



# Dithane™ Rainshield™ Fungicide

GROUP	<b>M3</b>	FUNGICIDE
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## Contains Mancozeb

AGRICULTURAL - COMMERCIAL

READ THE LABEL AND BOOKLET BEFORE USING  
KEEP OUT OF REACH OF CHILDREN

ACTIVE INGREDIENT: Mancozeb.....75.0%

Warning: contains the allergen sulfites

Wettable granule

REGISTRATION NO. 20553 PEST CONTROL PRODUCTS ACT

NET CONTENTS: 3.5 kg - bulk

## Corteva Agriscience Canada Company

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Calgary, Alberta

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## **PRECAUTIONS**

### **KEEP OUT OF REACH OF CHILDREN**

May cause irritation of nose, throat, eyes and skin. Do not breathe spray mist.

- Wear a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes during mixing, loading, application, clean-up and repair. Gloves are not required during application within a closed cab or cockpit.
- In addition, wear chemical-resistant headgear during open cab airblast application. Chemical resistant headgear includes Sou'Wester hat, chemical-resistant rain hat or large brimmed waterproof hat and hood with sufficient neck protection. Gloves and chemical-resistant hat are not required during application within a closed cab.
- Remove contaminated clothing promptly and wash affected skin areas with soap and water. Thoroughly launder clothing before re use.
- A respirator with a NIOSH-approved organic-vapour-removing cartridge with a prefilter approved for pesticides, or a NIOSH-approved canister approved for pesticides is required when mixing/loading.
- During open-cab groundboom application, applicators must wear either a respirator with a NIOSH approved organic-vapour-removing cartridge with a prefilter approved for pesticides OR a NIOSH approved canister approved for pesticides OR use a closed-cab tractor that provides both a physical barrier and respiratory protection (such as dust/mist filtering and/or vapour/gas purification system) when handling more than 467 kg per person per day. The closed cab must have a chemical-resistant barrier that totally surrounds the occupant and prevents contact with pesticides outside the cab. These restrictions are in place to minimize exposure to individual applicators. Application may need to be performed over multiple days or using multiple applicators.
- DO NOT apply using handheld equipment.
- DO NOT apply in greenhouses.
- DO NOT apply by hand.
- When applied as a tank-mix combination, read and observe all label directions, including rates, personal protective equipment, restrictions and precautions for each product used in the tank-mix. Always use in accordance with the most restrictive label restrictions and precautions.

## **FIRST AID**

**Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.**

**If swallowed:** Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

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

**If inhaled:** Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further 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 centre or doctor for treatment advice.

## **TOXICOLOGICAL INFORMATION**

No specific antidote. Employ supportive care. Treatment should be based on judgment of the physician in response to reactions of the patient.

## **AGRICULTURAL CHEMICAL**

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

## **ENVIRONMENTAL PRECAUTIONS**

- TOXIC to aquatic organisms. Observe buffer zones specified under DIRECTIONS FOR USE.
- TOXIC to small wild mammals.
- TOXIC to birds

- May be toxic to bees. Minimize spray drift to reduce harmful effects on bees in habitats close to the application site. Avoid application during the crop blooming period. If applications must be made during the crop blooming period, restrict applications to the evening when most bees are not foraging. Avoid applications when bees are foraging in the treatment area in ground cover containing blooming weeds. To further minimize exposure to pollinators, refer to the complete guidance “Protecting Pollinators during Pesticide Spraying – Best Management Practices” on the Health Canada website ([www.canada.ca/pollinators](http://www.canada.ca/pollinators)).
- Toxic to certain beneficial arthropods (which may include predatory and parasitic insects, spiders, and mites). Minimize spray drift to reduce harmful effects on beneficial arthropods in habitats next to the application site such as hedgerows and woodland.
- To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.
- Avoid application when heavy rain is forecast.
- Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.
- This product demonstrates the properties and characteristics associated with chemicals detected in groundwater. The use of this product in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

### **STORAGE**

Keep away from fire and sparks. Store in cool, dry, well ventilated place. Do not allow to become wet or overheated in storage: decomposition, impaired activity, or fire may result. Keep container closed when not in use. Pallets of containers should not be stacked more than 3 high. Provide access aisles for each 2 rows. Decomposition produces foul odour: if observed, check for hot containers and remove immediately to open areas for disposal. Do not contaminate food or feed by storage or disposal.

### **DISPOSAL**

1. Thoroughly empty the contents of the container into the application device.
2. Make the empty container unsuitable for further use.
3. Dispose of the container in accordance with provincial requirements.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

### **GENERAL DIRECTIONS FOR USE**

READ ALL DIRECTIONS CAREFULLY BEFORE APPLYING. FAILURE TO FOLLOW LABEL INSTRUCTIONS MAY RESULT IN ERRATIC FUNGICIDE CONTROL OR CROP DAMAGE.

### **MIXING INSTRUCTIONS**

Do not premix Dithane Rainshield Fungicide into a smaller tank. Pour Dithane Rainshield Fungicide slowly into a 1/4 filled spray tank while the agitator is running. Fill tank with water. Add other co-applied fungicides, insecticides, growth regulators, micronutrients, and spray adjuvants, that are registered under the *Pest Control Products Act* after Dithane Rainshield Fungicide has been placed into suspension. Do not let Dithane Rainshield Fungicide settle out in an un-agitated spray tank. Rinse out spray tank, pumps, and nozzles at the end of the day.

When preparing spray solutions for use in aircraft sprayers, premix thoroughly in a nurse tank then add to sprayer containing 1/3 to 1/2 the desired final water volume. After adding slurry continue to fill tank to desired water volume.

Thorough, uniform coverage is essential for good disease control. For low volume airblast sprayers, adjust the mixing rate accordingly.

- As this pesticide is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.
- DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.
- To protect pollinators, follow the instructions regarding bees in the Environmental Precautions section.

Aerial application: DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply when wind speed is greater than 16 km/h at flying height at the site of application. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) medium classification. Reduce drift caused by turbulent wingtip vortices. Nozzle distribution along the spray boom length MUST NOT exceed 65% of the wing- or rotorspan.

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use/crop, this product cannot be applied by any type of aerial equipment for that use/crop.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Field sprayer application: DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) medium classification. Boom height must be 60 cm or less above the crop or ground.

Airblast application: DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT direct spray above plants to be treated. Turn off outward pointing nozzles at row ends and outer rows. DO NOT apply when wind speed is greater than 16 km/hr.

### **USE PRECAUTIONS**

Apply only when the potential for drift beyond the area to be treated is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment, and sprayer settings.

This product is not to be used in or around homes or other residential areas such as parks, school grounds and/or playing fields. Residential areas are defined as any use site where the general public, including children, could be exposed during or after application. It is not for use by homeowners.

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas.

Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat, (such as shelter-belt) or aquatic habitat.

### Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

### Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-800-667-3852 or obtain technical advice from the distributor or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following:

Volume: Apply the recommended rate in a minimum spray volume of 25 litres per hectare.

### REQUIRED RESTRICTED ENTRY INTERVALS

Crop	Postapplication Activity	REI and/or PHI (days)
Potatoes	Harvesting	3
	All other activities	0.5
Apples	Harvesting	77
	Hand thinning of fruit	35
	All other activities	0.5
Onions (foliar)	Harvesting	14
	Hand weeding	1
	All other activities	0.5
Onions (in-furrow)	Harvesting	100
	All other activities	0.5
Ginseng	Harvesting	30
	Hand set/Hand line irrigation related activities involving foliar contact	1
	All other activities	0.5
Cucumbers	Harvesting	14
	All other activities	0.5
Tomatoes	Harvesting	30
	All other activities	0.5
Grapes	Harvesting	66
	Girdling, Turning	21
	Leaf pulling by hand, tying, training	7
	Hand set/Hand line irrigation related activities involving foliar contact	1
	All other activities	0.5

Pumpkin, Squash, Melons including Cantaloupe, excluding watermelon	Harvesting	14
	All other activities	0.5

REI = restricted-entry interval; PHI = preharvest interval

## DIRECTIONS FOR USE

When applied as directed, Dithane Rainshield Fungicide will control the listed diseases, unless otherwise indicated as suppression.

## VEGETABLES

**POTATOES** - For early (*Alternaria solani*) and late blight (*Phytophthora infestans*). Begin applications early; apply 1.10 kilograms Dithane Rainshield Fungicide per hectare when plants are 10-15 cm high. Increase the rate to 1.75 kilograms per hectare as plants increase in size, and to 2.25 kilograms per hectare at row closure. Apply every 7-10 days throughout the season. Do not apply more than 8 applications per year.

### Reduced Spray Interval Schedule

During periods of wet weather favouring late blight (*Phytophthora infestans*) and/or vigorous crop growth, spray intervals may be reduced to 5-6 days. Apply 1.1 kilograms per hectare until row closure then increase the rate to 1.75 kilograms per hectare until conditions allow the return to the regular spray schedule.

Thorough, uniform coverage is essential for good disease control. Do not apply within 3 days of harvest. Use 40 litres of water per hectare for aerial applications.

The total seasonal application of mancozeb and metiram combined cannot exceed the maximum number of applications on potatoes of either chemical per year with no more than 3 applications being metiram.

**TOMATOES** - For control of early (*Alternaria solani*), and late blight (*Phytophthora infestans*), anthracnose (*Colletotrichum spp.*), gray leaf spot (*Stemphylium solani*, *S. lycopersici*). Use Dithane Rainshield Fungicide at 3.25 kg/ha in sufficient water to provide adequate coverage. Start applications when disease is first reported in the area and repeat in 7 to 10 days. Do not apply more than 2 applications per year. Do not apply within 30 days of harvest.

**ONIONS** - For control of Botrytis leaf blight (*Botrytis squamosa*), apply 2.25 kg/ha when disease first appears and repeat every 7 days. Do not apply more than 6 applications per year. Add a suitable wetting agent. Do not use on green bunching onions. Do not use later than 14 days before harvest.

**CANTALOUPE, CUCUMBERS, PUMPKIN, SQUASH AND OTHER MELONS (EXCLUDING WATERMELON)** For control of Downy mildew (*Pseudoperonospora cubensis*), anthracnose, (*Colletotrichum obiculare*), scab (*Cladosporium cucumerinum*), gummy stem blight (*Didymella bryoniae*) and alternaria leaf spot. (*Alternaria cucumerina*). Use Dithane Rainshield Fungicide at 3.25 kg/ha in sufficient water to provide adequate coverage. Start applications when runners begin to form or at first sign of disease and repeat at 7 day intervals. Do not apply more than 3 applications per year. Direct spray for thorough coverage of both upper and lower leaf surfaces. Do not apply within 14 days of harvest.

## FRUIT

**APPLES** - For the control of scab (*Venturia inaequalis*), cedar apple rust (*Gymnosporangium juniperivirginianae*) and quince rust (*Gymnosporangium clavipes*). For a protective schedule begin application of Dithane Rainshield Fungicide in the green tip up to 1.25 cm (half inch) green sprays. Repeat any subsequent pre-bloom, bloom, and cover sprays in accordance with the timing in your local

schedule for a protective program. Use 6.0 kg/ha of Dithane Rainshield Fungicide per application in sufficient water volume to ensure thorough coverage. Do not apply more than 4 applications per year. The addition of a wetting agent will ensure a smoother, more even coverage of your spray material and helps prevent blotchy, visible residues. Fruit colour and finish on most apple varieties sprayed with Dithane Rainshield Fungicide have frequently been outstanding. Do not apply within 77 days of harvest.

**CAUTION - Do not feed treated apple pomace to livestock.**

GRAPES – For the control of Downy mildew (*Plasmopara viticola*) and Black Rot (*Guignardia bidwellii*) on grapes, use Dithane Rainshield Fungicide at the rate of 3.0 kg/ha as a pre-bloom application. . Do not apply more than 1 application per year Do not use spray within 66 days of harvest.

**HERBS**

GINSENG - For control of Alternaria leaf blight (*Alternaria panax*). Use Dithane Rainshield Fungicide at 4.4 kg/ha in 2,000 L of water. Apply when disease first appears and follow with up to 5 subsequent sprays at 14 day intervals as part of a regular spray program. Do not apply within 30 days of harvest. Do not feed treated ginseng (roots or foliage) to livestock.

The DIRECTIONS FOR USE for the uses described in this section of the label were developed by persons other than Corteva Agriscience Canada Company under the User Requested Minor Use Label Expansion program. For these uses, Corteva Agriscience Canada Company has not fully assessed performance (efficacy) and/or crop tolerance (phytotoxicity) under all environmental conditions or for all crop varieties when used in accordance with the label. The user should test the product on a small area first, under local conditions and using standard practices, to confirm the product is suitable for widespread application.

**DIRECTIONS FOR USE**

**Dry Bulb Onions**

ONION SMUT (*Urocysti cepulac*) - One application per year. Apply 4.4 to 8.8 kg/ha kg/ha Dithane Rainshield Fungicide as a granular in the furrow at seeding time. Do not apply within 100 days of harvest.

**BUFFER ZONES**

Spot treatments using hand-held equipment do not require a spray buffer zone. Use of low-clearance hooded or shielded sprayers that prevent spray contact with crop, fruit or foliage, and soil drench or soil incorporation do not require a spray buffer zone.

The spray buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

**GROUND BUFFER ZONES**

Method of application	Crop	Spray Buffer Zones (metres) Required for the Protection of:			
		Freshwater Habitat of Depths:		Estuarine/Marine Habitat of Depths:	
		Less than 1 m	Greater than 1 m	Less than 1 m	Greater than 1 m
Field sprayer	Onions (foliar), potatoes	5	1	2	1
	Field tomato, cantaloupe, cucumbers, melons, pumpkins, squash	5	1	3	1
	Ginseng	10	2	4	2
	Onions (in-furrow)	15	1	5	3

Airblast	Apples	Early growth stage	45	25	35	25
		Late growth stage	35	20	25	20
	Grapes	Early growth stage	40	20	30	20
		Late growth stage	30	10	20	10
Aerial	Potatoes	Fixed-wing	275	15	50	15
		Rotary-wing	150	10	35	10

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) spray buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The spray buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Spray Buffer Zone Calculator on the Pest Management Regulatory Agency web site.

#### RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, Dithane Rainshield Fungicide contains a Group M3 fungicide. Any fungal population may contain individuals naturally resistant to Dithane Rainshield Fungicide and other Group M3 fungicides. A gradual or total loss of pest control may occur over time if these fungicides are used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed:

To delay fungicide/bactericide resistance:

- Where possible, rotate the use of Dithane Rainshield Fungicide or other Group M3 fungicides with different groups that control the same pathogens.
- Use tank mixtures with fungicide from a different group that is effective on the target pathogen when such use is permitted.
- Fungicide use should be based on an integrated disease management program that includes scouting, historical information related to pesticide use and crop rotation and considers host plant resistance, impact of environmental conditions on disease development, disease thresholds, as well as cultural, biological and other chemical control practices.
- Where possible, make use of predictive disease models to effectively time fungicide applications.
- Monitor treated fungal populations for resistance development. Notify Dow AgroSciences Canada Inc. if reduced sensitivity of the pathogen to Dithane Rainshield Fungicide is suspected. If disease continues to progress after treatment with this product, do not increase the use rate. Discontinue use of this product, and switch to another fungicide with a different site of action, if available.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for specific crops and pathogens.
- For further information and to report suspected resistance, contact Corteva Agriscience Canada Company Dow AgroSciences Canada Inc. at 1-800-667-3852 or at [www.corteva.ca](http://www.corteva.ca).

**NOTICE TO USER:** This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

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Replaces: CN-20553-011-E

Specimen Notes:  
Re-eval update