soil (particularly where they have been deep plowed to change texture.)

Postemergence—U. S.: Apply only as a directed spray to cover weed foliage; adjust nozzles to minimize contact of cotton leaves with spray or drift, or crop injury may result. Do not spray over top of cotton.

Early Season—Apply when cotton is at least 6" tall and when weeds are actively growing and do not exceed 2" in height. Apply as a band treatment at following rates; for each 25 gallons of spray, add 1 pint of an approved non-ionic surfactant. Two applications may be made if needed.

Weed Problem (Up to 2" Tall)	Pounds DIURON 80DF Per Acre (Broadcast Basis)
Annual grasses	¼
Pigweed	¼

For control of seedling perennial grasses such as johnsongrass and partial control of nutsedge or when weed growth is under drought stress or as high as 4", add 2 to 3 1/2 pounds (active ingredient) DSMA to above spray mixture. If DSMA is used, do not apply after first bloom.

Late Season (Lay-By)—Apply 1 to 1 1/2 pounds per acre (1 to 2 pounds in Arizona and California) when cotton is at least 12" tall (at least 20" tall for Pima S-2). For control of germinating weed seedlings, apply to soil beneath cotton plants and between rows immediately after last cultivation. In irrigated cotton, best weed control is obtained if the field is irrigated within 3 to 4 days after application; thoroughly wet the surface of the ground over the row to carry the herbicide into the root zone of germinating weeds. Alternatively, for control of emerged annual weeds (up to 4" in height) at lay-by time, make a single application in combination with an approved non-ionic surfactant (1 pint per 25 gallons spray), or use 1/4 to 3/8 lb. DIURON 80DF (plus surfactant) per acre and repeat later if needed.

Replanting: If initial seeding fails to produce a stand, cotton may be replanted in soil treated preplant or preemergence with DIURON 80DF alone or following trifluralin. Whenever possible, avoid disturbing original bed. If necessary to rework soil before replanting, use shallow cultivation such as disking; do not relift or move soil into the original drill area. Plant seed at least 1" deep. Do not retreat field with a second preplant or preemergence application during the same crop year as injury to the crop may result.

Subsequent Crops:

DIURON 80DF-Type of Application	Crops That May Follow Treated Cotton
Band preemergence or postemergence	Any crop 4 months after last application.
Band preemergence plus postemergence -or- Broadcast preemergence (and preplant) -or- Broadcast preemergence plus band postemergence	Cotton, soybeans, corn or grain sorghums (not sorghos or forage sorghum nor grass sorghums) the next spring. Do not replant treated areas to any other crop within one year after last application as injury to subsequent crops may result.
Broadcast postemergence (lay-by)	Cotton, corn, grain sorghums (not sorghos or forage sorghums nor grass sorghums) the next spring. Do not replant treated areas to any other crop within one year after last application as injury to subsequent crops may result.

For subsequent crops in fields where trifluralin is used, follow instructions on the trifluralin label.

GRASS SEED CROPS (Perennial) Except as noted, apply only to established plantings at least 1 year old.

Colorado, Kansas, New Mexico, and Oklahoma: On sand bluestem, side oats grama and switchgrass, apply 2 to 3 pounds per acre during the dormant period shortly before weed seedlings emerge. Do not apply after crop begins growth in the spring as crop injury may result. If fields where ash residues have accumulated from burning straw, use 3 pounds per acre; spread unburned chaff or straw with a harrow or chopper before application.

Western Oregon: On tall and fine fescue, Astoria bentgrass, Highland bentgrass, Kentucky bluegrass (Merion bluegrass), orchardgrass, and perennial ryegrass apply 2 to 4 pounds per acre between October 1 and November 15. In fields where ash residues have accumulated from burning straw, use 3 to 4 pounds per acre; spread unburned chaff or straw with a harrow or chopper before application. If perennial velvetgrass (Holcus lanatus) is a problem, use 4 pounds per acre. For best results, apply as soon as possible after fall rains start. Established weeds (beyond 2 to 4 leaf stage) should be removed prior to treatment.

Well established vigorous stands of spring-planted tall and fine fescue, Kentucky bluegrass, perennial ryegrass and orchardgrass may be treated the following fall provided the crop is planted before April 1 and treatment is not applied before October 15; use 2 pounds per acre.

Oregon, Idaho, Washington: For use in newly planted bentgrass, fine fescue, Kentucky bluegrass, perennial ryegrass, orchardgrass, and tall fescue. During planting operation, spray Aqua Nu-Char® or Gro-Safe® or other suitable brands of activated charcoal as a 1" band on soil surface at a rate of 300 pounds per acre (broadcast basis; equivalent to 15 pounds per acre of crop where row spacing is 20"). Mount nozzles to apply directly over seed rows to prevent crop injury. Follow with DIURON 80DF as a single broadcast spray at a rate of 2 1/2 or 3 pounds per acre; apply as soon as possible after planting but before crops or weeds emerge and before rains or sprinkler irrigation. Fall or spring plantings may be treated; best results usually occur with early fall plantings; Treatment will not control downy brome or wild oats.

Eastern Washington, Oregon and Idaho: Established Perennial Bluegrass grown for seed—Broadcast 1/4 - 1 1/4 pounds of DIURON 80DF per acre in enough diluent to get even distribution for suppression. Apply in spring before rapid growth begins of the Bluegrass and when the windgrass is still small (1 - 4 leaf). Do not use on coarse (sandy) textured soils.

\*Registered trademark of Westvaco Corp.

\*Registered trademark of ICI United States, Inc.



**OATS (Drill-Planted)**

Do not replant treated areas to any crop within one year after last application as injury to subsequent crops may result.

Spring Oats—Idaho, Eastern Oregon, Eastern Washington: Use in areas where average annual rainfall exceeds 16". Make a single application of 1 to 1½ pounds per acre after planting, either before or after oats emerge but within 6 weeks of planting. Best results are usually obtained when application is made 3 to 4 weeks after planting. Apply before weeds are 3" to 4" tall.

Winter Oats and Mixtures with Peas or Vetch—Western Oregon and Western Washington: Make a single application of 1½ to 2 pounds per acre as soon as possible after planting but before emergence of the crop.

**PEPPERMINT—Pacific Northwest**

Apply 3 pounds per acre just after the last cultivation in the spring prior to emergence of peppermint. Do not apply to newly planted (less than 1 year) nor to emerged peppermint as injury may result.

**RED CLOVER—Western Oregon**

Make a single application of two pounds per acre on established red clover (at least 9 months). Apply DIURON 80DF when red clover is dormant (October 15 to December 15). Do not apply to seedling red clover, and do not replant treated area to any crop within one year after last application.

Treatment will control annual weeds such as bluegrass, chickweed, hawkbeard, rattail fescue, rye grass, and velvet grass.

**SORGHUM (GRAIN)—Southwestern States**

Apply ¼ to ½ pound per acre; add 1 pint approved non-ionic surfactant per 25 gallons of spray. Apply as a directed postemergence broadcast or band spray after sorghum is 15" tall to control weeds 2" to 4" in height. Do not spray over top of sorghum. Use the lower rate on broadleaved weeds up to 2" tall; use the higher rate on grasses up to 2" and broadleaved weeds up to 4" tall. When the lower rate is used, a second application may be made if needed provided the amount applied in one crop year does not exceed ½ pound per acre. Treatment of weeds under drought stress is usually ineffective.

Do not replant treated areas to crops other than cotton or corn within 4 months following band treatment and 6 months following broadcast treatment as crop injury may result.

**SUGARCANE**

To prevent possible crop injury on new cane varieties, tolerance to DIURON 80DF should be determined prior to adoption as field practice. Do not treat sugarcane growing on thinly covered subsoils or rocky areas as crop injury may result. Temporary chlorosis of the crop may result from application over emerged cane; to minimize chlorosis, use directed postemergence sprays.

Florida: Preemergence—For high organic soils, apply 2 to 4 pounds per acre as a broadcast or band spray prior to weed emergence after planting or after harvesting plant crop (for ratoon crop). Postemergence—Make 1 to 2 applications of 2 pounds per acre as needed by directed spray inter-row. Alternatively, for panicum control, make up to 3 applications of ½ to 1 pound per acre as a directed spray after cane has emerged but before panicum exceeds 2" in height; add 1 quart of an approved non-ionic surfactant per 100 gallons of spray. Adjust nozzles to spray beneath cane plants and between rows to cover weed foliage and to minimize contact of cane leaves with spray drift. Do not apply more than 6 pounds total per acre between planting (or ratooning) and harvest.

Hawaii and Puerto Rico: Apply 4 to 8 pounds per acre as a broadcast spray prior to weed emergence after planting or after harvesting plant crop (for ratoon crop). A second and third application of 2 to 4 pounds per acre may be made as a broadcast spray over emerged cane or by directed spray inter-row.

If weeds are emerged, add a surfactant to the spray at the rate of 1 to 2 quarts per 100 gallons and apply as a directed spray. Do not spray over the top of cane.

Do not apply more than 3 treatments nor more than 10 pounds (Puerto Rico) or 12 pounds (Hawaii) total per acre between planting (or ratooning) and harvest. Treated areas may be planted to sugarcane or pineapple one year after last application.

Louisiana: Use on plant cane seeded on fallowed ground. Make a single application of 3 to 3½ pounds per acre at either of the following times. Fall Treatment (August through October)—Treat a 2 foot band over the row after planting of cane, but before weeds or cane emerge. Spring Treatment (January through April)—If shaving and off-barring are practiced, treat a 2 foot band over the row before weeds or cane emerge.

**WINTER WHEAT (Drill-Planted)**

Crop injury may result where severe winter stress, disease or insect damage follows application; winter-sensitive varieties such as McDermid and Hyslop, may be less tolerant of DIURON 80DF than winter-hardy varieties such as Gaines and Nugsines. Crop injury may also result from failure to observe the following: Do not use on sand or loamy sand soils, nor on gravelly or sandy loams low in organic matter (less than 1%), nor on thinly covered or exposed subsoil areas (clay knobs); do not treat wheat planted less than 1" deep; do not treat where winter climatic conditions have caused "heaving" of plants; do not treat wheat plants lacking in vigor due to poor emergence, insect damage, disease, high alkalinity or other causes; do not apply after wheat has reached the "boot" stage of maturity. Do check with your county agent or state extension specialist before using DIURON 80DF in combination with surfactants

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or nitrogen solutions. Do not replant treated areas to any other crop within 1 year after last treatment (except as noted) as injury to subsequent crops may result.

**Idaho, Oregon and Washington--East of Cascade Range:**

**Areas Where Average Rainfall Exceeds 16 Inches:** Make a single application of 1 to 1½ pounds per acre. **Fall Treatment:** For early fall-planted wheat (seeded before September 10), apply 3 to 6 weeks after planting, but before weeds are 3" to 4" tall. Treatment after October 1 has generally given best results. Application should not be made after soil freezes in the fall. Wheat planted in late October should not be treated until the following spring. **Spring Treatment:** Apply as soon as wheat starts to grow in the spring. Treatment made prior to April 10 will usually give good results provided weed growth is less than 4" tall. Application later than May 1 may give poor results.

Alternatively, make a single application of ½ to 1 pound DIURON 80DF plus ½ pound bromoxynil per acre as a tank mixture, either in the fall after wheat has emerged but before soil freezes or in the spring as soon as soil thaws; apply before weeds are 2" tall or across.

**Areas Where Average Annual Rainfall is 10 to 16 Inches:** After wheat is planted in fall, make a single application of 1 to 1½ pounds per acre when sufficient moisture is available to germinate wheat seed. Apply before soil freezes and before weeds are 2" tall. Application later than March 1 may give poor results.

**Note--**If fall-planted wheat fails to grow due to winter kill or adverse growing conditions after fall treatment, only fields treated before November 1 may be replanted to spring wheat. Spring wheat should not be planted before April 1 and only after deep disking and plowing to a depth of 4" to 6" prior to planting. Do not retreat field with a second application during the same crop year as injury to the crop may result.

**Oregon and Washington--West of Cascade Range:** Make a single application of 1½ to 2 pounds per acre as soon as possible after planting; if wheat and weeds have emerged, apply before weeds are 3" to 4" tall. Alternatively, apply a tank mixture of Diuron plus bromoxynil as detailed above for "East of Cascade Range".

**Other Areas of Oregon and Washington:** Make a single application in the spring as soon as wheat (fall-planted) starts to grow and before weeds are 2" tall. Application later than May 1 may give poor results.

**Central Plains and Midwest:** Use 1 to 2 pounds per acre.

**Kansas, Oklahoma and Texas:** Do not use on sand or sandy loam soils. Use 1 pound per acre on silt and silt loam soils and 1½ to 2 pounds per acre on clay, clay loam, and silty clay loam soils.

**Northeast:** Use 1 to 1½ pounds per acre.

**FRUIT AND NUT CROPS**  
(See Soil Limitations)

Unless otherwise directed, make a single application per year as a directed spray, avoiding contact of foliage and fruit with spray or drift. Do not graze livestock in treated orchards or groves.

**APPLES**

**DIURON 80DF Alone--**Use only under trees established in the orchard for at least 1 year; do not treat varieties grafted on full-dwarf root stocks. Apply 4 pounds per acre in the spring (March through May). In the Far West, treatment may be made in winter (December through February), or apply 2 pounds per acre as a postharvest treatment followed by 2 pounds in the spring.

**DIURON 80DF + Sinbar<sup>®</sup>--**Use only under trees established in the orchard for at least 2 years. Apply either in the spring or after harvest in the fall before weeds emerge or during early seedling stage of weed growth.

Soil Texture	Pounds Product Per Acre					
	1 to 2% Organic Matter			More than 2% Organic Matter		
	Diuron 80DF	+	Sinbar <sup>*</sup>	Diuron 80DF	+	Sinbar <sup>*</sup>
Sandy loam	1	+	1	1½	+	1½
Loam, silt loam, silt	1½	+	1½	2	+	2
Clay loam, clay	2	+	2	2	+	2

Sinbar<sup>®</sup> is a trademark of E. I. DuPont de Nemours & Co., Inc.

\* This mixture is not registered in California.

Where crop is grown under furrow irrigation or under raised-bank flood irrigation (4" to 6" above waterline), apply only as a band treatment. Do not treat trees planted in the bottom of irrigation furrows, nor trees grown under flat flood or basin irrigation, as injury to trees may result. Where complete weed control to harvest is desired, additional weed control measures may be required during the growing season.

Georgia—Apply 2 to 3 pounds per acre in the spring. Repeat application in the fall but do not use more than 4 pounds per acre per year. Add an approved non-ionic surfactant at 1 pint per 25 gallons spray mixture to improve control of small, emerged weeds.

**BANANAS AND PLANTAINS—New Plantings**

To control annual weeds, apply 1½ to 3 pounds per acre after planting but before weeds emerge. Do not apply to loose soil directly over the planting material.

Established Plantings: For control of annual and for top-kill of perennials such as bermudagrass, birdseed grass and guineagrass, apply 3 to 6 pounds per acre plus 1 pint of a suitable surfactant per 25 gallons of spray; avoid contact of plants with spray or drift as injury may result. When tall, dense weed growth is present, remove weed growth before application. If application is made to soil free of weeds, omit the surfactant from the spray. Repeat treatment as needed, but do not apply more often than 6-week intervals nor more than a total of 12 pounds per acre (broadcast basis) in a 12-month period.

Note: Do not replant treated areas to any crop within 2 years after last application, as injury to subsequent crops may result, except that sugarcane or pineapple may be planted one year after last application.

**BLUEBERRIES, CANEBERRIES, AND GOOSEBERRIES**

Use only in fields which have been established for at least 1 year. Do not apply to berries interplanted with fruit trees; do not apply to plants whose roots are exposed as injury may result. Apply as a band treatment at a base of canes or bushes; for spring application, apply before germination and growth of annual weeds.

Georgia—Blueberries: Apply 1½ to 2 pounds per acre in the spring and repeat treatment after harvest in the fall. Add an approved non-ionic surfactant at 1 pint per 25 gallons spray mixture to improve control of small, emerged weeds.

Indiana, Michigan, and Ohio—Blueberries: Apply 2 to 4 pounds per acre in late spring; alternatively, apply 2 pounds per acre in the fall and repeat at same rate in the spring. Raspberries: Apply 3 pounds per acre in the spring.

Massachusetts—Blueberries: Apply 2 pounds per acre in the late spring.

New Jersey—Blueberries: For control of winter annuals, apply 2 pounds per acre in October, November or December, or a single application of 2½ pounds per acre may be applied in early to mid spring.

California—Raspberries, Blackberries, Boysenberries, Dewberries, and Loganberries: For control of winter annuals, apply 2 pounds per acre in October or November; repeat at same rate in late spring to control summer annuals. A single application of 3 pounds per acre in January or February will control both winter and summer annuals in some areas, but the separate fall and spring schedule is preferred.

Western Oregon and Western Washington—Blueberries, Caneberries, and Gooseberries: Use same schedule as recommended for California.

**CITRUS**

Use only under trees established in the grove for at least 1 year. Time application as indicated for specific areas, except application may be made any time of the year where sprinkler or flood irrigation can be timed to activate the herbicide. Established perennial weeds require other special control procedures. Do not apply under citrus trees that have been subjected to freezing within 6 months.

Arizona (except Yuma) and California (except Imperial and Coachella Valleys): Apply 3 to 4 pounds per acre shortly after grove has been laid-up in final form (nonbillage program) in late fall or early winter. Alternatively, apply 2 pounds per acre in October or November and repeat at the same rate in March or April. Subsequent annual applications of 2 to 3 pounds per acre will usually give adequate weed control.

Florida and Puerto Rico: Make a single application of 4 to 8 pounds per acre, or apply 3 to 4 pounds per acre followed by the same rate 4 to 6 months later. On bearing citrus, apply any time when seasonal rains are expected; on nonbearing trees, apply when winter banks are pulled down.

For control of guineagrass, loosestrife, maidencane, paragrass, primrose willow and seamyrtle in ditches adjacent to citrus groves, use 1 pound per 1,000 square feet (40 pounds per acre) in sufficient water (min. 4 gallons per 1,000 square feet) to provide thorough and uniform coverage. Apply in the spring before weed growth starts or after removal of vegetation. Repeat treatment on a spot basis to control hard-to-kill species such as guineagrass. In bedded groves, do not treat water furrows between the beds as injury to the trees may result.

Texas: Apply 2 to 4 pounds per acre for annual weeds; use 4 to 6 pounds per acre for control of johnsongrass seedlings. Best results accompany application in the spring; well established weeds should be eliminated by cultivation prior to treatment.

**GRAPES**

Apply only to established vineyards (at least 3 years old) as a band treatment to grape rows. On soils low in clay or organic matter (1 to 2%), severe plant injury may result if heavy rainfall or more than one inch of irrigation occurs soon after treatment. This risk must be assumed by the user.

East of the Rocky Mountains: On soils low in clay or organic matter (1 to 2%), apply 2 to 3 pounds per acre; on soils high in clay or organic matter, apply 3 to 6 pounds per acre. Apply in the spring just prior to germination and growth of annual weeds.

West of the Rocky Mountains: Apply in November, December or January. For initial treatment, apply 3 to 4 pounds per acre; subsequent annual applications of 2 pounds per acre will usually give adequate weed control. Do not apply to vines with trunks less than 1½" in diameter as injury may result.

New York and Pennsylvania—Perennial Grass: Use only in established vineyards (at least 4 years old) for spot control of perennial grasses such as orchardgrass, quackgrass, and ryegrass. Apply in the spring as a band treatment to ridged soil (2" and 4" high) under the trellis at the rate of 8 to 12 pounds per acre. Band width should not exceed 30". Do not apply more than once every 4 years. Use only on heavy soils such as loams, silt loams, or clay loams. Do not use in areas where grape roots are shallow or exposed because of high bedrock, poor drainage, or erosion as injury to grapes may result.

**MACADAMIA NUTS—Hawaii**

Use only under trees established in the orchard for at least 1 year. Apply 2 to 6 pounds per acre immediately after harvest, preferably before weeds emerge; if weeds have emerged, add 1 pint of an approved non-ionic surfactant per 25 gallons of spray. Repeat as needed but do not exceed 10 pounds per acre per year.

**OLIVES—California**

Use only under trees established in the grove for at least 1 year. Apply 2 pounds per acre after grove has been laid-up in final form in late October or November; repeat at same rate in March or April. Remove weed growth prior to treatment.

**PAPAYAS**

Use only under trees established in the orchard for at least 1 year. Apply 2½ to 5 pounds per acre, preferably before weeds emerge; if weeds have emerged, add 1 pint of an approved non-ionic surfactant per 25 gallons of spray.

**PEACHES**

DIURON 80DF Alone—Use only under trees established in the orchard for at least 3 years. Apply 2 to 5 pounds per acre in the early spring before weeds emerge or during the early seedling stage of weed growth. Do not apply within 3 months of harvest; in the Far West, do not apply within 8 months of harvest.

DIURON 80DF + Sinbar<sup>®</sup>—Use only under trees established in the orchard for at least 2 years. Apply either in spring or after harvest in the fall before weeds emerge or during early seedling stage of weed growth.

Soil Texture	Pounds Product Per Acre					
	1 to 2% Organic Matter			More than 2% Organic Matter		
	Diuron 80DF	+	Sinbar <sup>*</sup>	Diuron 80DF	+	Sinbar <sup>*</sup>
Sandy loam	1	+	1	1½	+	1½
Loam, silt loam, silt	1½	+	1½	2	+	2
Clay loam, clay	2	+	2	2	+	2

\* This mixture is not registered in California.

Where crop is grown under furrow irrigation or under raised-berm flood irrigation (trees 4" to 6" above waterline), apply only as a band treatment. Do not treat trees planted in the bottom of irrigation furrows, nor trees grown under flat flood or basin irrigation, as injury to trees may result. Where complete weed control to harvest is desired, additional weed control measures may be required during the growing season.

Georgia—On trees established for at least 2 years, apply 2 to 3 pounds per acre in the spring. Repeat application in the fall but do not exceed 5 pounds per acre per year. Add an approved non-ionic surfactant at 1 pint per 25 gallons spray mixture to improve control of small, emerged weeds.

Where a crop is grown under furrow irrigation or under raised-berm flood irrigation (trees 4" to 6" above waterline), apply only as a band treatment. Do not treat trees planted in the bottom of irrigation furrows, nor trees grown under flat flood or basin irrigation, as injury to trees may result. Where complete weed control to harvest is desired, additional weed control measures may be required during the growing season.

**PEARS**

Use only under trees established in the orchard for at least 1 year; do not treat varieties grafted on full-dwarf root stocks. Apply 4 pounds per acre in the spring (March through May). In the Far West, treatment may be made in winter (December through February), or apply 2 pounds per acre as a postharvest treatment followed by 2 pounds in the spring.

**PECANS**

Use DIURON 80DF alone or apply as a tank mixture with Sinbar<sup>\*\*\*</sup>. Make a single band or broadcast application as a directed spray using a minimum of 30 gallons of water per acre. Apply in the spring before weeds emerge or during the early seedling stage of growth.

Soil Texture	Pounds Product Per Acre				
	Diuron 80DF Alone <sup>**</sup>	- or -	Tank Mixture		
			Diuron 80DF	+	Sinbar <sup>***</sup>
Sandy loam	2		1½	+	1½
Loam, silt loam, silt	3		1½	++	1½
Clay loam, clay	4		2		2

\* This tank mixture is not registered in California.

\*\* Use only on trees established in grove for at least 3 years and on soils with at least ½% organic matter.

\*\*\* Use on trees established in the grove for at least 1 year and on soils with at least 1% organic matter.

Note: Do not use on eroded areas where subsoil or roots are exposed, nor on trees that are diseased or lacking in vigor or on trees in irrigation furrows as injury to the trees may result.

**PINEAPPLE**

**Hawaii and Florida**

Apply 4 to 8 pounds per acre as a broadcast spray just before or immediately after planting but prior to weed emergence. Use 4 pounds per acre after harvesting plant crop (for ratoon crop). For plant crop only, a second and third broadcast or interspace application may be made prior to differentiation at the rate of 2 pounds per acre at intervals of not less than 2 months. Additional applications to plant crop may be made as needed to interspace only using 2 pounds per acre. Do not apply more than 3 broadcast sprays (maximum 12 pounds per acre) prior to differentiation nor more than 16 pounds total per acre per plant crop. Treated areas may be planted to pineapple or sugarcane 1 year after last application.

**Puerto Rico**

Apply 3 ¾ to 6 ¼ lbs. per acre as a broadcast spray before or immediately after planting but prior to weed emergence. Application controls weeds such as pigweed, crotalaria, morningglory, purslane, crabgrass, foxtail, goosegrass, fall panicum and sourgrass.

**WALNUTS (English)—California**

Use only under trees established in the orchard for at least 1 year. As an initial treatment, apply 3 to 5 pounds per acre after the orchard has been laid up in final form (nontillage program) in late fall or early winter; retreat annually with 2 to 3 pounds per acre. Alternatively, apply 2 pounds per acre in October or November and repeat at same rate in March or April.

**ORNAMENTAL CROPS (See Soil Limitations)**

**Ornamental Bulb Crops (Bulbous Iris, Narcissus)—Western Washington**

Make a single application of 4 pounds per acre. Apply after planting but no later than 4 weeks prior to bulb emergence (usually late September or October). Do not replant treated areas to any crop within 1 year after last application as injury to subsequent crops may result.

**PLUMOSUS FERN—Florida**

Hand weed and mow fern; then make a single application of 3 pounds per acre within 3 to 5 days. Do not cultivate or disturb soil after application as crop injury may result. Treat only established stands at least 1 year old.

**TREE PLANTINGS** -- Colorado, Montana, Nebraska, North Dakota, South Dakota, Wyoming

Use only under established plantings (1 year or older) of American elm, caragana, cottonwood, Douglas fir, green ash, honeysuckle, Ponderosa pine, red cedar, Russian olive and Siberian elm. Use 2 1/2 to 5 pounds per acre; apply as a band 4 feet wide in the tree row (2 feet on each side of row). For example, 1 oz. DIURON 80DF (4 level tablespoonfuls) treats 135 feet of tree row (2 feet on each side of row) at the rate of 5 pounds per acre. Apply as a directed spray in early spring before weeds emerge and before trees leaf out. Do not apply to foliage of trees, nor under trees growing in low areas as injury to the trees may result.

**NON-CROP WEED CONTROL**

DIURON 80DF is an effective herbicide for the control of many annual and perennial grasses and herbaceous weeds on non-cropland areas where bare ground is desired. The degree of control and duration of effect will vary with the amount of chemical applied, soil texture, rainfall and other conditions. Diuron 80DF may be tank mixed with Arsenal<sup>®</sup> in bare ground use areas.

Arsenal<sup>®</sup> is a trademark of American Cyanamid Company.

DIURON 80DF may be used as a preemergence treatment at any time of the year except when ground is frozen, provided adequate moisture is supplied by rainfall or artificial means to activate the herbicide. Best results are obtained if application is made to the soil shortly before weed growth begins. If dense growth is present, remove tops and spray the ground.

Increased contact activity on established weeds may be obtained by the addition of an approved non-ionic surfactant at the rate of 2 quarts per 100 gallons of spray mixture. Apply as a drenching spray to actively growing weeds during warm weather when daily temperature will exceed 70°F.

Except for small areas, use a fixed-boom power sprayer properly calibrated to insure a constant rate of application. Mix proper amount of DIURON 80DF into volume of water necessary to obtain uniform coverage. If a surfactant is used, dilute with 10 parts of water and add the surfactant as the last ingredient to nearly full tank. Material must be kept in suspension at all times. Agitate by mechanical or hydraulic means in the spray tank; if bypass or return line is used, it should terminate at bottom of tank to minimize foaming. Openings in screens should be equal to or larger than 50 mesh.

General Weed Control: To control most weeds for an extended period of time on non-cropland such as utility, highway, pipeline and railroad right of ways, petroleum tank farms, lumberyards, storage areas, industrial plant sites, and around farm buildings, apply 5 to 20 pounds per acre to control most annual weeds. Use 20 to 60 pounds per acre for perennial weeds; additional treatment may be required where a longer period of control is desired or when hard-to-kill, deep-rooted perennial weeds such as johnsongrass are present. In low rainfall areas, DIURON 80DF may not provide satisfactory control of deep-rooted perennial weeds.

For weed control on small areas, use one-half cupful of DIURON 80DF per 100 square feet for a dosage of approximately 50 pounds per acre.

Irrigation and Drainage Ditches: Apply 5 to 20 pounds per acre to control most annual weeds; use 20 to 60 pounds per acre to control both annual and perennial weeds. Apply only when water is not in the ditch. For irrigation ditches, apply during the non-crop season, and when ditch is not in use. To minimize movement of DIURON 80DF with irrigation water (to avoid possible crop injury), it is essential that the herbicide be fixed in the soil by moisture. Apply before expected seasonal rainfall (if possible when soil in the ditch is still moist). Following treatment, if rainfall has not totaled at least 4 inches, fill ditch with water and allow to stand for 72 hours; drain off and waste remaining water before using the ditch. Do not treat any ditch into which roots of trees or other desirable plants may extend as injury may result.

NOTICE: Seller warrants that the product conforms to its chemical description and is reasonably fit for the purposes stated on the label when used in accordance with directions under normal conditions of use, but neither this warranty nor any other warranty of merchantability or fitness for a particular purpose, express or implied, extends to the use of this product contrary to label instructions, or under abnormal conditions, or under conditions not reasonably foreseeable to Seller, and Buyer assumes the risk of any such use.

