

PM 25 2749-59

2/10/94



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

MAR 7 1994

ANTHONY BALDI  
ACETO AGRICULTURE CHEMICALS CORP.  
ONE HOLLOW LANE  
LAKE SUCCESS, NY 11042

OFFICE OF  
PREVENTION, PESTICIDES AND  
TOXIC SUBSTANCES

Subject: Label Amendment Submission of 10/18/93 Response to PR Notice 93-7  
EPA Reg. No. 2749-59  
DIURON 80 WP WEED KILLER

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/Canola Ink on paper that  
contains at least 50% recycled fiber

2019

Page 2


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,

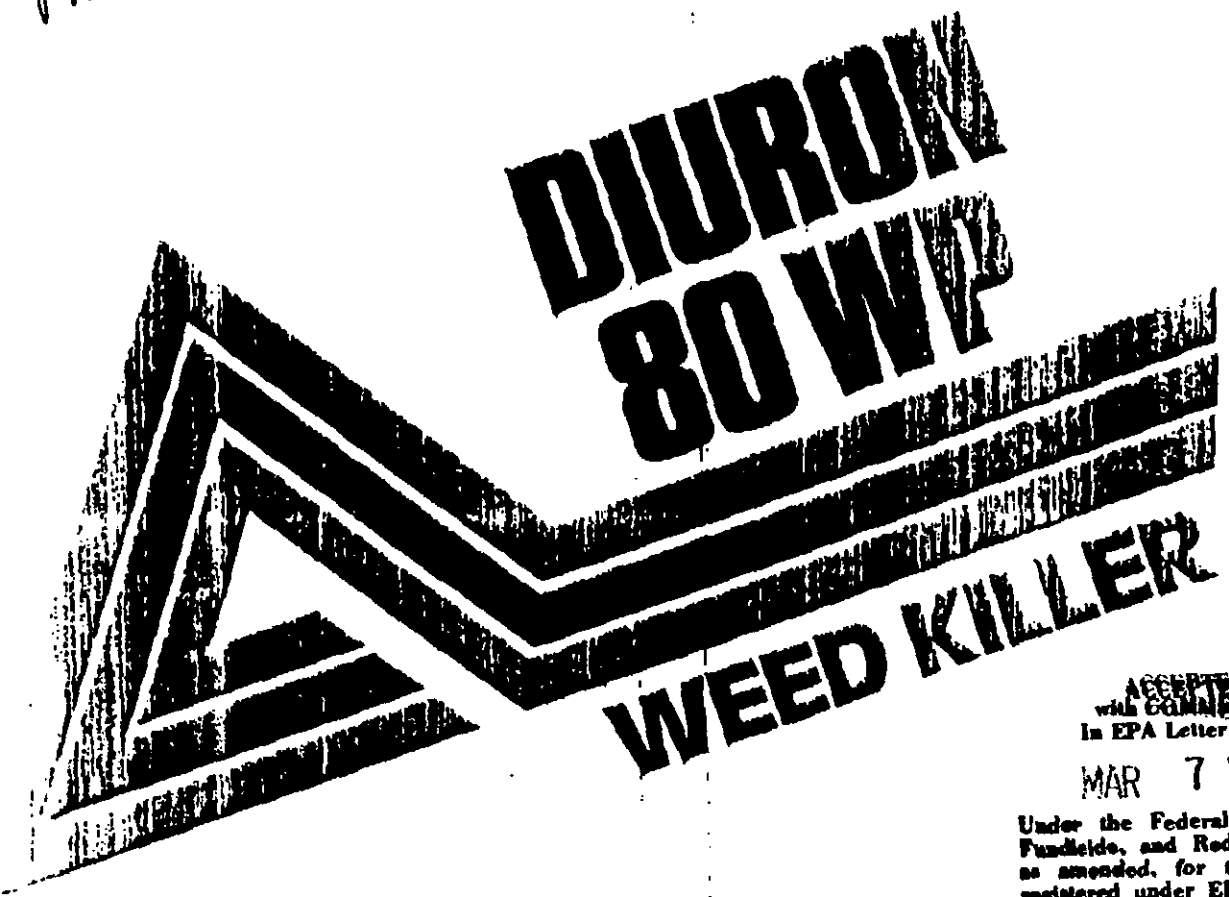


Jim Tompkins, Deputy Chief  
Registration Support Branch  
Registration Division (7505W)

Attachment

PROPOSED

3049



ACCEPTED  
with COMMENTS  
In EPA Letter Dated

MAR 7 1994

Under the Federal Insecticide,  
Fungicide, and Rodenticide Act  
as amended, for the pesticide  
registered under EPA Reg. No.  
2749-59

<b>ACTIVE INGREDIENT:</b>	Diuron [3-(3,4-Dichlorophenyl)-1,1-Dimethylurea]	80%
<b>INERT INGREDIENTS:</b>		20%
<b>TOTAL INGREDIENTS:</b>		100%

**KEEP OUT OF REACH OF CHILDREN**

**CAUTION**

See Below For Additional Precautionary Statements.

EPA REG. NO. 2749-59-AA

EPA EST. NO. 46120 EN-J1

**NET WEIGHT \_\_\_\_\_ POUNDS**

MADE IN ENGLAND

**Manufactured for:**  
**ACETO AGRICULTURAL CHEMICALS CORPORATION**  
 1 Hollow Lane, Suite 201,  
 Lake Success, New York, 11042-1215

4079  
**PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS AND DOMESTIC ANIMALS**

# **CAUTION**

**CAUSES EYE IRRITATION.** Do not get in eyes, on skin, or on clothing. Harmful if swallowed, inhaled, or absorbed through skin. Avoid breathing dust or spray mist.

## **STATEMENT OF PRACTICAL TREATMENT**

**IF SWALLOWED:** Call a physician or poison control center. Never give anything by mouth to an unconscious or convulsing person. If conscious and not convulsing, drink 1 to 2 glasses of water and induce vomiting by touching back of throat with finger.

**IF IN EYES:** Flush eyes with plenty of water. Get medical attention immediately.

**IF ON SKIN:** Wash thoroughly with soap and water. Get medical attention.

**IF INHALED:** Move victim to fresh air. Apply artificial respiration if indicated. Get medical attention.

### **Personal Protective Equipment:**

**Applicators and other handlers must wear: long-sleeved shirt and long pants, waterproof gloves, and shoes plus socks.**

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

### **Engineering controls statements:**

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

## **USER SAFETY RECOMMENDATIONS**

### **Users should**

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

**Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.**

**Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.**

## **ENVIRONMENTAL HAZARDS**

For terrestrial uses, 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 by cleaning of equipment or disposal of wastes.

**IMPORTANT**—Injury to or loss of desirable trees or other plants may result from failure to observe the following: Do not apply (except as recommended for crop use), 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 of trees, shrubs or herbaceous plants, nor on lawns, walks, driveways, tennis courts, or similar areas. Avoid drift of granules or spray to desirable plants. Do not contaminate any body of water. Keep from contact with fertilizers, insecticides, fungicides and seeds.

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

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## DIRECTIONS FOR USE

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

5049

### 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 intervals. The requirements in this box 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.

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

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

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

This herbicide should be used only in accordance with recommendations on this label, or in separate published ACE72 recommendations available through local dealers.

ACE72 will not be responsible for losses or damages resulting from use of this product in any manner not specifically recommended by ACE72. User assumes all risk associated with such non recommended use.

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

### STORAGE AND DISPOSAL

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

**PESTICIDE DISPOSAL:** Do not contaminate water, food or feed by storage or disposal. Open dumping is prohibited. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

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

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## NOTICE

Follow directions carefully. Timing and method of application, weather and crop conditions, mixtures with other chemicals not specifically recommended, and other influencing factors in the use of this product are beyond the control of the seller. Buyer assumes all risks of use, storage or handling of this material not in strict accordance with directions given herewith.

ACETO warrants that this product conforms to the chemical description on the label thereof and is reasonably fit for the purposes stated on such label only when used in accordance with the directions under normal use conditions. It is impossible to eliminate all risks inherently associated with the use of the 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 ACETO. In no case shall ACETO 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. ACETO makes no warranties of merchant ability or fitness for a particular purpose nor any other express or implied warranty except as stated above.

### GENERAL INFORMATION

Duron 80WP Weed Killer is a wettable powder to be mixed in water and applied as a spray for control of weeds. It is non-corrosive to equipment, non-flammable and non-volatile.

Duron 80WP may be applied to the soil prior to emergence of weeds to control susceptible weed seedlings for an extended period depending on dosage rate used.

Results vary with soil type. Heavy soils (high in organic matter) require higher dosage rates than lighter soils (low in organic matter) to obtain equivalent herbicidal performance. Best results occur if rainfall (or irrigation) occurs within two weeks of application.

Duron 80WP also may be used to control emerged seeding annual weeds by including a surfactant in the spray mixture. Best results are obtained on succulent weeds growing under high humidity and temperatures of 70° or higher.

Since the effect of Duron 80WP varies with soils, uniformity of application and environmental conditions, it is suggested that growers limit their test use to small areas. This is especially important where the operator is not completely familiar with requirements for precise application. Severe over dosage can result in injury to crops.

Do not use on lawns, walks, driveways, tennis courts, or similar areas. Prevent drift of dry powder or spray to desirable plants. Do not contaminate domestic waters. Keep from contact with fertilizers, insecticides, fungicides, and seeds. Thoroughly clean all traces of

Duron 80WP from application equipment immediately after use. Flush tank, pump, hoses, and boom with several changes of water after removing nozzle tips and screens (clean these parts separately).

**NON-CROP WEED CONTROL:** Around Farm Buildings, Storage Areas, Industrial Plant Sites, Petroleum Tank Farms, Utility Highway Pipelines, Lumber Yards, Irrigation and Drainage Ditches.

Duron 80WP is an effective herbicide for the control of many annual and perennial grasses and the broadleaf 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.

Duron 80WP 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.

### DIRECTIONS

Before spraying, calibrate equipment to determine quantity of water necessary to uniformly cover area to be treated. Weigh proper amount of Duron 80WP and mix into necessary volume of water. Material must be kept in suspension at all times by continuous agitation. Except for small areas, use fluid boom power sprayer properly calibrated to ensure a constant rate of application. Openings in screens should be equal to or larger than 50 mesh. Agitate by mechanical or hydraulic means in the spray tank. If by-pass or return line is used, it should terminate at bottom of tank to minimize foaming. Do not use air agitation.

When a range of dosage rates is listed, use the lower rates on lighter soils (sandy loams, loams, and soil low in organic matter), and the higher rates on heavier soils (clay loams, clays, and soils high in organic matter).

**IMPORTANT:** Injury to or loss of desirable trees or other plants may result from failure to observe the following: Do not apply (except as recommended for crop use), 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. Increased contact activity on established weeds may be obtained by the addition of a 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° F.

**GENERAL WEED CONTROL:** To control most weeds for an extended period of time on non-cropland such as utility, highway, pipeline and railroad right of ways, petroleum tank farms, lumberyards, storage areas, industrial plant sites, and around farm buildings—apply 5 to 20 lbs. of Duron 80WP per acre to control most annual weeds. Use 20 to 60 lbs. 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, Duron 80WP may not provide satisfactory control of deep rooted perennial weeds.

For weed control on small areas, use one-half cupful of Duron 80WP per 100 sq. ft. for a dosage of approximately 50 lbs. per acre.

**IRRIGATION AND DRAINAGE DITCHES:** Apply 5 to 20 lbs. per acre to control most annual weeds, use 20 to 60 lbs. per acre to control both annual and perennial weeds for irrigation ditches and during the first crop season, and when ditch is not in use. To minimize movement of Duron 80WP 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 the 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.

### SELECTIVE USE IN CROPS

**WEEDS CONTROLLED:** Duron 80WP as a pre-emergence treatment, selectively controls grasses and

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... in certain crops. Rates of 1/2 to 1 lb. per acre control some annuals including crabgrass, barnyard grass, pigweed, purslane, lambquarters and ragweed. At 1 1/2 to 2 lbs. per acre, seedling weeds such as bluegrass (Poa annual), annual sweet melongrass, foxtail, rat-tail lettuce, red sprangletop, velvetleaf, chickweed, corn spurry, dog fennel, Amaranth (litterneck), groundsel, groundsel, knawel, sheepsoot, purslane, hairy mustard, wild lettuce, wild mustard, annual groundcherry and annual morning glory are controlled. In addition, 2 to 6 lbs. per acre control weeds such as annual lovegrass, annual ryegrass, sandbar, ricegrass, orchardgrass, seedling Johnsongrass, annual smartweed, annual sowthistle, buttonweed, corn speedwell, horseweed, lochia, hybrid Mexican clover, hawkbeard, peppergrass, pennycress, pokeweed, rabbit tobacco, argemone, Spanish needles and wild radish.

Partial control of quackgrass and horse-nettle usually occurs with 4 lbs. per acre, partial control of mature and young grasses and quackgrass usually occurs with treatments of 8 to 10 lbs. per acre.

Results vary with soil types (the lower rates are effective on the lighter soils and higher rates on heavier soils) and environmental conditions. Sufficient moisture in the form of rainfall or irrigation is necessary after treatment to carry the chemical into the root zone of germinating seeds. Any well established weeds should be eliminated by mechanical or other means. For best results, the soil should be well prepared and as free as possible from trash and clods. Unless otherwise directed, the surface of the soil should not be cultivated or disturbed after application of Duron as efficiency may be reduced.

Apply Duron with a surfactant such as ATPLUS 401 in order to control treatment of emerged seedling weeds for control of treated spot emergence spray in certain crops. Minimum rate of 1/2 lb. Duron BOWP per acre controls treated seedling weeds such as crabgrass, barnyard grass, pigweed, purslane, watergrass, crowfoot, paperchase, and annual morning glory. Best results are obtained under conditions of high humidity and temperatures over 70°F.

**CORN AND WHEAT:** Crop injury may result from failure to follow directions.

If injury is directed, do not use (1) on light (sandy or gravelly) soils (2) on alfalfa, sorghum, citrus, cotton (pre-plant and lay-by), blueberries, pears, plum, sorghum, sugar beets, and wheat where organic matter is less than 2% (3) on blueberries, birdsfoot trefoil, cane berries, patches and gooseberries where organic matter is less than 2%.

If injury is directed, do not replant treated areas for at least two years after last application as subsequent crops may result.

**CROPS**

**ALL RATES ARE EXPRESSED AS BROADCAST RATES.** Where band applicators are specified, use proportionately less. For example, use 1/2 of the broadcast rate when treating a 14" band where row spacing is 42". Unless otherwise directed, surface of soil should not be cultivated or disturbed after application as crop injury may result.

**ALFALFA:** Use in areas where alfalfa becomes winter dormant and in areas of California (north of the Tehachas Mountains) where alfalfa becomes semi-dormant. Use 1 1/2 to 3 lbs. per acre (except east of the Appalachian Mountains use 1 1/2 to 2 lbs.) Apply any time after alfalfa is dormant in the fall but before crop begins growth in the spring. For control of volunteer alfalfa seedlings in the Far West use 4 lbs. per acre (see Soil Limitations).

Treat only as stands established for one year or more. Do not apply to seedling alfalfa nor to alfalfa grass mixtures. Do not apply to established alfalfa with unusually shallow root penetration (such as shallow hard pan or chisel spots) as crop injury may result.

**PACIFIC NORTHWEST:** Apply in the fall after alfalfa becomes dormant but no later than mid-December.

**ARIZONA, CALIFORNIA AND NEVADA:** Application may be made on dormant alfalfa as late as January.

**EASTERN COLORADO AND KANSAS:** For control of tuffy clumped, apply 1 lb. shortly after emergence of mustard in fall or winter and 2 lbs. if weeds are 2 to 4

inches tall. If other annual weeds are present, use 2 to 3 lbs. in February or March.

**OTHER AREAS:** Where alfalfa becomes winter dormant, apply in March or early April before spring growth begins.

**APPLES AND PEARS:** Use only under trees established in the orchard for at least 1 year. Apply 4 lbs. per acre to area under individual trees or as a band in the tree row; avoid contact of foliage or fruit (see Soil Limitations). Apply in the spring (March through May). Do not treat dwarf varieties.

**FAR WEST:** Treatment may be made in winter (December through February) or apply 2 lbs. as post harvest treatment followed by 2 lbs. in the spring.

**ASPARAGUS:** Do not apply to newly seeded asparagus nor to young plants with exposed roots as severe injury may result. Apply as a band or broadcast treatment. On light sandy soils and other soils low in clay or organic matter, apply 1 to 2 lbs. per acre. Two applications may be used: the first application should be made before weeds become established but no earlier than 4 weeks before spear emergence and no later than the early cutting period (if weeds are controlled into the cutting period by cultural practices, application may be delayed until immediately after the last cultivation), a second application may be made immediately following completion of harvest provided rainfall is expected. When two applications are used in one season, do not exceed 3 lbs. per acre per application. In Washington (Irrigated crop), apply only a single treatment of 4 lbs. per acre in late November or December.

**BARLEY (Winter)—WESTERN OREGON AND WESTERN WASHINGTON:** Apply a single treatment of 1 1/2 to 2 lbs. per acre as soon as possible after planting but before emergence of barley. Do not apply to cloddy or compacted ground where seed is exposed or improperly planted. Treated areas should not be replanted to any rotational crop within 1 year after last application as injury to the subsequent crop may result.

**BIRDSFOOT TREFOL (Latus)—WESTERN OREGON:** Treat only established stands at least 1 year old. Apply a single treatment of 2 lbs. per acre when trefol is dormant (October 15 to December 15; see Soil Limitations). Do not apply to seedling trefol as injury may result. Do not replant treated areas to any crop within 1 year after application as crop injury may result.

**BLUEBERRIES, CANEBERRIES AND GOOSEBERRIES:** Apply only to 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. Spray only ground at base of bushes, avoid spraying foliage as injury may result.

**CALIFORNIA:** Raspberries, Blackberries, Boysenberries, Dewberries, and Loganberries. For control of winter annual weeds, apply 2 lbs. per acre as a band application at base of canes or bushes in October or November. A second treatment at the same rate in late spring controls summer annuals. A single application of 3 lbs. 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 WASHINGTON AND WESTERN OREGON:** Blueberries, Caneberries, and Gooseberries. Same schedule as recommended in California.

**INDIANA, MICHIGAN AND OHIO:** Blueberries. Make a band application of 2 to 4 lbs. per acre in late spring but before germination and growth of annual weeds. As an alternative, apply 2 lbs. per acre in the fall and repeat at the same rate in the spring.

**INDIANA, MICHIGAN AND OHIO:** Raspberries. Make a single application as a band treatment at a rate of 3 lbs. per acre in the spring before germination and growth of annual weeds.

**MASSACHUSETTS:** Blueberries. For control of summer annuals, make a single application as a band treatment at a rate of 2 lbs. per acre in late spring, but before germination and growth of weeds.

**NEW JERSEY:** Blueberries. For control of winter annual weeds, apply 2 lbs. per acre as a band treatment in October, November, or December.

**CITRUS:** Use only under trees established in the grove for at least one year. Apply as a directed spray avoiding contact of foliage and fruit with spray or drift. Time

application as indicated for specific areas except application may be initiated any time of the year when sprinkler or flood irrigation can be used to activate the herbicide. Established perennial stands require other special control procedures. Do not apply under citrus trees that have been subjected to freezing within 6 months; do not apply in home plantings of citrus or in areas where the roots of other valuable plants or trees may extend as injury may result.

**ARIZONA (except Yuma area) AND CALIFORNIA (except Imperial and Coachella Valleys):** Oranges, Lemons and Grapefruits. Make a single application of 3 to 4 lbs. per acre as a broadcast spray shortly after grove has been laid up in late fall or early winter (in late fall or early winter). As an alternative, apply 2 lbs. per acre in October or November and repeat at the same rate in March or April. Subsequent annual applications of 2 to 3 lbs. will usually give adequate weed control.

**FLORIDA (except Martin, Palm Beach, Broward and Dade Counties):** Oranges, Grapefruit, Tangelos and Tangerines. Apply 4 lbs. per acre followed by the same rate 4 to 6 months later. As an alternative, make a single application of 4 to 6 lbs. per acre. On non-bearing trees, treat when winter winds are pulled down. On bearing citrus, apply only when seasonal rains are expected.

For control of pigweeds, watergrass, madenicka, prairie willow, seamyrtle and waterhemp in ditches adjacent to citrus groves, use 1 lb. Duron BOWP per 1000 sq. ft. (40 lbs. per acre) using sufficient spray volume (at least 4 gals. per 100 sq. ft.) to provide thorough and uniform coverage in the ditch. Apply in the spring before weed growth. Control hard to kill species such as quackgrass in and between groves do not treat water furrows between the plants as injury to the trees may result.

**TEXAS:** Oranges and Grapefruit. Apply a single treatment of 2 to 4 lbs. per acre for annual weeds. Use 4 to 6 lbs. 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.

**CORN (FIELD) POST-EMERGENCE:** Apply 1/2 lb. per acre in combination with high pressure nitrogen solution if nitrogen solution is not used. Apply 1 lb. Duron BOWP per acre and add 1/2 pint of a surfactant per 40 gals. spray mixture. Apply as a single directed post-emergence spray when the corn is at least 20 inches high and weeds are not taller than 3 inches. DO NOT APPLY OVER TOP OF CORN. Do not replant to any crop within one year except that cotton, corn and grain sorghum may be planted the spring following treatment.

**PRE-EMERGENCE ARIZONA, LOUISIANA, MISSISSIPPI AND TENNESSEE:** Make a single treatment of 1/2 to 1 lb. per acre as a broadcast or band treatment using the higher rate on heavier soils (loam, clay loam). Do not use on light (sandy, loamy sand or gravelly) soils as injury may result. 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 PRE-PLANT ARIZONA AND CALIFORNIA ONLY:** Apply 1 to 2 1/2 lbs. per acre as a broadcast spray after furrows for pre-plant irrigation have been formed, apply either just prior to planting or after the preplanting irrigation but before the first irrigation and off in preparation for planting.

Prior to planting drag off clods from the field and plant in untreated soil. Treated areas should not be planted after planting when irrigation is not used for more than 2 furrows and the soil is not moist and prior to lay-by, weed control will be reduced and may be lost. A lay-by application may be made but the combined total per season must not exceed 3 lbs. Duron BOWP per acre or crop.

**PRE-EMERGENCE (EXCEPT ARIZONA AND CALIFORNIA):** Make a single application as a broadcast or a band spray after pre-plant irrigation or cotton emergence. Use at the following rate:



## BROADCAST TREATMENT

Soil Type*	Spray Mixture Lbs. Duron in 25 to 40 Gals. Water per Acre	Lbs. Duron Applied Per Acre
Loamy sand	0.6	0.5
Sandy loam, loam, silt loam, and silt	1.0	0.8
Sandy clay loam, clay loam, silty clay loam, and sand clay	1.25	1.0
Silty clay and clay	2.0	1.6

\*Do not use on sand as crop injury may result. For heavy clay soils (high in organic matter), use Monroton Weed Killer.

## BAND TREATMENT

Use proportionately less; for example, for 14 inch band on 42 inch row use 1/3 of broadcast rate.

Apply immediately after cotton is planted; wherever possible, planting and spraying should be combined in one operation. For best results, soil should be well prepared and as free as possible from trash and clods. Shallow incorporation (no deeper than 1/2 inch) with a rotary hoe or similar equipment following planting usually improves results particularly during dry weather. A wide press wheel following planting should be used to provide a level seed bed for subsequent early season post-emergence treatments.

Treatment usually provides weed control for a period of 3 to 6 weeks. Sufficient moisture (usually 1 to 2 inches) in the form of rainfall or irrigation is necessary after treatment to carry the chemical into the root zone of germinating weeds; best results are obtained when this occurs within 2 weeks after application. If moisture is insufficient to activate Duron BOWP or if soil becomes crusted before crop emerges, a shallow rotary hoeing (no deeper than 1/2 inch) should be made before weeds become well established.

If initial seedling fails to produce a stand, cotton may be replanted in soil treated with Duron BOWP. Wherever 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 pre-emergence application of Duron BOWP during the same crop year as injury to the crop may result.

**POST-EMERGENCE, EARLY SEASON:** Apply in combination with surfactant WK as a directed spray when cotton is at least 6 inches tall and when weeds do not exceed 2 inches in height; a second application may be made if needed. Control of weeds under drought stress or over 2 inches in height is usually impractical. Apply as a band treatment only, directing spray to cover weed foliage. **DO NOT SPRAY OVER TOP OF COTTON.** Use pressure of 20 to 25 psi and adjust nozzles to minimize contact of cotton leaves with spray or drift, or crop injury may result.

## BAND TREATMENT

AMOUNT PER ACRE OF CROPLAND WHEN APPLIED  
TO 14" BAND ON 42" ROWS (IN 25 TO 40  
GALS. WATER)

Weed Problem	Duron BOWP	Active Duron
Annual Weeds	0.18 lb. (2.8 ozs.)	0.14 lb. (2.2 oz.)
Perennial	0.09 lb. (1.4 ozs.)	0.07 lb. (1.1 oz.)

**LATE SEASON (LAY-BY):** Use 1 to 1 1/2 lbs. Duron BOWP (1 to 2 lbs. in Arizona and California) in 25 to 40 gals. water per acre as a directed spray (see Soil Limitations). Apply when cotton is at least 12 inches high (at least 20 inches for Pima S-2). Keep contact of spray or drift on cotton plants to a minimum. **DO NOT SPRAY OVER TOP OF COTTON.** For control of germinating weed seedlings, apply immediately after last cultivation, directing spray to cover the soil beneath cotton plants and between rows. Alternatively, for control of emerged annual weeds (4 inches or less in height) if lay-by time, add 1 pt. surfactant for each 25 gals. spray, apply as a directed spray to cover weed foliage beneath cotton plants and between rows. **NOTE:** Treatment of 1/2 to 1 lb. later, if needed, may be used as an alternative to the preceding recommendation.

In irrigated cotton, best pre-emergence 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.

## SUBSEQUENT CROPS

Duron Type of Application	Crops that May Follow Treated Cotton
Band pre or post-emergence	Any crop 4 months after last application
Band pre plus post-emergence or Broadcast pre-emergence (and pre-plant) or Broadcast pre-emergence plus band post-emergence	Cotton, soybeans, corn, grain sorghums (not sorgho or forage 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 post-emergence (lay-by)	Cotton, corn, grain sorghums (not forage sorghums nor green 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.

**NOTE:** During a single crop season, do not exceed the following amount of Duron BOWP per acre as injury to subsequent crops may result: 0.5 lbs. on loamy sand, 1.2 lbs. on sandy loam, 1.6 lbs. on clay loam and 1.2 lbs. on clay.

**GLADIOLUS: EAST OF ROCKY MOUNTAINS:** Apply 1 to 2 lbs. per acre as pre-emergence and/or directed post-emergence treatments. If used for both, do not exceed 1 lb. of Duron BOWP per acre per application or a total of 2 lbs. per season. On certain plantings, apply 2 lbs. per acre pre or post emergence, but not more than once. Do not use on certain plantings in Florida; do not spray over top of gladiolus foliage nor allow spray to drift on to foliage as injury may result.

**GRAPES:** Apply only to established vineyards (at least 3 years old) as a band treatment to grape rows. Do not apply to vines with trunk less than 1 1/2 inches in diameter as injury may result.

**NOTE:** On soils low in clay or organic matter (less than 2%) severe plant injury may result if unusually heavy rains follow treatment and this risk may be minimized by the user.

**EAST OF THE ROCKY MOUNTAINS:** On soils low in clay or organic matter (1 to 2%) use 2 to 3 lbs. per acre; on soils high in clay or organic matter, use 3 to 6 lbs. Apply in the spring just prior to germination and growth of annual weeds.

**NEW YORK AND PENNSYLVANIA: CONTROL OF PERENNIAL GRASSES.** Apply only to established vineyards (at least 4 years old) for spot control of perennial grasses such as Quackgrass, Typhoid and orchard grass as a band treatment to hedged rows (2 to 4 inches high) under the trees at the rate of 6 to 12 lbs. per acre. Band width should not exceed 30 inches. Make one application in the spring of the year and do not apply the 6 to 12 pounds per acre rate more than once every 4 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 grapes may result.

**WEST OF THE ROCKY MOUNTAINS:** Apply in December, January or February. For initial treatment, make a single application of 3 to 4 lbs. per acre, subsequent annual applications of 2 lbs. will usually give adequate weed control. As an alternative to the above schedule, apply 2 lbs. of Duron BOWP per acre in October or November and repeat application at the same rate in March or April.

**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, blue Oms grass and sand bluestem, apply 2 to 3 lbs. per acre during the



Do not apply until 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 chopper before application.

**WESTERN OREGON:** On site fescue, Highland bentgrass, Astoria bentgrass, orchardgrass, Kentucky bluegrass (Merion bluegrass), apply 2 to 4 lbs. per acre between October 1 and November 15. In fields where ash residues have accumulated from burning straw, use 3 to 4 lbs. per acre; spread unburned chaff or straw with a harrow or chopper before application. If perennial velvetgrass (*Holcus lanatus*) is a problem, use 4 lbs. 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.

On established vigorous stands of spring planted site 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; use Duron 80WP at 2 lbs. per acre.

**OLIVES: CALIFORNIA:** Use only under trees established in the grove for at least 1 year. Do not apply in areas where roots of other valuable plants or trees may extend as injury may result. Apply 2 lbs. per acre after the grove is laid up in final form in late October to November. A second application of 2 lbs. per acre should be made in March or April. Remove weed growth prior to treatment. Avoid contact of foliage with spray or drift.

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

**PLUMOSUS FEHN: FLORIDA:** Treat only established stands of at least 1 year old. Apply 3 lbs. per acre following hand weeding and 3 to 5 days after mowing of fern (see Sod Limitations). Do not cultivate or disturb soil after application as crop injury may result.

**SORGHUM (GRAIN): SOUTHWESTERN STATES:** Apply 1/2 to 3/4 lb. per acre as a directed post-emergence broadcast or band treatment after sorghum is 15 inches tall to control weeds 2 to 4 inches in height. **DO NOT SPRAY OVER TOP OF SORGHUM.** Add 1 pt. of a surfactant per 25 gals. spray. Apply at spray pressures of 20 to 25 psi to minimize drift. Use the lower rate on broadleaved weeds up to 2 inches tall. Use the higher rate on grasses up to 2 inches and broadleaved weeds up to 4 inches tall. When the lower rate is used, a second application may be made if needed provided that the total herbicide applied in one crop year does not exceed 1/2 lb. of Duron 80WP 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 treatments and 6 months following broadcast treatments as crop injury may result.

**SUGAR CANE:** To prevent possible crop injury on new cane varieties, tolerance to Duron 80WP should be determined prior to adoption as field practice. Do not treat sugar cane growing on thinly covered subsoils or rocky areas as crop injury may result; see Sod Limitations. Temporary chlorosis of the crop may result from application over emerged cane; to minimize chlorosis, use directed post-emergence sprays.

**FLORIDA:** For high organic soils, apply 2 to 4 lbs. per acre as a broadcast or band spray prior to weed emergence after planting or after harvesting plant crop (for ratoon crop). A second and third application of 2 lbs. per acre may be made as needed by directed spray over row. Do not apply more than 3 treatments nor more than 6 lbs. total per acre between planting (or ratooning) and harvest.

**PUERTO RICO AND PUERTO RICO:** Apply 4 to 6 lbs. per acre as a broadcast spray prior to weed emergence after planting or after harvesting plant crop (for ratoon crop). A second and third application of 2 to 4 lbs. 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 mixture 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 10 lbs. (Puerto Rico) or 12 lbs. (Hawaii) total per acre between planting (or ratooning) and harvest. Treated areas may be planted to sugar cane or pineapple one year after last application.

**LOUISIANA:** Use on plant cane seeded on fallowed ground. Make a single application of 3 to 3 1/2 lbs. per acre at either of the following times. **FALL TREATMENT** (August 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):** Seed bed must be well prepared before pre-emergence application. Crop injury may result if application is made to ground which is cloddy or compacted, resulting in exposed or improperly planted seed. Whenever seed bed preparation and planting are carried out during abnormally dry weather, resulting in a surface layer of dust over planted seeds, application should not be made until the dust is settled by rainfall or irrigation.

Do not use on thinly covered or exposed sub-soil areas (clay knobs), as injury to the crop may result; see Sod Limitations. Treated areas should not be replanted to any other crop within 1 year after last application as injury to the subsequent crop may result.

Do not apply post-emergence treatments where winter climatic conditions have caused heaving of wheat plants or after wheat has reached the boot stage as injury to the crop may result.

**KANSAS, OKLAHOMA AND TEXAS:** Make a single post-emergence application at the rate of 1 1/2 to 2 lbs. per acre. Apply 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.

**WASHINGTON, OREGON AND IDAHO (EAST OF CASCADE RANGE):** Make a single application at the rate of 1 to 1 1/2 lbs. per acre.

In areas having an average annual rainfall exceeding 10 inches. **FALL TREATMENT:** For early fall-planted wheat (seeded before September 10), apply 3 to 6 weeks after planting but before weeds are 3 to 4 inches tall. Treatment after October 1 has generally given best results. Application should not be made after soil freezes in the fall. Wheat planted in late October should not be treated until the following spring.

**SPRING TREATMENT:** Apply as soon as wheat starts to grow in the spring. 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.

**NOTE:** If fall-planted wheat fails to grow due to winter kill or adverse growing conditions after fall treatment with Duron 80WP, 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 inches prior to planting. Do not retreat field with a second application of Duron 80WP during the same crop year or injury to the crop may result.

**WEST OF CASCADE RANGE:** Make a single application at the rate of 1 1/2 to 2 lbs. per acre. Apply as soon as possible following planting. If wheat and weeds have emerged, apply before weeds are 3 to 4 inches tall.

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