UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

JUN 19 1992

Dr. Janet Ollinger
Rohm and Haas Company
Independence Mall West
Philadelphia, PA 19105

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Dear Dr. Ollinger:

Subject: Amended Labeling in Response to the EBDC PD-4
Dithane M-45 Flowable Agricultural Fungicide
EPA Reg. No. 707-162
Your Submission Dated April 1, 1992

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

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

a. Under the Environmental Hazards section, revise the third sentence by adding "except as specified for the labeled use on cranberries."

b. Under the Reentry statements, revise this section to read "For turf uses other than sod farms" or similar wording. Use of the product on sod farms is considered an agricultural use.

c. Under Application, revise the first sentence under "Flagging" by adding "in a totally enclosed vehicle."

d. For onions, under restrictions, the maximum rate per acre per crop should be 24 qts.

e. On page 14, in the heading for seed treatments; change "oz." to "fl oz."

f. On page 15, the heading for rates for turf use must be changed from "oz" to "fl.oz.".

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

H7505C:J.Fairfax:707-162:6/11/92

CONCURRENCES								
SYMBOL								
SURNAME								
DATE								

EPA Form 1320-1A (1/90) *Printed on Recycled Paper* OFFICIAL FILE COPY

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

Sincerely yours,

Carl Scheele for

Susan T. Lewis
Product Manager (21)
Fungicide-Herbicide Branch
Registration Division (H7505C)

Enclosure

DITHANE M-45®

ROHM AND HAAS
PHILADELPHIA, PA. 19105

Flowable M Agricultural Fungicide

ACTIVE INGREDIENTS

MANCOZEB
A coordination product of zinc ion and manganese ethylene bisdithiocarbamate.....32%*
In which the ingredients are:

Manganese++	6.4%
Zinc++	0.8%
Ethylene bisdithiocarbamate ion ($C_4H_6N_2S_4$)--	24.8%
INERT INGREDIENTS	68%
TOTAL	100%

ACCEPTED
with COMMENTS
In EPA Letter Dated:
JUN 19 1992
Under the Federal Fungicide ... and ... for ... registered under ...
707-162

*** Equivalent to 3.48 lb.s active ingredient per gallon.**

EPA REG NO. 707-162

NOTICE: Before using this product, read the entire Precautionary Statements, Conditions of Sale and Warranty, Directions for Use, Use Restrictions and Storage and Disposal Instructions. If the Conditions of Sale and Warranty are not acceptable, return the product unopened within thirty days of purchase to the place of purchase.

KEEP OUT OF REACH OF CHILDREN

CAUTION

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

May cause irritation of nose, throat, eyes and skin. Avoid contact with skin, eyes or clothing. Avoid breathing spray mist. In case of contact immediately flush eyes or skin with plenty of water. Get medical attention if irritation persists.

PROTECTIVE CLOTHING AND EQUIPMENT: All agricultural workers/handlers (i.e., mixers, loaders, and applicators) applying EBDC's must wear coveralls over long-sleeved shirt and long pants; shoes, socks, and chemical-resistant gloves. During mixing and loading, a chemical-resistant apron and goggles or a face shield must also be worn. Refer to Re-entry and Worker Protection Statements for additional Worker Safety rules.

STATEMENT OF PRACTICAL TREATMENT

IF SWALLOWED: Dilute by giving 2 glasses of water to drink and call a physician. Never give anything by mouth to an unconscious person.
IF INHALED: Move subject to fresh air.
IF IN EYES: Flush eyes with large amounts of water for at least 15 minutes. Consult a physician if irritation persists.
IF ON SKIN: Wash affected skin areas with soap and water.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or disposing of wastes. For Seed Treatment Products- cover or incorporate spilled treated seed.

CONDITIONS OF SALE AND WARRANTY

Rohm and Haas warrants that the product conforms to its chemical description and is reasonably fit for the purpose stated on the label only when used in accordance with label directions under normal conditions of use. **ROHM AND HAAS MAKES NO OTHER EXPRESS OR IMPLIED WARRANTIES EITHER OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE.** Handling, storage and use of the product by Buyer or User are beyond the control of Rohm and Haas and Seller. Risks such as crop injury, ineffectiveness or other unintended consequences resulting from, but not limited to, weather or soil conditions, presence of other materials, disease, pest, drift to other crops or property or failure to follow label directions will be assumed by the Buyer or User. **IN NO CASE WILL ROHM AND HAAS OR SELLER BE HELD LIABLE FOR CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES RESULTING FROM THE HANDLING, STORAGE OR USE OF THIS PRODUCT.**

DIRECTIONS FOR USE

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

RE- ENTRY AND WORKER PROTECTION STATEMENTS

WORKER SAFETY RULES

Keep all unprotected persons, children, livestock and pets away from treated area or where there is a danger of drift. Do not rub eyes or mouth with hands. See Statements of Practical Treatment.

PERSONAL PROTECTIVE EQUIPMENT- For Mixers, Loaders, Applicators and Early Re-entry Workers.

HANDLE THIS PRODUCT ONLY WHEN WEARING THE FOLLOWING PROTECTIVE CLOTHING AND EQUIPMENT: All agricultural workers/handlers (i.e., mixers, loaders, and applicators) applying EBDC's must wear coveralls over long-sleeved shirt and long pants; shoes, socks, and chemical-resistant gloves. During mixing and loading, a chemical-resistant apron and goggles or a face shield must also be worn. For agricultural workers, where completely enclosed cabs with positive pressure filtration or an enclosed cockpit for aerial application are used, a long-sleeved shirt and long pants may be worn in place of the protective clothing described above. Chemical-resistant gloves must be available in the cab or cockpit and worn upon exiting. The gloves must be kept in an enclosed container in the cab or cockpit to prevent contamination of the inside of the cab or cockpit. During aerial application, human flaggers are prohibited unless in totally enclosed vehicles.

IMPORTANT! Before removing gloves, wash them with soap and water. Always wash hands, face and arms with soap and water before eating, smoking or drinking. Always wash hands and arms with soap and water before using the toilet.

After work take off all clothes and shoes. Shower using soap and water. Wear only clean clothes. Do not use contaminated clothing. Wash protective clothing and protective equipment with soap and water after each use. Personal clothing worn during use must be laundered separately from household articles. Clothing and protective equipment heavily contaminated or drenched with DITHANE M-45 must be destroyed according to state and local regulations.

HEAVILY CONTAMINATED OR DRENCHED CLOTHING CANNOT BE ADEQUATELY DECONTAMINATED. During aerial application, human flaggers are prohibited unless in totally enclosed vehicles.

RE-ENTRY STATEMENTS

Written or oral warnings must be given to workers who are expected to be in a treated area or in an area about to be treated with this product. When oral warnings are given, warnings shall be given in a language customarily understood by workers. Oral warnings must be given if there is reason to believe that written warnings cannot be understood by workers. Warnings must include the following information: "**CAUTION** - Area treated with DITHANE M-45 on (date of application) . Do not enter without appropriate protective clothing until sprays have dried for turf uses or within **24 Hours** of application for agricultural uses. In case of contact, flush skin or eyes with plenty of water; for eyes, consult a physician if irritation persists "

FOR AGRICULTURAL USES

After sprays have dried, **do not enter or allow entry into treated areas until the 24-hour re-entry interval has expired** unless wearing the personal protective equipment listed on this label.

FOR TURF USES

Do not enter treated areas without protective clothing until sprays have dried.

GENERAL USE INFORMATION

DITHANE M-45 is a broad-spectrum protectant fungicide recommended for outdoor or greenhouse grown crops. Optimum disease control is achieved when the fungicide is applied in a regularly scheduled preventative spray program. The addition of an agricultural surfactant will improve fungicide performance by providing a more uniform spray deposit, increased foliar redistribution, and improved fungicide retention during periods of wet weather.

USE RATE DETERMINATION

Carefully read, understand, and follow label use rates and restrictions.
Under low disease conditions, minimum label rates per application can be used while maximum label rates and the minimum interval may be used for severe or threatening disease conditions.
For proper application, determine the number of acres to be treated, the recommended label use rate and the gallonage to be applied per acre. Prepare only the amount of spray solution required to treat the measured acreage. Careful calibration of spray equipment is recommended prior to use.
If only a portion of the container's contents are to be used, thoroughly shake the container prior to measuring. When small quantities of spray solution are being prepared for use in hand or power sprayers, the following conversion table should be followed (rates are based on dilute thorough coverage sprays):

Recommended Label Use Rates Per Acre or 100 Gals*	Fluid Ounces DITHANE M-45 Flowable Agricultural Fungicide Required for: 10 GALS.	5 GALS.	2 GALS.	1 GAL.
0.8 qts	2.6	1.3	0.5	0.3
1.0 qts	3.2	1.6	0.7	0.3
1.2 qts	3.8	1.9	0.9	0.3
1.6	5.1	2.6	1.0	0.5
2.0 qts	6.4	3.2	1.3	0.6
2.4 qts	8.0	4.0	1.6	0.8
3.2 qts	10.3	5.1	2.1	1.0
4.8 qts	15.4	7.7	3.1	1.6

1 cup = 8 fluid ounces or 237 milliliters
1 fluid ounce = 2 tablespoons or 30 milliliters
1 tablespoon = 3 teaspoons or 15 milliliters
*Dilute thorough coverage sprays.

MIXING

Slowly place into spray tank as it is being filled or thoroughly premix in a nurse tank for concentrate or aircraft sprayers. Add other co-applied fungicides, insecticides, growth regulators, micronutrients, and spray adjuvants after DITHANE M-45 fungicide has been placed into suspension. When preparing spray solutions for use in a hand sprayer, premix as a slurry in a small container, and then add to sprayer containing 1/3 to 1/2 the desired final water volume.

COMPATIBILITY

DITHANE M-45 fungicide is compatible with most commonly used agricultural fungicides, insecticides and growth regulators. When preparing tank mixes, user should consult spray compatibility charts or State Cooperative Extension Service Specialists prior to actual use.

SPRAY ADJUVANTS

The addition of agricultural surfactants to DITHANE M-45 fungicide sprays will improve initial spray deposits, fungicide redistribution and weatherability. The following spray adjuvants have been especially formulated to optimize the performance of foliar-applied agricultural chemicals:

LATRON B-1956™ -A water-dispersible, resin-based nonionic surfactant that resists re-wetting and removal by rain. Effective with dilute sprays applied by ground equipment.

LATRON CS-7™ -A spreader-binder designed specifically for use in concentrate and low volume sprays applied by aircraft or ground equipment.

Place DITHANE M-45 fungicide into suspension prior to adding an adjuvant to the spray mixture. Read and carefully observe the precautionary statements and all other information appearing on both product labels prior to spray preparation.

APPLICATION

GROUND-Thorough coverage foliar sprays generally result in optimum disease control. To achieve good coverage use proper spray pressure, gallonage per acre, nozzles (generally hollow cone), disc (generally D-5 to D-7), nozzle spacing, and tractor speed. Consult spray nozzle and accessory catalogues for specific information on proper equipment calibration.

HAND SPRAYERS-Thoroughly spray plant foliage until runoff.

AERIAL-A uniform initial spray deposit over the crop canopy generally results in optimum disease control. Each aircraft should be prechecked for droplet size, uniformity of spray pattern, swath width, and spray volume. During aerial application, human flaggers are prohibited unless in totally enclosed vehicles.

Nozzle selection- Hollow cone brass nozzles with a D-series orifice disc and core(whirlplate) are recommended. Nozzles should point straight down or slightly backward.

Swath width- For most field and vegetable crops, swaths just beyond the wingspan of 36 to 40 feet for light aircraft and up to 45 feet for heavier aircraft are suggested. Optimum swath for helicopters is usually 5 to 10 feet beyond normal boom length.

Spray volume- Aerial applications are to be made in a minimum of two (2) gallons of water per acre. On vegetable and field, crops 2 to 3 gallons of spray per acre are generally optimum; orchards and vineyards can be handled with spray volumes of 5 gallons per acre. Some tall or dense foliage crops, requiring greater penetration to the lower leaf surface will require higher spray volumes. **DO NOT USE LESS THAN 5 GALLONS PER ACRE IN CALIFORNIA.**

Altitude- For most crops, the spray boom should be positioned in 5 to 10 feet above the crop canopy.

Flagging- Swaths should be marked at the end of the field with permanent flags or by a flagman. Swaths should be measured accurately with a chain or other device except when rows can be accurately counted.

CHEMIGATION USE DIRECTIONS

Sprinkler Irrigation

DITHANE M-45 fungicide must be applied on a regular protectant fungicide schedule, **not an irrigation schedule.** If irrigation cycles are less frequent than recommended DITHANE M-45 fungicide application intervals, ground or aerial applications must supplement chemigation applications to achieve adequate disease control.

Apply DITHANE M-45 fungicide only through sprinkler irrigation systems including center-pivot, lateral move, end tow, side (wheel) roll, traveler, solid set, or hand move irrigations systems. Do not apply product through any other type of irrigation system.

Lack of fungicidal effectiveness or illegal pesticide residues in the crop can result from nonuniform distribution of treated water.

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

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water system are in place.

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

Before applying DITHANE M-45 fungicide through sprinkler irrigation equipment, the chemigation system must meet the following specifications:

- 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 out of the year.
- Chemigation systems connected to public water systems must contain a functional reduced-pressure zone (RPZ), backflow preventer or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.
- Systems not connected to a public water supply must contain a functional check valve, vacuum relief valve, and low-pressure drain appropriately located in the irrigation pipeline to prevent water source contamination from back flow.
- 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 solenoid-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.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.
- 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.

Center-pivot, Lateral Move, End Tow, and Traveler Irrigation Equipment:(use only with electric or oil hydraulic drive systems which provide a uniform water distribution)

- Determine size of area to be treated.
- Determine the time required to apply no more than 1/4 inch water (6,750 gallons water per acre) over the area to be treated when the system and injection equipment are operated at normal pressures recommended by the equipment manufacturer. Run system at 80 to 95% of manufacturer's rated capacity.
- Using only water, determine the injection pump output when operated at normal line pressure.
- Determine the amount of DITHANE M-45 fungicide required to treat area.
- Add the required amount of DITHANE M-45 fungicide and sufficient water to meet the injection time requirements of the solution tank.
- Maintain constant solution tank agitation during the injection period.
- Stop injection equipment after treatment is completed. Continue to operate the system until DITHANE M-45 fungicide solution has cleared the sprinkler head.

Solid-set, Side (wheel) Roll, and Hand Move Irrigation Equipment:
- Determine acreage covered by sprinkler.
- Fill injector solution tank with water and adjust flow rate to use contents over a 10 to 30 minute interval.
- Determine the amount of DITHANE M-45 fungicide required to treat area.
- Add the required amount of DITHANE M-45 fungicide into the same quantity of water used to calibrate the injection equipment.
- Maintain constant solution tank agitation during the injection period.
- Operate system at normal pressures recommended by the manufacturer of the injection equipment and used for the time interval established during calibration.
- Inject DITHANE M-45 fungicide at the end of the irrigation cycle or as a separate application to maximize foliar fungicide retention.
- Stop injection equipment after treatment is completed. Continue to operate the system until DITHANE M-45 fungicide solution has cleared the last sprinkler head.

DISEASE MONITORING

DITHANE M-45 fungicide is a broad-spectrum, protectant fungicide. If not applied on a routine protectant spray schedule, crops should be scouted on a weekly basis. Fungicide application should be made, at the recommended label use rate and spray schedule, at the first sign of disease, report of disease in the area, or during environmental conditions favorable for disease development.

RESTRICTIONS

Users should carefully read, understand, and follow all use restrictions prior to using DITHANE M-45 fungicide. If this product is used on a crop, no other product containing a different EBDC active ingredient may be used on the same crop during the same growing season.

POMEFRUITS

Use either the "Pre-Bloom" or "Extended Application" schedule.
DO NOT COMBINE OR INTEGRATE THE TWO TREATMENT SCHEDULES. It is recommended that this product be used in an Integrated Pest Managment Program (IPM).

CROP	DISEASES CONTROLLED	RATE OF DITHANE M-45 PER APPLICATION QTS/A.	REMARKS (Also refer to Directions For Use)	RESTRICTIONS
Apples Crabapples Pears Quince	Fabrea leaf spot Rusts Scab	4.8*	Pre-Bloom Use: Begin applications at 1/4 to 1/2 inch green tip and continue on a 7 to 10 day schedule through bloom.	Do not apply more than 4.8 qts. per acre per application. Do not apply after bloom. Do not apply more than 19.2 qts. per acre per year. Do not graze livestock in treated areas.
		2.4*	Extended Application Schedule or for Use in Tank Mixtures: For implementation of IPM programs, applications based on tree-row volume, or for use as a resistance management tool, begin applications at 1/4 to 1/2 inch green tip and continue applications on a 7 to 10 day schedule through the second cover spray or to within 77 days of harvest.	Do not apply more than 2.4 qts. per acre per application. Do not apply within 77 days of harvest. Do not apply more than 16.8 qts. per acre per year. Do not graze livestock in treated areas.

*Maximum per acre use rate based on thorough coverage dilute sprays.

DILUTE, THOROUGH COVERAGE APPLICATIONS

Dilute, thorough coverage applications are based on the amount of spray solution required to thoroughly wet trees until spray runoff.

Example: (300 gallons per acre dilute basis)

Prebloom use

- 1.6 qts. DITHANE M-45/100 gals. maximum.
- 4.8 qts. DITHANE M-45 per acre per application

Extended Application Schedule

- 0.8 qts. DITHANE M-45/100 gals. maximum.
- 2.4 qts DITHANE M-45 per acre per application

CONCENTRATE SPRAY APPLICATIONS

To adjust the concentration of active ingredient in concentrate sprays to account for differences in tree size:

- Refer to dilute use rates as basis for calculations.
- Consult the State Extension Service for calculating rates of DITHANE M-45 for variable tree size.
- Do not exceed 4.8 qts. of DITHANE M-45 per acre, per application when using the prebloom schedule.
- Do not exceed 2.4 qts. of DITHANE M-45 per acre per application when using the extended application schedule.

FRUITS

CROP	DISEASES CONTROLLED	RATE OF DITHANE M-45 PER APPLICATION QTS./A	REMARKS (Also refer to Directions For Use)	RESTRICTIONS
Bananas	Sigatoka	1.6 to 2.4	Apply when leaves first appear and repeat every 14 to 21 days or as required. Use sufficient water to provide adequate coverage. The addition of a LATRON surfactant to spray solutions will improve performance.	Do not apply more than 24 qts. per acre per growing cycle. Applications can be made up to the day of harvest.
Cran-berries	Fruit rot	2.4 to 4.8	Start applications at mid-bloom and repeat at 7 to 10 day intervals as required.	Do not apply within 30 days of harvest. Do not apply more than 14.4 qts. per acre per season.
Grapes	Black rot Bunch rot Deadarm Downy mildew	1.2 to 2 West of the Rocky Mountains 1.2 to 3.2 East of the Rocky Mountains	Apply in sufficient water to provide thorough coverage starting when new shoots are 1/2 to $1^{1/2}$ inches long. Repeat when shoots are 3 to 5 inches long, when shoots are 8 to 10 inches long, and then at 7 to 10 day intervals until fruit is set or 66 days before harvest. For late season control of black rot, deadarm and downy mildew, the use of other approved and recommended fungicides is suggested.	In California, do not apply after bloom In other areas, do not apply within 66 days of harvest. West of the Rocky Mountains, do not apply more than 6 qts. per acre per season. East of the Rocky Mountains, do not apply more than 19.2 qts. per acre per season.
Papayas	Anthracnose Phytophthora fruit rot	1.6 to 2	Use 20 to 100 gallons water per acre. Start applications at flowering and continue at 14 to 21 day intervals. Direct spray to crown and blossom area. Use 6 to 8 ounces LATRON spreader-sticker per acre.	Do not apply more than 28 qts. per growing cycle. Applications may be made up to the day of harvest.

VEGETABLES

CROP	DISEASES CONTROLLED	RATE OF DITHANE M-45 PER APPLICATION QTS./A	REMARKS (Also Refer to Directions For Use)	RESTRICTIONS
Asparagus	Cercospora leaf spot Rust	1.6	Start applications when rust first appears and repeat at 10 day intervals. Four applications are usually sufficient.	Apply only on asparagus ferns after spears have been harvested. Do not apply more than 6.4 qts. per acre per season. Do not apply within 120 days of harvest in California and Arizona, or within 180 days in all other states.
Corn (sweet, popcorn and sweet corn used for seed production)	Common rust Helminthosporium leaf blight	1.2	Use sufficient water for thorough coverage. Start applications when disease first appears and repeat at 4 to 7 day intervals. The addition of a LATRON surfactant to spray solutions will improve performance	Do not apply within 7 days of harvest. East of the Mississippi River, Arkansas and Louisiana, do not apply more than 18 qts. per acre per crop. West of the Mississippi River (except Arkansas and Louisiana), do not apply more than 6 qts. per acre per crop. Do not feed treated forage to livestock.
Cucumbers	Anthracnose Cercospora leaf spot Downy mildew Gummy stem blight Scab	1.6 to 2.4	Start applications when plants are in the two-leaf stage and repeat at 7 to 10 day intervals. Use sufficient water and direct spray to provide thorough coverage of both upper and lower leaf surfaces.	Do not apply within 5 days of harvest. Do not apply more than 19.2 qts. per acre per crop.
Melons Cantaloupes Casaba Crenshaw Honeydew Muskmelons	Alternaria leaf spot Anthracnose Downy mildew Gummy stem blight	1.6 to 2.4	Start applications when plants are in the two-leaf stage and repeat at 7 to 10 day intervals. Use sufficient water and direct spray to provide thorough coverage of both upper and lower leaf surfaces. Some varieties are sensitive to DITHANE M-45 fungicide. Consult State Cooperative Extension Service Specialist prior to use.	Do not apply within 5 days of harvest. Do not apply more than 19.2 qts. per acre per crop.

VEGETABLES
-cont.-

CROP	DISEASES CONTROLLED	RATE OF DITHANE M-45 PER APPLICATION QTS./A	REMARKS (Also refer to Directions for Use)	RESTRICTIONS
Fennel	Early blight Late blight	1.6	Start applications when disease first appears and repeat applications every 7 to 10 days.	Do not apply more than 12.8 qts. per season. Do not apply within 14 days of harvest.
Onions (dry bulb)	Botrytis leaf blight Downy mildew Neck rot Purple blotch	2.4	Follow a protective spray schedule starting when diseases are first reported in the area and repeat at 7 day intervals throughout the season. The addition of a LATRON surfactant to spray solutions will improve performance. Do not allow spray or drift to contact bulbs after lifting from soil.	Do not apply within 7 days of harvest. Do not apply more than 2.4 qts. per acre per crop. Do not apply to exposed bulbs.
(furrow drench)	Smut		Apply 2.4 qts. per acre as a furrow drench at time of planting onion seeds. Use 75 to 125 gallons water per acre.	Do not use more than 2.4 qts. per acre (29 000)linear feet of furrow) with an 18 inch row spacing. Do not use in California.
Potatoes	Early blight Late blight	0.8 to 1.6	Begin applications when plants are 4 to 6 inches high by applying 0.8 qts. per acre. As the vines increase in size, apply 1.2 to 1.6 qts. per acre. Repeat applications at 5 to 10 day intervals. The addition of a LATRON surfactant to spray solutions will improve performance. It is recommended that this product be used within an Integrated Pest Management Program. Also, vine-kill should occur 14 days before harvest.	Do not apply more than 11.2 qts. per acre per crop. Do not apply within 3 days of harvest in Connecticut, Florida, Maine, Massachusetts, New Hampshire, New York, Pennsylvania, Vermont and Wisconsin and at least 14 days elsewhere.
Seedpiece (treatment)	Fusarium decay Seedborne common scab		Dip whole or cut potato tubers in 1 qt. DITHANE M-45 fungicide per 50 gallons of water. Place treated tubers in a clean container following treatment and plant as soon as possible. Spread treated seedpieces in a cool place if held before planting.	Do not use treated seed potatoes for food or feed purposes.

VEGETABLES
-cont.-

CROP	DISEASES CONTROLLED	RATE OF DITHANE M-45 PER APPLICATION QTS./A	REMARKS (Also refer to Directions for Use)	RESTRICTIONS
Squash, summer	Downy mildew	1.6 to 2.4	Start applications when plants are in the two-leaf stage and repeat at 7 to 10 day intervals. Use sufficient water and direct spray to provide thorough coverage of both upper and lower leaf surfaces.	Do not apply within 5 days of harvest. Do not apply more than 19.2 qts. per acre per crop.
Tomatoes	Anthracnose Early blight Gray leaf spot Late blight Leaf mold Septoria leaf spot	1.2 to 1.6 West of the Mississippi River 1.2 to 2.4 East of the Mississippi River	Start applications when seedlings emerge or transplants are set and repeat at 7 to 10 day intervals throughout the season. The addition of a LATRON surfactant to spray solutions will improve performance.	Do not apply within 5 days of harvest. West of the Mississippi River , do not apply more than 6.4 qts. per acre per crop. East of the Mississippi River, do not apply more than 16.8 qts per acre per crop.
Watermelons	Alternaria leaf spot Anthracnose Cercospora leaf spot Downy mildew Gummy stem blight Scab	1.6 to 2.4	Start applications when plants are in the two-leaf stage and repeat at 7 to 10 day intervals. Use sufficient water and direct spray to provide thorough coverage of both upper and lower leaf surfaces.	Do not apply within 5 days of harvest. Do not apply more than 19.2 qts. per acre per crop.

FIELD CROPS

CROP	DISEASES CONTROLLED	RATE OF DITHANE M-45 PER APPLICATION QTS./A.	REMARKS (Also Refer to Directions For Use)	RESTRICTIONS
Barley	Refer to Wheat			
Corn,field and hybrid seedcorn	Common corn rust Helminthosporium leaf blight	1.2	Start applications when disease symptoms first appear and, depending on severity of infection, continue on a 4 to 14 day schedule. The addition of LATRON CS-7 will improve performance	Do not apply more than 12 qts. per season Do not apply within 40 days of harvest.
Cotton (Southwest U.S. only)	Rust	1 to 1.6	Start applications when rust appears and repeat at 10 to 14 day intervals until disease threat is past.	Do not apply more than 6.4 qts. per season. Do not apply after bolls open. Do not apply within 45 days of harvest. Do not graze livestock in treated areas or feed gin trash to livestock.
Oats	Refer to Wheat			
Peanuts	Cercospora leaf spot Rust	0.8 to 1.6	Start applications when disease first appears or is reported in area. Repeat sprays at 7 to 14 day intervals.	Do not apply within 14 days of harvest. Do not use more than 12.8 qts. per acre per crop. Do not feed treated vines to livestock.
Rye	Refer to Wheat			
Sugar beets	Cercospora leaf spot	1.2 to 1.6	Start applications when disease first threatens and repeat every 7 to 10 days as needed. The addition of a LATRON surfactant to spray solutions will improve performance.	Do not apply within 14 days of harvest. Do not apply more than 11.2 qts. per season. Do not feed treated tops to livestock.
Wheat	Helminthosporium leaf spot Leaf rust Septoria glume blotch Septoria leaf spot Tan spot	1.6	Start application at onset of disease or when plants are in the tillering to jointing stage and repeat at 7 to 10 day intervals. The addition of LATRON CS-7 to spray solutions will improve performance.	Do not make more than three applications during the season. Do not apply within 26 days of harvest. Do not graze livestock in treated areas prior to harvest.

SEED TREATMENT - Seeds to be treated should be cleaned and well cured prior to treatment. DITHANE M-45 may be applied to dry seed with conventional slurry or mist seed treating equipment or as a planter-box application. For best results, the seed must be completely and uniformly covered with fungicide. For seed treatment, a dye must be added to DITHANE M-45 fungicide which will impart an unnatural color to the seed.

CROP	DISEASES CONTROLLED	RATE OF DITHANE M-45 PER APPLICATION FL OZ./BU	FL.Oz./100 lbs.	REMARKS (Also Refer to Directions For Use)	RESTRICTIONS
Barley	Covered smut Damping-off False loose-smut Seed rots Seedling blights	2 to 3.2	4.3 to 6.7		**Treated seed should be labeled "Must not be used for food, feed or oil purposes."**
Corn (field)	Damping-off Seed rots Seedling blights	2.4 to 4.8	4.3 to 8.6		
Cotton (acid delinted)	Damping-off Seedling blights	-	4.8		
(reginned)	Damping-off Seedling blights	-	9.6		
Flax	Damping-off Seed rots Seedling blights	3.2 to 6.4	5.7 to 11.3		
Oats	Damping-off Seed rots Seedling blights Smuts	2 to 3.2	6.4 to 10		
Peanuts (shelled)	Damping-off Seed rots Seedling blights	3.2 to 6.4	12.8 to 25.6		
Rice	Damping-off Seed rots Seedling blights	-	3.2 to 6.4	Apply before, during or after soaking in water.	
Rye	Bunt Damping-off Seed rots Seedling blights	2 to 3.2	3.6 to 5.7		
Safflower	Seedborne rust (Puccinia carthami)	-	3.2		
Sorghum	Covered kernel smut Damping-off Seed rots Seedling blights	2.4 to 4.0	4.3 to 7.2		

SEED TREATMENT
-cont.-

CROP	DISEASES CONTROLLED	RATE OF DITHANE M-45 PER APPLICATION OZ./BU	Oz./100 lbs.	REMARKS (Also Refer to Directions For Use)	RESTRICTIONS
Tomatoes	Damping-off Seed rots Seedling blights	-	12.8		
Wheat	Bunt Damping-off Seed rots Seedling blights	2 to 3.2	3.5 to 5.2		

MISCELLANEOUS

CROP	DISEASES CONTROLLED	RATE OF DITHANE M-45 per APPLICATION	REMARKS (Also refer to Directions For Use)
Asparagus crowns	Crown rot	0.8 qts. per 100 gals.	Place loosely packed crowns into a burlap bag and soak, with gentle agitation, in the fungicide solution for 5 minutes. Remove bag, drain well, and plant crowns as soon as possible. A tank large enough to hold a single burlap bag will treat 2 bags of crowns. Clean dipping suspension should then be prepared in a clean tank. Dirty crowns should be pre-washed to remove excess soil.
Caprifig	Assorted molds Endosepsis (Fusarium)	0.8 qts. per 25 gals.	Prepare mamme figs by making a shallow cut through the eye and then hand dividing to avoid wasp injury. Submerge mamme figs in the fungicide suspension for a minimum of 15 minutes. The fungicide suspension should be stirred frequently to prevent settling out. Fresh dipping solution should be used after treating 4 or 5 batches of figs. After treatment, figs should be drained prior to placement in trees.
Pineapple	Phytopthora heart rot	2.6 qts. per 10 gals.	Dip planting material in fungicide solution prior to planting. Stir solution frequently to prevent settling out. A new solution should be prepared when at least two-thirds of the volume has been used or sooner if soil from plant material has noticeably discolored the solution. Depending on the cleanliness and size of planting stock, up to 100 gallons of fungicide solution should be used to treat the propagative materials used to plant one acre.

TURF- For golf courses, sod farms, industrial or municipal turf areas and professional applications to residential lawns. **Not for use by homeowners.**
Start application when grass greens-up in spring or when disease first appears and repeat at 7 to 14 day intervals or until disease threat is past. When conditions are especially favorable for disease development, apply maximum fungicide use rate on a 7 day spray schedule. Apply in sufficient water to provide adequate coverage.

CROP	DISEASES CONTROLLED	RATE OF DITHANE M-45 PER APPLICATION OZ./1000 SQ.FT.	REMARKS (Also refer to Directions For Use)	RESTRICTIONS
Assorted grasses	Helminthosporium melting-out Rust(leaf, stem, stripe)	6.4		**Do not graze treated areas.** **Do not use on grasses intended for grazing, such as range or pasture grasses.** **Do not feed clippings to livestock.** **Do not use for grasses grown for seed.**
	Copper spot Fusarium blight Red thread Slime mold	6.4 to 12.8		
	Algae	9.6		
	Dollar spot	9.6 to 12.8		
	Rhizoctonia brown patch	6.4	Apply on a 7 day spray schedule.	
	Pythium blight	12.8	Apply at 5 day intervals, or more frequently, if conditions are especially favorable for disease development	
	Fusarium snow mold	9.6 to 12.8	Apply at 2 to 6 week intervals during winter.	

ORNAMENTALS - Not intended for use on fruit trees by homeowners. Neither the manufacturer nor the seller has determined the effects of using DITHANE M-45 flowablefungicide on ornamentals not specified on this label.

Prior to any large-scale applications on such plants, the user should determine the effects of DITHANE M-45 flowable fungicide by testing a small section of the type of plants treated. User assumes all risk arising out of application to unlabeled plants. The Conditions of Sale and Warranty apply to all uses.

For outdoor or greenhouse use, apply the equivalent of 1.2 qts. DITHANE M-45 flowable fungicide per 100 gals. dilute spray. The addition of LATRON B-1956 to spray solutions will improve performance. Begin spraying when plants are well leafed out or at first sign of disease, in a full coverage spray at 7 to 10 day intervals throughout season or follow State Extension Service recommendations for disease control on the following ornamental plants.

CROP	DISEASES CONTROLLED	REMARKS(Also refer to Directions for Use)	RESTRICTIONS
African violet	Botrytis blight		**Do not use for food or feed purposes.** (applies to all Ornamentals)
Anthurium	Anthracnose, spadix rot		
Arborvitae	Cercospora blight		
Ash, mountain	Entomosporium leaf spot Guignardia leaf blotch		
Ash, white	Anthracnose Cylindrosporium leaf spot		
Aster, perennial	Puccinia rusts		
Aucuba, japonica	Alternaria leaf spot Anthracnose		
Azalea	Cylindrocladium rot Petal blight Phytophthora twig and bud blight	Apply in a full coverage spray, 2 to 3 times a week, while flowers are opening. Direct spray into flowers and thoroughly spray ground under bushes.	
Begonia	Botrytis blight		
Buffaloberry	Cylindrosporium leaf spot		
Camellias	Petal blight	Refer to Azalea.	
Carnation	Rust Septoria leaf spot		
Cedar, red (Juniper)	Cercospora blight Phomopsis blight		
Chrysanthemum	Ascochyta blight Botrytis petal spot Rust	Apply twice weekly during blooming period.	
Conifers	Lophodermium needle cast Pine gall rust Scirrhia brown spot	Begin application in spring or early summer before infection occurs. Repeat after heavy rains and at two week intervals as long as needed.	
Cordyline	Cercospora leaf spot		
Crabapple (Ornamental)	Cedar-apple rust Scab Sphaeropsis leaf spot		
Cypress, Arizona (Cupressus sp.)	Cercospora blight Monochaetia canker		

ORNAMENTALS -cont'd-

CROP	DISEASES CONTROLLED	REMARKS (Also Refer to Directions For Use)	RESTRICTIONS
Dahlia	Botrytis blight		
Dieffenbachia	Leptosphaeria brown spot		
Dogwood, flowering	Anthracnose Elsinoe leaf spot Septoria leaf spot	Apply when buds begin to open, when bracts have fallen, 4 weeks later and again in late summer after flower buds for next season have formed.	
Dracaena	Fusarium leaf spot		
Elm	Black leaf spot		
Euonymus	Anthracnose		
Fatsia	Anthracnose		
Fern	Rhizoctonia blight		
Ficus	Cercospora leaf spot		
Firethorn (pyracantha)	Fusicladium scab		
Fir, Douglas	Swiss needle cast		
Fuchsia	Botrytis blight Rust		
Geranium	Rust		
Gladiolus	Botrytis blossom blight Curvularia leaf spot	Make regular weekly applications starting before diseases appear and increase to 2 or 3 applications per week during periods of heavy disease and during rainy weather. On flower spikes, reduce spray concentration to 0.6 qts per 100 gals.	
Hawthorn	Cedar-apple rust Fabraea leaf spot Frogeye leaf spot Hawthorn rust Scab		
Holly	Purple spot		
Hollyhock	Anthracnose Cercospora leaf spot Puccinia rusts		
Honeysuckle	Herpobasidium blight		
Horsechestnut, Buckeye	Alternaria leaf spot Guignardia leaf blotch		
Hydrangea	Botrytis blight Cercospora leaf spot		
Iris	Didymellina leaf spot Mystrosporium ink spot		
Juniper	Phomopsis blight		
Laurel, mountain	Cercospora leaf spot Petal blight	Refer to azalea.	

ORNAMENTALS -cont'd-

CROP	DISEASES CONTROLLED	REMARKS(Also refer to Directions For Use)	RESTRICTIONS
Ligustrum	Cercospora leaf spot		
Lily	Botrytis blight		
Magnolia	Gloeosporium leaf spot		
Maple	Alternaria leaf spot Phyllosticta leaf spot		Do not use on Sugar maples intended for the production of maple syrup.
Marigold	Botrytis blossom blight	Do not use on French dwarf double or Signet type marigold seedlings.	
Narcissus	Botrytis blight (fire) Smoulder		
Oak	Actinopelte leaf spot Taphrina leaf blister		
Orchid (Dendrobium)	Botrytis blossom blight		
Pachysandra	Volutella blight	Use a drenching spray of 1.6 qts. per 50 gallons of water per 5,000 sq. ft. of bed. Start applications at first sign of disease and apply at least 5 applications at 10 to 14 day intervals.	
Pansy	Anthracnose		
Peony	Botrytis blossom blight Phytophthora blight	Apply in early spring and early fall, drenching soil around plants as well as the foliage. Promptly destroy all infected plant parts.	
Peperomia	Cercospora leaf spot		
Philodendron	Dactylaria leaf spot Phytophthora leaf spot		
Photinia	Entomosporium leaf spot		
Pleomele	Fusarium leaf spot		
Poinsettia	Sphaceloma scab		
Rhododendron	Cercospora leaf spot Discosia leaf spot Petal blight	Refer to azalea.	
Rose	Black spot Cercospora leaf spot Rust		
Schefflera	Alternaria blight		
Skunkbush, sumac	Cylindrosporium leaf spot		
Snapdragon	Rust		
Statice	Cercospora frogeye		
Syngonium	Cephalosporium leaf spot		

ORNAMENTALS - cont.-

CROP	DISEASES CONTROLLED	REMARKS (Also refer to Directions For Use)	RESTRICTIONS
Tulip	Botrytis blight (fire)		
Venus, flytrap	Anthracnose		
Viburnum	Downy mildew Ramularia leaf spot		
Walnut	Anthracnose		Do not use treated walnuts for food or feed purposes.
Zinnia	Alternaria leaf blight		

STORAGE AND DISPOSAL

STORAGE: Keep from freezing. Store in a cool, well-ventilated area , but not below 32°F. Do not allow to become overheated in storage. This may bring on chemical changes which will impair the fungicidal effectiveness of DITHANE M 45 flowable fungicide. Keep container closed when not in use.

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:

Plastic Containers- Triple rinse(or equivalent). Then puncture and dispose of in a sanitary landfill, by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

Fiber Drum(with liner)- Completely empty liner by shaking and tapping sides and bottom to loosen clinging particles. Dispose of liner in a sanitary landfill or by inceneration if allowed by State and local authorities. If drum cannot be reused, dispose of in the same manner.

Metal Containers- Triple rinse(or equivalent) then offer for recycling or reconditioning or puncture and dispose of in a sanitary landfill or by other procedures approved by State and local authorities.

Bulk Containers- Drain thoroughly and return to specified destination for cleaning and reuse.

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Dike and contain the spill. Transfer liquid and solid diking material to separate containers for recovery or disposal. Flush contaminated area with a large amount of water to a chemical or sanitary sewer containing a settling pit. Remove contaminated clothing and wash affected skin areas with soap and water. Wash clothing before reuse. Keep the solids out of the municipal sewers and open bodies of water. Refer to Precautionary Statements.

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