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Mr. Ralph P. Burton  
Fermenta Plant Protection Company  
5966 Heisley Road  
P.O. Box 8000  
Mentor, OH 44061-8000

Dear Mr. Burton:

Subject: Revised Labeling in Accordance with DCPA Registration Standard  
Dacthal® Flowable Herbicide  
EPA Registration No. 50534-10  
Your Submission Dated February 21, 1989

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, is acceptable. A stamped copy is enclosed for your records.

When final labels are printed, describe gloves as "chemical resistant gloves" under the "Protective Clothing Required" heading.

Under the "Pesticide Disposal" heading, add "Do not contaminate water when disposing of equipment washwaters."

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

Sincerely yours,

*for* Richard F. Mountfort <sup>LVS</sup>  
Product Manager (23)  
Fungicide-Herbicide Branch  
Registration Division (H7504C)

Enclosure

52556:I:Ikeda:MF-10:KENCO:3/11/89:4/24/89:SG:EK:CT

CONCURRENCES

SYMBOL								
SURNAME								
DATE								

Net Contents

2 1/2 gal

Brown

March 27, 1989

White

~~305 24-10~~

FERMENTA  
PLANT PROTECTION

SPECIMEN L

**Dacthal**® Flowable Herbicide

Green

Turf Care  
A Selective Preemergence Herbicide for Professional Lawncare Use  
Contains 6.0 pounds Dacthal per gallon

Brown

Active Ingredient: DCPA (dimethyl tetrachloroterephthalate) 54.9%  
Inert Ingredients 41.1%  
Total 100.0%

By Wt.  
54.9%  
41.1%  
100.0%

Green

Keep Out of Reach of Children

**CAUTION**

Brown

Fermenta Plant Protection Company  
5966 Heisley Road  
P.O. Box 8000  
Mentor, Ohio 44061-8000

EPA Reg. No. 5  
EPA Est. No. 50

3218-4060-907

**BEST AVAILABLE COPY**

**Statement of Practical Treatment:**

**If in Eyes** Flush with plenty of water. Call a physician if irritation persists.

**If Swallowed** Do not induce vomiting. If vomiting occurs spontaneously, keep airway clear. Never give anything by mouth to an unconscious person. Seek medical attention.

**If on Skin** Wash thoroughly with soap and water.

**ENVIRONMENTAL HAZARDS**

Do not apply directly to water or wetlands (swamps, bogs, marshes, and potholes). Do not contaminate water when disposing of equipment wastewater.

**Dacthal Flowable Herbicide**

A selective preemergence herbicide for Professional Lawn Care Use Only.

Read entire label carefully before and use only as directed.

**General Information**

**Dacthal Flowable Herbicide** is for use as a preemergence application for control of many annual and perennial grasses and certain broadleaf weeds in residential and ornamental turf and utility slacks and as a postemergence application for control of creeping speedwell (Veronica filiformis).

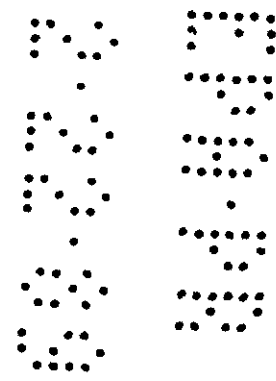
**Dacthal Flowable Herbicide** is compatible with liquid nitrogen fertilizer and is only used by the lawn care industry.

The following weeds are grouped according to their susceptibility to **Dacthal Flowable Herbicide** applied as a preemergence treatment.

**Susceptible** (controlled at recommended rates): common lambsquarters, smooth crabgrass, large crabgrass, lovegrass, carpetweed, witchgrass, purslane, Florida pusley, velvet football, green foxtail, common chickweed.

**Moderately Susceptible** (Maximum rates required for effective control): Redroot pigweed, sandbar, dodder, barnyardgrass, goosegrass, browntop, cynodon, quackgrass, annual bluegrass, crabgrass (from seed), nodding spurge, spotted spurge and prostrate spurge.

**Tolerant**: Velvetleaf, common ragweed, johnsongrass (established from rhizomes), mustards, jimsonweed, Galinsoga, smartweed, nutsedge.



## DIRECTIONS FOR USE

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

DO NOT APPLY IN SUFFOLK COUNTY, LONG ISLAND, NEW YORK. ✓

Do Not apply when wind speed favors drift beyond the area intended for treatment.

**Protective Clothing Required:** Wear a long-sleeved shirt, long-legged pants, gloves, shoes and socks when handling (mixing, loading or applying) pesticides or when cleaning and repairing equipment used during mixing, loading or application of pesticides.

In case of contact with skin, wash thoroughly with soap and water. Always wash hands, face and arms with soap and water after using pesticides before smoking, eating, drinking or toileting. Shower after work and do not reuse clothing worn during handling (mixing, loading or applying) pesticides or when cleaning and repairing equipment used during mixing, loading or application of pesticides until clothing has been thoroughly laundered. Clothing worn during work must be laundered separately from household articles before reuse.

### Preparation and application of the Spray:

**Dacthal Flowable Herbicide** should be thoroughly mixed in the spray tank with water to provide for broadcast application of at least 20 gallons of water per acre, depending on equipment and local practices. In order to insure uniform suspension in the spray tank, **Dacthal Flowable Herbicide** should be added as the spray tank is filling. Adequate agitation should be maintained during filling and spraying to keep material in uniform suspension. Use nozzles suitable for applying wettable powder so that the spray can be uniformly distributed over turf or properly prepared soil surface. Any screen or strainer in spray equipment should be no finer than 50 mesh to prevent clogging. It is essential that the sprayer be properly calibrated before making applications. Standard low pressure (30-50 psi) boom type sprayers are recommended.

A minimum of one-fourth inch of water either as rain or irrigation is necessary to activate **Dacthal Flowable Herbicide**, and thereby obtain preemergence control of weeds specified. Normally, water must be applied within 3 to 5 days of application if sufficient rainfall does not occur. However, when surface soil is dry but subsurface soil contains enough moisture for weed seed germination, water must be applied immediately.

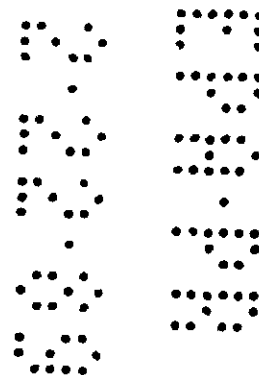
**Ornamental Turf:** Application at the rate of 7 qts of **Dacthal Flowable Herbicide** in 40 to 100 gallons of water per acre (1 pt. in 3 to 7 gals./3,000 sq. ft.) gives excellent control of crabgrass and other weeds as listed on this label. One application applied in early spring before weed seed germination usually provides season long control. Crabgrass seed germination usually coincides with the time when Forsythia blossoms start to fall. In areas which commonly experience stands of late-germinating crabgrass and other annual weedy grasses, a second application at half the regular rate can be safely made two months after the first application. In order to control annual bluegrass (*Poa annua*) and other erratic or late-germinating grasses and weeds in northern states, a late summer or early fall application before weed seed germination of 10 quarts of **Dacthal Flowable Herbicide** in 40 to 100 gallons of water per acre (1 1/2 pts. in 3 to 7 gals./3,000 sq. ft.) should supplement the early spring application. Earlier applications are required in Southern States. Consult agricultural experiment station or extension service weed specialist for date *Poa annua* seed germinates in your area and make application at least two weeks prior to this date. Early spring application of **Dacthal Flowable Herbicide** may be made to new turfgrass seedlings after the grasses have exhibited a uniform greening of the newly sprouted grass, preferably when 1 to 2 inches in height. Such **Dacthal Flowable Herbicide** application, gives control of crabgrass without injury to newly emerged turf grasses. Fall sowing of permanent grasses can follow early spring applications of **Dacthal Flowable Herbicide**.

Where some spring seeding is necessary, there should be a delay of approximately 60 days after the application of **Dacthal**. This delay increases the survival of desirable grasses.

**Dacthal Flowable Herbicide** is not recommended for use on putting greens or on bentgrasses mowed at putting green height.

Do not feed treated foliage to livestock or graze treated areas.

For control of creeping speedwell (*Veronica filiformis*), apply 10 quarts of **Dacthal Flowable Herbicide** in 40 to 100 gallons of water per acre as a postemergence spray when creeping speedwell is growing vigorously. Spring or early fall applications are usually suitable, provided temperatures are between 65° and 90°F and there is ample soil moisture. Thorough coverage is essential. Delayed control of creeping speedwell is to be expected and will be manifested first by a gradual loss of color and vigor.



**For Use on Turf** ✓

To Control	When to Apply	Rate of Dacthal Flowable Herbicide	Remarks
Established Crabgrass	Early spring, before crabgrass and other spring annual weed seeds germinate.	1 qt. / acre or 1 pt. in 3 to 7 gal. / 3000 sq. ft.	Apply when Forsythia blossoms. A second application at half the recommended rate may be made 2 months after the first application, if necessary.
Annual Crabgrass (Post annual)	Late summer or early fall in Northern States before weed seed germination. Consult agricultural experiment station or extension service weed specialist for date Post annual germinates in your area and make application at least ten weeks prior to this date.	10 qts. / acre or 1 1/2 pts. in 3 to 7 gal. / 3000 sq. ft.	Should be used following an early spring application for crabgrass control.
Creeping speedwell (Sideroxylon autumnale)	As a postemergence spray in spring or early fall when creeping speedwells are growing vigorously. There is ample soil moisture and temperature is between 65° and 90°F.	2 qts. / acre or 1/8 fluid ounces in 3 to 7 gal. / 3000 sq. ft.	Apply spray to obtain thorough coverage of foliage. Delayed control of creeping speedwells is to be expected and will be noticed first by a gradual loss of color and vigor.
Nonrigid Spurred or Prickly spurge (Euphorbia maculata E. spina)	Mid April or before seed germination of annual weeds. Repeat application in 4 to 8 weeks.	7 to 8 qts. / acre or 15 to 18 pts. in 3 to 7 gal. / 3000 sq. ft.	Apply first application before seed germination. Repeat application at the same rate 6 to 8 weeks later in addition to control of spurred spurge or prickly spurge. Crabgrass control is also obtained.
Newly seeded turf	After new turfgrass seedlings have exhibited a greening of the newly sprouted grass (about 1 to 2 inches high).	1 qt. / acre or 1 pt. in 3 to 7 gal. / 3000 sq. ft.	Allows crabgrass control without injury to the new turf.

**CAUTION** After Dacthal Flowable Herbicide treatment, wait approximately 60 days before any new seeding is undertaken.

**Do not use on Birchodra**

See recommendations on bentgrass before using on this species.

**Ornamentals.** Dacthal Flowable Herbicide can be applied to a wide range of nursery stock at the rate of 7 to 8 quarts in 40 to 100 gallons of water per acre of area treated (1 pint in 3 to 7 gallons of water / 3000 sq. ft.).

Applications should be made in soil recently cultivated to a uniform texture. These can be made immediately following lining out of stock. With established plantings, application should be made following proper cultivation to remove existing weeds. Where possible, this should be done early in the spring. Late summer application may prove beneficial for control of all germinating weeds, if made following cultivation. Weed control up to three months or more may be expected following proper application.

Dacthal Flowable Herbicide is specifically recommended for weed control with the following:

Anemone	Feverfew	Nasturtium
Ageratum	Fic	Oak
Alyssum	Forget me not	Opine
Andromeda Jap	Forsythia	Pachistima
Arborvitae	Four O'Clock	Pachysandra
Ash	Foxglove	Penny
Aster	Gallardia	Petunia
Azalea	Geranium	Pine
Babysbreath	Gladiolus	Pitospodium
Barberry	Golddust	Podocarpus
Beeflower	Goldenlute	Poker plant
Birch	Gum	Poplar
Bleedingheart	Hawthorn	Privet
Bloodsal	Heath Pink	Privet
Bloxwood	Holly	variegated
Bugloss	Hydrangea	Redbud
Camellia	Honeysuckle	Rhododendron
Candytut	Iris	Rose
Chestnut	Ivy Baltic	Russian olive
Chrysanthemum	Ivy Boston	Sage scarlet
Cinquefoil	Ivy English	Snapdragon
Cornus	Ivy Wilson	Spiderwort VA
Columbine	Juniper	Spruce
Coneflower	Lantana	Spruce
Purple	Larkspur candle	Stinging
Coreopsis	Lavender cotton	Strawberry
Cornbell	Uliac	Sundrops
Cosmos	Lily	Sunflower
Cotoneaster	Lily	Sweet pea
Cottonwood	Lupine	Sycamore
Crabapple	Magnolia	Tree peony
Cypripedium	Maple	Tupelo tree
Cypress	Marigold	White pine
Dahlia	Marigold	White pine
Daphniphyllum	Marygold	Wax
Delphinium	Miscanthus	Wax
Diagnon	Miscanthus	Wax
Dragon's blood	Mother of	Wax
Eragrostis	Thyme	Wax
Echinops	Muscadine	Wax
Evergreen	Muscadine	Wax
Flax	Mourning Bride	

**Do not use on the following plants:**

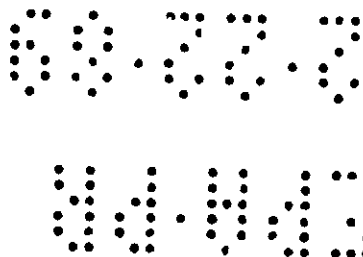
Bugweed	Germander	Phlox
Butter pink	Mexican yucca	Sweet William
Carnation	Yucca	Tanagers
Geum	Penny	

**Amount of DACTHAL Use in Treating**

Area to be Treated*
1000 sq. ft. from 1 to 2 gallons of water should be used to spray 1000 sq. ft.
250 sq. ft. from 1/4 to 1/2 gallon of water should be used to spray 250 sq. ft.

**NOTE** In treating use care in measuring area to be treated and keeping it adequate application.

\*Other size areas from the above to treat 5000 use 1 qt. / acre. To treat 500 sq. ft. use 1/2 qt. / acre.



## Application and Calibration Techniques for Sprinkler Irrigation

Apply **Dacthal Flowable Herbicide** only through center pivot, motorized lateral move, solid set or portable (side roll, end tow or hand move) irrigation systems. Do not apply this product through any other type of irrigation system.

Crop injury or lack of effectiveness can result from non-uniform distribution of treated water.

If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.

Do not apply this product through irrigation systems connected to a public water system. "Public water system" means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days per year.

A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of this responsible person, shall shut the system down and make necessary adjustments should the need arise.

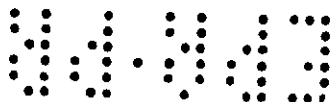
The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

The pesticide injection pipeline must also contain a functional, normally closed, automatic operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

**Always inject DACTHAL FLOWABLE HERBICIDE into irrigation water after it discharges from the irrigation pump and after it passes through the check valve. Never inject herbicide into the intake line of the suction side of the pump.**

The system must be checked for leaks and controls to automatically shut off the pesticide injection pump when the water pump motor stops.



The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump (such as a positive displacement injection pump (e.g. diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment.

Spray mixture in the chemical supply tank must be agitated at all times; otherwise settling and uneven application may occur.

**Dacthal Flowable Herbicide** may be used through two basic types of sprinkler irrigation systems as outlined in Sections A and B below. Determine which type of system is in place, then refer to the appropriate directions provided for each type.

### A. Center Pivot and Motorized Lateral Move Irrigation Equipment

For injection of pesticides, these continuously moving systems must use a positive displacement injection pump of either diaphragm or piston type, constructed of materials that are compatible with pesticides and capable of injection at pressures approximately 2-3 times those encountered within the irrigation water line. Similar applicator units cannot be used on these systems.

Fill chemical supply tank of injection equipment with water. Operate system for one complete revolution or cycle across the field, measuring time required, amount of water injected, and acreage covered. Thoroughly mix recommended amount of **Dacthal Flowable Herbicide** for acreage to be covered into same amount of water used during calibration and inject into system continuously for one revolution or cycle. Mixture in the chemical supply tank must be continuously agitated during the injection run. Shut off injection equipment after one revolution or cycle, but continue to operate irrigation system until **Dacthal Flowable Herbicide** has been cleared from last sprinkler head.

### B. Solid Set and Portable (Side Roll, End Tow or Hand Move) Irrigation Equipment

Determine acreage covered by sprinkler. Fill tank of injection equipment with water and adjust flow to use contents over a thirty to forty five minute period. Mix desired amount of **Dacthal Flowable Herbicide** for acreage to be covered into quantity of water used during calibration and operate entire system at normal pressures recommended by the manufacturer of injection equipment used for amount of time established during calibration. **Dacthal Flowable Herbicide** will be injected at the beginning or end of the irrigation cycle or as a separate application. Stop injection equipment after treatment is completed and continue to operate irrigation system until **Dacthal Flowable Herbicide** has been cleared from last sprinkler head.

### Storage and Disposal

Do not contaminate water, food or feed by storage or disposal. Open dumping is prohibited.

**Pesticide Disposal.** Wastes resulting from the use of this product may be disposed of on land or in an approved water disposal facility.

**Container Disposal.** Do not reuse empty container. To be reused or repaired and used for recycling or reconditioning, the product must be disposed of in a sanitary and non-contaminating manner as followed by state and local authorities, or by using the recapturing unit of sprayer.

### Warranty and Limitation of Damages

Seller warrants that this material conforms to its chemical description and is reasonably fit for the purposes stated on the label when used in accordance with directions under normal conditions of use and Buyer assumes the risk of any use contrary to such directions. Seller makes no other express or implied warranty, including any other express or implied warranty of fitness or of merchantability, and no agent of Seller is authorized to do so except in writing with a specific reference to this warranty. In no event shall Seller's liability for any breach of warranty exceed the purchase price of the material as to which a claim is made.

Fermenta Plant Protection Company  
9098 Mendota Road  
P.O. Box 8100  
Mendota, Illinois 61860

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