Dow AgroSciences™

Dithane® M45

Fungicide

Group	M3	FUNGICIDE

Active Ingredients
mancozeb: A coordination product of zinc ion and manganese ethylene bisdithiocarbamate 80%
In which the ingredients are:
Manganese^{++} 16%
Zinc^{++} 2%
Ethylene bisdithiocarbamate ion ($C_4H_6N_2S_4$) 62%
Other Ingredients 20%
Total 100%

Keep Out of Reach of Children

CAUTION

Refer to inside of label booklet for Directions for Use.

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. 62719-387

EPA Est. 62719-BRA-001
300-001910 / 00194671

STATE OF HAWAII
Department of Agriculture
ACCEPTED
LICENSE NO.
9786.206

MADE IN BRAZIL

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

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.

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.**

First Aid

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-992-5994 day or night, for emergency treatment information.

Precautionary Statements

Hazards to Humans and Domestic Animals

CAUTION

Causes Moderate Eye Irritation • Prolonged Or Frequently Repeated Skin Contact May Cause Allergic Reactions In Some Individuals

Avoid contact with skin, eyes, or clothing. Do not breathe dust or spray mist.

Personal Protective Equipment (PPE)

Some materials that are chemical-resistant to this product are listed below. If you want more options, 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
- Shoes and socks
- Chemical-resistant gloves made of any waterproof material

In addition, all handlers (except pilots, groundboom applicators, and seed-treatment handlers who are bagging the treated seed or sewing the bags) must wear:

- A NIOSH-approved respirator with a dust/mist filter with MSHA/NIOSH approval number prefix TC-21C or any N, R, P or HE filter.

See engineering controls for additional 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

Handlers mixing and loading wettable powder for seed treatment must use a dust collection system during the treatment of the seed that prevents dust from contacting handlers or other persons.

Handlers using the dust collection system must wear:

- Long-sleeved shirt
- Long pants
- Shoes and socks, and
- Chemical-resistant gloves (except pilots, groundboom applicators, and airblast applicators); and
- Must be provided with, have immediately available, and wear in an emergency, such as a broken package, spill, or equipment breakdown: a NIOSH-approved respirator with a dust/mist filter with MSHA/NIOSH approval number prefix TC-21C or any N, R, P or HE filter.

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) (4-6)].

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. 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 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.

Commercial seed treatments and professional applications to golf courses, industrial (office park), and municipal lawns and ornamentals 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 and disposal.
Pesticide Storage: Keep away from fire and sparks. Store in a cool, dry, well-ventilated area. Do not allow to become wet or overheated in storage: decomposition, impaired activity, or fire may result. Keep container closed when not in use. Decomposition produces a foul odor; if observed, check for hot containers and immediately remove to open areas for disposal.
Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on-site or at an approved waste disposal facility.

Container Disposal: Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available, or dispose of empty bag in a sanitary landfill or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Product Information

Read all Directions for Use carefully before applying.

Dithane® M45 fungicide is a broad-spectrum protectant fungicide labeled 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, use minimum label rates and the maximum interval per application, and under severe or threatening disease conditions, use maximum label rates and the minimum interval.

For proper application, determine the number of acres to be treated, the label use rate and the gallonage to be applied per acre. Prepare only the amount of spray solution required to treat the measured acreage. Carefully calibrate spray equipment prior to use.

When applied by hand sprayers, 1 lb of Dithane M45 per 100 gallons per acre is equivalent to 1 level tablespoon per gallon spray solution.

Mixing Directions

Observe all directions for use, crops, sites, use rates, dilution ratios, precautions, and limitations which appear on the tank mix product label. Do not apply more than the label dosage rate, and the most restrictive label precautions and limitations must be followed. Do not mix this product with any product which prohibits such mixing.

Slowly place this product 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 M45 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 M45 is compatible with most commonly used agricultural fungicides, insecticides and growth regulators. When preparing tank mixes, consult spray compatibility charts or State Cooperative Extension Service Specialists prior to actual use.

Spray Adjuvants

The addition of agricultural surfactants to Dithane M45 sprays will improve initial spray deposits, fungicide redistribution and weatherability. Add Dithane M45 to the spray mixture prior to adding an adjuvant. Follow applicable use directions, precautions and limitations on the label of the adjuvant product. When an adjuvant is to be used with this product, Dow AgroSciences recommends the use of a Chemical Producers and Distributors Association certified adjuvant.

Spray Drift Management

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:

- The boom length must not exceed 75% of the wingspan or 90% of the rotor blade diameter.
- 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.
- 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:

- Do not apply with a nozzle height greater than 4 feet above the crop canopy.

Application Directions

Ground Application
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 Application
A uniform initial spray deposit over the crop canopy generally results in optimum disease control. Precheck each aircraft for droplet size, uniformity of spray pattern, swath width, and spray volume. During aerial application, human flaggers are prohibited.

Nozzle Selection: For best results, use hollow cone brass nozzles with a D-series orifice disc and core (whirlplate). Point nozzles 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: Make aerial applications 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, position the spray boom 5 to 10 feet above the crop canopy.

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

Chemigation Application
Dithane M45 must be applied on a regular protectant fungicide schedule, **not an irrigation schedule.** If irrigation cycles are less frequent than application intervals for Dithane M45, ground or aerial applications must supplement chemigation applications to achieve adequate disease control.

Directions for Sprinkler Chemigation: Apply Dithane M45 only through sprinkler irrigation systems including center pivot, lateral move, end tow, side (wheel) roll, traveler, solid set, or hand move irrigation systems. Do not apply this product through any other type of irrigation system.

For center pivot, lateral move, end tow, and traveler irrigation equipment, add the required amount of Dithane M45 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 the mixture of Dithane M45 has cleared the sprinkler head.

For solid set, side (wheel) roll, and hand move irrigation equipment, add the required amount of Dithane M45 into the same quantity of water used to calibrate the injection equipment. Maintain constant solution tank agitation during the injection period. Inject Dithane M45 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 the mixture of Dithane M45 has cleared the last sprinkler head.

Chemigation Equipment Calibration: In order to calibrate 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 the following: 1) Determine size of area to be irrigated by the system; 2) Determine the amount of Dithane M45 required for the treatment area; 3) 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 specified by the equipment manufacturer. Run system at 80 to 95% of manufacturer's rated capacity; 4) Using only water, determine the injection pump output when operated at normal line pressure.

In order to calibrate solid set, side (wheel) roll, and hand move irrigation equipment, determine the following: 1) Determine acreage covered by sprinkler; 2) Determine the amount of Dithane M45 required for treatment area; 3) Fill injector solution tank with water and adjust flow rate to use contents over a 10- to 30-minute interval. Operate system at normal pressures specified by the manufacturer of the injection equipment and used for the time interval established during calibration.

Chemigation Equipment Requirements:

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

Chemigation Precautions:

- Crop injury, lack of 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 specialists, equipment manufacturers or other experts.
- 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.
- 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.

Chemigation Restrictions:

- Chemigation systems connected to public water systems must contain a functional reduced-pressure zone (RPZ), back flow preventer or the functional equivalent in the water supply line upstream from the point

of pesticide introduction. As an option to the RPZ, discharge the water from the public water system 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.

- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection.
- The pesticide injection pipeline must 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.
- 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 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.
- Do not apply when wind speed favors drift beyond the area intended for treatment.

Disease Monitoring

Dithane M45 is a broad-spectrum, protectant fungicide. If not applied on a routine protectant spray schedule, scout crops on a weekly basis. Apply this product at the labeled 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 M45.

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.

Uses

Almond

Diseases	Product Rate (lb/acre)	Directions	Restrictions
blossom blight (*Monilinia* spp) shothole (*Stigmina* spp)	6	Begin application at dormant to popcorn stage, full bloom or petal fall. Reapply every 7 to 10 days if bloom is staggered and weather is rainy. Do not use less than 10 gallons of spray volume per acre if aerially applied.	• Do not apply more than 18 lb of product (14.4 lb active ingredient) per acre. • Do not make last application later than 5 weeks after petal fall. • Do not graze livestock in treated area. • Do not apply this product with a U-boom device. • **Minimum Re-Treatment Interval:** 7 days

Field Crops

Crop	Diseases	Product Rate (lb/acre)	Directions	Restrictions
barley	Refer to wheat			
field corn hybrid seed corn	common corn rust helminthosporium leaf blight	1.5	Start applications when disease symptoms first appear. Depending upon severity of infection, continue on a 4- to 14-day schedule. Adding a surfactant improves performance.	• **Preharvest Interval:** Do not apply within 40 days of harvest. • Do not apply more than 16 lb of product (12 lb active ingredient) per season.
oats	Refer to wheat			
peanut	cercospora leaf spot rust	1 - 2	Start applications when disease first appears or is reported in area. Repeat sprays at 7- to 14-day intervals.	• **Preharvest Interval:** Do not apply within 14 days of harvest. • Do not use more than 16 lb of product (12.8 lb active ingredient) per acre per crop. • Do not feed treated vines to livestock.
rye	Refer to wheat			
sugar beet	cercospora leaf spot	1.5 - 2	Start applications when disease first threatens and repeat every 7- to 10-days as needed. Adding a surfactant to spray solutions improves performance.	• **Preharvest Interval:** Do not apply within 14 days of harvest. • Do not apply more than 14 lb of product (11.2 lb active ingredient) per season. • Do not feed treated tops to livestock.
triticale	Refer to wheat			
wheat	helminthosporium leaf spot leaf rust septoria glume blotch septoria leaf spot tan spot	2	Start applications at onset of disease or when plants are in the tillering to jointing stage and repeat at 7- to 10-day intervals. Adding a surfactant to spray solutions improves performance.	• **Preharvest Interval:** Do not apply after Feekes growth stage 10.5 (typically 35 to 45 days) but no less than 26 days. • Do not apply more than 6 lb of product (4.8 lb active ingredient) per acre per year. • Do not make more than three applications during the season. • Do not graze livestock in treated areas prior to harvest.

Fruits

Crop	Diseases	Product Rate (lb/acre)	Directions	Restrictions
atemoya cherimoya custard apple sugar apple sweetsop	anthracnose	2 - 2.3	Begin applications at flowering and continue at a 7-day re-treatment interval. Applications made with aerial equipment must be made in a minimum spray volume of 10 gallons per acre.	• Applications may be made up to the day of harvest. • Do not apply more than 32.8 lb of this product (26.25 lb ai) per acre per year. • Do not make more than 14 applications per year.
banana	sigatoka	2 - 3	Apply when leaves first appear and repeat every 14 to 21 days or as required. Use sufficient water to provide adequate coverage. Adding a surfactant to spray solutions improves performance.	• Applications can be made up to the day of harvest. • Do not apply more than 30 lb of product (24 lb active ingredient) per acre per growing cycle.
canistel mamey sapote mango sapodilla star apple (caimito) white sapote	anthracnose black spot (cercospora) phytophthora fruit rot	2 - 2.5	Begin applications at flowering and continue at 14- to 21-day intervals. Direct spray to crown and blossom area. Use 20 to 100 gallons of water per acre.	• Applications may be made up to the day of harvest. • Do not apply more than 35 lb of this product (28 lb ai) per acre per year. • Do not make more than 14 applications per year.
cranberry	fruit rot	3 - 6	Start applications at early bloom and repeat at 7- to 10-day intervals as required.	• **Preharvest Interval:** Do not apply within 30 days of harvest. • Do not apply more than 18 lb of product (14.4 lb active ingredient) per acre per season.

Fruits (Cont.)

Crop	Diseases	Product Rate (lb/acre)	Directions	Restrictions
grape	black rot bunch rot downy mildew phomopsis	1.5 - 2.5 west of the Rocky Mountains 1.5 - 4 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. For best results in controlling late season outbreaks of black rot, phomopsis and downy mildew, use other approved and labeled fungicides.	• **Preharvest Interval:** 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 7.5 lb of product (6 lb active ingredient) per acre per season. • East of the Rocky Mountains, do not apply more than 24 lb of product (19.2 lb active ingredient) per acre per season.
papaya	anthracnose phytophthora fruit rot	2 - 2 1/2	Use 20 to 100 gallons of 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 fl oz of a spreader-sticker per acre.	• Applications may be made up to the day of harvest. • Do not apply more than 35 lb of product (28 lb active ingredient) per year. • Do not make more than 14 applications per year.
plantain	Refer to banana			

Miscellaneous Crops

Crop	Diseases	Product Rate	Directions
asparagus crowns	crown rot	1 lb 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 two bags of crowns. Prepare clean dipping suspension in a clean tank. Pre-wash dirty crowns to remove excess soil.
caprifig	assorted molds endosepsis (fusarium)	1 lb 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. Frequently stir the fungicide suspension to prevent settling out. Use fresh dipping solution after treating 4 or 5 batches of figs. After treatment, drain figs prior to placement in trees.
Christmas trees (conifer)	lophodermium needle cast pine gall rust scirrhia brown spot	2 - 4 lb per acre	**Preharvest Interval:** Do not apply within 14 days of harvest. Begin application in spring or early summer before infection occurs. Repeat after heavy rains and at two-week intervals as long as needed. Mininimum re-treatment interval: 14 days
Douglas fir	Swiss needle cast		

Pome Fruits

Use either the pre-bloom/bloom use or extended application schedule. **DO NOT COMBINE OR INTEGRATE THE TWO TREATMENT SCHEDULES.**

For best results, use this product in an Integrated Pest Management Program (IPM).

Crop	Diseases	Product Rate (lb/acre)	Directions	Restrictions
apple crabapple pear quince	fabrea leaf spot fire blight[2] rusts scab	6[1]	**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 combine or integrate the prebloom application schedule with the post-bloom extended application schedule.	• Do not apply more than 6 lb of product (4.8 lb active ingredient) per acre per application. • Do not apply more than 24 lb of product (19.2 lb active ingredient) per acre per year. • Do not apply after bloom. • Do not graze livestock in treated areas.
		3[1]	**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, 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.	• **Preharvest Interval:** Do not apply within 77 days of harvest. • Do not apply more than 3 lb of product (2.4 lb active ingredient) per acre per application. • Do not apply more than 21 lb of product (16.8 lb active ingredient) per acre per year. • Do not graze livestock in treated areas.

[1] Maximum per acre use rate based upon thorough coverage dilute sprays.

[2] Adding Dithane M45 to copper fungicides suppresses the disease incidence in orchards where fire blight (*Erwinia amylovora*) has become resistant to streptomycin. Use the full label rate of copper and follow any labeling which is more restrictive.

Seed Treatment

Seeds to be treated must be cleaned and well cured prior to treatment. Dithane M45 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 M45 that will impart an unnatural color to the seed. Do not use treated seed for food, feed or oil purposes.

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:

> Seed treated with the fungicide mancozeb.
>
> Treated Seed/Seed-Pieces - Do Not Use for Food, Feed, or Oil Purposes. Excess treated seed may be used for ethanol production only if (1) by-products are not used for livestock feed and (2) no measurable residues of pesticide remain in ethanol by-products that are used in agronomic practice.
>
> 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 any N, 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	Product Rate		Directions
		(oz/bushel)	(oz/100 lb)	
barley	covered smut damping-off false loose-smut seedling blights seed rots	1.3 - 2	2.7 - 4.2	
corn (field)	damping-off seed rots seedling blights	1.5 - 3	2.7 - 5.4	
cotton (acid delinted)	damping-off seedling blights	-	3	
(reginned)		-	6	
flax	damping-off seedling blights seed rots	2 - 4	3.6 - 7.1	
oats	damping-off seedling blights seed rots smuts	1.3 - 2	4 - 6.3	

Crop	Diseases	Product Rate (oz/bushel)	Product Rate (oz/100 lb)	Directions
peanut (shelled)	damping-off seedling blights seed rots	2 - 4	8 - 16	
rice	damping-off seedling blights seed rots	-	2 - 4	Apply before, during or after soaking in water.
rye	bunt damping-off seedling blights seed rots	1.3 - 2	2.3 - 3.6	
safflower	seedborne rust (*Puccinia carthami*)	-	2	
sorghum	covered kernel smut damping-off seedling blights seed rots	1.5 - 2.5	2.7 - 4.5	
tomato	damping-off seedling blights seed rots	-	8	
wheat	bunt damping-off seedling blights seed rots	1.3 - 2	2.2 - 3.3	

Vegetables

Crop	Diseases	Product Rate (lb/acre)	Directions	Restrictions
asparagus	cercospora leaf spot rust	2	Start applications when rust first appears and repeat at 10-day intervals. Four applications are usually sufficient.	• **Preharvest Interval:** Do not apply within 120 days of harvest in California and Arizona, or within 180 days in all other states. • Do not apply more than 8 lb of product (6.4 lb active ingredient) per acre per season. • Apply only on asparagus ferns after spears have been harvested.
broccoli cabbage	alternaria leaf spot	2	In plant beds or direct-seeded fields, apply 7 to 10 days after planting or earlier if disease is present. If field applications, apply as soon as disease is present and reapply as needed on a 7- to 10-day spray schedule.	• **Preharvest Interval:** Do not apply within 7 days of harvest. • Do not apply more than 12 lb of product (9.6 lb active ingredient) per acre. • Do not apply this product with a U-boom device • **Minimum Re-Treatment Interval:** 7 days
corn sweet corn for fresh use or processing; popcorn; sweet corn for seed production, including hybrid seed	common rust helminthosporium leaf blight	1.5	Use sufficient water for thorough coverage. Start applications when disease first appears and repeat at 4- to 7-day intervals. Adding a surfactant to spray solutions improves performance	• **Preharvest Interval:** Do not apply within 7 days of harvest. • East of the Mississippi River, Arkansas and Louisiana, do not apply more than 22.5 lb of product (18 lb active ingredient) per acre per crop. • West of the Mississippi River, (except Arkansas and Louisiana), do not apply more than 7.5 lb of product (6 lb active ingredient) per acre per crop.
cucurbit crop group				
chayote Chinese waxgourd citron melon gherkin *Momordica* spp. pumpkin squash, winter	alternaria leaf spot anthracnose cercospora leaf spot downy mildew gummy stem blight scab	2 - 3	Begin applications when the 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 this product. Applications made with aerial equipment must be made in a minimum spray volume of 2 gallons per acre. Consult State Cooperative Extension Service Specialist prior to use.	• **Preharvest Interval:** Do not apply within 5 days of harvest. • Do not apply more than 24 lb of this product (19.2 lb ai) per acre per year. • Do not make more than 8 applications per year.
cucumber	anthracnose cercospora leaf spot downy mildew gummy stem blight microdochium blight[1] scab	2 - 3	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. Applications made with aerial equipment must be made in a minimum spray volume of 2 gallons per acre.	• **Preharvest Interval:** Do not apply within 5 days of harvest. • Do not apply more than 24 lb of product (19.2 lb active ingredient) per acre per crop.
gourd, edible squash, summer	anthracnose downy mildew microdochium blight[1]	2 - 3	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. Applications made with aerial equipment must be made in a minimum spray volume of 2 gallons per acre.	• **Preharvest Interval:** Do not apply within 5 days of harvest. • Do not apply more than 24 lb of product (19.1 lb active ingredient) per acre per crop.
melons cantaloupe casaba crenshaw honeydew muskmelon	alternaria leaf spot anthracnose downy mildew gummy stem blight microdochium blight[1]	2 - 3	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 M45. Consult State Cooperative Extension Service Specialist prior to use. Applications made with aerial equipment must be made in a minimum spray volume of 2 gallons per acre.	• **Preharvest Interval:** Do not apply within 5 days of harvest. • Do not apply more than 24 lb of product (19.2 lb active ingredient) per acre per crop.
watermelons	alternaria leaf spot anthracnose cercospora leaf spot downy mildew gummy stem blight microdochium blight[1] scab	2 - 3	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. Applications made with aerial equipment must be made in a minimum spray volume of 2 gallons per acre.	• **Preharvest Interval:** Do not apply within 5 days of harvest. • Do not apply more than 24 lb of product (19.2 lb active ingredient) per acre per crop.

Crop	Diseases	Product Rate (lb/acre)	Directions	Restrictions
fennel	leaf blight leaf spot	2	Start applications when disease first appears and repeat applications every 7- to 10-days.	• **Preharvest Interval:** Do not apply within 14 days of harvest. • Do not apply more than 16 lb of product (12.8 lb active ingredient) per season.
garlic onion, dry bulb shallots	botrytis leaf blight downy mildew neck rot purple blotch rust	3	Follow a protective spray schedule starting when diseases are first reported in the area and repeat at 7-day intervals throughout the season. Adding a surfactant to spray solutions improves performance.	• **Preharvest Interval:** Do not apply within 7 days of harvest. • Do not apply more than 30 lb of product (24 lb active ingredient) per acre per crop. • Do not apply to exposed bulb. • Do not allow spray or drift to contact bulbs after lifting from soil.
ginseng	alternaria blight	1.8	Begin applications when disease first threatens and repeat every 7 to 10 days as needed. In Wisconsin, apply with ground equipment and a minimum of 80 gallons of water per acre.	• **Preharvest Interval:** Do not apply within 30 days of harvest. • Do not apply more than 22.5 lb of this product (18 lb ai) per acre per year. • Do not make more than 12 applications per year.
lettuce	downy mildew	2	Begin applications when disease appears and reapply on a 7- to 10-day treatment schedule.	• **In California**, do not apply more than 8 lb of product (6.4 lb active ingredient) per acre and do not apply within 14 days of harvest. • **In states other than California**, do not apply more than 12 lb of product (9.6 lb active ingredient) per acre and do not apply within 10 days of harvest. • Do not apply this product with a U-boom device. • **Minimum Re-Treatment Interval:** 7 days
onion (furrow drench)	damping-off seed rots seedling blights smut		Apply 3 lb of product 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 3 lb of product (2.4 lb active ingredient) per acre (29,000) linear feet of furrow) with an 18-inch row spacing. • Do not use in California.
peppers	anthracnose early blight phomopsis blight or fruit rot	2 (west of the Mississippi River) 3 (east of the Mississippi River)	Begin application when disease appears and reapply on a 7- to 10-day spray schedule.	• West of the Mississippi River, do not apply more than 12 lb of product (9.6 lb active ingredient) per acre and do not apply within 7 days of harvest. • East of the Mississippi River, do not apply more than 18 lb of product (14.4 lb active ingredient) per acre and do not apply within 7 days of harvest. • Do not apply this product with a U-boom device. • **Minimum Re-Treatment Interval:** 7 days
potato	early blight late blight	0.5 - 2	Begin applications when plants are 4 to 6 inches high by applying 0.5 to 1 lb per acre. As the vines increase in size, apply 1.5 to 2 lb per acre at 5- to 10-day intervals, or apply 0.75 to 1 lb per acre at 3- to 5-day intervals. Adding a surfactant to spray solutions improves performance. For best results, use this product within an Integrated Pest Management Program. Also, kill vines 14 days before harvest.	• **Preharvest Interval:** Do not apply within 3 days of harvest in Connecticut, Delaware, Florida, Maine, Massachusetts, Michigan, New Hampshire, New York, Ohio, Pennsylvania, Vermont, Rhode Island and Wisconsin. Do not apply within 14 days for all other states. • Do not apply more than 14 lb of product (11.2 lb active ingredient) per acre per crop.
potato seed-piece (treatment)	fusarium decay late blight rhizoctonia shoot blight seedborne common scab sliver scurf		Dip whole or cut potato tubers in 1.25 lb of Dithane M45 per 50 gallons of water. Place treated tubers in a clean container following treatment and plant as soon as possible. Spread treated seed-pieces in a cool place if held before planting.	• Do not use treated seed potatoes for food or feed purposes.
tomato	anthracnose early blight gray leaf spot late blight leaf mold septoria leaf spot	1.5 - 2 West of the Mississippi River 1.5 - 3 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. Adding a surfactant to spray solutions improves performance.	• **Preharvest Interval:** Do not apply within 5 days of harvest. • West of the Mississippi River, do not apply more than 8 lb of product (6.4 lb active ingredient) per acre per crop. • East of the Mississippi River, do not apply more than 21 lb of product (16.8 lb active ingredient) 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 M45. Follow the application intervals specified on the copper fungicide label.	

[1] Not approved for use on this pest species in California.

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.

Terms and Conditions of Use

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.

Warranty Disclaimer

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.

Inherent Risks of Use

It is impossible to eliminate all risks associated with use of this product. Crop injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperatures, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of Dow AgroSciences or the seller. To the extent permitted by law, all such risks shall be assumed by buyer.

Limitation of Remedies

To the extent permitted by law, the exclusive remedy for losses or damages resulting from this product (including claims based on contract, negligence, strict liability, or other legal theories), shall be limited to, at Dow AgroSciences' election, one of the following:

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

To the extent permitted by law, Dow AgroSciences shall not be liable for losses or damages resulting from handling or use of this product unless Dow AgroSciences is promptly notified of such loss or damage in writing. To the extent permitted by law, in no case shall Dow AgroSciences be liable for consequential or incidental damages or losses.

The terms of the Warranty Disclaimer, Inherent Risks of Use and Limitation of Remedies cannot be varied by any written or verbal statements or agreements. No employee or sales agent of Dow AgroSciences or the seller is authorized to vary or exceed the terms of the Warranty Disclaimer or Limitation of Remedies in any manner.

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EPA accepted 5/21/12

NOT REGULATED FOR DOMESTIC SURFACE TRANSPORTATION WITHIN THE U.S.A.

SUBSTÂNCIA QUE APRESENTA RISCO PARA O MEIO AMBIENTE, SÓLIDA, N.E. (MANCOZEB)

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (MANCOZEB)

UN 3077

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5M2/Y26/S/12
F/BVT141766

Dow AgroSciences™

Dithane® M45

Fungicide

Group	M3	FUNGICIDE

Active Ingredients
mancozeb: A coordination product of zinc ion and manganese ethylene bisdithiocarbamate 80%
In which the ingredients are:
Manganese++ 16%
Zinc++ 2%
Ethylene bisdithiocarbamate ion ($C_4H_6N_2S_4$) 62%
Other Ingredients 20%
Total 100%

Keep Out of Reach of Children
CAUTION

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 back panel of bag for additional Precautionary Statements and Directions for Use including Storage and Disposal.

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. 62719-387 EPA Est. 62719-BRA-001

MADE IN BRAZIL

®Trademark of Dow AgroSciences LLC

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

Net Weight 55 lb / 24.948 kg

(01) 0 06 62974 55402 8

00248247

300-001909 / 00253018

Dithane® M45
Fungicide
Dow AgroSciences™

THIS AREA IS AVAILABLE FOR PRINT IF NEEDED. HOWEVER IF USED THE TOTAL PRINT AREA WILL NOT BE SYMMETRICAL ON THE FINISHED SACK.

First Aid

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-992-5994 day or night, for emergency treatment information.

Precautionary Statements

Hazards to Humans and Domestic Animals

Causes Moderate Eye Irritation • Prolonged Or Frequently Repeated Skin Contact May Cause Allergic Reactions In Some Individuals

Avoid contact with skin, eyes, or clothing. Do not breathe dust or spray mist.

Personal Protective Equipment (PPE)

Some materials that are chemical-resistant to this product are listed below. If you want more options, 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
- Shoes and socks
- Chemical-resistant gloves made of any waterproof material

In addition, all handlers (except pilots, groundboom applicators, and seed-treatment handlers who are bagging the treated seed or sewing the bags) must wear:
- A NIOSH-approved respirator with a dust/mist filter with MSHA/NIOSH approval number prefix TC-21C or any N, R, P or HE filter.

See engineering controls for additional 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

Handlers mixing and loading wettable powder for seed treatment must use a dust collection system during the treatment of the seed that prevents dust from contacting handlers or other persons.

Handlers using the dust collection system must wear:
- Long-sleeved shirt
- Long pants
- Shoes and socks, and
- Chemical-resistant gloves (except pilots, groundboom applicators, and airblast applicators); and
- Must be provided with, have immediately available, and wear in an emergency, such as a broken package, spill, or equipment breakdown: a NIOSH-approved respirator with a dust/mist filter with MSHA/NIOSH approval number prefix TC-21C or any N, R, P or HE filter.

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) (4-6)].

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.

Storage and Disposal

Do not contaminate water, food or feed by storage and disposal.
Pesticide Storage: Keep away from fire and sparks. Store in a cool, dry, well-ventilated area. Do not allow to become wet or overheated in storage: decomposition, impaired activity, or fire may result. Keep container closed when not in use. Decomposition produces a foul odor; if observed, check for hot containers and immediately remove to open areas for disposal.
Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on-site or at an approved waste disposal facility.
Container Disposal: Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available, or dispose of empty bag in a sanitary landfill or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Refer to label booklet for Directions for Use.

BEFORE USE, READ INSTRUCTION LEAFLET IN BASE OF SACK