

pm25

1812-257

10/6

Griffin

Direx 4L[®]

HERBICIDE

Made in the USA

~~ACCEPTED~~
~~EPA COMMENTS~~
by EPA Region Director

NOV - 4 1994

Diuron Flowable Herbicide

For Control of Many Annual and
Perennial Grasses and Herbaceous Weeds

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

1812-257

ACTIVE INGREDIENT

Diuron (3- [3, 4-dichlorophenyl]-1,1-dimethylurea)*

40%

INERT INGREDIENTS

60%

TOTAL

100%

Contains 4.0 lbs. of Diuron per gallon.

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.

GRIFFIN CORPORATION
VALDOSTA, GEORGIA 31601

Specimen Label

EPA REG. NO. 1812-257

BEST AVAILABLE COPY.

10

PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS (AND DOMESTIC ANIMALS) CAUTION

Precautionary Statements: Harmful if swallowed, inhaled or absorbed through the skin. Do not get in eyes or on skin. Do not breathe spray mist. If swallowed, induce vomiting. Get medical attention. If inhaled, remove victim to fresh air. If on skin, remove by washing. Get medical attention if irritation persists. If in eyes, flush with plenty of water. Get medical attention.

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.

PERSONAL PROTECTIVE EQUIPMENT

Applicators and other handlers must wear:

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

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

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.

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.

Direx 4L Herbicide should be used only in accordance with recommendations on this label.

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 non-recommended use.

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 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 intervals. 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.

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

GENERAL INFORMATION

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) or 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, trees, shrubs or herbaceous plants, lawns, walks, driveways, grass tennis courts or similar areas. Prevent drift of spray to desirable plants. Do not contaminate any body water. Do not mix/load or use near wells including abandoned wells and sink holes. Avoid storage of pesticides near well sites. Keep from contact with fertilizers, insecticides, fungicides and seeds. Calibrate sprayers only with clean water away from the well site. Do not apply this product through any type of irrigation system.

Thoroughly clean all traces of Direx 4L from application equipment immediately after use. Flush tank, pumps, hose and boom with several changes of water after removing nozzle tips and screens (clean parts separately).

Direx 4L is to be mixed with water and applied as a spray for selective control of weeds in certain crops and for weed control on non-cropland areas. It is non-corrosive to equipment, non-flammable and non-volatile.

Direx 4L 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 4L 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 4L continues to control weeds for some time as the crop becomes better able to compete. Should weed seedlings begin to break through the pre-emergence treatment in significant numbers, secondary weed control procedures should be implemented. These include cultivation and post-emergence herbicide application.

Direx 4L 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 temperature of 70°F or higher. Additions of a surfactant to the spray (where recommended) increases contact effects of Direx 4L.

Direx 4L may be used as a directed post-emergence application. Contact of crop foliage and/or fruit with spray or mist must be avoided on the following crops: corn (field), cotton, sorghum (grain), sugarcane and established plantings of apples, bananas, plantains, blueberries, caneburnies, gooseberries, citrus, grapes, macadamia nuts, papayas, peaches, pears, pecans, and certain tree plantings as injury may occur.

Under specified conditions (see RECOMMENDED USES), Direx 4L without surfactant may be applied over the top of alfalfa (established, dormant or semidormant), asparagus (established), birdfoot trefoil (established, dormant), grass seed crops (established), oats, red clover (established, dormant) sugarcane, wheat and pineapple.

Weeds species vary in susceptibility to Direx 4L and they may be more difficult to control when under stress. Combinations of Direx 4L 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 on labeling of all products used in mixtures.

Since the effect of Direx 4L varies with soils, uniformity of application and environmental conditions, it is suggested that growers limit their first use to small areas.

SELECTIVE USE IN CROPS

PREEMERGENCE USE (Germinating Weeds)

Dirax 4L, at recommended rates, controls annual weeds and grasses such as:

0.6 to 0.8 quarts/acre	1.2 to 1.6 quarts/acre	1.6 to 4.8 quarts/acre
Crabgrass	Amsinckia	Ageratum
Barnyard grass (watergrass)	(Fiddleneck)	Annual ryegrass
Lambsquarters	Annual bluegrass	Annual ryegrass
Pigweed	Annual sweet vernalgrass	Annual smartweed
Purslane	Annual groundcherry	Annual sowthistle
Ragweed	Annual morningglory	Corn speedwell
	Chickweed	Dayflower
	Corn spurry	Flora's paintbrush
	Dogfennel	Hawksbeard
	Foxtail	Horseweed
	Gromwell	Johnsongrass (seedling)
	Knawel	Kochia
	Pennycress	Kyllinger (Kyllinga)
	Flat-tail fescue	Mangold
	Red sprangletop	Mexican clover
	Shepherdspurse	Orchardgrass
	Tansymustard	Peppergrass
	Velvetgrass	Pineappleweed
	Wild buckwheat	Pokeweed
	Wild lettuce	Rabbit tobacco
	Wild mustard	Rice grass
		Sandbur
		Spanishneedles
		Velvetleaf (buttonweed)
		Wild radish

Partial control:

0.8 quarts/acre	3.2 quarts/acre	6.4 to 8.0 quarts/acre
Annual morningglory	Horsenettle	Guineagrass
Cocklebur	Quackgrass	Maidencane
Prickly sida (tearweed)		Pangola grass
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 in a minimum of 3 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 screens should be 50 mesh or larger. Continuous agitation is required in the spray tank to keep the material in suspension. Agitation may be by mechanical or hydraulic means. If by-pass or return line is used, it should terminate at bottom of tank. Avoid overlapping and shut off spray booms while starting, turning, slowing or stopping or injury to crop may result.

PREEMERGENCE: For preemergence application use 25 to 40 gallons/acre and spray pressure of 30 to 40 psi. Preemergence weed control will be reduced on high organic matter soils such as peat or muck.

POSTEMERGENCE: For postemergence application use sufficient volume (minimum of 25 gallons/acre) for thorough coverage of weed foliage. Use spray pressure of 20-25 psi to keep spray drift to a minimum. Dirax 4L at recommended rates controls seedling annual weeds such as crabgrass, goosegrass, barnyard grass (watergrass), crowfoot, pigweed, purslane and morningglory. Addition of a surfactant to the spray (where recommended) increases contact effects of Dirax 4L. Best results are obtained on succulent weeds growing under conditions of high humidity and temperatures over 70 F or higher.

MIXING INSTRUCTIONS: Mix proper amount of Dirax 4L into necessary volume of water. Where use of surfactant is recommended, dilute with 10 parts of water and add as last ingredient to nearly full spray tank.

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

RATES: All rates are expressed as broadcast rates, where band applications are specified use proportionately less. For example, use 1/2 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 the larger weeds.

SOIL LIMITATIONS: Crop injury may result from failure to observe the following: Unless otherwise directed, do not use on any sand, loamy sand, gravelly soils or exposed subsoils; nor on pecans where organic matter is less than 0.5%; nor on alfalfa, apples, barley (winter), bermudagrass pasture, citrus, cotton, grapes, oats, papayas, peaches, pears, sorghum, sugarcane, and winter wheat where organic matter is less than 1%; nor on blueberries, brodiaea, caneberry, gooseberries, macadamia nuts and peppermint where organic matter is less than 2%.

FIELD CROPS: A good seedbed must be prepared before preemergence use of Dirax 4L, as crop injury may result if application is made to ground which is cloddy or compacted resulting in improper planted seed. Plant seed to depth specified. Unless otherwise directed, the surface of the soil should not be cultivated or disturbed after application of Dirax 4L 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. See "Soil Limitations" for crops listed below.

FRUIT AND NUT CROPS: Unless otherwise directed, make single application per year as a directed spray avoiding contact of foliage and fruit with spray or drift. See "Soil Limitations" section for restrictions. 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 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 1.2 to 2.4 quarts per acre; apply in fall after alfalfa becomes dormant but no later than January.

Eastern Colorado, Kansas: For control of tan yarrow, apply 0.8 quarts per acre shortly after emergence of mustard in the fall. Use 1.6 quarts per acre if weeds are 2 inches to 4 inches in height. Alternately, if other annual weeds are present, apply 1.6 to 2.4 quarts per acre in February or March.

Idaho, Oregon, Washington: For control of annual weeds use 1.2 to 2.4 quarts per acre. For control of volunteer alfalfa use 3.2 quarts per acre. Apply in fall after alfalfa becomes dormant but no later than mid-December.

Other Areas Where Alfalfa Becomes Winter Dormant: Use 1.2 to 2.4 quarts per acre (1.2 to 1.6 quarts per acre East of Appalachian Mountains). Apply in March or early April, but before spring growth begins.

APPLES

Dirax 4L 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 3.2 quarts per acre from March through May. In the Far West, apply 3.2 quarts 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 1.6 quarts per acre postharvest followed by 1.6 quarts per acre prior to bud break.

Dirax 4L 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 PER ACRE

Soil Texture	1 to 2 % Organic Matter		More Than 2% Organic Matter	
	Dirax 4L Quarts/Acre	Sinbar Lbs/Acre	Dirax 4L Quarts/Acre	Sinbar Lbs/Acre
Sandy loam	0.8	1.0	1.2	1.5
Loam, silt loam, silt	1.2	1.5	1.6	2.0
Clay loam, clay	1.6	2.0	1.6	2.0

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

Georgia: Apply 1.6 to 2.4 quarts per acre in the spring. Repeat application in the fall but do not use more than 3.2 quarts per acre per year. Add a surfactant to improve control of small, emerged weeds.

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 0.8 to 1.6 quarts per acre. On soils high in clay or organic matter, use 1.6 to 3.2 quarts 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 2.4 quarts per acre per application. In Washington (winter crop), apply a single treatment of 3.2 quarts 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.

BANANAS and PLANTAINS

New Plantings: To control annual weeds, apply 1.2 to 2.4 quarts per acre after planting but before weeds emerge. Do not apply to loose soil directly over the planting material.

Established Plantings: For control of annuals and for top-kill of perennial such as bermudagrass, birdseed grass and guineagrass. Apply 2.4 to 4.8 quarts per acre plus surfactant. Avoid contact of banana plants with spray or drift as injury may result. When fall, 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 8 week intervals or longer for a maximum of 9.6 quarts per acre (broadcast) in 12 months.

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

BARLEY (Winter) (Drill Planted)

Western Oregon and Western Washington: Make a single application of 1.2 to 1.6 quarts 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 the subsequent crop may result.

BERMUDAGRASS PASTURES (Newly Sprigged)

For newly sprigged only, apply 0.8 to 2.4 quarts after planting and before emergence of bermudagrass or weeds. Alternatively, for control of emerged annual weeds up to 4 inches in height, apply 0.4 to 0.8 quarts per acre with surfactant. If bermudagrass has emerged at time of treatment, temporary burn of exposed plant parts may occur. Plant sprigs (stolons) 2 inches deep in a well-prepared seedbed. Do not treat areas where sprigs are planted less than 2 inches deep as crop injury may result. Do not graze or feed foliage from treated areas to livestock within 70 days after application.

BEST AVAILABLE COPY

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 1.6 quarts per acre when trefoil is dormant (October 15 to December 15). Do not replant treated areas to any crop within one year after last application as crop injury may result.

BLUEBERRIES, CANEBERRIES, GOOSEBERRIES, AND RASPBERRIES

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

Georgia - Blueberries: Apply 1.2 to 1.6 quarts per acre in the spring and repeat treatment after harvest in the fall. Add a surfactant to improve control of small, emerged weeds.

Indiana, Michigan, and Ohio - Blueberries: Apply 1.6 to 3.2 quarts per acre in late spring. As an alternate, apply 1.6 quarts per acre in the fall and repeat at the same rate in the spring.

Indiana, Michigan, and Ohio - Raspberries: Apply 2.4 quarts per acre in late spring. Massachusetts - Blueberries: Apply 1.6 quarts per acre in late spring.

New Jersey - Blueberries: For control of winter annuals, apply 1.6 quarts per acre from October to December, or make a single application of 2.0 quarts per acre in early to mid-spring.

Western Washington and Western Oregon - Blueberries, Caneberries, and Gooseberries: For control of winter annuals, apply 1.6 quarts per acre in October or November. Repeat at the same rate in late spring to control annuals. A single application of 2.4 quarts per acre in January or February will control annuals in some areas, but the separate fall and spring schedule is preferred.

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 initiated any time of the year where sprinkle 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 area): Apply 2.4 to 3.2 quarts per acre shortly after grove has been laid up in final form (non-tilage program) in late fall or early winter. Alternatively, apply 1.6 quarts per acre in October or November and repeat at the same rate in March or April. Subsequent annual applications of 1.6 to 2.4 quarts will usually give adequate weed control.

Florida and Puerto Rico: Make a single application of 2.4 to 3.2 quarts per acre followed by the same rate 4 to 6 months later. On bearing trees, apply any time when seasonal rains are expected. On nonbearing trees, apply when winter banks are pulled down. As an alternative, make a single application of 3.2 to 6.4 quarts per acre.

Texas: Apply 1.6 to 3.2 quarts per acre for annual weeds. Use 3.2 to 4.8 quarts per acre for control of Johnsongrass seedlings. Spring treatments give best results. Well established weeds should be eliminated by cultivation prior to treatment.

CORN (Field)

Postemergence: Make a single application of 0.6 quart per acre in combination with non-pressure nitrogen solution. If nitrogen solution is not used, apply 0.8 quart 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 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 treatment of 0.5 to 0.8 quart per acre as a broadcast or band treatment after planting but before corn emerges. Plant corn at least 1 1/2 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 4L per acre as injury to subsequent crops may result: 0.6 quart on loamy sand, 1.2 quart on sandy loam, 1.6 quarts on clay loam, and 2.2 quarts on clay.

DO NOT SPRAY OVER THE TOP OF COTTON PLANTS.

Injury may occur if Direx 4L is used in conjunction with soil-applied organic phosphate pesticides.

Do not allow livestock to graze treated cotton.

Preplant - Arizona: Use Direx 4L alone or 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 4L 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 4L. Treated soil is returned to the bed after planting when irrigation furrows are reformed after cotton has emerged. If more than 2 furrowing-out operations are performed prior to lay-by, or deep furrows are made early, weed control may be reduced in furrow bottoms.

Apply Direx 4L alone at 0.6 to 2.2 quarts per acre.

Direx 4L following Trilin or other trifluralin products:

Soil Texture	RATE/ACRE	
	Preplant - Trilin or other trifluralin products	Preemergence - Direx 4L
Sandy loam, loam,	1 pint	0.5 to 0.8 quart
silt loam, silt		
Sandy clay loam, clay loam, silty clay loam,	1.5 pints	0.8 to 1.0 quart
sandy clay, clay		

Note: Seeding disease may weaken plants and increase the possibility of injury from the use of Trilin or other trifluralin products followed by Direx 4L. 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): Use Direx 4L alone or as a separate operation following preplant treatment with Trilin or other trifluralin products. Apply Direx 4L 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 1/4 inches 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 4L or if soil becomes crusted before crop emerges, a shallow rotary hoeing no deeper than 1/4 inch should be made before weeds become established.

Direx 4L Alone: Make a single application as a broadcast or band spray, using the following broadcast rates. Use proportionately less for band treatment.

Soil Texture	RATE/ACRE
Loamy sand	0.5 quart
Sandy loam, loam, silt loam and silt	0.8 quart
Sandy clay loam, clay loam, silty clay loam and sandy clay	1.0 quart
Silty clay and clay	1.6 quarts

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

Preplant - Direx 4L following Trilin or other trifluralin products: 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 4L as a band treatment (14 to 20 inches) after planting, but before cotton emerges. Use the following broadcast rates. For band treatment, use proportionately less.

See Note under Preplant above.

Soil Texture	RATE/ACRE	
	Preplant - Trilin or other trifluralin products	Preemergence - Direx 4L
Loamy sand	0.5 pint	0.5 quart
Sandy loam, loam, silt loam, silt	1 pint	0.8 quart
Sandy clay loam, clay loam, silty clay loam, sandy clay, clay, silty clay	1.5 pints	1.0 - 1.6 quarts

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

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 PLANTS.

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

Weed Problem (Up to 2 Inches Tall)	BAND TREATMENT DIREX 4L Per Acre	
	(Broadcast)	
Annual Weeds	0.4 quart	
Pigweed	0.2 quart	

For control of seedling perennial grass such as Johnsongrass and partial control of nutedge or when weed growth is under drought stress or over 2 inches in height, add 2.0 to 3.5 lbs 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 0.8 to 1.2 quarts (0.8 to 1.6 quarts in Arizona) per acre 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 in height) at lay-by time, make a single application in combination with surfactant, or use 0.4 to 0.6 quarts per acre plus surfactant and repeat if needed.

Replanting: If initial seeding fails to produce a stand, cotton may be replanted in soil treated preemergence with Direx 4L, alone or following preplant application of Trilin or trifluralin products. Whenever possible, avoid disturbing original bed. If necessary to rework soil before replanting, use shallow cultivation such as disking, do not resist 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 4L 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 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 Trilin (or other trifluralin products) is used, follow instructions on the trifluralin product label.

BEST AVAILABLE COPY

5 of 6

GRAPES

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 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%), use 1.6 to 2.4 quarts per acre. On soils high in clay or organic matter, use 2.4 to 4.8 quarts per acre. Apply in the spring just prior to germination and growth of annual weeds.

West of the Rocky Mountains: For best results, apply during the winter months when weeds are less than two 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 2.4 to 3.2 quarts per acre. Subsequent annual applications of 1.6 quarts will usually give adequate weed control. Do not apply to vines with trunks less than 1½ inches in diameter as injury may result.

New York and Pennsylvania: Use only in established vineyards (at least 4 years old) for spot control of perennial grasses such as quackgrass, ryegrass and orchardgrass. Apply in the spring as a band treatment to ridged soil (2 to 4 inches high) under trellis at the rate of 6.4 to 9.6 quarts per acre. Band width should not exceed 30 inches. Do not apply more than once every four years. Use only on heavy soil 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 to grapevines may result.

GRASS SEED CROPS (Perennial)

In areas as specified, apply only to established plantings at least 1 year old.

Colorado, Kansas, New Mexico and Oklahoma: On switchgrass, side oats grama and sand bluestem, apply 1.6 to 2.4 quarts 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 2.4 quarts per acre. Spread unburned chaff or straw with a harrow or chopper before application.

Western Oregon: On alta fescue, Highland bentgrass, Astoria bentgrass, orchardgrass, Kentucky bluegrass (Merion bluegrass) apply 1.6 to 3.2 quarts per acre between October 1 and November 15, in fields where ash residues have accumulated from burning straw, use 2.4 to 3.2 quarts per acre; spread unburned chaff or straw with a harrow or chopper before application. If perennial velvetgrass (*Holcus lanatus*) is a problem, use 3.2 quarts 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 alta fescue, orchardgrass and Kentucky bluegrass may be treated the following fall provided the crop is planted before April 1 and treatment is not applied before October 15. Apply at 1.6 quarts per acre.

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 lbs. per acre of crop where row spacing is 20 inches (300 lbs per acre broadcast basis). Mount nozzles to apply directly over seed rows to prevent crop injury. Follow with Direx 4L as a single broadcast spray at the rate of 2.0 to 2.4 quarts 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 NUTS

Hawaii: Use only under trees established in the orchard for at least one year. Apply 1.6 to 4.8 quarts per acre immediately after harvest, preferably before weeds emerge. If weeds have emerged, add surfactant. Retreat as needed but do not exceed 8.0 quarts per acre per year.

OATS (Drill-Planted)

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

SPRING OATS - Idaho, Eastern Oregon, Eastern Washington: Use in areas where average annual rainfall exceeds 16 inches. Make a single application of 0.8 to 1.2 quarts 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 inches to 4 inches in height.

WINTER OATS and Mixture with PEAS or VETCH - Western Oregon and Western Washington: Make a single application of 1.2 to 1.6 quarts per acre as soon as possible after planting but before crop emergence.

PAPAYAS

Use only under trees established in the orchard for at least 1 year. Apply 2.0 to 4.0 quarts per acre, preferably before weeds emerge. If weeds have emerged, add surfactant.

PEACHES

Direx 4L may be applied alone or as a tank mix with Sinbar.

Direx 4L Alone: Use only under trees established in the orchard for at least 3 years. Apply 1.6 to 4.0 quarts 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.

Direx 4L 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 4L Quarts/Acre	Sinbar Lbs/Acre	Direx 4L Quarts/Acre	Sinbar Lbs/Acre
Sandy loam	0.8	1.0	1.2	1.5
Loam, silt loam, silt	2	1.5	1.6	2.0
Clay loam, clay	1.6	2.0	1.6	2.0

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

Georgia: On trees established for at least 2 years, apply 1.6 to 2.4 quarts per acre in the spring. Repeat application in the fall but do not exceed 4.0 quarts 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 inches 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.

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 3.2 quarts per acre from March through May. In the Far West apply 3.2 quarts per acre to weeds less than 2 inches in height or diameter under dormant trees. Alternatively, apply to small weeds at 1.6 quarts per acre postharvest followed by 1.6 quarts per acre prior to budbreak.

PECANS

Use Direx 4L 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.

RATE PER ACRE

Soil Texture	Direx 4L, Alone*	Tank mix **	
		Direx 4L	+ Sinbar
Sandy loam	1.6 quarts	1.2 quarts	1.5 lbs
Loam, silt loam, silt	2.4 quarts	1.4 quarts	1.75 lbs
Clay loam, clay	3.2 quarts	1.8 quarts	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

Pacific Northwest: Apply 2.4 quarts per acre just after the last cultivation in the spring prior to emergence of peppermint. Do not apply to plantings less than 1 year nor to emerged peppermint as injury may result.

PINEAPPLE

Hawaii and Florida: Apply 3.2 to 5.0 quarts per acre as a broadcast spray just before or immediately after planting but prior to weed emergence. For ratoon crop use 3.2 quarts 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 1.6 quarts per acre at intervals of not less than 2 months. Additional applications to plant crop may be made as needed to interspace only using 1.6 quarts per acre. Do not apply more than 3 broadcast sprays (maximum 9.6 quarts per acre) prior to differentiation nor more than 12.8 quarts total per acre. Treated areas may be planted to pineapple or sugarcane 1 year after last application.

Puerto Rico: Apply 3.0 to 5.0 quarts per acre as a broadcast spray before or immediately after planting but prior to weed emergence. Preemergence 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 1.8 quarts per acre on established red clover stands at least 9 months old. Apply when red clover is dormant between October 15 to December 15. Do not apply to seedling red clover. Do not replant treated area to any crop within one year after last application.

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

SORGHUM (Grain)

Southwestern States: Apply 0.2 to 0.4 quart per acre plus surfactant. Apply as a directed postemergence spray after sorghum is 15 inches tall to control weeds 2 to 4 inches. DO NOT SPRAY OVER 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 0.4 quart 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 crop injury on new cane varieties, test tolerance to Direx 4L prior to adoption as a 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 1.6 to 3.2 quarts 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 1.6 quarts per acre may be made as needed by directed spray inter-row. As an alternate for panicum control, make up to 3 applications of 0.4 to 0.8 quarts 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 4.8 quarts total per acre between planting (or ratooning) and harvest.

Hawaii and Puerto Rico: Apply 3.2 to 6.4 quarts 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 1.6 to 3 quarts per acre may be made as a broadcast spray over emerged cane or by directed spray inter-row.

BEST AVAILABLE COPY

If weeds are emerged, add a surfactant to spray mixture at the rate of 1 to 2 quarts per 100 gallons and apply as a directed spray.

DO NOT SPRAY Direx 4L OVER THE TOP OF CANE.

Do not apply more than 3 treatments nor more than 8.0 quarts per acre in Puerto Rico or 9.6 quarts per acre in Hawaii between planting (or ratooning) and harvest. Treated areas may be replanted to sugarcane or pineapple one year after last application. Louisiana: Use on plant cane seeded on fallowed ground. Make a single application of 2.4 to 3.0 quarts 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.

TREE PLANTINGS

Colorado, Montana, Nebraska, North Dakota, South Dakota, Wyoming: Use only under plantings of American elm, caragana, cottonwood, Douglas fir, green ash, honeysuckle, Ponderosa pine, redcedar, Russian olive and Siberian elm, of one year or older. Use 2.0 to 4.0 quarts per acre. Apply as a band 4 ft. wide in the tree row (2 ft. on each side of tree row). For example, 1.6 oz. Direx 4L treats 135 ft. of tree row (2 ft. on each side of tree row) at the rate of 4.0 quarts 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.

WHEAT (Winter) (Drilled Planted)

Crop injury may result where severe winter stress, disease or insect damage follows application. Winter-sensitive varieties may be less tolerant of Direx 4L than winter-hardy varieties. Crop injury may result from failure to observe the following: Do not use on sand or loamy sand soil, nor on gravelly or sandy loams with less than 1% organic matter. Do not use on thinly covered or exposed sub-soil area (clay knolls). 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. Unless specified otherwise, do not use with surfactants, or nitrogen solution. Do not replant treated areas any other crop within one year after last treatment (except as noted) as injury may result.

Idaho, Oregon and Washington - East of Cascade Range: Where average annual rainfall exceeds 16 inches, make a single application at the rate of 0.8 to 1.2 quarts per acre. 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. For 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 0.4 to 0.8 quart Direx 4L plus 0.25 lb. bromoxynil per acre as a tank mix, in either the fall after wheat has emerged but before soil freezes or in the spring as soon as soil thaws. Apply before weeds are 2 inches tall or across. Where average annual rainfall is 10 to 16 inches, following fall planting make a single application of 0.8 to 1.2 quarts per acre when moisture is available to germinate wheat seed. Apply before soil freezes and before weeds are 2 inches tall. Application later than March 1 may give poor results. 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 make a second application during the same crop year as injury may result.

Oregon and Washington - West of Cascade Range: Make a single application of 1.2 to 1.8 quarts per acre as soon as possible after planting. If wheat and weeds have emerged, apply before weeds are 3 to 4 inches tall. Alternatively, apply a tank mix of Direx 4L plus bromoxynil as detailed for "East of the 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 0.8 quart per acre on silt and silt loam soils and 1.2 to 1.6 quarts per acre on clay, clay loam and silty clay loam soils.

Central Plains and Midwest: Use 0.8 to 1.6 quarts per acre.

Northeast: Use 0.8 to 1.2 quarts per acre.

NON-CROP WEED CONTROL

Direx 4L is an effective general herbicide for the control of many weeds. The degree of control and duration of effect will vary with amount of chemical applied, soil type, rainfall and other conditions. Direx 4L 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 applied shortly before weed growth begins. If dense growth is present, remove tops and spray the ground.

Increased contact activity on es. Broad weeds may be obtained by the addition of a non-ionic surfactant. Apply as a wrenching 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 4L into volume of water necessary to obtain uniform coverage. If a surfactant is used, dilute with 10 parts of water and add as last ingredient to nearly full tank. Direx 4L 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 or larger screens.

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 4 to 12 quarts per acre to control annual weeds including:

Broadleaves 4 to 12 quarts/acre

Ageratum
Chickweed
Cocklebur
Corn speedwell
Corn spurry
Dayflower
Sowthistle, annual
Pigweed
Pineappleweed
Pokeweed
Prickly lettuce
Hawthorn
Purslane
Rabbit tobacco

Knapweed
Kochia
Lambquarters
Marigold
Mexican clover
Morningglory, annual
Fiddleneck (sinsinckia)
Spanishneedles
Tansymustard
Velvetleaf (buttonweed)
Prickly sida (leafweed)
Wild lettuce
Wild mustard
Wild radish

Ragweed
Sesbania
Shepherdspurse
Sicklepod
Smartweed, annual
Dogfennel
Pennywort
Fora's paintbrush
Gromwell
Groundcherry, annual
Wild buckwheat
Horseweed
Horseweed

Grasses 4 to 6.4 quarts/acre

Barnyardgrass (watergrass)
Bermudagrass
Crabgrass
Crabgrass
Ricegrass
Lovegrass, annual

Orchardgrass
Velvetgrass
Vernagrass, sweet, annual
Red sprangletop
Kyllinga
Sandbar

Seeding johnsongrass
Bluegrass, annual
Pitted leucue
Foxtail
Ryegrass, annual

6.4 to 12 quarts/acre

Guineagrass
Maidenagrass
Pangolagrass

Irrigation and drainage ditches: Apply 4 to 12 quarts 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 ditch is not in use. To avoid crop injury, it is essential to minimize movement of Direx 4L in irrigation water. The herbicide must 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 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. GRIFFIN MAKES NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

Direx 4L is a registered trademark of Griffin Corporation

Sinbar is a registered trademark of E.I. duPont de Nemours & Co.

Trilin is a registered trademark of Griffin Corporation

DCN 110893
CPC 033333

BEST AVAILABLE COPY