PEEL HERE ➤

Group 3 | 11 Fungicide

BASF
The Chemical Company

Twinline®

Fungicide

STATE OF HAWAII
Department of Agriculture
ACCEPTED
LICENSE NO. 9131.134

For use in disease control and plant health in the following crops: barley, cotton, oats, rye, triticale, and wheat

Active Ingredients:

pyraclostrobin*: (carbamic acid, [2-[[[1-(4-chlorophenyl)-1*H*-pyrazol-3-yl]oxy]methyl]phenyl]methoxy-,methyl ester) 12.0%

metconazole**: 5-[(4-chlorophenyl)methyl]-2,2-dimethyl-1-(1*H*-1,2,4-triazol-1-ylmethyl)cyclopentanol 7.4%

Other Ingredients***: 80.6%

Total: 100.0%

* Equivalent to 1.083 pounds of pyraclostrobin per gallon
** Equivalent to 0.67 pound of metconazole per gallon
*** Contains petroleum distillates

EPA Reg. No. 7969-247 **EPA Est. No. 51036-GA-001**

KEEP OUT OF REACH OF CHILDREN

WARNING/AVISO

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.
(If you do not understand this label, find someone to explain it to you in detail.)

See inside for complete **First Aid**, **Precautionary Statements**, **Directions For Use**, **Conditions of Sale and Warranty**, and state-specific crop and/or use site restrictions.

In case of an emergency endangering life or property involving this product, call day or night 1-800-832-HELP (4357).

Net Contents: 2.5 gallons

Product of U.S.A.

BASF Corporation
26 Davis Drive, Research Triangle Park, NC 27709

81045694
NVA 2013-05-268-0550

FIRST AID	
If swallowed	• Call a poison control center or doctor immediately for treatment advice. • **DO NOT** give any liquid to the person. • **DO NOT** induce vomiting unless told to do so by a poison control center or doctor. • **DO NOT** give anything to an unconscious person.
If in eyes	• Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. • Remove contact lenses, if present, after first 5 minutes; then continue rinsing eyes. • Call a poison control center for treatment advice.
If on skin or clothing	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15 to 20 minutes. • Call a poison control center 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 mouth to mouth, if possible. • Call a poison control center for further treatment advice.
Note to physician: Probable mucosal damage may contraindicate the use of gastric lavage. Contains petroleum distillates - vomiting may cause aspiration pneumonia.	
HOTLINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact BASF Corporation for emergency medical treatment information at 1-800-832-HELP (4357).	

Precautionary Statements

Hazards to Humans and Domestic Animals

WARNING. May be fatal if swallowed. Causes substantial but temporary eye injury. **DO NOT** get in eyes or clothing. Harmful if inhaled. Avoid breathing vapor or spray mist.

Personal Protective Equipment (PPE)

Some materials that are chemically resistant to this product are listed below. For more options, refer to **Category A** on an EPA chemical-resistance category selection chart.

Applicators and other handlers must wear:

- Coveralls over short-sleeved shirt and short pants
- Protective eyewear (goggles, face shield, or safety glasses with front, brow, and temple protection)
- Socks
- Chemical-resistant footwear
- Chemical-resistant gloves made of any waterproof material (such as nitrile, butyl, neoprene and/or barrier laminate)
- Chemical-resistant headgear for overhead exposure
- Chemical-resistant apron when cleaning equipment, mixing, and loading

Follow the manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering Controls Statement

When handlers use closed systems, enclosed cabs, or aircraft 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 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 birds, mammals, fish and aquatic invertebrates. Drift or runoff may be hazardous to aquatic organisms in water adjacent to treated 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 disposing of equipment wash water or rinsate.

DO NOT discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. **DO NOT** discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA.

This product is toxic to bees exposed to direct treatment or residues on blooming crops or weeds. **DO NOT** apply this product if bees are visiting the treatment area.

Groundwater Advisory

This chemical has properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

Surface Water Advisory

Metconazole and pyraclostrobin 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.

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 (WPS), 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), notification to workers, 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 **12 hours** for all crops.

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, is:

- Coveralls
- Protective eyewear (goggles, face shield, or safety glasses with front, brow, and temple protection)
- Chemical-resistant gloves made of any waterproof material (such as nitrile, butyl, neoprene, and/or barrier laminate)
- Shoes plus socks

STORAGE AND DISPOSAL

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

Pesticide Storage

Store in original containers only. Keep container closed when not in use. **DO NOT** store near food or feed.

Pesticide Disposal

Wastes resulting from using this product may be disposed of on-site or at an approved waste disposal facility. If these wastes cannot be disposed of according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representatives at the nearest EPA Regional Office for guidance.

(continued)

STORAGE AND DISPOSAL *(continued)*

Container Handling

Nonrefillable Container. DO NOT reuse or refill this container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying; then offer for recycling, if available, or reconditioning, if appropriate, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

Triple rinse containers small enough to shake (capacity ≤ 5 gallons) 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 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank, or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

Triple rinse containers too large to shake (capacity > 5 gallons) as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank, or store rinsate for later use or disposal. Repeat this procedure two more times.

Pressure rinse as follows: Empty the remaining contents into application equipment or mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank, or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Refillable Container. Refill this container with pesticide only. **DO NOT** reuse this container for any other purpose. Triple rinsing the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller.

Triple rinse as follows: To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10% 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.

When this container is empty, replace the cap and seal all openings that have been opened during use; return the container to the point of purchase or to a designated location. This container must only be refilled with a pesticide product. Prior to refilling, inspect carefully for damage such as cracks, punctures, abrasions, worn-out threads and closure devices. Check for leaks after refilling and before transport. **DO NOT** transport if this container is damaged or leaking. If the container is damaged, or leaking, or obsolete and not returned to the point of purchase or to a designated location, triple rinse emptied container and offer for recycling, if available, or dispose of container in compliance with state and local regulations.

In Case of Emergency

In case of large-scale spillage regarding this product, call:

- CHEMTREC 1-800-424-9300
- BASF Corporation 1-800-832-HELP (4357)

In case of medical emergency regarding this product, call:

- Your local doctor for immediate treatment
- Your local poison control center (hospital)
- BASF Corporation 1-800-832-HELP (4357)

Steps to be taken in case material is released or spilled:

- In case of spill on floor or paved surfaces, mop and remove to chemical waste storage area until proper disposal can be made if product cannot be used according to label.
- Dike and contain the spill with inert material (sand, earth, etc.) and transfer liquid and solid diking material to separate containers for disposal.
- Remove contaminated clothing and wash affected skin areas with soap and water.
- Wash clothing before reuse.
- Keep the spill out of all sewers and open bodies of water.

Product Information

Twinline® fungicide is a broad-spectrum fungicide containing two active ingredients, pyraclostrobin and metconazole. **Twinline** provides systemic, curative and long-lasting residual control of target plant diseases.

To maximize disease control, apply **Twinline** in a regularly scheduled protective spray program and use in a rotation program with other fungicides.

Preventative applications of **Twinline** optimize disease control resulting in improved plant health. Overall increased plant health may result in an improvement in crop growth and crop quality as well as increased crop yields.

Information regarding the contents and levels of metals in this product is available on the Internet at http://www.aapfco.org/metals.htm.

Twinline is not for use in greenhouse or transplant production.

Mode of Action

Each of the components in **Twinline** provides a different mode of action against plant pathogenic fungi. Pyraclostrobin belongs to the group of respiration inhibitors classified by the US EPA and Canada PMRA as Quinone Outside Inhibitors (QoI) or target site of action **Group 11** fungicides. Metconazole inhibits demethylation of sterol biosynthesis (DMI), disrupting cell membrane synthesis or target site of action **Group 3** fungicides.

Resistance Management

Twinline contains pyraclostrobin, a **Group 11** fungicide, and is effective against pathogens resistant to fungicides with modes of action different from those of QoI fungicides (target site **Group 11**), such as dicarboximides, sterol inhibitors, benzimidazoles, or phenylamides.

Fungal isolates resistant to **Group 11** fungicides, such as pyraclostrobin, azoxystrobin, fluoxastrobin, trifloxystrobin, and kresoxim-methyl, can eventually dominate the fungal population if **Group 11** fungicides are used predominantly and repeatedly in the same field in successive years as the primary method of control for the targeted pathogen species. This can result in reduction of disease control by **Twinline** or other **Group 11** fungicides.

To maintain the performance of **Twinline** in the field, **DO NOT** exceed the maximum seasonal use rate or the total number of applications of **Twinline** per season and the maximum number of applications of **Twinline** stated in **Restrictions and Limitations - All Crops** and **Table 2. Twinline® fungicide Crop-specific Requirements**. Follow the label instructions for use of **Twinline** or other target site of action **Group 11** fungicides that have a similar site of action on the same pathogens.

Resistance Management Advisory

The following instructions may delay the development of fungicide resistance:

1. **Tank Mixtures** - Use tank mixtures with effective fungicides from different target site of action groups that are registered/permitted for the same use and that are effective against the pathogens of concern.

   Use at least the minimum labeled rates of each fungicide in the tank mix.

2. **IPM** - Integrate **Twinline** into an overall disease and pest management program. Follow cultural practices known to reduce disease development. Consult your local extension specialist, certified crop advisor and/or BASF representative for additional IPM strategies established for your area. **Twinline** can be used in agricultural extension advisory (disease forecasting) programs which recommend application timing based on environmental factors favorable for disease development.

3. **Monitoring** - 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.

Cleaning Spray Equipment

Clean spray equipment thoroughly before and after applying this product, particularly if a product with the potential to injure crops was used prior to **Twinline**.

Directions For Use Through Sprinkler Irrigation Systems

Sprayer Preparation

Chemical tank and injector system must be thoroughly cleaned. Flush system with clean water.

Application Instructions

Apply **Twinline** at rates and timings as required in this label.

Use Directions for Sprinkler Irrigation Applications

- Apply this product only through sprinkler irrigation systems including center pivot, lateral move, end tow, side [wheel] roll, traveler, big gun, solid set, or hand move irrigation systems. **DO NOT** apply this product through any other type of irrigation system.
- Add this product to the pesticide supply tank containing sufficient water to maintain a continuous flow by the injection equipment. In continuous moving systems, inject this product/water mixture continuously, applying the labeled rate per acre for that crop. **DO NOT** exceed 1/2 inch (13,577 gallons) per acre. In stationary or non-continuous moving systems, inject the product/water mixture in the last 15 to 30 minutes of each set allowing sufficient time for all of the required pesticide to be applied by all the sprinkler heads and applying the labeled rate per acre for that crop. **DO NOT** apply when wind speed favors drift beyond the area intended for treatment. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water. Thorough coverage of foliage is required for good control. Good agitation should be maintained during the entire application period.
- If you have questions about calibration, you should contact state extension service specialists, equipment manufacturers or other experts.
- 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 backflow.

- 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 that 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.
- Allow sufficient time for pesticide to be flushed through all lines and all nozzles before turning off irrigation water. A person knowledgeable of the chemigation system and responsible for its operation, or under supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.
- **DO NOT** connect an irrigation system used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

Specific Instructions for Public Water Systems

1. 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.
2. Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, back-flow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged 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.
3. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
4. 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.
5. 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.
6. 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.

Application Instructions

Apply **Twinline® fungicide** rates as instructed by **Table 2. Twinline® fungicide Crop-specific Requirements**. Apply **Twinline** with ground sprayer, aerial equipment or through sprinkler irrigation equipment. Check equipment frequently for calibration.

Under low-level disease conditions, use minimum application rates. For severe or threatening disease conditions, use maximum application rates and shortened intervals.

Ground Application

DO NOT use less than 5 gallons per acre (gpa) sray volume for ground applications. Thorough coverage of foliage, blooms, and fruit is required for optimum disease control. The use of a nonionic surfactant at the lowest labeled rate may be used to improve spray coverage. Refer to the adjuvant product label for specific use directions.

DO NOT use adjuvants that contain methylated seed oil, crop oil concentrate or crop oil with emulsifier properties.

Aerial Application

For aerial application in New York State, DO NOT apply within 100 feet of aquatic habitats (such as, but not limited to lakes, reservoirs, rivers, streams, marshes, ponds, estuaries, and commercial fish ponds).

DO NOT apply when conditions favor drift from target area. **DO NOT** use less than 2 gallons per acre (gpa) spray volume on barley, oats, rye, triticale, and wheat. **DO NOT** use less than 5 gallons per acre (gpa) spray volume on cotton.

For all aerial application volumes (gpa), the use of a nonionic surfactant at the lowest labeled rate can be used to improve spray coverage. Refer to the adjuvant product label for specific use directions. **DO NOT** use adjuvants that contain methylated seed oil, crop oil concentrate or crop oil with emulsifier properties. Select spray nozzles, pumping pressure, and sprayer height to provide medium-to-fine spray droplets that penetrate throughout the crop canopy. Spray calibration must be conducted to confirm spray droplet sizes. Continue to monitor spray application (including weather conditions) to assure proper droplet size and canopy penetration.

Spray Drift Management

DO NOT spray when conditions favor drift beyond area intended for application. Conditions which may contribute to drift include thermal inversion, wind speed and direction, spray nozzle/pressure combinations, spray droplet size, temperature/humidity, etc. Contact your state extension agent for spray drift prevention guidelines in your area. All aerial and ground application equipment must be properly maintained and calibrated using appropriate carriers. Avoiding spray drift at the application site is the responsibility of the applicator.

Aerial Application Methods and Equipment

The interaction of many equipment-related and weather-related factors determines the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions.

DO NOT apply under circumstances where possible drift to endangered species, unprotected persons, to food, forage, or other plantings that might be damaged, or crops thereof rendered unfit for sale, use or consumption can occur.

DO NOT release spray at a height greater than 10 feet above the crop canopy unless a greater height is required for aircraft safety.

The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops. These requirements **DO NOT** apply to forestry applications, public health uses or to applications using dry formulations.

1. The distance of the outermost nozzles on the boom must not exceed 3/4 the length of the fixed wingspan or 90% of the rotor blade diameter.
2. Nozzles must always point backward parallel with the air stream and never be pointed downward more than 45 degrees.

Where states have more stringent regulations, they must be observed.

Information on Droplet Size

The most effective way to reduce drift potential is to apply large droplets. Use the largest droplet size consistent with acceptable efficacy. Applying larger droplets reduces drift potential but will not prevent drift if applications are made improperly or under unfavorable environmental conditions (see **Wind; Temperature and Humidity**; and **Temperature Inversions**).

Controlling droplet size:

- **Volume** - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- **Pressure** - **DO NOT** exceed the nozzle manufacturer's recommended pressures. For many nozzle types, lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.
- **Number of Nozzles** - Use the minimum number of nozzles that provide uniform coverage.
- **Nozzle Orientation** - Orienting nozzles so that the spray is released parallel to the air stream produces larger droplets than other orientations and is recommended practice. Significant deflection from the horizontal will reduce droplet size and increase drift potential.
- **Nozzle Type** - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid-stream nozzles oriented straight back produce the largest droplets and the lowest drift.

Wind

DO NOT apply at wind speeds greater than 15 mph. Drift potential is lowest when wind speed does not exceed 10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed.

Avoid applications below 2 mph due to variable wind direction and high inversion potential. Local terrain can influence wind patterns. Every applicator must be familiar with local wind patterns and how they affect spray drift.

Temperature and Humidity

Low humidity and high temperatures increase the evaporation of spray droplets and, therefore, the likelihood of increased spray drift. Avoid spraying during conditions of low humidity and/or high temperatures. When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

Temperature Inversions

Applications must not occur during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light, variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light-to-no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

Sensitive Areas

Only apply the pesticide when the potential for drift to adjacent sensitive areas (e.g. bodies of water or nontarget crops) is minimal and when wind is blowing away from the sensitive areas.

Additives and General Tank Mixing Information

Under some conditions, the use of additives or adjuvants may improve the performance of **Twinline® fungicide**. However, under some conditions, the use of additives or adjuvants with **Twinline** can cause adverse phytotoxicity. The addition of a nitrogen-based fertilizer may result in some crop leaf burn from the fertilizer. The addition of an emulsifiable concentrate (EC)-based insecticide can result in some crop leaf burn.

DO NOT tank mix with products containing a prohibition against tank mixing. Follow the most restrictive labeling requirements of any tank mix product.

Twinline can be tank mixed with most recommended fungicides. However, all varieties and cultivars have not been tested with possible tank mix combinations. Local conditions can also influence crop tolerance and may not match those under which BASF has conducted testing. Physical incompatibility, reduced disease control, or crop injury may result from mixing **Twinline** with other products. Therefore, before using any tank mix (fungicides, insecticides, herbicides, liquid fertilizers, biological control products, adjuvants and additives), test the combination on a small portion of the crop to be treated to ensure that a phyto-toxic response will not occur as a result of application.

Consult a BASF representative or local agricultural authorities for more information concerning additives.

When an adjuvant is to be used with this product, BASF recommends the use of a Chemical Producers and Distributors Association certified adjuvant.

Mixing Order

1. **Water** - Begin by agitating a thoroughly clean sprayer tank 3/4 full of clean water.
2. **Agitation** - Maintain constant agitation throughout mixing and application.
3. **Inductor** - If an inductor is used, rinse it thoroughly after each component has been added.
4. **Products in PVA bags** - Place any product contained in water-soluble PVA bags into the mixing tank. Wait until all water-soluble PVA bags have fully dissolved and the product is evenly mixed in the spray tank before continuing.
5. **Water-dispersible products** (such as **Twinline**, dry flowables, wettable powders, suspension concentrates, or suspo-emulsions)
6. **Water-soluble products**
7. **Emulsifiable concentrates** (or oil concentrates when applicable)
8. **Water-soluble additives** (such as ammonium sulfate (AMS) or urea ammonium nitrate (UAN) when applicable)
9. **Remaining quantity of water**

Make sure that each component is thoroughly mixed and suspended before adding tank mix partners. Maintain constant agitation during application. See **Table 2. Twinline® fungicide Crop-specific Requirements** for more details.

Restrictions and Limitations - All Crops

- **DO NOT** use less than 5 gallons per acre (gpa) spray volume for ground applications.
- For aerial applications, **DO NOT** use less than 2 gallons per acre (gpa) spray volume on barley, oats, rye, triticale, and wheat. **DO NOT** use less than 5 gallons per acre (gpa) spray volume on cotton.
- **DO NOT** exceed the maximum product rate (fl ozs/A) per year (season), the maximum product rate per application, or the total number of applications of **Twinline® fungicide** per year (season) as stated in **Table 1. Twinline® fungicide Restrictions and Limitations Overview** and **Table 2. Twinline® fungicide Crop-specific Requirements**. Preharvest interval (PHI) restrictions are also included in these tables.
- **DO NOT** apply more than the maximum annual use rate of ai/acre or fl ozs of product/acre for each specific crop from any combination of products containing pyraclostrobin or metconazole. To determine lbs of pyraclostrobin per acre, divide fl ozs of product/acre by 128, then multiply by 1.083. To determine lbs of metconazole per acre, divide fl ozs of product/acre by 128, then multiply by 0.67.
- **DO NOT** use **Twinline** in greenhouse or transplant production.
- **Feeding restrictions** - See **Table 2. Twinline® fungicide Crop-specific Requirements**.
- **For aerial application in New York State, DO NOT apply within 100 feet of aquatic habitats (such as, but not limited to lakes, reservoirs, rivers, streams, marshes, ponds, estuaries, and commercial fish ponds).**

Crop Rotation Restriction

Leafy vegetables and Brassica leafy vegetables can be planted 30 days after the last application.

Crops on this label (barley, cotton, oats, rye, triticale, wheat) plus canola, corn, peanuts, soybean, sugar beets, sugarcane, and tuberous and corm vegetables subgroup 1C can be planted immediately following the last application.

Dry beans, sorghum, and sunflower may be planted with a plant back interval (PBI) of 0-day.

All other crops may be planted 120 days after the last application.

Ground Applications Directed or Banded Sprays

The application rates shown in the following tables pertain to both aerial and ground (broadcast) methods of application. **Twinline** may also be applied as a directed or banded spray over the rows or plant beds with alleys or row middles left upsprayed. For such uses, reduce the labeled **Twinline** rate in proportion to the area actually sprayed. This adjustment is necessary to avoid applying the product at use rates higher than permitted on this label.

Use the following formula to determine the broadcast equivalent rate for applying directed or banded sprays:

sprayed bed width + unsprayed row middles = total row width

$$\frac{\text{sprayed bed width in inches}}{\text{total row width in inches}} \times \frac{\text{broadcast rate}}{\text{treated acres}} = \frac{\text{band rate}}{\text{field acre}}$$

EXAMPLE: Directed spray application to 45-inch plant beds separated by 15-inch unsprayed row middles at 12 fl ozs/A label broadcast rate.

45 inches sprayed bed width + 15 inches unsprayed row middles = 60 inches total row width

$$\frac{\text{45 inches sprayed bed width}}{\text{60 inches total row width}} \times \frac{\text{12 fl ozs } \textbf{Twinline}}{\text{treated acres}} = \frac{\text{9 fl ozs } \textbf{Twinline}}{\text{field acre}}$$

Table 1. Twinline® fungicide Restrictions and Limitations Overview*

Crop	Minimum Time from Application to Harvest (PHI) days	Maximum Product Rate per Application (fl ozs/A)	Maximum Number of Sequential Applications	Maximum Product Rate per Season (fl ozs/A)
Barley **Oats** **Rye** **Triticale** **Wheat**	Apply no later than the beginning of flowering (Zadok's 59 or Feekes 10.5).	9	2	18
Cotton**	30	8.5	2	26

*** See Table 2. Twinline® fungicide Crop-specific Requirements for complete directions and exceptions.**

**** Not for use in California unless otherwise directed by BASF labeling.**

Aerial application is permitted for all labeled crops. **For aerial application in New York State, DO NOT apply within 100 feet of aquatic habitats (such as, but not limited to lakes, reservoirs, rivers, streams, marshes, ponds, estuaries, and commercial fish ponds).**

Table 2. Twinline® fungicide Crop-specific Requirements

Crop	Target Disease	Product Use Rate per Application (fl ozs/A)	Maximum Number of Applications per Season*	Maximum Product Rate per Season** (fl ozs/A)	Minimum Time from Application to Harvest (PHI)
Barley **Oats** **Rye** **Triticale** **Wheat**	Black point, Kernel blight, Smudge *Alternaria* spp., *Cochliobolus sativus,* *Helminthosporium* spp. Leaf blotch *Pyrenophora* spp. Net blotch *Pyrenophora teres* Powdery mildew *Erysiphe graminis* Rust *Puccinia* spp. Scald *Rhynchosporium secalis* Septoria leaf and glume blotch *Septoria* spp., *Stagonospora* spp. Spot blotch *Cochliobolus sativus* Stripe rust *Puccinia striiformis* Tan spot Yellow leaf spot *Pyrenophora trichostoma*	7 to 9	2	18	Apply no later than the beginning of flowering (Zadok's 59 or Feekes 10.5).

Application Directions (Regular Season Sprays). For optimal disease control, begin **Twinline** applications prior to disease development. To maximize yields in cereals, it is important to protect the flag leaf. Apply **Twinline** immediately after flag leaf emergence for optimum results.

Use the higher rate and shorter interval when disease pressure is high.

Rates up to 9 fl ozs/A of **Twinline** can be used for severe disease pressure.

The minimum retreatment interval (RTI) is 6 days after the first application.

* **DO NOT** make more than 1 regular season spray when an early season spray is applied to barley, triticale, and wheat.

** The maximum product rate per season is 18 fl ozs/A for all applications (early and/or regular sprays).

Resistance Management. To limit the potential for development of resistance, **DO NOT** make more than two (2) **Twinline** applications per season.

DO NOT harvest barley hay within 14 days of last application.

See Application Directions for Early Season Disease Control in barley, triticale, and wheat.

(continued)

Application Directions (Early Season Spray)* *(continued)*

Crop	Target Disease	Product Use Rate per Application (fl ozs/A)	Maximum Number of Applications per Season	Maximum Product Rate per Season (fl ozs/A)	Minimum Time from Application to Harvest (PHI)
Barley **Triticale** **Wheat**	Septoria leaf *Septoria* spp., Spot blotch *Cochliobolus sativus* Tan spot Yellow leaf spot *Pyrenophora trichostoma*	6 to 9	1	9	Apply no later than the beginning of flowering (Zadok's 59 or Feekes 10.5).
	Suppression Only: Leaf blotch *Pyrenophora* spp. Powdery mildew *Erysiphe graminis* Stripe rust *Puccinia striiformis*				

Application Directions for Early Season Disease Control. Apply 6 to 9 fl ozs/A of **Twinline® fungicide** either in combination with a herbicide application or when conditions favor disease development prior to flag leaf emergence. When the early season application is used, a second **Twinline** application (6 to 9 fl ozs/A) may be required to protect the emerged flag leaf. Environmental conditions and disease pressure at the time of flag leaf emergence are factors to determine the **Twinline** rate for the second application.

The minimum retreatment interval (RTI) is 6 days.

DO NOT harvest barley hay within 14 days of last application.

The combination of an early season spray plus a second regular season application after flag leaf emergence must not exceed 18 fl ozs/A per season.

Crop Tolerance. Under certain environmental conditions, **Twinline** demonstrates some phytotoxicity when mixed with EC formulated herbicides or insecticides and/or fertilizers. The possibility of phytotoxicity increases if applications are made under cool, cloudy conditions that persist for several days following application. **Twinline** applications with bromoxynil containing products can result in phytotoxicity if applied under cool, wet conditions.

Specific Use Requirements. Apply **Twinline** plus herbicide/insecticide tank mixes by air in a minimum of 5 gallons per acre (gpa) total spray volume. If applied by ground, apply a minimum of 10 gpa. Lower gpa applications can increase the risk of phytotoxicity. **DO NOT** use adjuvants that contain methylated seed oil, crop oil concentrate or crop oil with emulsifier properties. **DO NOT** apply **Twinline** if the final spray solution contains fertilizer at a concentration greater than 20% on a v/v basis. **DO NOT** use early season **Twinline** applications in bromoxynil based herbicide tank mixes in barley.

*Early season disease control is not registered for use in California.

(continued)

Table 2. Twinline® fungicide Crop-specific Requirements *(continued)*

Crop	Target Disease	Product Use Rate per Application (fl ozs/A)	Maximum Number of Applications per Season	Maximum Product Rate per Season (fl ozs/A)	Minimum Time from Application to Harvest (PHI) days
Cotton*	Alternaria leaf spot, boll rot *Alternaria* spp. Anthracnose, boll rot *Glomerella* spp. Ascochyta blight, boll rot *Ascochyta gossypii* Cercospora blight and leaf spot *Cercospora* spp. Diplodia boll rot *Diplopia* spp. Hard lock, boll rot *Fusarium* spp. Phoma blight, boil rot *Phoma* spp. Rust *Puccinia* spp., *Phykopsora* spp. Stemphyllium leaf spot *Stemphyllium* spp.	7 to 8.5	3	26	30
	Corynespora leaf spot *Corynespora cassiicola*	10 to 12	2	24	30

Application Directions. For optimal disease control, begin **Twinline** applications prior to disease development and continue on a 7 to 14 day schedule if conditions are conducive for disease development. Use the higher rate and shorter interval when disease pressure is high.

No livestock feeding restrictions.

Resistance Management. To limit the potential for development of resistance, **DO NOT** make more than two (2) sequential **Twinline** applications before alternating to another fungicide with a different mode of action.

* Not for use in California unless otherwise directed by BASF labeling.

Conditions of Sale and Warranty

The **Directions For Use** of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and must be followed carefully. However, it is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or use of the product in a manner inconsistent with its labeling, all of which are beyond the control of BASF CORPORATION ("BASF") or the Seller. To the extent consistent with applicable law, all such risks shall be assumed by the Buyer.

BASF warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes referred to in the **Directions For Use**, subject to the inherent risks, referred to above.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BASF MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS OR MERCHANTABILITY OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BUYER'S EXCLUSIVE REMEDY AND BASF'S EXCLUSIVE LIABILITY, WHETHER IN CONTRACT, TORT, NEGLIGENCE, STRICT LIABILITY, OR OTHERWISE, SHALL BE LIMITED TO REPAYMENT OF THE PURCHASE PRICE OF THE PRODUCT.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BASF AND THE SELLER DISCLAIM ANY LIABILITY FOR CONSEQUENTIAL, EXEMPLARY, SPECIAL OR INDIRECT DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT.

BASF and the Seller offer this product, and the Buyer and User accept it, subject to the foregoing **Conditions of Sale and Warranty** which may be varied only by agreement in writing signed by a duly authorized representative of BASF. 1108

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Based on: NVA 2013-04-268-0121
Supersedes: NVA 2012-04-268-0218

BASF Corporation
26 Davis Drive
Research Triangle Park, NC 27709

BASF
The Chemical Company

BASF

The Chemical Company

Group 3 11 Fungicide

Twinline®

Fungicide

For use in disease control and plant health in the following crops: barley, cotton, oats, rye, triticale, and wheat

Active Ingredients:

pyraclostrobin*: (carbamic acid, [2-[[[1-(4-chlorophenyl)-1*H*-pyrazol-3-yl]oxy]methyl]phenyl]methoxy-,methyl ester) 12.0%

metconazole**: 5-[(4-chlorophenyl)methyl]-2,2-dimethyl-1-(1*H*-1,2,4-triazol-1-ylmethyl)cyclopentanol..... 7.4%

Other Ingredients***: 80.6%

Total: 100.0%

* Equivalent to 1.083 pounds of pyraclostrobin per gallon

** Equivalent to 0.67 pound of metconazole per gallon

*** Contains petroleum distillates

EPA Reg. No. 7969-247 **EPA Est. No. 51036-GA-001**

KEEP OUT OF REACH OF CHILDREN
WARNING/AVISO

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand this label, find someone to explain it to you in detail.)

See attached booklet for complete **First Aid**, **Precautionary Statements**, **Directions For Use**, **Conditions of Sale and Warranty**, and state-specific crop and/or use site restrictions.

In case of an emergency endangering life or property involving this product, call day or night 1-800-832-HELP (4357).

FIRST AID: If swallowed: Call a poison control center or doctor immediately for treatment advice. **DO NOT** give any liquid to the person. **DO NOT** induce vomiting unless told to do so by a poison control center or doctor. **DO NOT** give anything to an unconscious person. **If in eyes:** Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after first 5 minutes; then continue rinsing eyes. Call a poison control center for treatment advice. **If on skin or clothing:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. Call a poison control center 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 mouth to mouth, if possible. Call a poison control center for further treatment advice. **Note to physician: Probable mucosal damage may contraindicate the use of gastric lavage. Contains petroleum distillates - vomiting may cause aspiration pneumonia. HOTLINE NUMBER:** Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact BASF Corporation for emergency medical treatment information at 1-800-832-HELP (4357). **Precautionary Statements: Hazards to Humans and Domestic Animals. WARNING.** May be fatal if swallowed. Causes substantial but temporary eye injury. **DO NOT** get in eyes or clothing. Harmful if inhaled. Avoid breathing vapor or spray mist. **Environmental Hazards:** This pesticide is toxic to birds, mammals, fish and aquatic invertebrates. Drift or runoff may be hazardous to aquatic organisms in water adjacent to treated 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 disposing of equipment wash water or rinsate. See attached booklet for complete Environmental Hazards, Groundwater Advisory and Surface Water Advisory.

STORAGE AND DISPOSAL:

DO NOT contaminate water, food or feed by storage or disposal. **Pesticide Storage:** Store in original containers only. Keep container closed when not in use. **DO NOT** store near food or feed. **Pesticide Disposal:** Wastes resulting from using this product may be disposed of on-site or at an approved waste disposal facility. If these wastes cannot be disposed of according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representatives at the nearest EPA Regional Office for guidance. **Container Handling: Nonrefillable Container. DO NOT** reuse or refill this container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying; then offer for recycling, if available, or reconditioning, if appropriate, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities. See attached booklet for complete container handling directions including triple rinsing and pressure rinsing instructions.

Net Contents: 2.5 gallons

Product of U.S.A.

BASF Corporation
26 Davis Drive
Research Triangle Park, NC 27709

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