

2012-2490  
2013-08-22

GROUP	3	11	HERBICIDE
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### TWINLINE™ Fungicide

LIQUID

AGRICULTURAL

Broad spectrum fungicide for use in cereals.

**GUARANTEE:**      Pyraclostrobin.....130 g/L  
                         Metconazole ..... 80 g/L

**REGISTRATION NO.**      30337

**PEST CONTROL PRODUCTS ACT**



**DANGER**

**POISON**

EYE and SKIN IRRITANT

**READ THE LABEL AND ATTACHED BROCHURE BEFORE USING.  
KEEP OUT OF REACH OF CHILDREN.**

**IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY  
INVOLVING THIS PRODUCT, CALL DAY OR NIGHT,  
1-800-454-2673**

**NET CONTENTS: 0.100 to 10,000L**

BASF Canada Inc.  
100 Milverton Drive  
5<sup>th</sup> Floor  
Mississauga, Ontario  
L5R 4H1  
1-877-371-2273

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## **PRECAUTIONS**

1. **KEEP OUT OF REACH OF CHILDREN.**
2. Fatal or Poisonous if swallowed. Do not take internally. Harmful if inhaled. Avoid inhaling/breathing dusts, sprays, etc.
3. Severely irritating to the eye and may irritate skin. **DO NOT** get in eyes or on skin.
4. Wash thoroughly after handling and before eating, drinking or smoking.
5. **All mixer/loaders and applicators (except aerial applicators):** Wear coveralls over long sleeved shirt, long pants, chemical resistant gloves, socks and footwear during mixing/loading, application, clean-up and repair. In addition wear goggles/face shield during mixing/loading, clean-up and repair. Gloves are not required during application.

**Aerial applicators:** Wear long sleeved shirt, long pants, socks and footwear during application.

When handling more than 185L of **TWINLINE Fungicide** per day, use closed mixing/loading systems.

Use closed cab tractor for ground boom application. A closed cab is a chemical resistant barrier that completely surrounds the occupant of the cab and prevents contact with the pesticide or treated surfaces outside the cab.

6. If clothing becomes contaminated, remove and wash separately from household laundry before reuse.
7. Clean spray equipment thoroughly after use.
8. Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.
9. If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's website at [www.croplife.ca](http://www.croplife.ca).

## **FIRST AID**

**If swallowed:** Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. 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.

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

## **TOXICOLOGICAL INFORMATION**

The patient should be treated symptomatically. Contains petroleum distillate – vomiting may cause aspiration pneumonia.

## **ENVIRONMENTAL HAZARDS**

Toxic to aquatic organisms, non-target terrestrial plants and small wild mammals. This product contains petroleum distillates that are toxic to aquatic organisms.

Observe buffer zones specified under DIRECTIONS FOR USE.

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.

The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (e. g. sandy soil) and/or the depth to the water table is shallow.

## **STORAGE**

1. Store in original tightly closed container. Protect from freezing.
2. Do not ship or store near food, feed, seed and fertilizers.
3. Store in cool, dry, locked, well-ventilated area without floor drain.

## **DISPOSAL**

### **FOR RECYCLABLE CONTAINERS**

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for any further use.

If there is no container collection site in your area, 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.

### **For Non-Returnable Containers**

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Follow provincial instructions for any required additional cleaning of the container prior to its disposal.
3. Make the empty container unsuitable for further use.
4. Dispose of the container in accordance with provincial requirements.
5. For information on the 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.

### **For Returnable-Refillable Containers**

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

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.

### **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.

### **GENERAL INFORMATION**

This package contains **TWINLINE Fungicide**, a 210 g/L emulsifiable concentrate. The active ingredient in **TWINLINE Fungicide** belongs to the triazole and strobilurin class of fungicides.

### **DIRECTIONS FOR USE** (See specific sections for each crop group)

For control of the cereal leaf diseases listed below, apply 0.38 to 0.5 L of **TWINLINE Fungicide** per hectare. For the suppression of Fusarium head blight, apply 1.14 L of **TWINLINE Fungicide** per hectare. **TWINLINE Fungicide** can be applied with either ground or aerial application equipment. Equipment should be checked frequently for proper application.

### **Cereals Application Rate Table (Ground and aerial application)**

<b>Crop</b>	<b>Disease</b>	<b>Application Rate (L/ha)</b>
Barley	Net blotch ( <i>Pyrenophora teres</i> ) Spot blotch ( <i>Cochliobolus sativus</i> ) Scald ( <i>Rhynchosporium secalis</i> ) Stripe rust ( <i>Puccinia striiformis</i> )	0.38 – 0.5

Wheat (all types) Triticale	Tan spot ( <i>Pyrenophora tritici-repentis</i> ) Septoria leaf spot ( <i>Septoria tritici</i> or <i>Stagonospora nodorum</i> ) Leaf rust ( <i>Puccinia recondita</i> ) Spot blotch ( <i>Cochliobolus sativus</i> ) Stripe rust ( <i>Puccinia striiformis</i> ) Powdery mildew ( <i>Erysiphe graminis</i> f. sp. <i>tritici</i> )	
Oat	Crown rust ( <i>Puccinia coronata</i> )	
Rye	Leaf Rust ( <i>Puccinia recondita</i> ) Powdery Mildew ( <i>Erysiphe graminis</i> )	
Barley, Rye, Wheat (all types), Triticale	For suppression of Fusarium head blight ( <i>Fusarium graminearum</i> ) Includes control of all leaf diseases controlled by lower application rates	1.14

**Application Directions:**

**Leaf Diseases in Cereals:**

For optimal leaf disease control, begin applications of **TWINLINE Fungicide**, prior to disease development or at the onset of disease symptoms. Use 0.38 to 0.5 L/ha of **TWINLINE Fungicide** to control of leaf disease. Utilize the 0.5 L/ha rate to obtain extended protection with maximum yield benefits.

**Suppression of Fusarium Head Blight in Cereals:**

The risk of Fusarium head blight (FHB) in cereals is greater when the weather is warm and wet at head emergence and flowering. The application of **TWINLINE Fungicide** for suppression of FHB should be considered when these environmental conditions are forecasted. To maximize yield and suppress FHB, apply **TWINLINE Fungicide** at a rate of 1.14 L/ha to wheat and rye when crops are at the 20% flowering stage (GS 61-63 BBCH) using sprayer nozzles configured to provide excellent coverage of the cereal head. For barley, apply **TWINLINE Fungicide** at a rate of 1.14 L/ha between full head emergence to up to 3 days after full emergence of main stem heads. Application of **TWINLINE Fungicide** will reduce the Fusarium toxin (DON) in harvested grain.

Resistance Management: DO NOT make more than two (2) applications of **TWINLINE Fungicide** per season.

Minimum spray interval is 10 – 14 days.

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) medium classification. Boom height must be 60 cm or less above the crop or ground.

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) medium classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

**Buffer zones:**

Use of the following spray methods or equipment **DOES NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment.

The 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.

Method of application	Crop		Buffer Zones (metres) Required for the Protection of:				Terrestrial Habitats
			Freshwater Habitat of Depths:		Estuarine/Marine Habitats of Depths:		
			Less than 1 m	Greater than 1 m	Less than 1 m	Greater than 1 m	
Field sprayer	Barley, wheat (all types), triticale, oat, rye		5	1	1	1	1
Aerial	Barley, wheat (all types), triticale, oat, rye	Fixed and rotary wing	250	10	10	1	10

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) 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.

## General Restrictions

As this product 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.

## Ground Application

Apply **TWINLINE Fungicide** at rates listed in application rate and timing table (crop specific) when conditions are favourable for the development of disease. Use a minimum water volume of 100 L/ha. Ensure thorough coverage of foliage. Consult nozzle manufacturers recommendation for spray pressures for specific nozzles.

## Aerial Application

Apply **TWINLINE Fungicide** at rates listed in the application rate and timing tables (crop specific) when conditions are favourable for the development of disease. Use a minimum water volume of 50 L/ha. Ensure thorough coverage of foliage. Consult nozzle manufacturers recommendaton for spray pressures for specific nozzles.

## Instructions for Aerial Applications

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, this product cannot be applied by any type of aerial equipment.

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

## Use Precautions

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. Specified buffer zones should be observed.



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 1-877-371-BASF (2273) or obtain technical advice from the distributor or your provincial agricultural representative.

### **Buffer Zone for Aerial Application**

Aerial drift is increased under certain meteorological conditions. Do not apply during periods of dead calm, when winds are gusty or when wind speed is greater than 16 km/hour at flying height at the site of application.

For the protection of non-target habitats, overspray or drift to sensitive habitats must be avoided. A buffer zone of 5 metres is required between the downwind point of direct application and the closest edge of sensitive terrestrial habitats including grasslands, forested areas, shelter belts, woodlots, hedgerows, pastures, rangelands and shrublands. The buffer zones specified in the table below are required between the downwind point of direct application and the closest edge of sensitive aquatic habitats such as lakes, rivers, sloughs, ponds, coulees, prairie potholes, creeks, marshes, streams, reservoirs and wetlands. Do not contaminate these habitats when cleaning and rinsing spray equipment or containers.

## **RESISTANCE MANAGEMENT RECOMMENDATIONS**

## Mode of Action

Metconazole, one of the active ingredients of **TWINLINE Fungicide**, is classified by the Fungicide Resistance Action Committee (FRAC) as a Target Site of Action Group 3 Fungicide. Pyraclostrobin, the other active ingredient of **TWINLINE Fungicide**, is classified by FRAC as a Target Site of Action Group 11 Fungicide.

## Resistance management

**TWINLINE Fungicide** contains metconazole, a Group 3 fungicide and pyraclostrobin a Group 11 fungicide. Any fungal population may contain individuals naturally resistant to Group 3 and 11 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 a site of action but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance management strategies should be followed.

The following recommendations may be considered to delay the development of fungicide resistance:

1. **Applications:** Where possible, rotate the use of **TWINLINE Fungicide** or other Group 3 or 11 fungicides with different groups that control the same pathogens. Adhere to the label instructions regarding the consecutive use of **TWINLINE Fungicide** or other target site of action Group 3 or 11 fungicides that have a similar site of action on the same pathogens. To maintain the performance of **TWINLINE Fungicide** in the field, do not exceed the total number of sequential applications of **TWINLINE Fungicide** and the total number of applications of **TWINLINE Fungicide** per season as stated below in the Restrictions and Limitations table.
2. **IPM:** **TWINLINE Fungicide** should be integrated into an overall disease and pest management program. Use should be based on an IPM program that includes scouting, historical information related to pesticide use and crop rotation and considers cultural, biological and other chemical control practices.
3. **Monitor:** Monitor efficacy of all fungicides used in the disease management program against the targeted pathogen and record other factors that may influence fungicide performance and/or disease development. 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 target site of action, if available.
4. **Reporting:** If a Group 3 or 11 target site fungicide, such as **TWINLINE Fungicide**, appears to be less or no longer effective against a pathogen that it previously controlled or suppressed, contact a BASF-representative, local extension specialist, or certified crop advisor to assist in determining the cause of reduced performance.

5. Consult your local extension specialist, certified crop advisor and/or BASF for additional IPM strategies established for your area. **TWINLINE Fungicide** may be used in Agricultural Extension advisory (disease forecasting) programs, which recommend application timing based on environmental factors favorable for disease development.

**MIXING**

1. Clean spray tank following sprayer clean-up recommendations on the label of the product applied previously.
2. Fill the spray tank one-half full of water and start agitation.
3. Add the required amount of **TWINLINE Fungicide** to the tank.
4. Agitate.
5. Continue agitation while filling the remainder of the spray tank .
6. After use, clean the spray tank.

**RESTRICTIONS AND LIMITATIONS**

1. Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 6 days.
2. Crop preharvest interval and application limitation:

<b>Crop</b>	<b>Application to harvest interval (days)</b>	<b>Maximum number of applications per year</b>	<b>Maximum number of sequential applications</b>
Wheat, barley, oats, rye	Apply no later than the end of flowering	2	2

3. Rotational Crops: a plant-back interval of 35 days is required for all crops not listed on the Tinline Fungicide label.

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