

PM25

5905-482

Free
1 of 31



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

MAR 14 1994

Beverley Neale
HELENA CHEMICAL CO.
6075 POPLAR AVE SUITE 500
MEMPHIS, TN 38119

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

**Subject: Label Amendment Submission of 09/08/93 in Response to PR Notice 93-7
EPA Reg. No. 5905-482
HELENA 4.8 LB DIURON FLOWABLE HERBICIDE**

Dear Registrant:

The labeling cited above and submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, is accepted subject to the comments reflected on the enclosed sheet. A copy of your proposed labeling stamped "ACCEPTED WITH COMMENTS" is enclosed.

WHAT THIS ACCEPTANCE MEANS:

Based on your certification, the Agency has accepted the labeling changes that are necessary to comply with the Worker Protection Standard (WPS) labeling requirements of 40 CFR part 156, subpart K, described in PR Notices 93-7 and 93-11. Any other labeling changes submitted in connection with this amendment application but not directly related to compliance with the WPS have not been reviewed or accepted by the Agency. If you wish to make such changes, you must submit a separate amendment application proposing them. If your product is currently suspended, the acceptance of this labeling amendment does not affect the suspension in any way.

WHAT YOU NEED TO DO NEXT:

By the next label printing make all the specified changes to your labeling. Send to EPA one (1) copy of the final printed labeling:

- **BEFORE** selling or distributing any product bearing the final printed labeling
- AND**
- **WITHIN** one year from date of this acceptance.



Recycled/Recyclable
Printed with Soy-Candle Ink on paper that
contains at least 50% recycled fiber

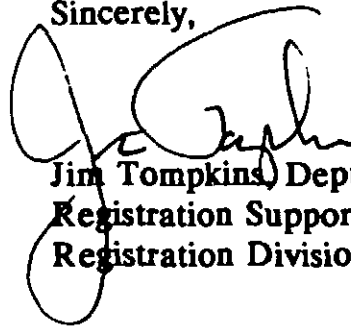
Submit the final printed labeling via the U.S. Postal Service to:

Document Processing Desk (FIN-LABEL)
Office of Pesticide Programs (7505C)
U.S. Environmental Protection Agency
401 M Street, SW
Washington, D.C. 20460-0001

Hand or courier deliveries of final printed labeling may be made to:

Document Processing Desk (FIN-LABEL)
Office of Pesticide Programs
Room 266A, Crystal Mall 2
1921 Jefferson Davis Highway
Arlington, VA 22202

Sincerely,



Jim Tompkins, Deputy Chief
Registration Support Branch
Registration Division (7505W)

Attachment

**Beverly Neale
HELENA CHEMICAL COMPANY**

**Comments for: EPA REG. NO. 5905-482
HELENA 4.8 LB. DIURON FLOWABLE HERBICIDE**

The following specific comments pertain to your WPS labeling submission concerning the product cited above:

Move the statement "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." from its current position within the Agricultural Use Box and place it the Directions for Use section of your label.

Remove the statement "Keep children and pets out of treated area until sprays have dried" and replace it with "Do not enter treated areas without protective clothing until sprays have dried" that appears on your current label.

Delete the crossed-out statements on your proposed label. They are redundant statements or phrases.

Correct the typographical errors circled on your proposed label.

4831

4 LB. DIURON FLOWABLE HERBICIDE

FOR CROP AND NON-CROP WEED CONTROL

ACTIVE INGREDIENTS:

Diuron 3-(3,4-dichlorophenyl)-1,1-dimethylurea 47.5%

INERT INGREDIENTS: 52.5%

TOTAL 100.0%

This product contains 4.8 pounds diuron per gallon

KEEP OUT OF REACH OF CHILDREN

WARNING - AVISO

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

See Side Panel for Additional Precautionary Statements.

EPA REG. NO. 5905-482
EPA EST. NO.

NET CONTENTS:

MANUFACTURED BY
HELENA CHEMICAL COMPANY
MEMPHIS, TN 38119

ACCEPTED
with COMMENTS
in EPA Letter Dated

14
Under the Federal Insecticide,
Fungicide, and Rodenticide Act
as amended, for the pesticide
registered under EPA Reg. No.
5905-482

**PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS
WARNING**

Causes eye irritation. Do not get in eyes, on skin, or on clothing. Harmful if swallowed. Avoid breathing spray mist.

STATEMENT OF PRACTICAL TREATMENT

- IF IN EYES:** Rinse eyes for at least 15 minutes with plenty of water. Get medical attention if irritation persists.
- IF SWALLOWED:** Drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger. Do not induce vomiting or give anything by mouth to an unconscious person. Get medical attention immediately.
- IF INHALED:** Remove from exposure. Have patient lie down and keep quite. If patient is not breathing, start artificial respiration immediately.
- IF ON SKIN:** ~~Remove contaminated clothing and~~ wash skin immediately with soap and water. Rinse thoroughly.

PERSONAL PROTECTIVE EQUIPMENT

Applicators and other handlers must wear:

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

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering Controls Statement

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS

- User 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.

ENVIRONMENTAL HAZARD

Do not apply directly to lakes, streams, or ponds. Do not contaminate water by cleaning of equipment or disposal of equipment washwaters.

CHEMIGATION PROHIBITION

Do not apply this product through any type of irrigation system.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. 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 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.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours. Exception: if the product is soil-injected or soil-incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter treated area if there will be no contact with anything that has been treated.

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

- Coveralls
- Waterproof gloves
- Shoes plus socks
- Protective Eyewear

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. ~~Keep children and pets out of treated area until sprays have dried.~~

STORAGE AND DISPOSAL

Storage: Do not store at temperatures below 32° F. If product freezes, expose to room temperature and shake well before using. Do not contaminate water, food, or feed by storage or disposal.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal: 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.

BEST AVAILABLE COPY

Helena 4.8 Lb. Diuron is a flowable formulation to be mixed in water and applied as a spray for selective control of weeds in certain crops and for nonselective control of weeds in certain crops and for nonselective weed control on non-cropland areas. It is noncorrosive to equipment, nonflammable and nonvolatile.

Helena 4.8 Lb. Diuron 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 to obtain equivalent herbicide performance. Moisture is required to activate the chemical; best results occur if rainfall (or sprinkler irrigation) occurs within 2 weeks of application.

Helena 4.8 Lb. Diuron 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 nonionic surfactant increases contact effects of **Helena 4.8 Lb. Diuron**. Since the effect of **Helena 4.8 Lb. Diuron** varies with soils, uniformity of application, and environmental conditions, it is suggested that growers limit their first use to small areas. Observe all cautions and limitations on labeling of all products used in mixtures.

SELECTIVE USE IN CROPS

PREEMERGENCE USE (Germinating Weeds): Helena 4.8 LB Diuron, at recommended rates, controls annual weeds such as:

Broadleaves		
<u>1/2 - 2/3 qt/acre</u>	<u>1 - 1 1/3 qts/acre</u>	<u>1 1/3 - 4 qts/acre</u>
Lambsquarters	Annual groundcherry	Ageratum
Pigweed	Annual morningglory	Annual smartweed
Purslane	Chickweed	Annual sowthistle
Ragweed	Corn spurry	Corn speedwell
	Dogfennel	Dayflower
	Fiddleneck	Flora's paintbrush
	(amsinchia)	Hawksbeard
	Gromwell	Horseweed
	Knawel	Kochia
	Pennycress	Marigold
	Shepherdspurse	Mexican clover
	Tansy-mustard	Pineappleweed
	Wild buckwheat	Pokeweed
	Wild lettuce	Rabbit tobacco
	Wild mustard	Spanishneedles
		Velvetleaf
		(buttonweed)
		Wild radish

Grasses		
<u>1/2 - 2/3 qt/acre</u>	<u>1 - 1 1/3 qts/acre</u>	<u>1 1/3 - 4 qts/acre</u>
Barnyardgrass	Annual bluegrass	Annual lovegrass
(watergrass)	Annual sweet	Annual ryegrass
Crabgrass	vernalgrass	Kyllinga
	Foxtail	Orchardgrass
	Rattail fescue	Peppergrass
	Red sprangletop	Ricegrass
	Velvetgrass	Sandbur
		Seedling johnsongrass

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

Broadleaves	
<u>2/3 qt /acre</u>	<u>2 2/3 qts/acre</u>
Annual morningglory	Horsenettle
Cocklebur	
Prickly sida (teaweed)	
Sesbania	
Sicklepod	

Grasses	
<u>2 2/3 qts/acre</u>	<u>3 1/2 - 6 2/3 qts/acre</u>
Quackgrass	Guineagrass
	Maidencane
	Pangolagrass

BEST AVAILABLE COPY

POSTEMERGENCE USE (Emerged Seedling Weeds): Helena 4.8 LB Diuron at recommended rates, controls annual weeds such as annual morningglory, barnyardgrass (watergrass), crabgrass, crowfoot, goosegrass, pigweed and purslane. Addition of a nonionic surfactant to the spray (where recommended) increases contact effects of Helena 4.8 LB Diuron. Best results are obtained on succulent weeds growing under conditions of high humidity and temperatures of 70° F or higher.

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

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

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

SPRAY PREPARATION: Mix proper amount of Helena 4.8 LBS Diuron into necessary volume of water; where use of a nonionic surfactant is recommended, dilute with 10 parts of water and add as last ingredient to nearly full tank.

Use Rates: All dosages of Helena 4.8 LB Diuron are expressed as broadcast rates; for band treatment, use proportionately less. For example, use 1/3 of the broadcast rate when treating a 14" band where row spacing is 42". Where a range of dosages is given, use the lower rate on coarse textured soils (low in clay or organic matter) and the higher rate on 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, gravelly soils or exposed subsoils; nor on pecans where organic matter is less than 1/2%; nor on alfalfa, apples, artichoke, barley (winter), bermudagrass pasture, citrus, cotton, grapes, cats, olives, papayas, peaches, pears, plumosus fern, sorghum, sugarcane, walnuts and wheat (winter) where organic matter is less than 1%; nor on blueberries, birdsfoot trefoil, caneberrie gooseberries, macadamia nuts and peppermint where organic matter is less than 2%.

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.

BEST AVAILABLE COPY

10/31

FIELD CROPS (See Soil Limitations)

A good seedbed must be prepared before preemergence use of Helena 4.8 LB Diuron as crop injury may result if application is made to ground which is cloddy or compacted resulting in improperly planted seed. Plant seed to depth specified. Unless otherwise directed, surface of the soils should not be cultivated or disturbed after application of Helena 4.8 LB Diuron and before emergence of the crop as weed control may be reduced and crop injury may result. However, if moisture is insufficient to activate the herbicide, a shallow cultivation (rotary hoe preferred) should be made after emergence of crops while weeds are small enough to be controlled by mechanical means.

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

Idaho, Oregon, Washington: Use 1 to 2 qts per acre; for control of volunteer alfalfa, use 2 2/3 qts per acre. Apply in fall after alfalfa becomes dormant but no later than mid-December.

California (Dormant and Semi-Dormant Varieties): Use 1 to 2 qts per acre; for control of volunteer alfalfa, use 2 2/3 qts per acre. Apply in fall or winter after alfalfa becomes dormant or semi-dormant, but before growth begins in the spring. Crop injury result if application is made to actively growing alfalfa. For best results, apply before weeds have emerged or become established (2" in height or diameter). Control of established Helena 4.8 LB Diuron with a suitable contact herbicide registered for such use. Sufficient rainfall for soil activation of Helena 4.8 LB Diuron is unlikely in California after February 1. Treated areas may be replanted to any crop after one year from last application if rate does not exceed 1 1/3 qts per acre.

Arizona, Nevada: Use 1 to 2 qts per acre; apply in fall after alfalfa becomes dormant but no later than January.

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

Other Areas Where Alfalfa Becomes Winter Dormant: Use 1 to 2 qts per acre (1 to 1 1/3 qts per acre East of Appalachian Mountains). Apply in March or early April, but before spring growth begins.

ARTICHOKE - California: Apply 1 1/3 to 2 2/3 qts 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.

BEST AVAILABLE COPY

1173

Established Plantings: On light sandy soils and other soils low in clay or organic matter, apply 2/3 to 1 1/3 qts per acre. On soils high in clay or organic matter, use 1 1/3 to 2 2/3 qts 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 qts per acre per application. In Washington (irrigated crop), apply a single treatment of 2 2/3 qts per acre. If treatment is delayed until late winter or early spring, incorporation of the chemical in the top 1" to 2" of soil may substitute for lack of rain to activate the herbicide.

Newly Planted Crowns - California (San Joaquin Delta): Make a single application of 1 1/3 to 2 2/3 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".

BARLEY, WINTER (Drill-Planted) - Western Oregon and Western Washington: Make a single application of 1 to 1 1/3 qts 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 crops may result.

BERMUDAGRASS PASTURES (Newly Sprigged): Apply 2/3 to 2 qts after planting and before emergence of bermudagrass or weeds. Alternatively, for control of emerged annual weeds up to 4" in height, apply 1/3 to 2/3 qts per acre; add 1 pt of an approved non-ionic surfactant per 25 gals. of spray. If bermudagrass has emerged at time of treatment, temporary burn of exposed plant parts may occur.

Plant sprigs (stolons) 2" deep in a well-prepared seed bed; do not treat areas where springs are planted less than 2" deep as crop injury may result. Do not graze or feed foliage from treated areas to livestock within 70 days after application.

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 1/3 qt per acre when trefoil is dormant (October 15 to December 15). Do not replant treated areas to any crop within 1 year after last application as injury to subsequent crops may result.

CORN (FIELD)

Postemergence - Make a single application of 1 pt per acre in combination with non-pressure nitrogen solution. If nitrogen solution is not used, apply 2/3 qt per acre; add 1 pt of an approved non-ionic surfactant per 25 gals of spray. Apply as a directed spray when corn is at least 20" high and weeds are not taller than 3". DO NOT APPLY OVER TOP OF CORN. Do not replant to any crop within 1 year except that cotton, corn, and grain sorghum may be planted the spring following treatment.

BEST AVAILABLE COPY

12 of 31

Preemergence - Arkansas, Louisiana, Mississippi and Tennessee: Make a single application of 4/9 to 2/3 qt per acre as a broadcast or band treatment after planting but before corn emerges. Plant corn at least 1 1/2" deep. Do not replant treated areas to crops other than corn or cotton within 4 months of 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 Helena 4.8 LB Diuron per acre as injury to subsequent crops may result: 2/3 qt on loamy sand; 1 qt on sandy loam; 1 1/3 qt on clay loam; 1 4/5 qt on clay. Injury may occur if Helena 4.8 LB Diuron is used in conjunction with soil-applied organic phosphate pesticides. Do not allow livestock to graze treated cotton.

Preplant - Arizona and California: Use Helena 4.8 LB Diuron alone, or apply as a separate operation following preplant broadcast treatment with "Treflan"* (incorporated according to directions on "Treflan" label). Apply Helena 4.8 LB Diuron as a broadcast spray after beds are formed, preirrigated, and final seed beds prepared. Prior to planting, drag-off the tops of the beds and plant in moist soil not treated with Helena 4.8 LB Diuron. 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 made prior to lay-by, or deep furrows are made early, weed control may be reduced in furrow bottoms. Use at the following rates:

Helena 4.8 LB Diuron Alone: 2/3 to 1 2/3 qts per acre.

Helena 4.8 LB Diuron Following "Treflan":

Soil Texture	Product Per Acre Preplant	
	"Treflan"	Helena 4.8 LB Diuron
Sandy loam, loam, silt loam, silt	1 pt.	9/10 to 1 1/3 pts
Sandy clay loam, clay loam, silty clay loam, sandy clay, clay	1 - 1/2 pts	1 1/3 to 1 2/3 pts

Note: Seedling disease may weaken plants and increase the possibility of injury from the use of "Treflan" followed by Helena 4.8 LB Diuron. 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.

*Registered trademark of Elanco Products Co.

Preemergence - U.S. except Arizona, California, and areas west of Interstate 35 or 35W in Texas and Oklahoma: Use Helena 4.8 LB Diuron alone, or apply as a separate operation following preplant treatment with "Treflan". Apply Helena 4.8 LB Diuron 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 incorporated (no deeper than 1/4") 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 seed bed for subsequent early season postemergence treatments. If moisture is insufficient to activate

BEST AVAILABLE COPY

Helena 4.8 LB Diuron or if soil becomes crusted before crop emerges, a shallow rotary hoeing (no deeper than 1/4") should be made before weeds become established.

Helena 4.8 LB Diuron Alone: Make a single application as a broadcast or band spray, using the following broadcast rates; for band treatment, use proportionately less.

Soil Texture**	Pts Helena 4.8 LB Diuron Per Acre
Loamy sand	9/10
Sandy loam, loam, silt loam, silt	1 1/3
Sandy clay loam, clay loam, silty clay loam, sandy clay	1 2/3
Silty clay, clay	2 2/3

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

Helena 4.8 LB Diuron Following "Treflan" Preplant: Apply "Treflan" prior to planting as a broadcast or band treatment; incorporate according to directions on "Treflan" label. As a separate operation, apply "Karmex" as a band treatment (14" to 20" wide) after planting but before cotton emerges. Use at the following broadcast rates; for band treatment, use proportionately less. See "Note" under Preplant above.

Soil Texture**	Product Per Acre	
	Preplant "Treflan"	Preemergence Helena 4.8 LB Diuron
Loamy sand	1/2 pt	9/10 pt
Sandy loam, loam, silt loam, silt	1 pt	1 1/3 pt
Sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, clay	1 - 1/2 pts	1 2/3 - 2 2/3 pt

**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.

Early Season - Apply when cotton is at least 6" tall (at least 12" tall for Western irrigated cotton), and when weeds are actively growing and do not exceed 2" in height. Apply as a band treatment at following rates; for each 25 gals of spray, add 1 pt of an approved nonionic surfactant. Two applications may be made if needed.

Weed Problem (Up to 2" Tall)	pts Helena 4.8 LB Diuron Per Acre (Broadcast Basis)
Annual grasses	2/3
Pigweed	1/3

BEST AVAILABLE COPY

For control of seedling perennial grasses such as johnsongrass and partial control of nutsedge or when weed growth is under drought stress or as high as 4", add 2 to 3 1/2 lbs disodium methylarsonate (DSMA; 63% anhydrous or equivalent) to above spray mixture. If DSMA is used, do not apply after first bloom.

Late Season (Lay-By) - Apply 2/3 to 1 qt per acre (2/3 to 1 1/3 qts in Arizona and California) when cotton is at least 12" tall (at least 20" tall for Pima S-2). For control of germinating weed seedlings, apply to soil beneath cotton plants and between rows immediately after last cultivation. In irrigated cotton, best weed control is obtained if the field is irrigated within 3 to 4 days after application; thoroughly wet the surface of the ground over the row to carry the herbicide into the root zone of germinating weeds. Alternatively, for control of emerged annual weeds (up to 4" in height) at lay-by time, make a single application in combination with an approved nonionic surfactant (1 pt per 25 gals. spray), or use 1/3 to 1/2 qt of Helena 4.8 LB Diuron (plus surfactant) per acre and repeat later if needed.

Replanting: If initial seeding fails to produce a stand, cotton may be replanted in soil treated preplant or preemergence with Helena 4.8 LB Diuron, alone or following "Treflan". Wherever possible, avoid disturbing original bed. If necessary to rework soil before replanting, use shallow cultivation such as discing; do not relist nor move soil into the original drill area. Plant seed at least 1" deep. Do not retreat field with a second preplant or preemergence application during the same crop year as injury to the crop may result.

Helena 4.8 LB Diuron — Type of Application	Crops That May Follow Treated Cotton
Band preemergence or postemergence	Any crop 4 months after last application.
Band preemergence plus postemergence — or — Broadcast preemergence (and preplant) — or — Broadcast preemergence plus band postemergence	Cotton, soybeans, corn or grain sorghums (not sorgos 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 sorgos, 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.

BEST AVAILABLE COPY

For subsequent crops in fields where "Treflan" is used, follow instructions on "Treflan" label.

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

Colorado, Kansas, New Mexico and Oklahoma: On sand bluestem, side oats grama and switchgrass, apply 1 1/3 to 2 qts 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 qts 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 1 1/3 to 2 2/3 qts per acre between October 1 and November 15. In fields where ash residues have accumulated from burning straw, use 2 to 2 2/3 qt per acre; spread unburned chaff or straw with a harrow or chopper before application. If perennial velvetgrass (Holcus lanatus) is a problem, use 2 2/3 qts 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 virorous 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 1 1/3 qt per acre.

Oregon: For use in newly planted bentgrass, Chewings fescue, Kentucky bluegrass, perennial ryegrass, orchardgrass and tall fescue. During planting operation, spray Aqua Nu Chart+ or Gro-Safe++ or other suitable brand of activated charcoal as a 1" band on soil surface at rate of 300 lbs per acre (broadcast basis; equivalent to 15 lbs per acre of crop where row spacing is 20"). Mount nozzles to apply directly over seed rows to prevent crop injury. Follow with Helena 4.8 LB Diuron as a single broadcast spray at rate of 1 2/3 to 2 qts 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.

+Reg. trademark of Westvaco Corp.
++Reg. trademark of ICI United States, Inc.

OATS (Drill-Planted): Do not replant treated areas to any crop within one year after last application as injury to subsequent crops may result.

Spring Oats - Idaho, Eastern Oregon, Eastern Washington: Use in areas where average annual rainfall exceeds 16". Make a single application of 2/3 to 1 qt per acre after planting, either before or after oats emerge but within 6 weeks of planting. Best results are usually obtained when application is made 3 to 4 weeks after planting. Apply before weeds are 3" to 4" tall.

Winter Oats and Mixtures with Peas or Vetch - Western Oregon and Western Washington: Make a single application of 1 to 1 1/3 qts per acre as soon as possible after planting but before emergence of the crop.

BEST AVAILABLE COPY

PEPPERMINT - Pacific Northwest: Apply 2 qts per acre just after the last cultivation in the spring prior to emergence of peppermint. Do not apply to newly planted (less than 1 year) nor to emerged peppermint as injury may result.

SORGHUM (GRAIN) - Southwestern States: Apply 1/3 to 2/3 pt per acre; add 1 pt of an approved nonionic surfactant per 25 gals of spray. Apply as a directed postemergence broadcast or band spray after sorghum is 15" tall to control weeds 2" to 4" in height. DO NOT SPRAY OVER TOP OF SORGHUM. Use the lower rate on broadleaved weeds up to 2" tall; use the higher rate on grasses up to 2" and broadleaved weeds up to 4" tall. When the lower rate is used, a second application may be made if needed provided the amount applied in one crop year does not exceed 2/3 pt per acre. Treatment of weeds under drought stress is usually ineffective.

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

SUGARCANE: To prevent possible crop injury on new cane varieties, tolerance to Helena 4.8 LB Diuron should be determined prior to adoption as field practice. Do not treat sugarcane growing on thinly covered subsoils or rocky areas as crop injury may result. Temporary chlorosis of the crop may result from application over emerged cane; to minimize chlorosis, use directed postemergence sprays.

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

Hawaii and Puerto Rico: Apply 2 2/3 to 5 1/3 qts 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 1/3 to 2 2/3 qts per acre may be made as a broadcast spray over emerged cane or by directed spray inter-row.

If weeds are emerged, add a surfactant to the spray at the rate of 1 to 2 qts per 100 gals and apply as a directed spray. DO NOT SPRAY OVER TOP OF CANE.

Do not apply more than 3 treatments nor more than (Puerto Rico) or 6 2/3 qts (Hawaii) total per acre between planting (or ratooning) and harvest. Treated areas may be planted to sugarcane or pineapple one year after last application.

Louisiana: Use on plant cane seeded on fallowed ground. Make a single application of 2 to 2 1/2 qts per acre at either of the following times. Fall Treatment (Adjust through October) - Treat a 2 ft 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 ft band over the row before weeds or cane emerge.

WHEAT, WINTER (Drill-Planted): Crop injury may result where severe winter stress, disease or insect damage follows application; winter-sensitive varieties such as McDermid and Hyslop may be less tolerant of Helena 4.8 LB Diuron than winter-hardy varieties such as Gaines and Nugaines. Crop injury may also result from failure to observe the following: Do not use on sand or loamy sand soils, nor on gravelly or sandy loams low in organic matter (less than 1%), nor on thinly covered or exposed sub-soil areas (clay knobs); do not treat wheat planted less than 1" 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; 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 to subsequent crops may result.

Idaho, Oregon and Washington - East of Cascade Range: Areas Where Average Annual Rainfall Exceeds 16 Inches: Make a single application of 2/3 to 1 qt per acre. Fall Treatment: For early fall-planted wheat (seeded before September 10) apply 3 to 6 weeks after planting but before September 10), apply 3 to 6 weeks after planting but before weeds are 3" to 4" tall. Treatment after October 1 has generally given best results. Application should not be made after soil freezes in the fall. Wheat planted in late October should not be treated until the following spring. Spring Treatment: Apply as soon as wheat starts to grow in the spring. Treatment made prior to April 10 will usually give good results provided weed growth is less than 4" tall. Application later than May 1 may give poor results.

Alternatively, make a single application of 1/3 to 2/3 qt plus 1/4 lb bromoxynil per acre as a tank mixture, either in the fall after wheat has emerged but before soil freezes or in the spring as soon as soil thaws; apply before weeds are 2" tall or across.

Areas Where Average Annual Rainfall is 10 to 16 Inches: After wheat is planted in the fall, make a single application of 2/3 to 1 qt per acre when sufficient moisture is available to germinate wheat seed. Apply before soil freezes and before weeds are 2" tall. Application later than March 1 may give poor results.

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

Oregon and Washington - West of Cascade Range: Make a single application of 1 to 1 1/3 qt per acre as soon as possible after planting; if wheat and weeds have emerged, apply before weeds are 3" to 4" tall. Alternatively, apply a tank mixture of Helena 4.8 LB Diuron plus bromoxynil as detailed above for "East of Cascade Range".

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

Central Plains and Midwest: Use 2/3 to 1 1/3 qts per acre.

Kansas, Oklahoma and Texas: Use 1 to 1 1/3 qt per acre.

BEST AVAILABLE COPY

Northeast: Use 2/3 to 1 qt per acre.

FRUIT AND NUT CROPS (See Soil Limitations)

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

APPLES: Use Helena 4.8 LB Diuron alone, or apply as a tank mixture with DuPont "Sinbar" Weed Killer.

Helena 4.8 LB Diuron 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 2 2/3 qts per acre in the spring (March through May). In the Far West, treatment may be made in winter (December through February), or apply 1 1/3 qts per acre as postharvest treatment followed by 1 1/3 qts in the spring.

Helena 4.8 LB Diuron + "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	Product Per Acre	
	1 to 2% Organic Matter Helena 4.8 LB Diuron + "Sinbar"	More than 2% Organic Matter Helena 4.8 LB Diuron + "Sinbar"
Sandy loam	2/3 qt + 1 lb	1 qt + 1 1/2 lbs
Loam, silt loam, silt	1 qt + 1 1/2 lb	1 1/3 qts + 2 lbs
Clay loam, clay	1 1/3 qt + 2 lb	1 1/3 qts + 2 lbs

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

BANANAS AND PLANTAINS - New Plantings: To control annual weeds, apply 1 to 2 qts 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 perennials such as bermudagrass, birdseed grass and guineagrass, apply 2 to 4 qts per acre plus 1 pt of an approved non-ionic surfactant (or suitable equivalent) per 25 gals of spray; avoid contact of plants with spray or drift as injury may result. When tall, dense weed growth is present,

BEST AVAILABLE COPY

remove weed growth before application. If application is made to soil free of weeds, omit the surfactant from the spray. Repeat treatment as needed, but do not apply more often than 6-week intervals nor more than a total of 8 qt. per acre (broadcast basis) in a 12-month period.

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

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

INDIANA, MICHIGAN AND OHIO -- BLUEBERRIES: Apply 1 1/3 to 2 2/3 qt. per acre in late spring; alternatively, apply 1 1/3 qt. per acre in the fall and repeat at same rate in the spring. RASPBERRIES: Apply 2 qt. per acre in the spring.

MASSACHUSETTS -- BLUEBERRIES: Apply 1 1/3 qt. per acre in late spring.

NEW JERSEY -- BLUEBERRIES: For control of winter annuals, apply 1 1/3 qt. per acre in October, November or December, or a single application of 1 2/3 qt. per acre may be applied in early to mid spring.

BEST AVAILABLE COPY

CALIFORNIA -- RASPBERRIES, BLACKBERRIES, BOYSENBERRIES, DEWBERRIES AND LOGANBERRIES: For control of winter annuals, apply 1 2/3 qt. per acre in October or November; repeat at same rate in late spring to control summer annuals. A single application of 2 qt. per acre in January or February will control both winter and summer annuals in some areas, but the separate fall and spring schedule is preferred.

WESTERN OREGON AND WESTERN WASHINGTON -- BLUEBERRIES, CANEBERRIES AND GOOSEBERRIES: Use same schedule as recommended for California.

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

ARIZONA (EXCEPT YUMA AREA) AND CALIFORNIA (EXCEPT IMPERIAL AND COACHELLA VALLEYS) -- ORANGES, LEMONS AND GRAPEFRUIT: Apply 2 to 2 2/3 qt. per acre shortly after grove has been laid-up in final form (non-tillage program) in late fall or early winter. Alternatively, apply 1 2/3 qt. per acre in October or November and repeat at the same rate in March or April. Subsequent annual applications of 1 2/3 to 2 qt. per acre will usually give adequate weed control.

BEST AVAILABLE COPY

21 of 31

FLORIDA -- ORANGES, GRAPEFRUIT, TANGELOS AND TANGERINES: Make a single application of 2 2/3 to 5 1/3 qt. per acre, or apply 2 to 2 2/3 qt. per acre followed by the same rate 4 to 6 months later. On bearing citrus, apply any time when seasonal rains are expected; on nonbearing trees, apply when winter banks are pulled down.

For control of guineagrass, loosestrife, maidencane, paragrass, primrose willow and seamyrtle in ditches adjacent to citrus groves, use 2/3 qt. per 1000 sq. ft. (40 lbs. per acre) in sufficient water (min. 4 gals. per 1000 sq. ft.) to provide thorough and uniform coverage. Apply in the spring before weed growth starts or after removal of vegetation. Repeat treatment on a spot basis to control hard-to-kill species such as guineagrass. In bedded groves, do not treat water furrows between the beds as injury to the trees may result.

TEXAS -- ORANGES AND GRAPEFRUIT: Apply 1 1/3 to 2 2/3 qt. per acre for annual weeds; use 2 2/3 to 4 qt. per acre for control of johnsongrass seedlings. Best results accompany application in the spring; well established weeds should be eliminated by cultivation prior to treatment.

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

BEST AVAILABLE COPY

EAST OF THE ROCKY MOUNTAINS: On soils low in clay or organic matter (1 to 2%), apply $1 \frac{1}{3}$ to 2 qt. per acre; on soils high in clay or organic matter, apply 2 to 4 qt. per acre. Apply in the spring just prior to germination and growth of annual weeds.

WEST OF THE ROCKY MOUNTAINS: Apply in November, December or January. For initial treatment, apply 2 to $2 \frac{2}{3}$ qt. per acre; subsequent annual applications of $1 \frac{1}{3}$ qt. per acre will usually give adequate weed control. Do not apply to vines with trunks less than $1 \frac{1}{2}$ " in diameter as injury may result.

NEW YORK AND PENNSYLVANIA -- PERENNIAL 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" high) under the trellis at the rate of $5 \frac{1}{3}$ to 8 qt. per acre. Band width should not exceed 30". Do not apply more than once every 4 years. Use only on heavy soils such as loams, silt loams, clay loams. Do not use in areas where grape roots are shallow or exposed because of high bedrock, poor drainage, or erosion as injury to grapes may result.

MACADAMIA NUTS -- HAWAII: Use only under trees established in the orchard for at least 1 year. Apply $1 \frac{1}{3}$ to 4 qt. per acre immediately after harvest, preferably before weeds emerge; if weeds have emerged, add 1 pt. of an approved non-ionic surfactant per 25 gals. of spray. Retreat as needed but do not exceed $6 \frac{2}{3}$ qt. per acre per year.

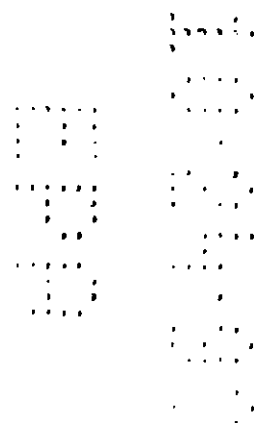
BEST AVAILABLE COPY

OLIVES -- CALIFORNIA: Use only under trees established in the grove for at least 1 year. Apply 1 1/3 qt. per acre after grove has been laid-up in final form in late October or November; repeat at same rate in March or April. Remove weed growth prior to treatment.

PAPAYAS: Use only under trees established in the orchard for at least 1 year. Apply 1 2/3 to 3 1/3 qt. per acre, preferably before weeds emerge; if weeds have emerged, add 1 pt. of an approved non-ionic surfactant per 25 gals. of spray.

PEACHES: Use HELENA 4.8 lb. Diuron alone, or apply as a tank mixture with "Sinbar".

HELENA 4.8 lb. DIURON ALONE -- Use only under trees established in the orchard for at least 3 years. Apply 1 1/3 to 3 1/3 qt. 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.



HELENA 4.8 lb Diuron + "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	Product Per Acre	
	1 to 2% Organic Matter Helena 4.8 lb. Diuron + "Sinbar"	More than 2% Organic Matter Helena 4.8 lb. Diuron + "Sinbar"
Sandy loam	2/3 qt. + 1 lb.	1 qt. + 1-1/2 lbs.
Loam, silt loam, silt	1 qt. + 1-1/2 lb.	1 1/3 qt. + 2 lbs.
Clay loam, clay	1 1/3 qt + 2 lbs.	1 1/3 qt. + 2 lbs.

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

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 2 2/3 qt. per acre in the spring (March through May). In the Far West, treatment may be made in winter (December through February), or apply 1 1/3 qt. per acre as a postharvest treatment followed by 1 1/3 qt. in the spring.

BEST AVAILABLE COPY

PECANS: Use Helena 4.8 lb. Diuron alone or apply as a tank mixture with "Sinbar". Make a single band or broadcast application as a directed spray using a minimum of 30 gals. of water per acre. Apply in the spring before weeds emerge or during the early seedling stage of growth.

Soil Texture	Product Per Acre	
	Helena 4.8 lb. Diuron Alone*	Tank Mixture Helena 4.8 lb. Diuron -or- + "Sinbar"***
Sandy loam	1 1/3 qt	1 qt. + 1 1/2 lb.
Loam, silt loam, silt	2 qt	1 1/6 qt. + 1 3/4 lb.
Clay loam, clay	2 2/3 qt.	1 1/3 qt. + 2 lb.

*Use only on trees established in the grove for at least 3 yrs. and on soils with at least 1/2% organic matter.
 **Use on trees established in the grove for at least 1 yr. 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 to the trees may result.

PINEAPPLE--HAWAII AND FLORIDA: Apply 2 2/3 to 5 1/3 qt. per acre as a broadcast spray just before or immediately after planting but prior to weed emergence. Use 2 2/3 qt. per acre after harvesting plant crop (for ratoon crop). For plant crop only, a second and third broadcast or interspace application may be made prior to differentiation at the rate of 1 1/3 qt. 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 1/3 qt. per acre. Do not apply more than 3 broadcast sprays (maximum 8 qt. per acre) prior to differentiation nor more than 10 2/3 qt. total per acre per plant crop. Treated areas may be planted to pineapple or sugarcane 1 year after last application.

BEST AVAILABLE COPY

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

ORNAMENTAL CROPS (See Soil Limitations)

ORNAMENTAL BULB CROPS (BULBOUS IRIS, NARCISSUS) -- WESTERN WASHINGTON: Make a single application of 2 2/3 qt. per acre. Apply after planting but no later than 4 weeks prior to bulb emergence (usually late September or October). Do not replant treated areas to any crop within 1 year after last application as injury to subsequent crops may result.

PLUMOSUS FERN -- FLORIDA: Hand weed and mow fern; then make a single application of 2 qt. per acre within 3 to 5 days. Do not cultivate or disturb soil after application as crop injury may result. Treat only established stands at least 1 year old.

TREE PLANTINGS -- COLORADO, MONTANA, NEBRASKA, NORTH DAKOTA, SOUTH DAKOTA, WYOMING: Use only under established plantings (1 year or older) of American elm, caragana, cottonwood, Douglas fir, green ash, honeysuckle, Ponderosa pine, redcedar, Russian olive and Siberian elm. Use 1 2/3 to 3 1/3 qt. per acre; apply as a band 4 ft. wide in the tree row (2 ft. on each side of row).

BEST AVAILABLE COPY

For example, 1 oz. Helena 4.8 lb. Diuron (4 level tablespoonfuls) treats 135 ft. of tree row (2 ft. on each side of row, at the rate of 3 1/3 qt. per acre. Apply as a directed spray in early spring before weeds emerge and before trees leaf out. Do not apply to foliage of trees, nor under trees growing in low areas as injury to the trees may result.

27831

58431

NON-CROP WEED CONTROL

AROUND FARM BUILDINGS, STORAGE AREAS, INDUSTRIAL PLANT SITES,
PETROLEUM TANK FARMS, UTILITY HIGHWAY PIPELINE,
LUMBER YARDS, IRRIGATION AND DRAINAGE DITCHES

HELENA 4.8 lb. Diuron is an effective herbicide for the control of many annual and perennial grasses and herbaceous weeds on non-cropland areas where bare ground is desired. The degree of control and duration of effect will vary with the amount of chemical applied, soil type, rainfall and other conditions.

HELENA 4.8 lb. Diuron may be used as a pre-emergence treatment at any time of the year except when ground is frozen, provided adequate moisture is supplied by rainfall or artificial means to activate the herbicide. Best results are obtained if application is made to the soil shortly before weed growth begins. If dense growth is present, remove tops and spray the ground.

Increase contact activity on established weeds may be obtained by the addition of an approved non-ionic surfactant at the rate of 2 qts. per 100 gals. of spray mixture. Apply as a drenching spray to actively growing weeds during warm weather when daily temperature will exceed 70 degrees F. Observe all cautions and limitations on labeling of all products used in mixtures.

GROUND APPLICATION: Apply in enough water to insure good coverage.

AERIAL APPLICATION: For lower rates, 3 1/3 to 13 1/3 qts. of HELENA 4.8 lb. Diuron per acre, apply in 10-15 gallons of water per acre. For higher rates, 13 1/3 qts. to 10 gallons of HELENA 4.8 lb. Diuron, apply in a minimum of 15 gallons of total spray mixture.

BEST AVAILABLE COPY

GENERAL WEED CONTROL: To control most weeds for an extended period of time on non-cropland such as utility, highway, pipeline and railroad right of ways, petroleum tank farms, lumberyards, storage areas, industrial plant sites, and around farm buildings

Apply to these areas at the rate of 3 1/3 to 13 1/3 qts. of HELENA 4.8 lb. Diuron per acre to control most annual weeds. Use 13 1/3 qt. to 10 gallons per acre for perennial weeds; additional treatment may be required where a longer period of control is desired or when hard to kill, deep-rooted perennial weeds such as Johnsongrass are present. In low rainfall areas, HELENA 4.8 lb. Diuron may not provide satisfactory control of deep-rooted perennial weeds.

For weed control on small areas, use one-half cupful of HELENA 4.8 lb. Diuron per 100 sq. ft. for a dosage of approximately 8 1/3 gallons per acre.

IRRIGATION AND DRAINAGE DITCHES: Apply 3 1/3 to 13 1/3 qts. per acre to control most annual weeds; use 13 1/3 qt. to 10 gallons per acre to control both annual and perennial weeds. For irrigation ditches and during the non-crop season, and when ditch is not in use. To minimize movement of HELENA 4.8 lb. Diuron with irrigation water (to avoid possible crop injury), it is essential that the herbicide be fixed in the soil by moisture. Apply before expected seasonal rainfall (if possible when soil in the ditch is still moist). Following treatment, if rainfall has not totalled at least 4 inches, fill ditch with water and allow the water to stand for 72 hours, then drain off the water before using ditch. Do not treat any ditch into which roots of trees or other desirable plants may extend as injury may result.

BEST AVAILABLE COPY

CONDITIONS OF SALE - LIMITED WARRANTY
AND LIMITATIONS OF LIABILITY AND REMEDIES

The directions on this label are believed to be reliable and should be followed carefully. Insufficient control of pests and/or injury to the crop to which the product is applied may result from the occurrence of extraordinary or unusual weather conditions, the failure to follow the label directions, or good application practices, all of which are beyond the control of Helena (the "Company") or seller. In addition, failure to follow label directions may cause injury to crops, animals, man or the environment. The Company warrants that this product conforms to the chemical description on the label and is reasonably fit for the purpose referred to in the directions for use subject to the factors noted above which are beyond the control of the Company. The Company makes no other warranties or representations of any kind, express or implied, concerning the product, including no implied warranty of merchantability or fitness for any particular purpose, and no such warranty shall be implied by law.

The exclusive remedy against the Company for any cause of action relating to the handling or use of this product is a claim for damage and in no event shall damages or any other recovery of any kind against the Company exceed the price of the product which causes the alleged loss, damage, injury, or other claim. The Company shall not be liable and any and all claims against the Company are waived for special, indirect, incidental, or consequential damages or expense of any nature, including, but not limited to, loss of profits or income.

The Company and the seller offer this product and the buyer and user accept it, subject to the foregoing conditions of sale and limitation of warranty, liability and remedies.

