62719-396 08/10/2010 1/28

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

OFFICE OF
CHEMICAL SAFETY AND
POLLUTION PREVENTION

Raymond Brinkmeyer, Ph.D.
Regulatory Leader – Regulatory Affairs
Dow AgroSciences, LLC
9330 Zionsville Road
Indianapolis, IN 46268-1054

AUG 10 2010

Dear Dr. Brinkmeyer:

SUBJECT: Dithane F-45 Flowable Mancozeb Agricultural Fungicide
EPA Registration Number 62719-396
Your Submission of April 9, 2010
OPPIN Decision Number D425763

The amendment referred to above, submitted in connection with registration under section (3) of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) is acceptable provided you make the following changes:

Throughout the label:
Use the full product name "Dithane F-45 Flowable Mancozeb Agricultural Fungicide" rather than "Dithane® F-45 Rainshield."

Page 6 – Storage and Disposal Box - "Refillable containers larger than 5 gal" heading:
On the final printed label ensure that the heading at the bottom of page 6 appears immediately above and on the same page as the information located at the top of page 7 of this stamped label.

Page 7 – General Use Information:
Change the sentence: "Dithane® F-45 Rainshield® fungicide is a broad-spectrum protectant fungicide labeled for outdoor or greenhouse grown crops." to "Dithane® F-45 Flowable Mancozeb Agricultural Fungicide is a broad-spectrum protectant fungicide labeled for outdoor crops, for turf and ornamental uses or greenhouse grown ornamentals and tobacco."

Page 8 – "Spray Drift Management" heading:
On the final printed label ensure that the heading "Spray Drift Management" appears immediately above and on the same page as the text on page 9 of this stamped label.

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Page 11 – Disease Monitoring:
Change the text "If not applied on a routine protectant spray schedule, crops should be scouted on a weekly basis. Turf and ornamental plants should be frequently observed for disease sign or symptoms. Fungicide application should be made, at the required 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." to:
"If Dithane F-45 is not applied on a routine protectant spray schedule, scout crops on a weekly basis. Observe turf and ornamental plants frequently for disease sign or symptoms. Apply fungicide at the required 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."

Page 13 – "Vegetables" heading:
On the final printed label ensure that the heading "Vegetables" appears immediately above and on the same page as the text on page 14 of this stamped label.

Page 16 – "Field Crops" heading:
On the final printed label ensure that the heading "Spray Drift Management" appears immediately above and on the same page as the text on page 17 of this stamped label.

Please submit one copy of your final printed supplemental labeling before the product is released for shipment. A stamped copy of the label is enclosed for your records.

If you have any questions, please contact Lisa Jones on my team at (703) 308-9424 or jones.lisa@epa.gov.

Sincerely,

Mary L. Waller

Mary L. Waller
Product Manager (21)
Fungicide Branch
Registration Division (7505P)

Enclosure: Stamped Label

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(Base label)

Dithane® F-45 Flowable Mancozeb Agricultural Fungicide

Group	M3	FUNGICIDE

Active Ingredients
mancozeb†: A coordination product of zinc ion and manganese ethylene bisdithiocarbamate .. 37.0%
In which the ingredients are:
Manganese^{++} 7.4%
Zinc^{++} 0.9%
Ethylene bisdithiocarbamate ion ($C_4H_6N_2S_4$) 28.7%
Other Ingredients 63.0%
Total 100.0%

†Equivalent to 4 lb active ingredient per gallon

SHAKE WELL BEFORE USE: Grasp container by handle and mix contents with a twisting motion followed by inverting. Repeat this action 5 to 10 times to ensure product is completely resuspended.

ACCEPTED with COMMENTS In EPA Letter Dated:
AUG 1 0 2010
Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No.
62719-619

Keep Out of Reach of Children

Personal Protective Equipment (PPE)

For guidance on materials that are chemical resistant to this product, follow the instructions for category A on an EPA chemical-resistance category selection chart.

Mixers, loaders, applicators and other handlers must wear:
- long-sleeved shirt
- long pants
- chemical-resistant gloves made of any waterproof material (except pilots, groundboom applicators, airblast applicators and seed-treatment handlers who are bagging treated seed or sewing bags containing treated seed)
- shoes and socks

In addition, mixers/loaders supporting chemigation applications to turf on sod farms must wear a a NIOSH-approved respirator with a dust/mist filter with MSHA/NIOSH approval number prefix TC-21C or any R, P or HE filter.

See engineering controls for additional requirements

User Safety Requirements

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

Engineering Controls

Enclosed Cockpits: Pilots must use an enclosed cockpit that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d) (6)].

Mechanical Flagging Engineering Controls: Human flagging is prohibited. Flagging to support aerial application is limited to use of the Global Positioning System (GPS) or mechanical flaggers.

User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing/PPE 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

This pesticide is toxic to aquatic organisms. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwaters or rinsate.

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. Refer to the label booklet under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

Nonrefillable rigid containers 5 gallons or less:

Storage and Disposal

Do not contaminate water, food or feed by storage or disposal.

Pesticide 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 that will impair the fungicidal effectiveness of this product. 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 Handling: Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and *rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.*

Refillable containers larger than 5 gal:

Storage and Disposal

Do not contaminate water, food or feed by storage or disposal.

Pesticide 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 that will impair the fungicidal effectiveness of this product. 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 Handling: Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose.

Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsiiblity of the refiller. To clean the container before final disposal,

empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10% full with water. Agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

Nonrefillable rigid containers larger than 5 gal:

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Refer to page 2 of label booklet for Directions for Use.

Notice: Read the entire label. Use only according to label directions. **Before using this product, read Warranty Disclaimer, Inherent Risks of Use, and Limitation of Remedies at end of label booklet. If terms are unacceptable, return at once unopened.**

In case of emergency endangering health or the environment involving this product, call 1-800-992-5994.

Agricultural Chemical: Do not ship or store with food, feeds, drugs or clothing.

EPA Reg. No. 62719-396 EPA Est. _____

Produced for
Dow AgroSciences LLC
9330 Zionsville Road
Indianapolis, IN 46268

Net Contents __

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(cover):

Dithane® F-45 Flowable Mancozeb Agricultural Fungicide

Group	M3	FUNGICIDE

Active Ingredients
mancozeb†: A coordination product of zinc ion and manganese ethylene bisdithiocarbamate .. 37.0%
In which the ingredients are:
Manganese^{++} 7.4%
Zinc^{++} 0.9%
Ethylene bisdithiocarbamate ion ($C_4H_6N_2S_4$) 28.7%
Other Ingredients 63.0%
Total 100.0%

†Equivalent to 4 lb active ingredient per gallon

SHAKE WELL BEFORE USE: Grasp container by handle and mix contents with a twisting motion followed by inverting. Repeat this action 5 to 10 times to ensure product is completely resuspended.

Keep Out of Reach of Children

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. Refer to the label booklet under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

Refer to page 2 of this label booklet for Directions for Use.

Notice: Read the entire label. Use only according to label directions. **Before using this product, read Warranty Disclaimer, Inherent Risks of Use, and Limitation of Remedies at end of label booklet. If terms are unacceptable, return at once unopened.**

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Net Contents __

(Page 1 through end):

Personal Protective Equipment (PPE)

For guidance on materials that are chemical resistant to this product, follow the instructions for category A on an EPA chemical-resistance category selection chart.

Mixers, loaders, applicators and other handlers must wear:

- long-sleeved shirt
- long pants
- chemical-resistant gloves made of any waterproof material (except pilots, groundboom applicators, airblast applicators and seed-treatment handlers who are bagging treated seed or sewing bags containing treated seed)
- shoes and socks

In addition, mixers/loaders supporting chemigation applications to turf on sod farms must wear a *a NIOSH-approved respirator with a dust/mist filter with MSHA/NIOSH approval number prefix TC-21C or any R, P or HE filter.*

See engineering controls for additional requirements

User Safety Requirements

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

Engineering Controls

Enclosed Cockpits: Pilots must use an enclosed cockpit that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d) (6)].

Mechanical Flagging Engineering Controls: Human flagging is prohibited. Flagging to support aerial application is limited to use of the Global Positioning System (GPS) or mechanical flaggers.

User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing/PPE 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

This pesticide is toxic to aquatic organisms. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwaters or rinsate.

Directions for Use

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.
Read all Directions for Use carefully before applying.

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Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your state or tribe, consult the agency responsible for pesticide regulation.

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE)and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 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
- Chemical-resistant gloves made of any waterproof material
- Shoes plus socks

Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are not within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries or greenhouses.

Seed treatments and professional applications to golf courses, industrial (office park), and municipal lawns are not within the scope of the Worker Protection Standard.

- Keep unprotected persons out of treated area until sprays have dried.

Storage and Disposal

Do not contaminate water, food or feed by storage or disposal.

Pesticide 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 that will impair the fungicidal effectiveness of this product. 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.

Nonrefillable rigid containers 5 gallons or less:

Container Handling: Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Refillable containers larger than 5 gal:

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Container Handling: Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose.
Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsiiblity of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10% full with water and, if possible, spray all sides while adding water. If practical, agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

Nonrefillable rigid containers larger than 5 gal:
Container Handling: Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.
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General Use Information

Dithane® F-45 Flowable Mancozeb Agricultural Fungicide is a broad-spectrum protectant fungicide labeled for outdoor or greenhouse grown crops, for turf and ornamental uses or greenhouse grown ornamentals, and tobacco. 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.

SHAKE WELL BEFORE USE: Grasp container by handle and mix contents with a twisting motion followed by inverting. Repeat this action 5 to 10 times to ensure product is completely resuspended.

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.

Agricultural Applications

For proper application, determine the number of acres to be treated, the required label use rate and the volume 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.

Turf and Ornamental Applications

For proper application to turf, determine the square footage to be treated, divide the footage by 1000, and multiply by the required fungicide use rate per 1000 sq ft, and then determine the amount of water required to provide adequate coverage. When treating ornamentals, determine the required fungicide use rate and the spray gallonage required to provide thorough coverage. Careful calibration of spray equipment is recommended prior to use. Prepare only the amount of spray solution to treat the desired area.

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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, use the following conversion table (rates are based on dilute thorough coverage sprays):

Required Use Rate per Acre or per 100 Gallons[1]	Fluid Ounces of Dithane F-45 Required for:			
	10 gallons	5 gallons	2 gallons	1 gallon
0.8 qt	2.6	1.3	0.5	0.3
1.0 qt	3.2	1.6	0.7	0.3
1.2 qt	3.8	1.9	0.9	0.3
1.6 qt	5.1	2.6	1.0	0.5
2.0 qt	6.4	3.2	1.3	0.6
2.4 qt	7.7	3.8	1.5	0.8
3.2 qt	10.2	5.1	2.0	1.0
4.8 qt	15.4	7.7	3.1	1.6

1 cup = 8 fl oz or 237 milliliters
1 fluid ounce = 2 tablespoons or 30 milliliters
1 tablespoon = 3 teaspoons or 15 milliliters
[1]Dilute thorough coverage sprays.

Mixing

Mixing Procedures for Agricultural Applications
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 F-45 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.

Mixing Procedures for Turf and Ornamental Applications
Be sure the sprayer is clean and not contaminated with other materials prior to use. When using an agitated spray tank fill tank 1/2 to 3/4 full with clean water and start agitation. Be certain that the agitation system is working properly and creates a rolling rippling on the liquid surface. With the agitator running add the required amount of Dithane F-45 to the tank. Continue filling tank with the remainder of the water. When using a hand sprayer, premix Dithane F-45 as a slurry in a small container before adding to the spray tank. Slowly pour the appropriate amount of Dithane F-45 into a small container containing an equal volume of water while mixing. Mix until the Dithane F-45 is thoroughly wetted. Add additional water if necessary to make solution flowable. Add the contents of the slurry tank to a 1/2 filled sprayer, continue filling tank with remainder of water and mix well. Always add Dithane F-45 into solution prior to adding any additional materials to the tank.

Compatibility
Dithane F-45 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 an agriculturally registered surfactant to sprays of Dithane F-45 will improve initial spray deposits, fungicide redistribution and weatherability.

Add Dithane F-45 to the spray mixture prior to adding an adjuvant. Follow applicable use directions, precautions and limitations on the label of the adjuvant product.

Spray Drift Management

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A variety of factors including weather conditions (e.g., wind direction, wind speed, temperature, relative humidity) and method of application (e.g., ground, aerial, airblast, chemigation) can influence pesticide drift. The applicator must evaluate all factors and make appropriate adjustments when applying this product.

Wind Speed
Do not apply at wind speeds greater than 15 mph.

Temperature Inversions
If applying at wind speeds less than 3 mph, the applicator must determine if a) conditions of temperature inversion exist, or b) stable atmospheric conditions exist at or below nozzle height. Do not make applications into areas of temperature inversions or stable atmospheric conditions.

Other State and Local Requirements
Applicators must follow all state and local pesticide drift requirements regarding application of mancozeb. Where states have more stringent regulations, they must be observed.

Equipment
All aerial and ground application equipment must be properly maintained and calibrated using appropriate carriers or surrogates.

Additional requirements for aerial applications:
1. The boom length must not exceed 75% of the wingspan or 90% of the rotor blade diameter.
2. Release spray at the lowest height consistent with efficacy and flight safety. Do not release spray at a height greater than 10 feet above the crop canopy unless a greater height is required for aircraft safety.
3. When applications are made with a crosswind, the swath must be displaced downwind. The applicator must compensate for this displacement at the up and downwind edge of the application area by adjusting the path of the aircraft upwind.

Additional requirements for ground boom application:
1. Do not apply with a nozzle height greater than 4 feet above the crop canopy.

Application

Thorough coverage foliar sprays generally result in optimum disease control. To achieve complete and uniform 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 to point of 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. Do not apply by air to sod farms or golf courses

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. **In California, do not use less than 5 gallons of spray volume per acre.**

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

Flagging: Mark swaths with permanent flags at the end of the field. Measure swaths accurately with a chain or other device except when rows can be accurately counted.

Chemigation Use Directions
Do not apply by chemigation application to golf courses.

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

- Apply Dithane F-45 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 non-uniform 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 F-45 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 that 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 F-45 required for the treatment area.
- Add the required amount of Dithane F-45 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 F-45 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 F-45 required for the treatment area.
- Add the required amount of Dithane F-45 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 F-45 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 F-45 solution has cleared the last sprinkler head.

Disease Monitoring

Dithane F-45 is a broad-spectrum, protectant fungicide. If not applied on a routine protectant spray schedule, crops should be scouted on a weekly basis. Turf and ornamental plants should be frequently observed for disease sign or symptoms. Fungicide application should be made, at the required 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 must carefully read, understand, and follow all use restrictions prior to using Dithane F-45.

Foliar Applications
Where EBDC Products Used Allow the Same Maximum Poundage of Active Ingredient Per Acre Per Season: If more than one product containing an EBDC active ingredient (maneb, mancozeb, or

metiram) is used on a crop during the same growing season and the EBDC products used allow the same maximum poundage of active ingredient per acre per season, then the total poundage of all such EBDC products used must not exceed any one of the specified individual EBDC product maximum seasonal poundage of active ingredient allowed per acre.

Where EBDC Products Used Allow Different Maximum Poundage of Active Ingredient Per Acre Per Season: If more than one product containing an EBDC active ingredient is used on a crop during the same growing season and the EBDC products used allow different maximum poundage of active ingredient per acre per season, then the total poundage of all such EBDC products used must not exceed the lowest specified individual EBDC product maximum seasonal poundage of active ingredient allowed per acre.

Seed Treatment
In addition to the maximum number of foliar applications permitted by the formula stated above, a single application for seed treatment may be made on crops, which have registered seed treatment uses.

Pome Fruits

Use either the Pre-Bloom/Bloom Use 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 Management Program (IPM).

Crop	Diseases Controlled	Dithane F-45 Rate per Application (qt/acre)	Remarks (Also Refer to Directions for Use)	Restrictions
apples crabapples pears quince	fabrea leaf spot rusts scab	4.8	**Pre-Bloom/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 qt (4.8 lb mancozeb) per acre per application. Do not apply after bloom. Do not apply more than 19.2 qt (19.2 lb mancozeb) per acre per year. Do not graze livestock in treated areas.
		2.4	**Extended Application Schedule for Use in Tank Mixtures with systemic fungicides:** For implementation of IPM programs, applications based on tree-row volume, or for use as a resistance management tool. Apply after petal fall.	Do not apply more than 2.4 qt (2.4 lb mancozeb) per acre per application. Do not apply within 77 days of harvest. Do not apply more than 16.8 qt (16.8 lb mancozeb) per acre per year. Do not graze livestock in treated areas. Maximum number of applications on pomes per season is 4.
	fire blight		The addition of Dithane F-45 to copper fungicides will suppress the disease incidence in orchards where fire blight *(Erwinia amylovora)* has become resistant to streptomycin. Use the full label rate of copper and follow the application instructions on the copper fungicide label.	

Fruits

Crop	Diseases Controlled	Dithane F-45 Rate per Application (qt/acre)	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 qt (24 lb mancozeb) per acre per growing cycle. Applications can be made up to the day of harvest. Maximum number of applications per season is 10.
cranberries	fruit rot	2.4 to 4.8	Start applications at early 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 qt (14.4 lb mancozeb) per acre per season. Maximum number of applications on cranberries per season is 3.
grapes	black rot bunch rot phomopsis 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 qt (6 lb mancozeb) per acre per season. West of the Rocky Mountains, the maximum number of applications is 3. East of the Rocky Mountains, do not apply more than 19.2 qt (19.2 lb mancozeb) per acre per season. East of the Rocky Mountains, the maximum number of applications per season is 6.
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 B-1956 spreader-sticker per acre.	Do not apply more than 28 qt (28 lb mancozeb) per year. Applications may be made up to the day of harvest. The maximum number of applications per year is 14.
plantain	Refer to bananas			

Vegetables

Crop	Diseases Controlled	Dithane F-45 Rate per Application (qt/acre)	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.	Apply only on asparagus ferns after spears have been harvested. Do not apply more than 6.4 qt (6.4 lb mancozeb) per acre per season. Do not apply within 120 days of harvest in California and Arizona, or within 180 days in all other states. Maximum number of applications per season is 4.
corn (sweet corn for fresh use or processing; popcorn; and sweet corn for seed production, including hybrid seed)	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 qt (18 lb mancozeb) per acre per crop. East of the Mississippi River, Arkansas and Louisiana, the maximum number of applications per season is 15. West of the Mississippi River (except Arkansas and Louisiana), do not apply more than 6 qt (6 lb mancozeb) per acre per crop. West of the Mississippi River (except Arkansas and Louisiana), the maximum number of applications per season is 5. Do not feed treated forage to livestock.
cucumbers	anthracnose cercospora leaf spot downy mildew gummy stem blight microdochium 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 qt (19.2 lb mancozeb) per acre per crop. Maximum number of applications per season is 8.

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Crop	Diseases Controlled	Dithane F-45 Rate per Application (qt/acre)	Remarks (Also Refer to Directions for Use)	Restrictions
fennel	leaf blight leaf spot	1.6	Start applications when disease first appears and repeat applications every 7 to 10 days.	Do not apply more than 12.8 qt (12.8 lb mancozeb) per season. Do not apply within 14 days of harvest.
gourds, edible	Refer to summer squash			
melons cantaloupes casaba crenshaw honeydew muskmelons	alternaria leaf spot anthracnose downy mildew gummy stem blight microdochium 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 cantaloupe varieties (i.e.: Harvest Queen, Gold Star, Super Star, Sweet and Early, and Saticoy) are sensitive to Dithane F-45. Consult State Cooperative Extension Service Specialist prior to use.	Do not apply within 5 days of harvest. Do not apply more than 19.2 qt (19.2 lb mancozeb) per acre per crop. Maximum number of applications per season is 8.
onions (dry bulb) garlic shallots	botrytis leaf blight downy mildew neck rot purple blotch rust	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 24 qt (24 lb mancozeb) per acre per crop. Do not apply to exposed bulbs
onions (furrow drench)	damping-off seed rots seedling blights smut		Apply 2.4 qt 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 qt (2.4 lb mancozeb) per acre (29,000) linear feet of furrow) with an 18 inch row spacing. *Do not use in California.*

Crop	Diseases Controlled	Dithane F-45 Rate per Application (qt/acre)	Remarks (Also Refer to Directions for Use)	Restrictions
potatoes	early blight late blight	0.4 to 1.6	Begin applications when plants are 4 to 6 inches high by applying 0.4 to 0.8 qt/acre. As the vines increase in size, apply 1.2 to 1.6 qt/acre at 5- to 10-day intervals or 0.6 to 0.8 qt/acre at 3- to 5-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 qt (11.2 lb mancozeb) per acre per crop. Do not apply within 3 days of harvest in Connecticut, Delaware, Florida, Maine, Massachusetts, Michigan, New Hampshire, New York, Ohio, Pennsylvania, Rhode Island, Vermont and Wisconsin and at least 14 days elsewhere.
squash, summer	anthracnose downy mildew microdochium 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.	Do not apply within 5 days of harvest. Do not apply more than 19.2 qt (19.2 lb mancozeb) per acre per crop. The maximum number of applications per season is 8.
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 qt (6.4 lb mancozeb) per acre per crop. East of the Mississippi River, do not apply more than 16.8 qt (16.8 lb mancozeb) per acre per crop.
	bacterial speck and spot		Use a full rate of a fixed copper fungicide in tank mix combination with a half to full rate of Dithane F-45. Follow the application intervals required on the copper fungicide label.	
watermelons	alternaria leaf spot anthracnose cercospora leaf spot downy mildew gummy stem blight microdochium 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 qt (19.2 lb mancozeb) per acre per crop. The maximum number of applications per season is 8.

† Not approved for use on this pest species in California.

Field Crops

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Crop	Diseases Controlled	Dithane F-45 Rate per Application (qt/acre)	Remarks (Also Refer To Directions For Use)	Restrictions
barley	Refer to wheat			PHI: Do not apply after Feekes Growth Stage 10.5 (typically 35-45 days), but no less than 26 days. Maximum seasonal application rate is 4.8 quarts product (4.8 lb mancozeb) per acre. Do not make more than three applications during the season. Do not graze livestock in treated areas prior to harvest.
corn, sweet corn for fresh use or processing; popcorn; and sweet corn for seed production, *including* hybrid seed.	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 qt (12 lb mancozeb) per season Do not apply within 40 days of harvest. Maximum number of applications per season is 10.
oats	Refer to wheat			PHI: Do not apply after Feekes Growth Stage 10.5 (typically 35-45 days), but no less than 26 days. Maximum seasonal application rate is 4.8 quarts product (4.8 lb mancozeb) per acre. Do not make more than three applications during the season. Do not graze livestock in treated areas prior to harvest.
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 qt (12.8 lb mancozeb) per acre per crop. Do not feed treated vines to livestock. Maximum number of applications per season is 10.

Crop	Diseases Controlled	Dithane F-45 Rate per Application (qt/acre)	Remarks (Also Refer To Directions For Use)	Restrictions
rye	Refer to wheat			PHI: Do not apply after Feekes Growth Stage 10.5 (typically 35-45 days), but no less than 26 days Do not make more than three applications during the season. Do not graze livestock in treated areas prior to harvest. Maximum seasonal application rate is 4.8 quarts product (4.8 lb mancozeb) per acre.
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 qt (11.2 lb mancozeb) per season. Do not feed treated tops to livestock. Maximum number of applications is 7.
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. PHI: Do not apply after Feekes Growth Stage 10.5 (typically 35-45 days) but no less than 26 days. Do not graze livestock in treated areas prior to harvest. Maximum seasonal application rate is 4.8 quarts product (4.8 lb mancozeb) per acre.
triticale	Refer to wheat			PHI: Do not apply after Feekes Growth Stage 10.5 (typically 35-45 days), but no less than 26 days. Maximum seasonal application rate is 4.8 quarts product (4.8 lb mancozeb) per acre. Do not make more than three applications during the season. Do not graze livestock in treated areas prior to harvest.

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Seed and Potato SeedpieceTreatment

Seeds to be treated should be cleaned and well cured prior to treatment. Dithane F-45 must be applied to dry seed with conventional slurry or mist seed treating equipment. For best results, the seed must be completely and uniformly covered with fungicide. For seed treatment, a dye must be added to Dithane F-45 that will impart an unnatural color to the seed.

Seed Treated With the Fungicide Mancozeb

Seeds/seed-pieces that have been treated with this product that are then packaged or bagged for future use must contain the following labeling on the outside of the seed/seed-piece package or bag:

"Treated Seed/Seed-Pieces - Do Not Use for Food, Feed, or Oil Purposes.

"This seed has been treated with the fungicide mancozeb.

"When opening this bag or loading/pouring the treated seed/seed-pieces, wear long-sleeved shirt, long pants, shoes, socks, chemical-resistant gloves, and a NIOSH-approved respirator with a dust/mist filter with MSHA/NIOSH approval number prefix TC-21C or R, P, or HE filter."

"After the seeds/seed pieces have been planted, do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours. Exception: Once the seeds/seed pieces are planted in soil or other planting media, the Worker Protection Standard allows workers to enter the treated area without restriction if there will be no worker contact with the soil/media subsurface."

Crop	Diseases Controlled	Dithane F-45 Rate per Application (fl oz/bu)	(fl oz/100 lb)	Remarks (Also Refer To Directions For Use)
barley	covered smut damping-off false loose-smut seed rots seedling blights	2 to 3.2	4.3 to 6.7	
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	

Crop	Diseases Controlled	Dithane F-45 Rate per Application (fl oz/bu)	(fl oz/100 lb)	Remarks (Also Refer To Directions For Use)
potato seedpiece treatment	fusarium decay late blight seedborne common scab rhizoctonia shoot blight sliver scurf	-	1.6 to 2.5	Do not use treated seed potatoes for food or feed purposes.
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	
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	Dithane F-45 Rate per Application	Remarks (Also Refer to Directions for Use)
asparagus crowns	crown rot	0.8 qt per 100 gal	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 qt per 25 gal	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. Stir the fungicide suspension frequently to prevent settling out. Fresh dipping solution should be used after treating 4 or 5 batches of figs. After treatment, drain figs prior to placement in trees.

Crop	Diseases Controlled	Dithane F-45 Rate per Application	Remarks (Also Refer to Directions for Use)
conifer (Christmas trees)	lophodermium needle cast pine gall rust scirrhia brown spot	1.6 qt to 3.2 qt per acre	Begin application in spring or early summer before infection occurs. Repeat after heavy rains and at 14 day intervals as long as needed. The pre-harvest interval (PHI) is 14 days
conifer (Douglas fir)	Swiss needle cast		

Turf

For golf courses, sod farms, industrial or municipal turf areas.

Restrictions:

- **Do not apply by air to sod farms or golf courses**
- **Do not apply by chemigation application to golf courses.**
- **Do not apply to residential turf or athletic fields.**

Sod Farm Turf:

- Harvesting of treated turf is prohibited until 5 days following application.
- Limit to a maximum of 4 applications per year and a maximum rate of 4.35 gallons of product per acre (17.4 lb ai/A) per application.
- The minimum retreatment interval is 10 days

Golf Courses:

- For cool season grasses; greens, tees and aprons - limit to a maximum of 5 applications per year at a maximum application rate of 4.35 gallons of product per acre (17.4 lb ai/A) per application
- For cool season grasses; fairways - limit to a maximum of 4 applications per year at a maximum application rate of 4.35 gallons of product per acre (17.4 lb ai/A) per application
- For warm season grasses; greens, tees and aprons - limit to a maximum of 4 applications per year at a maximum application rate of 4.35 gallons of product per acre (17.4 lb ai/A) per application
- For warm season grasses; fairways - limit to a maximum of 3 applications per year at a maximum application rate of 4.35 gallons of product per acre (17.4 lb ai/A) per application
- The minimum retreatment interval is 10 days

All Other Turf:

- Limit to a maximum of 4 applications per year and a maximum application rate of 4.35 gallons of product per acre (17.4 lb ai/A) per application
- The minimum retreatment interval is 10 days

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 spray schedule with at least 10 days between treatments. Apply in sufficient water to provide adequate coverage.

Turf Tolerance: Treated turfgrass should be maintained in a vigorous growing condition. Turfgrass under stress will not respond to fungicide treatments as well as well-maintained turfgrass. Turfgrass tolerance to this product has been found to be acceptable, however, this product and tank mixtures with other products have not been tested on all varieties of every turfgrass species or under all possible growing conditions. If user is unfamiliar with the performance of Dithane F-45 or tank mixtures, under user growing conditions, a limited area of turfgrass should be treated prior to initiating large-scale applications.

Crop	Diseases Controlled	Dithane F-45 Rate per Application (fl oz/1000 sq ft)	Disease Specific Instructions (Also Refer to Directions for Use Restrictions)	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 on 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 spray schedule with at least 10 days between treatments.	
	pythium blight	12.8		
	fusarium snow mold	9.6 to 12.8	Apply at 2 to 6 week intervals during winter.	
	gray leaf spot	12.8	Apply on a 14-day spray schedule when conditions are favorable for disease development.	

Ornamentals

Restrictions:

- Cut flowers and greenhouse grown ornamentals: Limit to 20 applications per year.
- Do not use fruit or nuts or any portion of the plant for food or feed purposes after treatment with Dithane F-45.
- Do not apply to pachysandra
- Not for use in home greenhouses.
- Not for use on fruit trees by homeowners.
- Do not use on sugar maples intended for sap production

Neither the manufacturer nor the seller has determined the effects of using Dithane F-45 on ornamentals not specified on this label. Prior to any large-scale applications on such plants, the user should determine the effects of Dithane F-45 by testing a small section of the type of plants treated. The Conditions of Sale and Warranty apply to all uses.

For outdoor or greenhouse use, apply the equivalent of 1.2 qt Dithane F-45 per 100 gal dilute spray (1.2 quarts of Dithane F-45 per acre). 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.

Crop	Diseases Controlled	Crop Specific Instructions (Also Refer To Directions For Use - Restrictions)
African violet	botrytis blight	
almond (ornamental)	leaf spot	
alyssum	leaf spot	
anthurium	anthracnose, spadix rot	
apple (ornamental)	fabraea leaf spot rust scab	

Crop	Diseases Controlled	Crop Specific Instructions (Also Refer To Directions For Use - Restrictions)
arborvitae	cercospora blight	
areca palm	leaf spot	
ageratum	botrytis blight rust	
ash, mountain	entomosporium leaf spot guignardia leaf blotch	
ash, white	anthracnose cylindrosporium leaf spot	
aster	leaf spot	
aster, perennial	puccinia rusts	
aucuba, japonica	alternaria leaf spot anthracnose	
azalea	cylindrocladium rot petal blight phytopthora 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	
boxwood	leaf spot	
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.
cockscomb (celosia)	alternaria leaf spot	
conifers (Christmas trees)	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. The preharvest interval (PHI) is 14 days.
cordyline	cercospora leaf spot	
crabapple (ornamental)	cedar-apple rust scab sphaeropsis leaf spot	
cypress, Arizona (*Cupressus* spp.)	cercospora blight monochaetia canker	
dahlia	botrytis blight	
delphinium	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	

Crop	Diseases Controlled	Crop Specific Instructions (Also Refer To Directions For Use - Restrictions)
fern	rhizoctonia blight	
ficus	cercospora leaf spot	
fig	cylindrocladium leaf spot	
firethorn (pyracantha)	fusicladium scab	
fir, Douglas	Swiss needle cast	The preharvest interval is 14 days.
fir, fraser	Swiss needle cast	The preharvest interval is 14 days.
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 qt per 100 gallons.
gloxinia	botrytis blight	
gypsophila	botrytis blight	
hawthorn	cedar-apple rust fabraea leaf spot frogeye leaf spot hawthorn rust scab	
hickory	gnomonia leaf spot	
holly	purple spot	
hollyhock	anthracnose cercospora leaf spot puccinia rust	
honeysuckle	herpobasidium blight	
horsechestnut, buckeye	alternaria leaf spot guignardia leaf blotch	
hydrangea	botrytis blight cercospora leaf spot	
impatiens	botrytis blight	
iris	didymellina leaf spot mycosphaerella leaf spot mystrosporium ink spot	(formerly didymellina)
juniper	phomopsis blight	
larkspur	rust	
laurel, mountain	cercospora leaf spot petal blight	Refer to azalea.
ligustrum	cercospora leaf spot	
lily	botrytis blight	
magnolia	gloeosporium leaf spot	
maple	alternaria leaf spot phyllosticta leaf spot	
marigold	botrytis blossom blight	Do not use on French dwarf double or signet type marigold seedlings.
narcissus	botrytis blight (fire) smoulder	

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Crop	Diseases Controlled	Crop Specific Instructions (Also Refer To Directions For Use - Restrictions)
oak	actinopelte leaf spot taphrina leaf blister	
orchid (dendrobium)	botrytis blossom blight	
oxalis	rust	
pansy	anthracnose	
pears (ornamental)	fabraea leaf spot rust scab	
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	
petunia	botrytis blight	
philodendron	dactylaria leaf spot phytophthora leaf spot	
phlox	leaf spot	
photinia	entomosporium leaf spot	
pine, Australia	cyclaneusma needle cast	
pine, Scotch	cyclaneusma needle cast gall rust	
pittosporum	alternaria leaf spot	
pleomele	fusarium leaf spot	
poinsettia	sphaceloma scab	
poplar	rust	
primrose	botrytis blight	
protea	botrytis blight	
quince (ornamental)	fabraea leaf spot rust scab	
rhododendron	cercospora leaf spot discosia leaf spot petal blight	Refer to azalea.
rose	black spot cercospora leaf spot rust	
rosemary	rhizoctonia aerial blight	
schefflera	alternaria blight	
Scotts pine	needle cast	
skunkbush, sumac	cylindrosporium leaf spot	
snapdragon	rust	
spathiphyllum	myrothecium leaf spot	
statice	cercospora frogeye	
strawflower	rust	
syngonium	cephalosporium leaf spot	
thorn apple	rust	
tulip	botrytis blight (fire)	
venus, flytrap	anthracnose	

Crop	Diseases Controlled	Crop Specific Instructions (Also Refer To Directions For Use - Restrictions)
viburnum	downy mildew ramularia leaf spot	
walnut	anthracnose	
zinnia	alternaria leaf blight	

ATTENTION: This product contains mancozeb and ETU, chemicals known to the State of California to cause cancer. ETU is also known to the State of California to cause birth defects or other reproductive harm.

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If terms of the following Warranty Disclaimer, Inherent Risks of Use and Limitation of Remedies are not acceptable, return unopened package at once to the seller for a full refund of purchase price paid. To the extent permitted by law, otherwise, use by the buyer or any other user constitutes acceptance of the terms under Warranty Disclaimer, Inherent Risks of Use and Limitation of Remedies.

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Dow AgroSciences warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions, subject to the inherent risks set forth below. TO THE EXTENT PERMITTED BY LAW, Dow AgroSciences MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

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1. Refund of purchase price paid by buyer or user for product bought, or
2. Replacement of amount of product used.

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