

DIFENOCONAZOLE	GROUP	3	FUNGICIDE
MEFENOXAM	GROUP	4	FUNGICIDE
THIABENDAZOLE	GROUP	1	FUNGICIDE
TEBUCONAZOLE	GROUP	3	FUNGICIDE



A fungicide seed treatment for control of specified diseases of barley, oats, triticale, and wheat

ACTIVE INGREDIENTS:

Difenoconazole (CAS No. 19446-68-3):	3.55%
Mefenoxam (CAS No. 70630-17-0 and 69516-34-3):	1.48%
Thiabendazole (CAS No. 148-79-8):	1.89%
Tebuconazole (CAS No. 107534-96-3):	0.60%

OTHER INGREDIENTS: 92.48%

TOTAL: 100.00%

Contains 0.31 lbs (140.6 grams) difenoconazole, 0.13 lbs (58.9 grams) mefenoxam, 0.16 lbs (72.6 grams) thiabendazole, and 0.05 lbs (22.7 grams) tebuconazole per gallon.

KEEP OUT OF REACH OF CHILDREN CAUTION

FIRST AID	
IF ON SKIN OR CLOTHING:	<ul style="list-style-type: none"> 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.
NOTE TO PHYSICIAN: If ingested, induce emesis and treat symptomatically.	
HOT LINE NUMBER: Have the product container or label with you when calling poison control center or doctor, or going for treatment. For 24- Hour Emergency Assistance spill, leak, fire, exposure, or accident call CHEMTREC 1-800-424-9300.	

See additional precautionary statements and directions for use inside booklet.

EPA REG. No. 45002-27-5905
EPA EST. No. 42750-MO-2

AD 051822HAE
NET CONTENTS: ☐ 2.5 Gallons (9.46 L)
☐ 30 Gallons (113.56 L)

MANUFACTURED FOR
HELENA AGRI-ENTERPRISES, LLC
225 SCHILLING BOULEVARD, SUITE 300
COLLIERVILLE, TENNESSEE 38017

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS & DOMESTIC ANIMALS

CAUTION. Avoid contact with skin, eyes, or clothing. Wear long- sleeved shirt and long pants, socks and shoes, and chemical-resistant gloves made of any waterproof material. Wash thoroughly with soap and water after handling.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks
- Chemical-resistant gloves such as; Barrier Laminate, Butyl Rubber ≥ 14 mils, Nitrile Rubber ≥ 14 mils, Neoprene Rubber ≥ 14 mils, Polyvinyl Chloride (PVC) ≥ 14 mils, and Viton ≥ 14 mils.

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.

ENGINEERING CONTROL STATEMENTS

When handlers use closed systems or enclosed cabs in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS

Users should:

Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and put on clean clothing.

PHYSICAL AND CHEMICAL HAZARDS

DO NOT allow contact with oxidizing agents. Hazardous chemical reaction may occur.

ENVIRONMENTAL HAZARDS

This product is toxic to fish and aquatic invertebrates. **DO NOT** apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. **DO NOT** contaminate water when disposing of equipment wash waters or rinsate.

If treated seed is spilled outdoors or in areas accessible to birds, promptly clean up or bury to prevent ingestion.

Ground Water Advisory: Metalaxyl and Tebuconazole are known to leach through soil into groundwater under certain conditions as a result of label use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground-water contamination.

Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas.

Surface Water Advisory: This product may impact surface water quality through spray and runoff of rain water. This product has a high potential for runoff for several months or more after application. Poorly draining soils or soils with shallow water tables are more prone to produce runoff that contains this product. A level, well-maintained vegetative buffer strip between areas to which this product is applied and surface water features such as ponds, streams, and springs will reduce the potential for contamination of water from rainfall runoff. Runoff of this product will be reduced by avoiding applications when rainfall is forecast to occur within 48 hours. Sound erosion control practices will reduce this product's contribution to surface water contamination.

NON-TARGET ORGANISM ADVISORY STATEMENT: This product may adversely impact non-target organisms feeding on treated seeds. Protect the non-target organisms by following label directions intended to minimize availability of treated seed to non-target organisms.

- Cover or collect treated seeds spilled during loading and planting in areas (such as in row ends).
- Dispose of all excess treated seed by burying seed away from bodies of water.

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.

Restriction: Maximum usage when applying metalaxyl-and mefenoxam- containing products to the same crop within the same season: **DO NOT** apply more than the maximum yearly total application rate for the active ingredient as stated on the label of the product containing the lowest yearly total on that crop.

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 48 hours.

Exception: If the seed is treated with the product and the treated seed is soil-injected or soil-incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, wear:

- Coveralls
- Socks plus shoes
- Chemical-resistant gloves such as: barrier laminate, butyl rubber ≥ 14 mils, nitrile rubber ≥ 14 mils, neoprene rubber ≥ 14 mils, polyvinyl chloride (PVC) ≥ 14 mils, and viton ≥ 14 mils.

PRODUCT INFORMATION

This product is a systemic seed treatment that controls or suppresses certain seed borne, soil borne, and early season foliar diseases of wheat, barley, oats and triticale. It is a mixture of difenoconazole, mefenoxam, thiabendazole, and tebuconazole. This product provides Pythium damping-off activity and provides activity on the remaining diseases claimed on this label. An EPA approved coloring agent has been added to the formulation.

RESISTANCE MANAGEMENT

For Resistance Management, this product contains difenoconazole, a Group 3 fungicide; mefenoxam, a Group 4 fungicide; thiabendazole a Group 1 fungicide and tebuconazole, a Group 3 fungicide.

Any fungal population may contain individuals naturally resistant to this product and other Group 3 or Group 4 or Group 1 fungicides. A gradual or total loss of pest control may occur over time if these fungicides are used repeatedly in the same fields.

Because resistance development cannot be predicted, the use of this product should follow appropriate resistance-management strategies. To delay fungicide resistance, use should be based on an IPM program that includes the following steps:

- Rotate the use of this product with other fungicide groups within a growing season sequence with different groups that control the same pathogens.
- Use tank mixtures with fungicide from a different group that are equally effective on the target pest when such use is permitted. Use at least the minimum application rate as labeled by the manufacturer.
- Adopt an integrated disease management program for fungicide use that includes scouting, uses historical information related to pesticide use, and crop rotation, and which 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. Note that using predictive models alone is not sufficient to manage resistance.
- Monitor treated fungal populations for resistance development.
- Contact your local extension specialist or certified crop advisor for any additional pesticide resistance- management and/or IPM recommendations for specific crops and pathogens.
- For further information or to report suspected resistance contact Helena Agri-Enterprises, LLC at **1-901-761-0050**. You can also contact your pesticide distributor or university extension specialist to report resistance.

MIXING INSTRUCTIONS

This product is formulated for commercial seed treatment facilities and on-farm seed treatment, using standard mechanical slurry- or mist-type seed treatment equipment which accurately meters and mixes a flowable seed treatment. The equipment must provide uniform coverage of this product on the seed. Uneven seed coverage may not give the desired level of disease control. This product does not require the addition of water for application.

Consult the manufacturer of the application equipment you plan to use for suitability for this application and for instructions on operation and calibration of the equipment.

Allow seed to dry before bagging.

TANK MIXES

Confirm physical compatibility, seed safety, seed safety in stored seed, and biological efficacy before tank mixing with other seed treatment products. This product cannot be mixed with any product containing a label prohibition against such mixing.

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

USE RESTRICTIONS

- Green wheat forage may not be grazed until 55 days after planting.
- Green barley forage may not be grazed until 30 days after planting.
- **DO NOT** plant any crop other than those on this label within 31 days to fields in which treated seeds were planted.
- **DO NOT** use treated seed for feed, food, or oil purposes.
- **DO NOT** allow children, pets or livestock to have access to treated seed.
- Treated seed must be planted into the soil at a depth of at least 1 inch.

In the event of crop failure or harvest of a crop grown from seeds treated, the following crops may be replanted immediately: Barley, Oats, Triticale, Winter Wheat, Spring Wheat.

For any other crop, the minimum plantback interval is 30 days from the date seeds treated were planted.

SEED BAG LABEL REQUIREMENT

The Federal Seed Act requires that containers containing treated seeds shall be labeled with the following statements:

- This seed has been treated with difenoconazole, mefenoxam, thiabendazole, and tebuconazole fungicides.
- **DO NOT** use for feed, food or oil purposes.

The U.S. Environmental Protection Agency requires the following statements on containers containing seed treated with this product:

- This seed has been treated with X lbs. thiabendazole, X lbs. mefenoxam, X mg difenoconazole and X lbs. tebuconazole per X lbs. of seed [X mg thiabendazole, X mg mefenoxam, X mg difenoconazole and X mg tebuconazole per seed].
- Regardless of application method, **DO NOT** apply more than 0.46 lb ai/A/yr difenoconazole, 12.3 lb ai/A/yr mefenoxam, 0.15 lb ai/A/yr thiabendazole and 0.113 lb ai/A/yr tebuconazole.
- Store treated seed away from food and feedstuffs.
- **DO NOT** allow children, pets or livestock to have access to treated seeds.
- PPE is required when opening this container or loading, pouring or handling treated seed and for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water. Wear long-sleeved shirt, long pants, shoes, socks and chemical-resistant gloves. Treated seeds exposed on soil surface may be hazardous to wildlife. Cover or collect treated seeds spilled during loading and planting.
- Treated seed must be planted into the soil at a depth of at least 1 inch.
- Dispose of all excess treated seed. Leftover treated seed may be double sown around the headland or buried away from water sources in accordance with local requirements.
- **DO NOT** contaminate bodies of water when disposing of planting equipment wash water.
- Dispose of seed packaging or containers in accordance with local requirements.
- Green wheat forage planted from this treated seed may not be grazed until 55 days after planting.
- Green barley forage planted from this treated seed may not be grazed until 30 days after planting.
- **DO NOT** plant any crop other than those listed on a difenoconazole, mefenoxam, thiabendazole and tebuconazole label within 31 days to fields in which this treated seed is planted.
- Excess treated seed may be used for ethanol production 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.
- The maximum application rate for metalaxyl or mefenoxam must not exceed 12.3 lb ai/A per calendar year or the lesser value listed in the crop use section.
- Maximum usage when applying both mefenoxam- and metalaxyl-containing products to the same crop within the same season: Do not apply more than the maximum yearly total application rate for the active ingredient as stated on the label of the product containing the lowest yearly total on that crop.

NON-TARGET ORGANISM ADVISORY STATEMENT: This product may adversely impact non-target organisms feeding on treated seeds. Protect the non-target organisms by following label directions intended to minimize availability of treated seed to non-target organisms.

- Cover or collect treated seeds spilled during loading and planting in areas (such as in row ends).
- Dispose of all excess treated seed by burying seed away from bodies of water.

CROP SPECIFIC USE INSTRUCTIONS

RESTRICTIONS:

- **DO NOT** apply this product by ground or air as a foliar spray or in-furrow application to any crop or use site.
- Treated seed must be planted into the soil at a depth of at least 1 inch.
- **DO NOT** apply this product using hopper-box or planter-box treatment methods at planting time.
- **DO NOT** plant treated seed by broadcast methods.
- **DO NOT** plant any crop other than those on this label within 31 days to fields in which treated seeds were planted.
- **DO NOT** use treated seed for feed, food, or oil purposes.
- **DO NOT** allow children, pets or livestock to have access to treated seed.

SEED TREATMENT USE RATE (all crops listed)			
Rate of this product / 100 lbs. seed	Active Ingredient	g a.i. / 100 lbs	g a.i. / 100 kg
5.0 fl. oz. (147.9 mL)	Difenoconazole	5.5g (0.012 lb)	12.1g (0.027 lb)
	Mefenoxam	2.3g (0.005 lb)	5.1g (0.011 lb)
	Thiabendazole	2.9g (0.006 lb)	6.4g (0.014 lb)
	Tebuconazole	0.9g (0.002 lb)	2.0g (0.004 lb)
Crop	Diseases Controlled	Diseases Partially Controlled ¹	
Barley	General Seed Rots ² Covered Smut Loose Smut Pythium Damping-Off Fusarium Damping-Off	Early season Common Root Rot (<i>Cochliobolus</i> spp.) Early season Fusarium Root Rot Early season Rhizoctonia Root Rot Early season suppression of Leaf Rust and Powdery Mildew	
Barley Restrictions: DO NOT apply more than 0.46 lb ai/A/yr difenoconazole, 12.3 lb ai/A/yr mefenoxam, 0.15 lb ai/A/yr thiabendazole, or 0.113 lb ai/A/yr tebuconazole. Regardless of application method, DO NOT apply more than 0.46 lb ai/A/yr difenoconazole, 12.3 lb ai/A/yr mefenoxam, 0.15 lb ai/A/yr thiabendazole or 0.113 lb ai/A/yr tebuconazole. Green barley forage may not be grazed until 30 days after planting.			
Oats	General Seed Rots ² Covered Smut Loose Smut Pythium Damping-Off Fusarium Damping-Off	Early season Common Root Rot (<i>Cochliobolus</i> spp.) Early season Fusarium Root Rot Early season Rhizoctonia Root Rot	
Oats Restrictions: Regardless of application method, DO NOT apply more than 0.46 lb ai/A/yr difenoconazole, 12.3 lb ai/A/yr mefenoxam, 0.15 lb ai/A/yr thiabendazole or 0.113 lb ai/A/yr tebuconazole.			
Triticale	General Seed Rots ² Loose Smut Pythium Damping-Off Fusarium Damping-Off Dwarf Bunt	Common Root Rot (<i>Cochliobolus</i> spp.) Fusarium Crown and Foot Rot Take All	
Triticale Restrictions: Regardless of application method, DO NOT apply more than 0.46 lb ai/A/yr difenoconazole, 12.3 lb ai/A/yr mefenoxam, 0.15 lb ai/A/yr thiabendazole or 0.113 lb ai/A/yr tebuconazole.			

Winter Wheat	General Seed Rots ² Common Bunt ³ Dwarf Bunt Flag Smut Loose Smut Pythium Damping-Off Stinking Smut	Early season Common Root Rot (<i>Cochliobolus</i> spp.) Fusarium Seed Scab Early season Fusarium Root Rot Early season Rhizoctonia Root Rot Seed-borne Septoria Early season suppression of Leaf Rust and Powdery Mildew
<p>Winter Wheat Restrictions: DO NOT apply more than 0.46 lb ai/A/yr difenoconazole, 12.3 lb ai/A/yr mefenoxam, 0.15 lb ai/A/yr thiabendazole, or 0.113 lb ai/A/yr tebuconazole.</p> <p>Regardless of application method, DO NOT apply more than 0.46 lb ai/A/yr difenoconazole, 12.3 lb ai/A/yr mefenoxam, 0.15 lb ai/A/yr thiabendazole or 0.113 lb ai/A/yr tebuconazole.</p> <p>Green wheat forage may not be grazed until 55 days after planting.</p>		
Spring Wheat	General Seed Rots ² Common Bunt ³ Seed-borne Septoria Loose Smut Pythium Damping-Off Fusarium Damping-Off	Early season Common Root Rot (<i>Cochliobolus</i> spp.) Early season Fusarium Root Rot Early season Rhizoctonia Root Rot
<p>Spring Wheat Restrictions: DO NOT apply more than 0.46 ai/A/yr difenoconazole, 12.3 ai/A/yr mefenoxam, 0.15 ai/A/yr thiabendazole, or 0.113 ai/A/yr tebuconazole.</p> <p>Regardless of application method, DO NOT apply more than 0.46 lb ai/A/yr difenoconazole, 12.3 lb ai/A/yr mefenoxam, 0.15 lb ai/A/yr thiabendazole or 0.113 lb ai/A/yr tebuconazole.</p> <p>Green wheat forage may not be grazed until 55 days after planting.</p>		

¹ Partial control can either mean erratic control from good to poor, or consistent control at a level below that is generally considered acceptable for commercial disease control.

² General seed rots controlled include those caused by saprophytic organisms such as *Penicillium* spp. and *Aspergillus* spp.

³ This product controls both seed-borne and soil-borne common bunt.

STORAGE AND DISPOSAL

DO NOT contaminate water, food, or feed by storage or disposal.

PESTICIDE STORAGE: Keep container tightly closed when not in use. Store out of the reach of children.

PESTICIDE DISPOSAL: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER HANDLING (less than 5 gallons)

Non-refillable container. **DO NOT** reuse or refill this container. Offer for recycling if available. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use and disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill.

CONTAINER HANDLING [greater than 5 gallons]

Refillable container. Refill this container with **FIRST DEFENSE CEREALS ZX** only. **DO NOT** reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the person refilling. To clean container before final disposal, empty the

remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill.

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