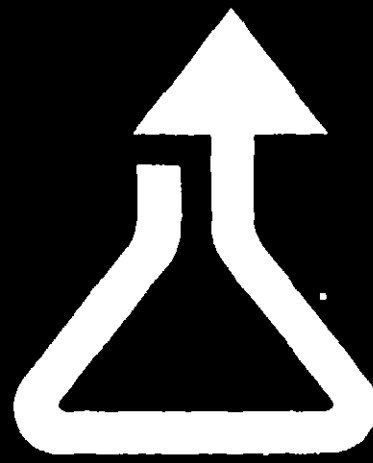


DITH



**ROHM
AND
HAAS**

PHILADELPHIA, PA. 19105

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DITHANE M-45



**ROHM
AND
HAAS**

8357-D2a

6-2423

15-10-101

DITHANE® M-45

AGRICULTURAL FUNGICIDE

CAUTION

KEEP OUT OF REACH OF CHILDREN

May cause irritation of nose, throat, eyes and skin. Do not breathe dust or spray mist. In case of skin contact wash with water; for eyes, wash copiously with water and get medical attention.

This product is toxic to fish. Keep out of lakes, streams, or ponds. Do not apply when weather conditions favor drift from areas treated. Do not contaminate water by cleaning of equipment, or disposal of wastes. Apply this product only as specified on this label.

Do not reuse empty container. Dispose of by perforating and either burning in strict accordance with air pollution control laws or by burying in a safe place in noncrop lands away from water supplies.

IMPORTANT: Keep away from fires and sparks. Store in a cool, dry place. Do not allow to become wet or overheated in storage. This may bring on chemical changes which will impair the fungicidal effectiveness of DITHANE M-45 and may also generate flammable vapors. Keep container closed when not in use.

ACTIVE INGREDIENTS

A co-ordination product of zinc ion and manganese ethylene bisdithiocarbamate..... 80%

In which the ingredients are

Manganese** 16%

Zinc** 2%

Ethylene bisdithiocarbamate

ion (C₂H₄N₂S₂)⁺ 62%

INERT INGREDIENTS..... 20%

100%

EPA Reg. No. 707-78 AA

EPA Est. No. 707 PA 1

U.S. Patents 3,379,610

NET CONTENTS

50 LBS.



DITHANE M-45

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MADE IN U.S.A.

Protective clothing consisting of long pants, long sleeve shirt, gloves, hat and boots must be worn during mixing and loading.

GENERAL INSTRUCTIONS

Sift DITHANE M-45 slowly into spray tank as it is being filled or premix thoroughly in nurse tank for concentrate or aircraft sprayers. Add insecticide and nutritional sprays last. DITHANE M-45 can be applied alone or it can be applied with various other pesticides in recommended spray schedules. For further details, see recommendations on this label. Then consult current State Agricultural Experiment Station spray schedules or State Extension Service Specialists for information on compatibility, dosage, timing, and frequency of sprays.

DIRECTIONS FOR USE

VEGETABLES

ASPARAGUS—Rust. Use 2 lbs. DITHANE M-45 per acre in sufficient water to provide thorough coverage. Start applications when rust first appears and repeat at 10 day intervals as long as rust persists. Four applications will usually be sufficient. Apply only on asparagus ferns after spears have been harvested.

CARROTS—Alternaria leaf spot and Cercospora. Use DITHANE M-45 at 1½ to 2 lbs. per acre in 75 to 125 gallons of water. Start applications when disease first threatens and repeat every 7 to 10 days as needed. Do not apply within 7 days of harvest. Do not use treated tops for food or feed.

CELERY, FENNEL—Early blight and late blight. Use DITHANE M-45 at 2 lbs. per acre in sufficient water for thorough coverage. Start applications in the plant bed when plants first come through the ground. Make further applications at 3 to 5 day intervals until plants are set in the field. Continue field applications on a 7 day schedule. Do not apply within 7 days of harvest in fennel or 14 days of harvest for celery. Remove excess residue remaining at harvest by stripping, trimming, and washing.

CORN (sweet, popcorn)—Helminthosporium leaf blight. Use DITHANE M-45 at 1½ lbs. per acre in sufficient water for thorough coverage. Start applications when disease first appears and repeat at 4 to 7 day intervals. Do not apply within 7 days of harvest. Do not feed treated forage to livestock.

CUCUMBERS, CANTALOUPES, HONEYDEW MELONS, MUSKMELONS, SUMMER SQUASH, WATERMELONS—Alternaria and Cercospora leaf spots, anthracnose, downy mildew, gummy stem blight and scab. Use DITHANE M-45 at 2 to 3 lbs. per acre in sufficient water to provide thorough coverage. Start applications when plants are in the two leaf stage and repeat at 5 to 7 day intervals. Direct spray for thorough coverage of both upper and lower leaf surfaces. Do not apply within 5 days of harvest.

ONIONS (dry bulb)—Botrytis leaf blight, downy mildew, purple blotch and neck rot. Use DITHANE M-45 at 2 to 3 lbs. per acre in 100 gallons of water. Follow a protective spray schedule starting when diseases are first reported in the area and repeat at 7 day intervals throughout the season. Do not apply within 7 days of harvest and do not allow spray or drift to contact bulbs after lifting from soil.

ONIONS (New York Only)—Apply 3 lbs. of DITHANE M-45 per acre as a furrow drench to muck soil at planting time of onion seed. Use a total of 100 gallons of water per acre for a uniform coverage of muck soil. This treatment is used for control of onion smut on emerging seedlings. Do not use more than 2.4 pounds actual/acre (29,000 linear feet of furrow).

POTATOES—For early and late blight. Apply every 7 to 10 days throughout the season. Begin applications when plants are 4 to 6 inches high by applying 1 lb. DITHANE M-45 per acre. As the vines increase in size, apply 1½ to 2 lbs. per acre. Thorough, uniform coverage is essential for good disease control. For low gallonage, air-blast or aircraft sprayers adjust the mixing rate accordingly.

POTATO SEED TREATMENT—For control of Fusarium seedpiece decay and seed borne common scab dip whole or cut potato tubers in 1½ lb. DITHANE M-45 per 50 gallons of water. Place treated tubers in clean containers following treatment and plant as soon as possible. Spread in a cool place if held before planting. Do not use treated seed potatoes for food or feed purposes. Note: DITHANE M-45 dusts for use as a dry seedpiece treatment are available from local suppliers.

TOMATOES—Late blight, early blight, gray leaf spot, gray leaf mold and anthracnose. Use DITHANE M-45 at 1½ to 3 lbs. per acre in sufficient water to provide thorough coverage. Start applications when seedlings emerge and repeat at 7 day intervals throughout the season. Do not apply within 5 days of harvest.

TOMATOES—Bacterial spot. Use 1½ lbs. DITHANE M-45 combined with 4 lbs. tribasic copper sulphate per acre in 100 gallons of water. Start applications when seedlings emerge and repeat at 3 to 4 day intervals as long as bacterial spot is prevalent. Do not apply within 5 days of harvest.

FRUITS

APPLES, CRABAPPLES, PEARS, QUINCE—Bitter rot, black rot, brown rot, cedar apple rust, fly speck, scab and sooty blotch. Use Dithane M-45 at 1 to 2 lbs. per 100 gallons of water (10 lbs. 100-gal. mix) applied at 7 to 14 day intervals throughout the season starting with a pre-bloom spray and repeat sprays and continue until harvest. For low volume water sprays adjust the mixing rate

PAPAYA—Anthracnose, Phytophthora fruit rot. Use DITHANE M-45 at 2½ to 2½ lbs. per acre in 20 to 100 gallons of water per acre. Start applications at flowering and continue at a 14 day interval for routine prevention and weekly for epidemic conditions. Direct spray to crown and blossom area. Add TRITON B 1956 spreader sticker at 6 to 8 ounces per acre.

FIELD CROPS

BARLEY, OATS, RYE, WHEAT—Helminthosporium leaf blight and Septoria leaf spot. Use DITHANE M-45 at 2 lbs. per acre in sufficient water for adequate coverage. Either ground or aerial application may be used. Start applications when plants are in the tillering to jointing stage and repeat at 7 to 10 day intervals. Do not make more than three applications during the season and do not apply within 26 days of harvest. Do not graze livestock in treated areas within 26 days after application.

CORN (field, hybrid seed production)—Helminthosporium leaf blight. Use DITHANE M-45 at 1½ lbs. per acre in sufficient water for thorough coverage. When using ground equipment a minimum of 25 gallons of water per acre is suggested. For aerial application use 1½ lbs. of DITHANE M-45 in 6 gallons of water per acre. Start applications when disease symptoms first appear and depending on severity of infection continue on a 4 to 14 day schedule. Treated corn and corn plants may be used as fodder, stover, grain, or forage to livestock. Do not apply within 40 days of harvest.

COTTON—Rust (Southwest only). Use DITHANE M-45 at 1½ to 2 lbs. per acre in sufficient water for thorough coverage. Start applications when rust first appears in the area and repeat at 10 to 14 day intervals until the rust threat is past (usually 3 or 4 applications will be required). Do not apply after bolls are open. Do not graze livestock in treated areas or feed gin trash to livestock.

COTTON DUST FORMULATIONS—DITHANE M-45 dust formulations for use on cotton seed as a planter box treatment or as in the furrow treatment at planting time are available from your local supplier.

PEANUTS—Cercospora leaf spot and rust. Use DITHANE M-45 at 1 to 2 lbs. per acre in sufficient water for thorough coverage. Start applications when disease first appears and repeat at 10 to 14 day intervals. Reduce to a 7 day interval during humid weather. Do not apply within 14 days of harvest. Do not feed treated vines to livestock.

Benomyl fungicide plus DITHANE M-45 fungicide (tank-mix) for control of Cercospora leaf spot and rust. Apply with ground or aerial equipment at the rate of 1½ lbs. DITHANE M-45 plus ¼ lb. benomyl (50%) per acre in sufficient water to obtain thorough coverage of the plants (20 to 100 gallons by ground equipment, 5 to 10 gallons for aircraft).

Begin application 35 to 40 days after planting or when disease symptoms first appear, for rust, repeat at 7 to 10 day intervals, for Cercospora leaf spot, repeat at 10 to 14 day intervals. Use the shorter interval under severe disease conditions. Do not apply within 14 days of harvest, do not graze or feed treated vines, hay, or bolls to livestock.

Add the required amount of DITHANE M-45 and benomyl to a partially filled spray tank agitated by hydraulic or mechanical means, continuous agitation is required to keep the material in suspension. Non-phytotoxic emulsifiable oil (60 to 70 second viscosity range) may be added to the spray mixture at the rate of 1 pint to 1 gallon per acre to improve dispersion of spray and coverage of plant foliage.

IMPORTANT: Before using DITHANE M-45 and benomyl fungicides, read and carefully observe the cautionary statements and all other information appearing on product labels.

SUGAR BEETS—Cercospora leaf spot. Use DITHANE M-45 at 1½ to 2 lbs. per acre in 75 to 125 gallons of water. Start applications when disease first threatens and repeat every 7 to 10 days as needed. Do not apply within 14 days of harvest. Do not feed treated tops to livestock.

SEED TREATMENT

Seeds to be treated should be cleaned and well cured prior to treatment with DITHANE M-45.

For seed treatment a dye must be added to DITHANE M-45 which will impart an unnatural color to the seed. Treated seed should be labeled and must not be used for food, feed, or oil purposes.

COTTON SEED TREATMENT—As an aid in establishing good stands by reducing losses caused by damping off organisms and many seedling blights, use DITHANE M-45 at 3 ounces per 100 pounds of cotton seed (acid delinted) or 6 ounces per 100 pounds of cotton seed (reginned). Application should be made with conventional dry or slurry treating equipment. The seed must be completely and uniformly covered with fungicide. Do not use treated seed for food, feed or oil purposes.

RICE SEED TREATMENT—For the control of Achlya and certain other soil and seed borne fungi causing root rot and seedling damping off, use 2 to 4 lbs. DITHANE M-45 per 100 lbs. of dry rice seed (2 to 4 lbs. per 100 lbs. seed) in a slurry at planting time during or after soaking in water. DITHANE M-45 may be applied to the seed by

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FRUITS

APPLES, CRABAPPLES, PEARS, QUINCE. Bitter rot, black rot, brown rot, cedar apple rust, powdery mildew, quince rust, sooty blotch, flyspeck, brown rot, bitter rot, and black rot. Use DITHANE M-45 at 1 to 2 lbs. per 100 gallons of water. Start applications at bud break and continue through cover spray. The timing of these sprays adjust the mixing rate accordingly. Add 2 to 3 oz. TRITON B 1956 spreader sticker in last three sprays to provide smooth, even application and reduce spotty unsightly deposits. Do not graze livestock in treated areas. Consult local state spray schedules for further details on dosage, timing and number of sprays. Do not apply within 15 days of harvest on crab apples, pears and quince or within 30 days of harvest on apples in New England, New York, Michigan, Far West and other states not specifically listed below.

Do not apply to apples within 21 days of harvest in Arkansas, Delaware, Illinois, Indiana, Kansas, Kentucky, Maryland, Missouri, New Jersey, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Virginia and West Virginia.

APPLES—DITHANE M-45 fungicide plus benomyl fungicide as a tank mixture for the control of scab, powdery mildew, cedar apple rust, quince rust, sooty blotch, flyspeck, brown rot, bitter rot, and black rot. Use 12 ozs. DITHANE M-45 plus 2 to 3 ozs. of benomyl (50%) per 100 gals. of water. Non-phytotoxic superior type spray oil (60 to 70 second viscosity) may be added at the rate of 1 quart per 100 gallons. Begin applications at 1/2" green tip and repeat at 7 to 14 day intervals (or as needed) through cover sprays. Under severe disease conditions, use the shorter interval and the higher rate of benomyl in the tank mixture.

Apply 200 to 500 gallons of spray per acre with hydraulic ground equipment. Use the lower volume for small trees (up to 12 feet) and the higher volume for larger trees. Use the equivalent amount of the products (including oil) per acre with concentrate sprayers.

Add spray oil and use the higher rate of benomyl on varieties more susceptible to powdery mildew, and also for scab, if an application is missed and an infection period has occurred. Apply as soon as possible after the infection period in order to deactivate scab and prevent further infection.

With Golden Delicious, adverse effects on fruit finish and color may result; if finish and color are of primary importance, do not use more than 2 ozs. benomyl per 100 gallons.

Do not apply within 21 days of harvest in Arkansas, Delaware, Illinois, Indiana, Kansas, Kentucky, Maryland, Missouri, New Jersey, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Virginia, and West Virginia. Do not apply within 30 days of harvest in all other states. Do not graze livestock in treated orchards.

IMPORTANT: Do not use alkaline pesticides, such as basic copper sulfate, Bordeaux mixture, or lime sulfur, as a tank mixture with benomyl. Before using DITHANE M-45, benomyl, and superior type spray oil, read and carefully observe the cautionary statements and all other information appearing on the product labels.

PEARS—(Pacific Northwest Only)—Pear psylla. Effective control of young nymphs can be obtained by using 2 to 3 consecutive sprays. Applications should start at petal fall and continue at 7 to 10 day intervals. As new growth occurs it must be protected by spraying. Use 1 1/2 pounds of DITHANE M-45 in 100 gallons of water. Do not exceed 10 pounds of DITHANE M-45 per acre. Time sprays should coincide with the initial appearance of pear psylla nymphs. Spray timing of sprays to control psylla should be obtained from State Agricultural Experiment Station workers or State Extension Service specialists.

Post harvest sprays of DITHANE M-45 can be made using 1 1/2 to 2 pounds of DITHANE M-45 in 100 gallons using full coverage of 800 to 1,000 gallons per acre. Timing of spray should be under the direction of State Agricultural or Extension Service workers.

Do not graze livestock in treated areas. Do not apply within 15 days of harvest.

CRANBERRIES. Fruit rot. Use DITHANE M-45 at 3 to 6 lbs. per acre in sufficient water for thorough coverage. Start applications at mid bloom and repeat at 7 to 10 day intervals as required. Do not apply within 30 days of harvest.

GRAPES—(California only)—Bunch rot, deadarm and early season downy mildew. (For early season use only.) Use DITHANE M-45 at 1 1/2 to 4 lbs. per acre (depending on size and density of vines) in sufficient water to provide thorough coverage. Start applications 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 at 10 to 14 day intervals until fruit is set. Water sprays or dusts may be used. Do not apply DITHANE M-45 after fruit is set. After fruit is set the use of other approved and recommended fungicides is suggested for continued control of deadarm and downy mildew.

GRAPES—(other areas)—Black rot, deadarm and downy mildew. Use DITHANE M-45 at 1 1/2 to 4 lbs. per acre (depending on size and density of vines) in sufficient water to provide thorough coverage. Start applications 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 continue at 10 to 14 day intervals but do not apply DITHANE M-45 within 66 days of harvest. Water sprays or dusts may be used. For late season control of black rot, deadarm and downy mildew the use of other approved and recommended fungicides is suggested.

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CAUTION:—Significant Use 2 to 4 lbs. DITHANE M-45 per acre in sufficient water to provide thorough coverage. Apply only in 20-30 second viscosity. Do not use more than 10 lbs. per acre. Do not graze livestock in treated areas or on adjacent property.

pounds of cotton seed (regined). Application should be made with conventional dry or slurry treating equipment. The seed must be completely and uniformly covered with fungicide. Do not use treated seed for food, feed or oil purposes.

RICE SEED TREATMENT—For the control of *Aschysphaeria* and certain other soil and seed borne fungi causing seedling and root rot in rice. Use 2 to 4 lbs. of DITHANE M-45 per 100 lbs. of dry rice seed (2% to 5% per ton of seed) and apply during or after soaking in water. DITHANE M-45 may be applied to rice seed with conventional dry or slurry seed treating equipment. The seed must be completely and uniformly covered with DITHANE M-45. Do not use treated seed for food, feed or oil purposes.

SAFFLOWER SEED TREATMENT—For control of seed borne *Puccinia carthami* Cda, which causes foot and root disease as well as foliage rust disease, use 2 ounces of DITHANE M-45 per 100 pounds of safflower seed. Application should be made with conventional dry or slurry equipment. The seed must be completely and uniformly covered with fungicide. Do not use treated seed for food, feed or oil purposes.

DITHANE M-45 is recommended at the rates listed for seed treating as an aid in establishing good stands by reducing losses caused by damping-off organisms and many seedling blights.

	SEED TREATMENT RATE			
	Ounces/Bushel		Ounces/100 lbs.	
	Slurry	Dry	Slurry	Dry
Barley	1.3	2.0	2.7	4.0
Corn (field)	1.5	3.0	2.7	5.4
Flax	2.0	4.0	3.6	7.2
Oats	1.3	2.0	4.0	6.0
Peanuts (shelled)		4.0		16.0
Rye	1.3	2.0	2.4	3.5
Sorghum	1.5	2.5	3.0	5.0
Tomatoes			8.0	8.0
Wheat	1.3	2.0	2.2	3.0

DITHANE M-45 may be applied to dry seed with conventional dry or slurry seed treating equipment. The seed must be completely and uniformly covered with fungicide.

NOTE: Do not use treated seed for food, feed or oil purposes.

MISCELLANEOUS USES

ASPARAGUS CROWN—For control of crown rot in planting stock. Use 1 pound of DITHANE M-45 in 100 gallons of water to prepare a dipping suspension. Place crowns loosely packed into a burlap bag and soak with gentle agitation for 5 minutes. Remove bag, drain well and plant crowns as soon as possible. A dipping 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. It is suggested that dirty crowns be given a pre wash to remove excess soil.

CAPRIFIG—For control of endosepsis (*Fusarium* fungus) and mold. Prepare by cutting open then submerge for a minimum of 15 minutes in a suspension of DITHANE M-45. Use 1 pound of DITHANE M-45 in 25 gallons of water (4 tablespoons in one gallon). The suspension should be stirred frequently to prevent settling out. Fresh dipping solution should be used after dipping 4 or 5 batches of capris. After treatment figs should be drained prior to placement in trees.

CONIFEROUS CHRISTMAS TREES—For control of foliage diseases incited by *Lophodermium* fungi. In nursery plantings and newly transplanted stock use DITHANE M-45 at a rate of 4 pounds of product per 100 gallons of water at 3 week intervals during the period of sprinkler irrigation and at monthly intervals during the rest of the year when the beds are not covered with snow. The addition of a suitable spreader sticker is suggested.

PINEAPPLE PROPAGATION STOCK—Preplant Dip—For control of *Phytophthora* heart rot in planting material use 3.2 pounds DITHANE M-45 in 10 gallons of water. Up to 100 gallons of dipping suspension should be used for the treatment of planting material for one acre depending upon the size and earliness of plant stock. Dip planting material in the DITHANE M-45 suspension prior to planting. The suspension should be stirred frequently to prevent settling out. A new suspension should be prepared at least when two thirds of the volume has been used or sooner if soil from plant material has noticeably caused the dipping suspension to discolor.

NOTE: DITHANE M-45 may be used without a spreader sticker. When necessary to improve the spray coverage on foliage difficult to wet and to smooth out spray deposits on maturing fruit TRITON® B 1956® is recommended. Other suitable pesticide spreader stickers may also be used, except in situations where TRITON B 1956 is recommended as the only acceptable spreader sticker.

NOTICE: Seller warrants that the product conforms to its chemical description and is reasonably fit for the purpose stated on the label when used in accordance with directions under normal conditions of use, but neither this warranty nor any other warranty of merchantability or fitness for a particular purpose, express or implied, extends to the use, storage or handling of this product in a manner other than as directed by the label. Seller is not under abnormal conditions or under conditions not reasonably foreseeable by seller and buyer assumes the risk of any such use. These risks include but are not limited to damage to plants, crops and animals to which the material is applied, failure to control pests, damage caused by drift to other plants, crops and animals, and human injury.

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The use on bananas was accepted by EPA on March 21, 1973. See attached label.