

1812-362

8-14-2000

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

AUG 14 2000

OFFICE OF  
PREVENTION, PESTICIDES  
AND TOXIC SUBSTANCES

Angela Tessier  
Griffin Corporation  
P.O. Box 1847  
Valdosta, GA 31603-1847

Dear Ms. Tessier:

Subject: Revised Labeling  
Direx 80DF Herbicide  
EPA Registration No. 1812-362  
Your Submission Dated July 19, 2000

The amendment referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended is acceptable provided that you:

1. Make the labeling changes listed below before you release the product for shipment bearing the amended labeling:

a. The front panel referral statement says "See Label For Additional Precautions and Directions For Use" Please note that 40 CFR 156.10(i)(1)(ii) only allows that the Directions For Use may appear on printed or graphic matter which accompanies the pesticide and is securely attached. If all of the Precautionary Statements and First Aid Statements cannot appear on the container label due to size constraints, you should formally submit a request for a size exemption from the regulations.


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

FIRST AID	
<b>If swallowed:</b>	<ul style="list-style-type: none"><li>• Call poison control center or doctor immediately for treatment advice.</li><li>• Have person sip a glass of water if able to swallow.</li><li>• Do not induce vomiting unless told to by a poison control center or doctor.</li><li>• Do not give anything by mouth to an unconscious person.</li></ul>
<b>If in eyes:</b>	<ul style="list-style-type: none"><li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing.</li><li>• Call a poison control center or doctor for treatment advice.</li></ul>
<b>If on skin or clothing:</b>	<ul style="list-style-type: none"><li>• Take off contaminated clothing.</li><li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li><li>• Call a poison control center or doctor for treatment advice.</li></ul>
<b>If inhaled:</b>	<ul style="list-style-type: none"><li>• Move person to fresh air.</li><li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible.</li><li>• Call a poison control center or doctor for further treatment advice.</li></ul>
Have the product container or label with you when calling a poison control center or doctor or going for treatment.	

2. Submit one (1) copy of your final printed labeling before you release the product for shipment.

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

Sincerely yours,

  
James A. Tompkins  
Product Manager (25)  
Herbicide Branch  
Registration Division (7505C)

Enclosure



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ACCEPTED  
with COMMENTS  
In EPA Letter Dated:  
AUG 14 2000

Under the Federal Insecticide,  
Fungicide, and Rodenticide Act,  
as amended, for the pesticide  
registered under EPA Reg. No.  
1812-362

**Direx<sup>®</sup> 80DF**  
HERBICIDE

**ACTIVE INGREDIENT**

Diuron 3-(3,4-dichlorophenyl)-1,1-dimethylurea ..... 80.0%

**INERT INGREDIENTS** ..... 20.0%

**TOTAL** ..... 100.0%

**KEEP OUT OF REACH OF CHILDREN  
CAUTION**

**STATEMENT OF PRACTICAL TREATMENT**

**IF ON SKIN:** Wash with plenty of soap and water. Get medical attention if irritation persists.

**IF IN EYES:** Flush with plenty of water. Get medical attention if irritation persists.

**For medical emergencies involving this product, call toll free 1-888-324-7598.**

**See Label for Additional Precautions and Directions for Use**

**GRIFFIN L.L.C.**  
VALDOSTA, GEORGIA 31601

**Specimen Label**

EPA REG. NO. 1812-362

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# PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS (AND DOMESTIC ANIMALS) CAUTION

Causes eye irritation. May irritate nose, throat and skin. Avoid breathing dust or spray mist. Avoid contact with skin, eyes and clothing.

## PERSONAL PROTECTIVE EQUIPMENT

Applicators and other handlers must wear:

- Long-sleeve 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.

## USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.

## ENVIRONMENTAL HAZARDS

Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters. Cover or incorporate spills.

## 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.

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

## 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, forests, nurseries or greenhouses. Non-crop weed control is not within the scope of the Worker Protection Standard.

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

## STORAGE AND DISPOSAL

**STORAGE:** Store product in original container only, away from other pesticides, fertilizer, food or feed.

**PRODUCT DISPOSAL:** Do not contaminate water, food or feed by storage or 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 incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

## GENERAL INFORMATION

Direx 80DF herbicide should be used only in accordance with recommendations on this label, or in separate published Griffin recommendations.

Griffin will not be responsible for losses or damages resulting from use of this product in any manner not specifically recommended by Griffin. User assumes all risk associated with such non-recommended use.

Direx 80DF herbicide is a dispersible granule to be mixed in water and applied as a spray for selective control of weeds in certain crops and for nonselective weed control on non-cropland areas. It is non-corrosive to equipment, non-flammable and non-volatile.

Direx 80DF may be applied to soil prior to emergence of weeds to control susceptible weed seedlings for an extended period of time. The degree of control and duration of effect will vary with the amount of chemical applied, soil texture, rainfall and other conditions. Soils high in clay or organic matter require higher dosages than soil low in clay or organic matter for equivalent herbicide performance. Moisture is required to activate the herbicide. Best results occur if rainfall (or sprinkler irrigation) occurs within 2 weeks of application.

Direx 80DF applied before emergence of crop and weeds, is an effective procedure because susceptible weeds are controlled in an early, vulnerable seedling stage before they compete with the crop. With favorable moisture conditions, Direx 80DF continues to control weeds for some time as the crop becomes better able to compete. Should weed seedlings begin to break through the preemergence treatment in significant numbers, secondary weed control procedures should be implemented; these include cultivation and postemergence herbicide application.

Direx 80DF may also be used to control emerged weeds. Results vary with rate applied and environmental conditions; best results are obtained on succulent weeds growing under conditions of high humidity and temperatures of 70°F or higher. Addition of a surfactant to the spray (where recommended) increases contact effects of Direx 80DF.

Direx 80DF may be used as a directed postemergence application. Contact of crop foliage and/or fruit with spray or mist must be avoided on the following crops:

artichoke, corn (field), cotton, sorghum (grain), sugarcane and established plantings of apples, bananas, plantains, blueberries, canberries, gooseberries, citrus, grapes, macadamia nuts, olives, papayas, peaches, pears, pecans, walnuts and certain tree plantings.

Under specified conditions (see RECOMMENDED USES), Direx 80DF without surfactant may be applied over the top of alfalfa (established, dormant or semi-dormant), asparagus (established), birdsfoot trefoil (established, dormant), grass seed crops (established), oats, red clover (established, dormant), sugarcane, wheat and pineapple.

Weed species vary in susceptibility to Direx 80DF and they may be more difficult to control when under stress. Combinations of Direx 80DF with other herbicides (as registered) increase the number of weed species controlled. Consult labels of the companion product for this and other information. Observe all cautions and limitations on labeling of all products used in mixtures.

Since the effect of Direx 80DF varies with soils, uniformity of application and environmental conditions, it is suggested that growers limit their first use to small areas.

#### IMPORTANT

Injury to or loss of desirable trees or other plants may result from failure to observe the following:

Do not apply (except as recommended for crop use), drain or flush equipment on or near desirable trees or other plants, or on areas where their roots may extend or in locations where the chemical may be washed or moved into contact with their roots. Do not use on home plantings of trees, shrubs or herbaceous plants or lawns, walks, driveways, tennis courts or similar areas. Prevent drift of spray to desirable plants. Do not contaminate any body of water. Do not mix, load, or use near wells including abandoned wells, drainage wells and sink pits. Avoid storage of pesticides near well sites. Keep from contact with fertilizers, insecticides, fungicides and seeds. Calibrate sprayers only with clean water away from well site. Do not apply this product through any type of irrigation system.

Thoroughly clean all traces of Direx 80DF from application equipment immediately after use. Flush tank, pumps, hoses and boom with several changes of water after removing nozzle tips and screens (clean these parts separately).

### SELECTIVE USE IN CROPS

Preemergence herbicide selectively controls annual weeds such as:

<u>3/4 to 1 pound/acre</u>	<u>1.5 to 2 pounds/acre</u>	
Barnyardgrass	Amsinckia	Gromwell
(Watergrass)	(Fiddleneck)	Knawel
Crabgrass	Annual Bluegrass	Pennycress
Lambsquarters	Annual Sweet	Rattail Fescue
Pigweed	Vernalgrass	Red Sprangletop
Purslane	Annual Groundcherry	Shepherdspurse
Ragweed	Annual Morningglory	Tansymustard
	Chickweed	Velvetgrass
	Corn Spurry	Wild Buckwheat
	Dogfennel	Wild Lettuce
	Foxtail	Wild Mustard

#### 2 to 6 pounds/acre

Ageratum	Horseweed	Pineappleweed
Annual Lovegrass	Johnsongrass	Pokeweed
Annual Ryegrass	(Seedling)	Rabbit Tobacco
Annual Smartweed	Kochia	Rice Grass
Annual Sowthistle	Kyllinger (Kyllinga)	Sandbur
Corn Speedwell	Marigold	Spanish Needles
Dayflower	Mexican Clover	Velvetleaf
Flora's Paintbrush	Orchardgrass	(Buttonweed)
Hawksbeard	Peppergrass	Wild Radish

#### Partial control:

<u>1 pound/acre</u>	<u>4 pounds/acre</u>	<u>8 to 10 pounds/acre</u>
Annual Morningglory	Horsenettle	Guineagrass
Cocklebur	Quackgrass	Maidencane
Prickly Sida (Teaweed)		Pangolagrass
Sesbania		
Sicklepod		

### APPLICATION DIRECTIONS

**AERIAL APPLICATION:** For alfalfa, asparagus, barley (winter), cotton (preplant or preemergence only), grass seed crops, pineapple, sugarcane and wheat (winter), application may be made by aircraft at 5 to 10 gallons of water 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.

**GROUND APPLICATION:** Use a boom power sprayer properly calibrated to a constant speed and rate of delivery. Openings in screen should be 50 mesh

or larger. 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 crop may result.

**PREEMERGENCE:** Use 25 to 40 gallons per acre and spray pressure of 30 to 40 psi.

**POSTEMERGENCE:** For postemergence application, use sufficient volume (minimum of 25 gallons per acre) for thorough coverage of weed foliage. Use spray pressure of 20 to 25 psi to keep spray drift to a minimum. Direx 80DF at recommended rates, controls seedling annual weeds such as annual morningglory, barnyardgrass (watergrass), crabgrass, crowfoot, goosegrass, pigweed and purslane. Addition of a surfactant to the spray (where recommended) increases contact effects of Direx 80DF. Best results are obtained on succulent weeds growing under conditions of high humidity and temperatures of 70°F or higher.

**SPRAY PREPARATION:** Mix proper amount of Direx 80DF into necessary volume of water. Where use of a surfactant is recommended, dilute with ten parts of water and add as last ingredient to nearly full tank.

**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.

**RATES:** All rates of Direx 80DF are expressed as broadcast rates, for band treatment use proportionately less. For example, use 1/3 of the broadcast rate when treating a 14 inch band where row spacing is 42 inches. 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 from failure to observe the following:

Unless otherwise directed, do not use on sand, loamy sand or gravelly soils or exposed subsoils; nor on pecans where organic matter is less than 0.5%; nor on alfalfa, apples, artichoke, barley (winter), citrus, cotton, grapes, oats, olives, papayas, peaches, pears, sorghum, sugarcane, walnuts and winter wheat where organic matter is less than 1%, nor on blueberries, birdsfoot trefoil, canberries, gooseberries, macadamia nuts and peppermint where organic matter is less than 2%.

Preemergence weed control will be reduced on high organic matter soils such as peat or muck.

**FIELD CROPS (See Soil Limitations):** A good seedbed must be prepared before preemergence use of Direx 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, the surface of the soil should not be cultivated or disturbed after application of Direx 80DF 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.

**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.

### RECOMMENDED USES 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.

#### Arizona, Nevada:

Use 1.5 to 3 pounds per acre. Apply in fall after alfalfa becomes dormant but no later than January.

#### California (Dormant and Semi-Dormant Varieties):

Use 1.5 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 inches in height or diameter). Control of established weeds is improved by applying Direx 80DF with a suitable contact herbicide registered for such use. Sufficient rainfall for activation of Direx 80DF is unlikely in California after February 1. Treated areas may be replanted to any crop after 1 year from last application if rate does not exceed 2 pounds per acre.

#### 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 inches in height. Alternatively, if other annual weeds are present, apply 2 to 3 pounds per acre in February or March.

#### Idaho, Oregon, Washington:

Use 1.5 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.

#### Other Areas Where Alfalfa Becomes Winter Dormant:

Use 1.5 to 3 pounds per acre (1.5 to 2 pounds per acre East of Appalachian Mountains). Apply in March or early April, but before spring growth begins.

### APPLE

Use Direx 80DF alone, or apply as a tank mixture with Sinbar® Herbicide.

#### Direx 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 from March through May. In the Far West apply 4 pounds per acre to small weeds less than 2 inches in height or diameter under dormant trees. Alternatively, treatments to small weeds may be applied at 2 pounds per acre postharvest followed by 2 pounds per acre prior to budbreak.

#### 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 a surfactant to improve control of small emerged weeds.

#### Direx 80DF plus Sinbar:

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.

#### RATE/ACRE

Soil Texture	1 to 2 % Organic Matter		More Than 2% Organic Matter	
	Direx 80DF	Sinbar	Direx 80DF	Sinbar
	Pounds/Acre	Pounds/Acre	Pounds/Acre	Pounds/Acre
Sandy loam	1.0	+	1.0	+
Loam, Silt loam, Silt	1.5	+	1.5	+
Clay loam, Clay	2.0	+	2.0	+

Where crop is grown under furrow irrigation or under raised-berm flood irrigation (trees 4 to 6 inches 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.

### ARTICHOKE

#### California:

Apply 2 to 4 pounds per acre in late fall or early winter after the last cultivation. Apply before weeds germinate or to emerging seedlings. Direct spray to cover the area between the rows and at the base of artichoke plants, keeping contact with crop plants at a minimum.

### ASPARAGUS

Apply as a band or broadcast treatment. Do not apply to young plants during the first growing season (except as noted below), nor to newly seeded asparagus, nor on plants with exposed roots, as severe injury may result. Preemergence weed control will be reduced on soils with greater than 5% organic matter.

#### Established Plantings:

On light sandy soils and other soils low in clay or organic matter, apply 1 to 2 pounds per acre. On soils high in clay or organic matter, use 2 to 4 pounds per acre. Two applications may be used. The first application should be made before weeds become established but no earlier than 4 weeks before spear emergence and no later than the early cutting period. If weeds are controlled into the cutting period by cultural practices, application may be delayed until immediately after the last cultivation. A second application may be made immediately following completion of harvest provided rainfall is expected. When two applications are used in one season, do not exceed 3 pounds per acre per application. In Washington (irrigated crop) apply a single treatment of 4 pounds per acre. If treatment is delayed until late winter or early spring, incorporation of the chemical in the top 1 to 2 inches of soil may substitute for lack of rain to activate the herbicide.

#### Newly Planted Crowns – San Joaquin Delta, California:

Make a single treatment of 2 to 4 pounds per acre on soils high in clay or organic matter. Use the lower rate on clay loams and the higher rate on peat soils. Do not use on soils containing less than 2% organic matter. Soil must be settled by rainfall or irrigation prior to treatment. Do not treat crowns planted to a depth of less than 2 inches.

### BANANA AND PLANTAIN

#### New Plantings:

To control annual weeds apply 1.5 to 3 pounds per acre after planting but before plants emerge.

Do not apply to loose soil directly over the planting material.

#### Established Plantings:

For control of annuals and for top kill of perennials such as bermudagrass, birdseed grass and guineagrass, apply 3 to 6 pounds per acre plus surfactant. 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 surfactant from the spray mixture. Repeat

treatment as needed. Apply at 6 week intervals or longer for a maximum of 12 pounds of Direx 80DF per acre (broadcast basis) in 12 months.

**Note:** Do not replant treated areas to any crop within 2 years after last application as injury to subsequent crops may result, except sugarcane or pineapple may be planted after 1 year.

### BARLEY (Winter)

#### Western Oregon and Western Washington:

For drill planted barley, make a single application of 1.5 to 2 pounds per acre as soon as possible after planting but before emergence of barley. Do not replant treated areas to any crop within 1 year after last application as injury to subsequent crop may result.

### BIRDSFOOT TREFOIL (Lotus)

#### Western Oregon:

Treat only stands established for at least 1 year. Do not apply to seedling trefoil as injury may result. Make a single application of 2 pounds per acre when trefoil is dormant (October 15 to December 15). Do not replant treated areas to any crop within 1 year after application as injury to subsequent crops may result.

### BLUEBERRY, CANEBERRY, GOOSEBERRY

Use only in fields which have been established for 1 year or more. 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 the base of canes or bushes. For spring application, apply before germination and growth of annual weeds.

**Arkansas, Florida, Georgia, New Hampshire, North Carolina – Blueberries:** Apply 1.5 to 2 pounds per acre in the spring and repeat treatment after harvest in the fall. Add a surfactant to improve control of small, emerged weeds.

**California – Raspberries, Blackberries, Boysenberries, Dewberries and Loganberries:**

For control of winter annual weeds, apply 2 pounds per acre in October or November. Repeat at same rate in late spring to control annuals. A single application of 3 pounds per acre in January or February will control annuals in some areas, but the separate fall and spring schedule is preferred.

**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 the same rate in the spring.

**Indiana, Michigan and Ohio – Raspberries:**

Apply 3 pounds per acre in the spring.

**Maine and Massachusetts – Blueberries:**

Apply 2 pounds per acre in late spring.

**Maryland and New Jersey – Blueberries:**

For control of winter annual weeds, apply 2 pounds per acre in October through December, or a single application of 2.5 pounds per acre may be applied in early to mid-spring.

**Western Washington and Western Oregon – Blueberries, Caneberries and Gooseberries:**

For control of winter annual weeds, apply 2 pounds per acre in October or November. Repeat at the same rate in late spring to control 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.

### CITRUS

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.

**Arizona (except Yuma area) and California (except Imperial and Coachella Valleys):**

Apply 3 to 4 pounds per acre shortly after the grove has been laid-up in final form (non-tillage 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 – Use only as a band application. Do not use "Trunk to Trunk."**

**East Coast/Flatwoods Areas – (low permeable soils)**

Do not use more than 8 pounds per treated acre in any one application.

Do not apply more than 12 pounds per treated acre per year. This amount corresponds to 9.6 pounds of diuron, the active ingredient in Direx 80DF.

The maximum allowable use rate for diuron is 9.6 pounds per treated acre per year inclusive of all diuron formulations used within 1 year.

**Ridge Areas – Except Highland Co. (highly permeable soils)**

Do not use more than 4 pounds per treated acre in any one application.

Do not apply more than 8 pounds per treated acre per year. This amount corresponds to 6.4 pounds of diuron, the active ingredient in Direx 80DF.

The maximum allowable use rate for diuron is 6.4 pounds per treated acre per year inclusive of all diuron formulations used within 1 year.

Ridge Areas - Highland Co. (highly permeable soils)

Do not use more than 4 pounds per treated acre in any one application.

Do not apply more than 6 pounds per treated acre per year. This amount corresponds to 4.8 pounds of diuron, the active ingredient in Direx 80DF.

The maximum allowable use rate for diuron is 4.8 pounds per treated acre per year inclusive of all diuron formulations used within 1 year.

Do not use at less than 60 day intervals.

#### 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 non-bearing trees, apply when winter banks are pulled down.

#### Texas:

Apply 2 to 4 pounds per acre for annual weeds. Use 4 to 6 pounds per acre for control of johnsongrass seedling. Spring treatments give best results. Well established weeds should be eliminated by cultivation prior to treatment.

## CORN (Field)

#### Postemergence:

Make a single application of 0.75 pound per acre in combination with non-pressure nitrogen solution. If nitrogen solution is not used, apply 1 pound per acre with surfactant. Apply as directed spray when corn is at least 20 inches high and weeds are no taller than 3 inches. DO NOT APPLY OVER THE TOP OF CORN. Do not replant to any crop within 1 year except cotton, corn, and grain sorghum may be planted the spring following treatment.

#### Preemergence - Arkansas, Louisiana, Mississippi and Tennessee:

Make a single application of 0.67 to 1 pound per acre as a broadcast or band treatment after planting but before corn emerges. Plant corn at least 1.5 inches deep. Do not replant treated areas to crops other than corn or cotton within 4 months following band treatment and 6 months following broadcast treatment as crop injury may result.

## COTTON

During a single crop season do not exceed the following amount of Direx 80DF per acre as injury to subsequent crops may result: 1 pound on loamy sand, 1.5 pounds on sandy loam, 2 pounds on clay loam and 2.75 pounds on clay.

Injury may occur if Direx 80DF is used in conjunction with soil-applied organic phosphate pesticides.

Do not allow livestock to graze treated cotton.

#### Preplant - Arizona and California:

Use Direx 80DF alone or apply as a separate operation following preplant broadcast treatment with Trilin® or other trifluralin products (incorporated according to directions on the trifluralin product label). Apply Direx 80DF as a broadcast spray after beds are formed, pre-irrigated and final seedbeds prepared. Prior to planting, drag-off the tops of the beds and plant in moist soil not treated with Direx 80DF. Treated soil is returned to the bed after planting when irrigation furrows are reformed after cotton has emerged. If more than two furrowing-out operations are performed prior to lay-by, or deep furrows are made early, weed control may be reduced in the furrow bottoms.

#### Direx 80DF Alone (Preplant):

1 to 2.5 pounds per acre.

#### Direx 80DF following Trilin or other trifluralin products:

Soil Texture	RATE/ACRE	
	Trilin or other trifluralin products	Direx 80DF
Sandy loam, Loam, Silt loam, Silt	1 pt.	0.67-1 lb.
Sandy clay loam, Clay loam, Silty clay loam, Sandy clay, Clay	1.5 pts.	1-1.25 lbs.

Seedling disease may weaken plants and increase the possibility of injury from the use of Trilin or other trifluralin products followed by Direx 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 (except Arizona and California):

Use Direx 80DF alone or apply as a separate operation following preplant treatment with Trilin or other trifluralin products. Apply Direx 80DF 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 0.25 inch) 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 Direx 80DF or if soil becomes crusted before crop emerges, a shallow rotary hoeing no deeper than 0.25 inch should be made before weeds become established.

NOTE: Do not use on sand or loamy sand soils.

#### Direx 80DF Alone (Preemergence):

Make a single application as a broadcast or band spray, using the following broadcast rates.

Use proportionately less for band treatment.

Soil Texture	POUNDS/ACRE
Sandy loam, Loam, Silt loam, Silt	1
Sandy clay loam, Clay loam, Silty clay loam, Sandy clay	1.25
Silty clay, Clay	2

Do not use on soils with less than 1% organic matter as crop injury may result.

#### Direx 80DF following Trilin or other trifluralin products (preplant):

Apply Trilin or other trifluralin products prior to planting as a broadcast or band treatment. Incorporate according to the directions on the Trilin or other trifluralin label. As a separate operation apply Direx 80DF as a band treatment (14 to 20 inches wide) after planting, but before cotton emerges. Use the following broadcast rates. For band treatment, use proportionately less.

Soil Texture	RATE/ACRE	
	Trilin or other trifluralin products	Direx 80DF
Sandy loam, Loam, Silt loam, Silt	1 pt.	1 lb.
Sandy clay loam, Clay loam, Silty clay loam, Sandy clay, Silty clay, Clay	1.5 pts.	1.25-2 lbs.

Do not use on soils with less than 1% organic matter as crop injury may result.

#### Postemergence:

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 THE TOP OF COTTON PLANTS.

#### Early Season:

Apply when cotton is at least 6 inches tall and when weeds are not actively growing and do not exceed 2 inches in height. Apply as a band treatment at following rates. Two applications may be made if needed.

Weed Problem (Up to 2 inches Tall)	Pounds Direx 80DF/ACRE Plus Surfactant	
	Broadcast Basis	Band (area)
Annual Weeds	0.5 lb.	0.17
Pigweed	0.25 lb.	0.08

For control of seedling perennial grass such as johnsongrass and partial control of nutsedge or when weed growth is under drought stress or as high as 4 inches, add 2.0 to 3.5 pounds disodium methylarsenate (DSMA; 63% anhydrous or equivalent) to above spray mixture. If DSMA is used, do not apply after first bloom.

#### Late Season (Lay-by)

Apply 1 to 1.5 pounds (1 to 2 pounds in Arizona and California) when cotton is at least 12 inches high (at least 20 inches 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 (4 inches or less in height) at lay-by time, make a single application in combination with surfactant or 0.5 to 0.75 pound per acre plus surfactant and repeat later if needed.

#### Replanting:

If initial seeding fails to produce a stand, cotton may be replanted in soil treated preemergence with Direx 80DF, alone or following Trilin or other trifluralin products. Wherever possible, avoid disturbing original bed. If necessary to rework soil before replanting, use shallow cultivation such as disking, do not relist nor move soil into the original drill area. Plant seed at least 1 inch deep. Do not retreat field with a second preplant or preemergence application of herbicide during the same crop year as injury to crop may result.

#### SUBSEQUENT CROPS

##### Direx 80DF Herbicide

Type of Application	That May Follow Treated Cotton
Band pre or postemergence	Any crop 4 months after last application.
Band pre plus postemergence or Broadcast preemergence (and preplant) or Broadcast preemergence plus band postemergence	Cotton, soybeans, corn or grain sorghums (not sorghos or forage sorghums nor grass sorghums) the next spring. Do not replant treated areas to any other crop within 1 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 1 year after last application as injury to subsequent crops may result.

For subsequent crops in fields where Trilin (or other trifluralin products) is used, follow instructions on the trifluralin product label.

## GRAPE

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

### New York and Pennsylvania - Grasses:

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 to 4 inches high) under trellis at the rate of 8 to 12 pounds per acre. Band width should not exceed 30 inches. Do not apply more than once every 4 years. Use only on heavy soils types such as loams, silt loams, clay loams. Do not use in areas where grape roots are shallow or exposed because of high bedrock, poor drainage or erosion as injury may result.

### 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 of annual weeds.

### West of the Rocky Mountains:

For best results, apply during the winter months when weeds are less than 2 inches in height or diameter. Rainfall or overhead sprinkler irrigation sufficient to wet the soil to a depth of 2 inches is necessary to activate the herbicide. Abnormally heavy rainfall following application just before spring growth may move the herbicide into the root zone of grapes which could result in injury. 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 1.5 inches in diameter as injury may result.

## 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. In 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 alta fescue, Astoria bentgrass, Highland bentgrass, Kentucky bluegrass (Merion bluegrass) and orchardgrass 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 two to four leaf stage should be removed prior to treatment.

Well established vigorous stands of spring planted alta fescue, Kentucky bluegrass 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.

**Fine Fescue Grass Seed Crops** (including chewings, creeping red and hard fescue types) for the suppression of rattle fescue: Apply at 1.0 to 2.0 pounds per acre on soils having at least 1% organic matter. Do not use on sand, loamy sand, gravelly soils or exposed subsoils.

**Crop Stage and Application Timing:** Direx 80DF is recommended for use on healthy, vigorous stands of fine fescue. Direx 80DF can be applied to stands established at least 1 year or to new plantings that have been established for at least 6 months and have a minimum of eight tillers at time of application.

Apply in fall before grass weeds are beyond the one to two leaf stage and before broadleaf weeds are larger than 1 to 2 inches tall or across. Use the high end of the rate range for large weeds or where weed populations are high.

Approximately 1/2 to 1 inch of rainfall or sprinkler irrigation is needed to move Direx 80DF in the weed zone before weeds develop an established root system. Weeds larger than the size indicated or those having a well established root system before Direx 80DF is properly activated by rainfall/irrigation may not be adequately controlled.

Weed burning may be reduced by heavy straw residues or ash from field burning.

**Tank Mixes and Sequential Treatments:** Direx 80DF can be applied either alone or in a program involving tank mixes and/or sequential treatments with other herbicides and adjuvants. When using a tank mix with other herbicides, use 1 to 1 1/2 pound per acre unless prior experience indicates it is safe to use higher rates. Tank mixes with other herbicides can increase the risk of crop injury. When using certain tank mix for the first time, limit use to a small area to determine safety before treating large areas.

### Precautions

Do not replant treated areas to any crop within 2 years of last application as injury to next crop may occur.

Do not apply to snow covered or frozen ground as injury to the crop or poor weed control may result.

Do not treat stands lacking in vigor due to poor fertility, environmental stress, insect or disease or damage from other herbicides.

### New Plantings - Oregon and Washington:

For use in newly planted bentgrass, chewing fescue, Kentucky bluegrass, perennial ryegrass, orchardgrass and tall fescue. During planting operation, spray a suitable brand of activated charcoal as a 1 inch band on soil surface at 15 pounds per acre of crop where row spacing is 20 inches (300 pounds per acre broadcast basis). Mount nozzles to apply directly over seed rows to prevent crop injury. Follow with Direx 80DF as a single broadcast spray at the rate of 2.5 to 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.

## MACADAMIA NUT

### Hawaii:

Use only under trees established in the orchard for at least 1 year. Apply at 2 to 6 pounds per acre immediately after harvest, preferably before weeds emerge. If weeds have emerged, add surfactant. Retreat as needed but do not exceed 10 pounds per acre per year.

## OATS

Do not replant treated areas to any crop within 1 year after last application as injury to subsequent crops may result.

### Drill Planted Spring Oats - Idaho, Eastern Oregon, Eastern Washington:

Use in areas where average annual rainfall exceeds 16 inches. Make a single application of 1 to 1.5 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 inches tall.

### Drill Planted Winter Oats and Mixture with Peas or Vetch - Western Oregon and Western Washington:

Make a single application of 1.5 to 2 pounds per acre as soon as possible after planting but before emergence of the crop.

## OLIVE

### California:

Use only under trees established in the grove for at least 1 year. Apply 2 pounds per acre after the 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.

## PAPAYA

Use only under trees established in the orchard for at least 1 year. Apply 2.5 to 5 pounds per acre, preferably before weeds emerge; if weeds have emerged, add surfactant.

## PEACH

Direx 80DF may be applied alone or as a tank mix with Sinbar.

### Direx 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.

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 surfactant to improve control of small, emerged weeds.

Where crop is grown under furrow irrigation or under raised-berm flood irrigation (trees 4 to 6 inches above water line), 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.

### Direx 80DF plus Sinbar:

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	RATE/ACRE			
	1 to 2 % Organic Matter		More Than 2% Organic Matter	
	Direx 80DF Pounds Per Acre	Sinbar Pounds Per Acre	Direx 80DF Pounds Per Acre	Sinbar Pounds Per Acre
Sandy loam	1.0	+	1.0	2.5
Loam, Silt	1.5	+	1.5	2.0
Clay loam, Clay	2.0	+	2.0	2.0

Where crop is grown under furrow irrigation or under raised-berm flood irrigation (trees 4 to 6 inches 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.



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## PEAR

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 from March through May. In the Far West, apply 4 pounds per acre to weeds less than 2 inches in height or diameter under dormant trees. Alternatively, apply to small weeds at 2 pounds per acre postharvest followed by 2 pounds per acre prior to budbreak.

## PECAN

Use Direx 80DF alone or as a tank mix with Sinbar. 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	RATE/ACRE			
	Direx 80DF Alone*	OR Direx 80DF	Tank mix** + Sinbar	
Sandy loam	2.0 lbs.	1.5 lbs.	+	1.5 lbs.
Loam, Silt loam, Silt	3.0 lbs.	1.75 lbs.	+	1.75 lbs.
Clay loam, Clay	4.0 lbs.	2.0 lbs.	+	2.0 lbs.

\*Use only under trees established in the grove for at least 3 years, and on soils with at least 0.5% organic matter.

\*\*Use only under 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 planted in irrigation furrows as injury may occur.

## PEPPERMINT

Washington, Oregon, Idaho:

Apply at 0.75 to 1.0 pound per acre on soils having 1% to 2% organic matter. Apply at 1.0 to 2.0 pounds per acre on soils having 2.1 to 3.0% organic matter. Apply at 2.0 to 3.0 pounds per acre on soils having more than 2.0% organic matter. Do not apply to sand, loamy sand, gravelly soils or exposed subsoils. Do not apply to soils that have a high salt content and/or high water table or poor drainage that retards mint root development resulting in a shallow root system. Do not apply to soils having less than 1% organic matter.

**Application Timing:** Apply Direx 80DF to established stands of mint during the late winter dormant period or after flaming in the spring prior to the emergence of new growth. Do not cultivate after application.

If weeds are present at time of application, the use of a surfactant at 0.25% volume/volume or crop oil concentrate at 1.0% volume/volume may be used to increase the performance of Direx 80DF postemergence to weeds.

**Tank Mixes and Sequential Treatments:** Direx 80DF can be applied either alone or in a program involving tank mixes and/or sequential treatments with other herbicides and adjuvants providing Direx 80DF is not applied to actively growing mint plant.

When using a tank mix with other herbicides, use the lower end of the Direx 80DF use rate range unless prior experience indicates it is safe to use higher rates. Tank mixes and sequential treatments with other herbicides can increase the risk of crop injury. When using a certain tank mix or sequential treatment for the first time, limit use to a small area to determine safety before treating large areas.

## 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. For ratoon crop use 4 pounds per acre after harvesting plant 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 three 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 3.75 to 6.25 pounds 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.

## RED CLOVER

Western Oregon:

Make a single application of 2 pounds per acre on established red clover stands at least 9 months. Apply when red clover is dormant from October 15 to December 15. Do not apply to seedling red clover. Do not replant treated area to any crop within 1 year after last application.

Treatment will control annual weeds such as bluegrass, chickweed, hawksbeard, rattail fescue, ryegrass and velvetgrass.

## SORGHUM (Grain)

Southwestern States:

Apply 0.25 to 0.5 pound per acre plus surfactant. Apply as a directed postemergence spray after sorghum is 15 inches tall to control weeds 2 to 4 inches in height. **DO NOT SPRAY OVER THE TOP OF SORGHUM.** Use lower rate on broadleaf weeds up to 2 inches tall. Use the higher rate on grasses up to 2 inches and broadleaf weeds up to 4 inches tall. When the lower rate is used, a second application may be made if needed. Do not exceed 0.5 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, test tolerance to Direx 80DF prior to adoption as field practice. Do not treat sugarcane growing on thinly covered sub-soils 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.

**Preemergence - Florida:**

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 - Florida:**

Make one or two applications of 2 pounds per acre as needed by directed spray inter-row. Alternatively, for panicum control, make up to three applications of 0.5 to 1 pound per acre plus surfactant as a directed spray after cane has emerged but before panicum exceeds 2 inches in height. Adjust nozzles to spray beneath cane plants and between rows to cover weed foliage and to minimize contact of cane leaves with spray or 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 and apply as a directed spray. **DO NOT SPRAY OVER THE TOP OF CANE.**

Do not apply more than three treatments nor more than 10 pounds in Puerto Rico or 12 pounds in Hawaii total per acre between planting (or ratooning) and harvest. Treated areas may be replanted to sugarcane or pineapple 1 year after last application.

**Louisiana:**

**Rates:** 3-3.75 pounds per acre.

Direx 80DF may be applied as a broadcast spray after planting and following the harvesting of sugarcane. Direx 80DF may also be applied broadcast in early spring. Application is best when made prior to weed emergence.

Apply Direx 80DF as a post-directed spray immediately after the last cultivation. Direct the spray application to the base (no more than 1/2 the plant height) of the sugarcane plants. When small weeds (3 inches or less) are present at application, add a surfactant at 0.25% V/V or crop oil concentrate at 1.0% V/V to the spray mix.

**Precautions:**

Temporary leaf yellowing may occur following application. Do not apply more than 7 1/2 pounds per acre broadcast per year. For band application, reduce the above broadcast rates proportionately to the width of the band using the following formula:

$$\frac{\text{Band width in inches}}{\text{Row width in inches}} \times \text{Broadcast Rate} = \text{Band Rate Per Acre}$$

## WALNUT (English)

California:

Use only under trees established in orchards 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 (non-tillage program) in late fall or early winter; repeat 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.

## WHEAT (Winter)

Crop injury may result where severe winter stress, disease or insect damage follows application. Winter-sensitive varieties may be less tolerant of Direx 80DF than winter-hardy varieties. Crop injury may 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 with less than 1% organic matter. Do not use on thinly covered sub-soil areas (clay knobs). Do not treat wheat planted less than 1 inch deep. Do not treat wheat 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. Unless specified

otherwise, do not use with surfactants or nitrogen solution. Do not replant treated areas to any other crop within 1 year after last treatment (except as noted) as injury may result.

#### Idaho, Oregon and Washington – East of Cascade Range:

Where average annual rainfall exceeding 16 inches, make a single application of 1 to 1.5 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 inches 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. Treatment made prior to April 10 will usually give good results, provided weed growth is less than 4 inches tall. Application later than May 1 may give poor results.

Alternatively, make a single application of 0.5 to 1 pound Direx 80DF plus 0.25 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 more than 2 inches tall or across.

Where average annual rainfall is 10 to 16 inches following fall planting, make a single application of 1 to 1.5 pounds per acre when sufficient moisture is available to germinate wheat seed. Apply before soil freezes and weeds are 2 inches 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 inches prior to planting. Do not retreat field with a second application during the same crop year or injury to the crop may result.

#### Oregon and Washington – West of Cascade Range:

Make a single application of 1.5 to 2 pounds per acre as soon as possible following planting. If wheat and weeds have emerged, apply before weeds are 3 to 4 inches tall. Alternatively, apply a tank mixture of Direx 80DF 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 inches tall. Application later than May 1 may give poor results.

#### 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 1.5 to 2 pounds per acre on clay, clay loam and silty clay loam soils.

#### Central Plains and Midwest:

Use 1 to 2 pounds per acre.

#### Northeast:

Use 1.0 to 1.5 pounds per acre.

## TREE PLANTINGS

#### Colorado, Montana, Nebraska, North Dakota, South Dakota, Wyoming:

Use only under established plantings 1 year or older of American elm, saguana, cottonwood, Douglas fir, green ash, honeysuckle, Ponderosa pine, red cedar, Russian olive and Siberian elm. Use 2.5 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 ounce Direx 80DF 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 may result.

## NON-CROP WEED CONTROL

Direx 80DF is an effective herbicide for the control of listed weeds. The degree of control and duration of effect will vary with amount of chemical applied, soil texture, rainfall and other conditions. Direx 80DF may be used as a preemergence treatment at any time of 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 applied 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 using a non-ionic surfactant. Apply as a drenching spray to actively growing weeds during warm weather when daily temperature will exceed 70°F.

Use a fixed-boom power sprayer properly calibrated to insure a constant rate of application. Mix proper amount of Direx 80DF into volume of water necessary to obtain uniform coverage. If surfactant is used, dilute with ten parts of water and add as last ingredient to nearly full tank. Direx 80DF 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. Use 50 mesh screen or larger.

## General Weeds Control:

To control most annual 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, around farm buildings and similar areas apply 5 to 15 pounds per acre to control most annual weeds including:

#### Broadleaves 5 to 15 pounds/acre

Ageratum	Knawel	Ragweed
Chickweed	Kochia	Sesbania
Cocklebur	Lambsquarter	Shepherdspurse
Corn Speedwell	Marigold	Sicklepod
Corn Spurry	Mexican Clover	Smartweed,
Dayflower	Morningglory,	Annual
Dogfennel	Annual	Sowthistle,
Fiddleneck	Pennycress	Annual
(Amsinckia)	Pigweed	Spanish Needles
Flora's Paintbrush	Pineappleweed	Tansymustard
Gromwell	Pokeweed	Velvetleaf
Groundcherry	Prickly Lettuce	(Buttonweed)
Annual	Prickly Sida	Wild Buckwheat
Hawksbeard	(Teaweed)	Wild Lettuce
Horsenettle	Purslane	Wild Mustard
Horseweed	Rabbit Tobacco	Wild Radish

#### Grasses 5 to 8 pounds/acre

Barnyardgrass	Orchardgrass	Seedling Johnsongrass
(Watergrass)	Peppergrass	Velvetgrass
Bluegrass,	Quackgrass	Vernalgrass,
Annual	Rattail Fescue	Sweet, Annual
Crabgrass	Red Sprangletop	
Foxtail	Ricegrass	
Kyllinga	Ryegrass,	
Lovegrass,	Annual	
Annual	Sandbur	

#### 8 to 15 pounds/acre

Guineagrass	Maidengrass	Pangolagrass
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#### Irrigation and drainage ditches:

Apply 5 to 15 pounds per acre to control most annual weeds as shown above. Apply only when water is not in the ditch. For irrigation ditches, apply during the non-crop season and when the ditch is not in use. To minimize movement of Direx 80DF with irrigation water and 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 ditch. Do not treat any ditch area into which roots of trees or other desirable plants may extend as injury may result.

## WARRANTY STATEMENT

GRIFFIN warrants that this product conforms to the chemical description on the label thereof and is reasonably fit for purposes stated on such label only when used in accordance with directions under normal use conditions. It is impossible to eliminate all risks inherently associated with use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials or the manner of use or application, all of which are beyond the control of GRIFFIN. In no case shall GRIFFIN be liable for consequential, special or indirect damages resulting from the use or handling of this product. All such risks shall be assumed by the Buyer. The exclusive remedy of any buyer or user of this product for any and all losses, injuries, or damages resulting from or in any way arising from the use, handling, or application of this product, whether in contract, warranty, tort, negligence, strict liability, or otherwise, shall not exceed the purchase price paid for this product or at GRIFFIN'S election, the replacement of this product. GRIFFIN MAKES NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

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