

50534-211

10/26/2007

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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

WASHINGTON, D.C. 20460

OFFICE OF  
PREVENTION, PESTICIDES  
AND TOXIC SUBSTANCES

OCT 26 2007

Adora Clark, Ph.D.  
Syngenta Crop Protection, Inc.  
P.O. Box 18300  
Greensboro, NC 27419

SUBJECT: Label Amendment per Agency Letter Dated July 27, 2007  
Daconil ZN Flowable Fungicide  
EPA Reg. No. 50534-211  
Your Submission Dated August 24, 2007

Dear Dr. Clark:

In a letter dated July 27, 2007 the Agency requested that you add use site restriction language to the label for Chlorothalonil. The amended labeling referred to above, submitted in connection with registration under the Federal Insecticide Fungicide and Rodenticide Act (FIFRA), as amended, is acceptable provided that you.

1. Make the following changes to the label:

- On page 1, in the first aid section, subheading "If Swallowed", move the sentence "Call poison control center.....treatment advice." to the end of the section.

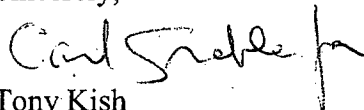
Submit one copy of your final printed labeling before you release the product for shipment.

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If you have any questions regarding this correspondence, contact Rose Kearns of my staff by phone at 703-305-5611 or via email at [kearns.rosemary@epa.gov](mailto:kearns.rosemary@epa.gov) or myself at 703-308-9443 or via email at [kish.tony@epa.gov](mailto:kish.tony@epa.gov).

Sincerely,



Tony Kish  
Product Manager (22)  
Fungicide Branch  
Registration Division (7504P)

Enclosure

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**Daconil Zn<sup>®</sup>**  
**Flowable Fungicide**

For control of turf and ornamental diseases

Active Ingredient:	
Chlorothalonil (tetrachloroisophthalonitrile) .....	38.5%
Other Ingredients:	61.5%
Total:	100.0%

Contains 4.16 pounds chlorothalonil active ingredient per gallon (500 grams per liter)

**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 the label, find someone to explain it to you in detail.)

See additional precautionary statements and directions for use inside booklet.

EPA Reg. No. 50534-211

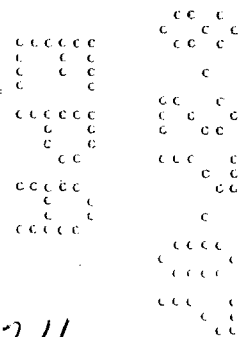
EPA Est.

SCP 50534-211A-XX XXXX

XX gallons  
Net Contents

**ACCEPTED**  
with **COMMENTS**  
In EPA Letter Dated  
**OCT 30 2007**  
Under the Federal Insecticide,  
Fungicide, and Rodenticide Act  
as amended, for the pesticide  
registered under EPA Reg. No.

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## PRECAUTIONARY STATEMENTS

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### Hazards to Humans and Domestic Animals

#### WARNING/AVISO

May be fatal if inhaled. Harmful if swallowed or absorbed through skin. Causes moderate eye irritation. Do not breathe spray mist. Avoid contact with skin, eyes, or clothing. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

#### Personal Protective Equipment (PPE)

##### Mixers, Loaders, Applicators and all other handlers must wear:

Some materials that are chemical-resistant to this product are made of any waterproof material. If you want more options, follow the instructions for Category A on an EPA chemical resistance category selection chart.

- long-sleeved shirt and long pants
- chemical resistant gloves made of any waterproof material
- shoes plus socks
- protective eyewear
- NIOSH approved dust/mist filtering respirator (MSHA/NIOSH approval number prefix TC-21C) or a NIOSH approved respirator with any N, R, P or HE filter.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

#### Engineering Control Statements

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.

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### 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 change into clean clothing.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

### Environmental Hazards

This product is toxic to aquatic invertebrates and wildlife. DO NOT apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Drift and runoff may be hazardous to aquatic organisms in neighboring areas. DO NOT contaminate water when disposing of equipment wash water or rinsate.

This chemical is 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 groundwater contamination.

This chemical can contaminate surface water through spray drift. Under some conditions, it may have a high potential for runoff into surface water for several days to weeks after application. These include poorly draining or wet soils with readily visible slopes towards adjacent surface waters, frequently flooded areas, areas overlaying extremely shallow ground water, areas with infield canals or ditches that drain to surface water, areas not separated from adjacent surface waters with vegetated filter strips, and areas over-laying tile drainage systems that drain to surface water.

### CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

**NOTICE:** Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product should be followed carefully. 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 manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of GB Biosciences Corporation or Seller. To the extent allowed by applicable law, all such risks shall be assumed by Buyer and User, and Buyer and User agree to hold GB Biosciences and Seller harmless for any claims relating to such factors.

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GB Biosciences warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. This warranty does not extend to the use of this product contrary to label instructions, or under abnormal conditions or under conditions not reasonably foreseeable to or beyond the control of Seller or GB Biosciences, and Buyer and User assume the risk of any such use. GB BIOSCIENCES MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

IT IS GB BIOSCIENCES' AND SELLER'S INTENTION THAT in no event shall GB Biosciences or Seller be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **TO THE EXTENT ALLOWED BY APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF GB BIOSCIENCES AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF GB BIOSCIENCES OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

GB Biosciences and Seller offer this product, and Buyer and User accept it, subject to the foregoing Conditions of Sale and Limitation of Warranty and Liability, which may not be modified except by written agreement signed by a duly authorized representative of GB Biosciences.

### DIRECTIONS FOR USE

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

Daconil Zn should be used only in accordance with recommendations on this label or in separately published GB Biosciences supplemental labeling recommendations for this product.

DO NOT apply this product in a way that will contact workers, other persons, or pets either directly or through drift. Only protected handlers may be in the area during application. For any requirement specific to your State or Tribe, consult the agency responsible for pesticide regulation.

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### 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 12 hours.**

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
- chemical resistant gloves made of any waterproof material
- shoes plus socks
- protective eyewear

Special Eye Irritation Provisions: This product is a severe eye irritant. Although the restricted-entry interval expires after 12 hours, for the next 6.5 days entry is permitted only when the following safety measures are provided:

(1) At least one container designed specifically for flushing eyes must be available in operating condition at the WPS-required decontamination site intended for workers entering the treated area.

(2) Workers must be informed, in a manner they can understand:

- that residues in the treated area may be highly irritating to their eyes
- that they should take precautions, such as refraining from rubbing their eyes, to keep the residues out of their eyes
- that if they do get residues in their eyes, they should immediately flush their eyes using the eyeflush container that is located at the decontamination site or using other readily available clean water
- how to operate the eyeflush container



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**Non-Agricultural Uses**

For use to control diseases on turf on golf courses, lawns around ~~institutional, public,~~ commercial and industrial buildings, ~~parks, recreational areas,~~ and professional and collegiate athletic fields.

**NOTE:** ~~Do not use on home lawns (turf).~~

For use to control diseases on ornamentals on golf courses and landscape areas around residential, institutional, public, commercial and industrial buildings, parks, recreational areas and athletic fields.

**NON-AGRICULTURAL USE REQUIREMENTS**

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

**DO NOT enter or allow others to enter the treated area until sprays have dried.**

**STORAGE AND DISPOSAL**

DO NOT contaminate water, food or feed by storage or disposal. Open dumping is prohibited.

**Pesticide Storage**

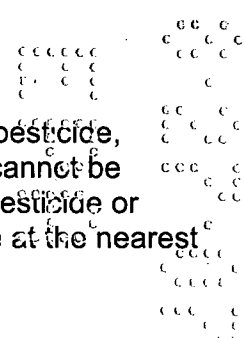
Store in a cool place. Protect from excessive heat.

**Pesticide Disposal**

Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, pesticide spray or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

**Container Disposal  
Plastic Containers**

Do not reuse empty container. Triple rinse (or equivalent). Then offer for recycling or reconditioning, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke. Consult federal, state or local disposal authorities for approved alternative procedures such as limited open burning.



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### **Returnable Refillable Containers**

If Daconil Zn is packaged in a returnable refillable container, then, after use, do not rinse container. The contents of this container cannot be completely removed by cleaning. Return container intact to point of purchase.

This container must only be refilled with Daconil Zn. Refilling with materials other than Daconil Zn will result in contamination and may weaken container. **DO NOT REUSE THE CONTAINER FOR ANY OTHER PURPOSE.** Before refilling, inspect thoroughly for damage such as cracks, punctures, abrasions, and damaged or worn threads on closure devices. Check for leaks after refilling and before transport. Do not refill or transport a damaged or leaking container.

### **Bulk and Minibulk Containers**

Reseal container and offer for reconditioning, or triple rinse (or equivalent) and offer for recycling or reconditioning, or clean in accordance with manufacturer's instructions.

**CONTAINER IS NOT SAFE FOR FOOD, FEED OR DRINKING WATER.**

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### **GENERAL INFORMATION**

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Zinc is incorporated into this formulation as a micronutrient to provide plants with zinc required for growth.

### **GENERAL PRECAUTIONS AND RESTRICTIONS**

~~Do not use on home lawns (turf).~~ **Do not use on home lawns and turf sites associated with apartment buildings, daycare centers, playgrounds, playfields, recreational park athletic fields, athletic fields located on or next to schools (ie., elementary, middle and high schools), campgrounds, churches and theme parks.**

**Agricultural Use Sites Only (sod farms, farms, forests, nurseries and greenhouses):**  
This product must not be applied within 150 feet (for aerial applications) or 25 feet (for ground applications) of marine/estuarine water bodies unless there is an untreated buffer area of that width between the area to be treated and the water body.

**DO NOT** combine Daconil Zn in the spray tank with pesticides, surfactants or fertilizers, unless your prior use has shown the combination physically compatible, effective and noninjurious under your conditions of use. **DO NOT** combine Daconil Zn with Dipel<sup>®</sup>, Latron B-1956<sup>®</sup> or Latron AG-98<sup>®</sup>, Chipco<sup>®</sup> Signature<sup>™</sup>, horticultural oil, and products containing xylene as phytotoxicity may result from the combination when applied to some species on this label.

### **Spray Drift Precautions**

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather related factors determine the potential for

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spray drift. The applicator and the grower are responsible for considering all these factors when making decisions.

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 applications using dry formulations.

1. The distance of the outer most nozzles on the boom must not exceed  $\frac{3}{4}$  the length of the wingspan or rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.

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

The applicator should be familiar with and take into account the information covered in the **Aerial Drift Reduction Advisory Information**.

### **Aerial Drift Reduction Advisory Information**

[This section is advisory in nature and does not supercede the mandatory label requirements.]

#### **Information on Droplet Size**

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable conditions (See Wind, Temperature).

#### **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 the nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from 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 potential.

#### **Boom Length**

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For some use patterns, reducing the effective boom length to less than 3/4 of the wingspan or rotor length may further reduce drift without reducing swath width.

### **Application Height**

Applications should not be made at a height greater than 10 ft. above the top of the largest plants, unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

### **Swath Adjustment**

When applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the upwind and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase with increasing drift potential (higher wind, smaller drops, etc.).

### **Wind**

Drift potential is lowest between wind speeds of 2-10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. NOTE: Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

### **Temperature and Humidity**

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 should 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**

The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, nontarget crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

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## APPLICATION

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The required amount of Daconil Zn should be added slowly into the spray tank during filling. With concentrate sprays, pre-mix the required amount of Daconil Zn in a clean container and add to the spray tank as it is being filled. Keep agitator running when filling spray tank and during spray operations.

### **Application and Calibration Techniques for Sprinkler Irrigation - Chemigation**

Apply this product only through center pivot, motorized lateral move, solid set or portable (wheel move, side roll, end tow, or hand move) irrigation system(s). DO NOT apply this product through any other type of irrigation system. DO NOT use Daconil Zn through sprinkler irrigation equipment on golf courses.

Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water.

If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.

DO NOT apply this product through irrigation systems connected to a public water system. "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 per year.

Controls for both irrigation water and pesticide injection systems must be functionally interlocked, so as to automatically terminate pesticide injection when the irrigation water pump motor stops. A person knowledgeable of the irrigation system and responsible for its operation shall be present so as to discontinue pesticide injection and make necessary adjustments, should the need arise.

The irrigation water pipeline must be fitted with a functional, automatic, quick-closing check valve to prevent the flow of treated irrigation water back toward the water source. The pipeline must also be fitted with a vacuum relief valve and low pressure drain, located between the irrigation water pump and the check valve, to prevent back-siphoning of treated irrigation water into the water source.

**Always inject Daconil Zn into irrigation water after it discharges from the irrigation pump and after it passes through the check valve. Never inject pesticides into the intake line on the suction side of the pump.**

Pesticide injection equipment must be fitted with a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump. Interlock this valve to the power system, so as to prevent fluid from being withdrawn from the chemical supply tank when the irrigation system is either automatically or manually turned off.

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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 irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

Spray mixture in the chemical supply tank must be agitated at all times, otherwise settling and uneven application may occur. DO NOT apply when wind speed favors drift beyond the area intended for treatment.

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.

Daconil Zn may be used through two basic types of sprinkler irrigation systems as outlined in Sections A and B below. Determine which type of system is in place, then refer to the appropriate directions provided for each type.

#### **A. Center Pivot, Motorized Lateral Move and Traveling Gun Irrigation Equipment**

For injection of pesticides, these continuously moving systems must use a positive displacement injection pump, of either diaphragm or piston type, constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock and capable of injection at pressures approximately 2-3 times those encountered within the irrigation water line. Venturi applicator units cannot be used on these systems.

Thoroughly mix recommended amount of Daconil Zn for acreage to be covered into same amount of water used during calibration and inject into system continuously for one revolution or run. Mixture in the chemical supply tank must be continuously agitated during the injection run. Shut off injection equipment after one revolution or run, but continue to operate irrigation system until Daconil Zn has been cleared from last sprinkler head.

#### **B. Solid Set and Portable (Wheel Move, Side Roll, End Tow, or Hand Move) Irrigation Equipment**

With stationary systems, an effectively designed in-line venturi applicator unit is preferred which is constructed of materials that are compatible with pesticides; however, a positive-displacement pump can also be used.

Determine acreage covered by sprinkler. Fill tank of injection equipment with water and adjust flow to use contents over a thirty to forty-five minute period. Mix desired amount of Daconil Zn for acreage to be covered with water so that the total mixture of Daconil Zn plus water in the injection tank is equal to the quantity of water used

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during calibration, and operate entire system at normal pressures recommended by the manufacturer of injection equipment used, for amount of time established during calibration. Agitation is recommended. Daconil Zn can be injected at the beginning or end of the irrigation cycle or as a separate application. Stop injection equipment after treatment is completed and continue to operate irrigation system until Daconil Zn has been cleared from last sprinkler head.

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## DIRECTIONS FOR APPLICATION

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### Turf

~~Do not use on home lawns (turf).~~ **Do not use on home lawns and turf sites associated with apartment buildings, daycare centers, playgrounds, playfields, recreational park athletic fields, athletic fields located on or next to schools (ie., elementary, middle and high schools), campgrounds, churches and theme parks.**

Do not use Daconil Zn on fine fescue turf due to the potential for phytotoxicity or turfgrass injury.

DO NOT mow or water after treatment until spray deposited on turfgrass is thoroughly dry; Daconil Zn should always be used in conjunction with good turf management practices.

Sodfarm turf treated with chlorothalonil prior to harvest must be mechanically cut, rolled and palletized.

**Group A.** Golf Course Fairways, ~~Sod Farms, Lawns~~ (around institutional, public, commercial and industrial buildings), & Other Turfgrasses (~~parks, recreational areas and professional and collegiate~~ athletic fields) and Ornamental Turfgrass:

Do not apply more than 50 pints/acre (18.4 fl. ozs./1000 sq. ft.) of Daconil Zn per growing season (26 lbs. a.i./acre) per growing season. The minimum re-treatment interval for single application rates **up to 14 pints/acre** (5 fl. ozs./1000 sq. ft.) of Daconil Zn (7.3 lbs. a.i./acre) is 7 days. Do not apply more than one application of a rate greater than 14 pints/acre (5 fl. ozs./1000 sq. ft.) of Daconil Zn (7.3 lbs. a.i./acre) per growing season. The maximum single application rate is 22 pints/acre (8 fl. ozs./1000 sq. ft.) of Daconil Zn (11.3 lbs. a.i./acre).

### **Sod Farms:**

**Do not use for sod farms at application rates greater than 13 pounds of active ingredient, per acre, per year.** Do not apply more than 25 pints/acre (9.2 fl. ozs./1000 sq. ft.) of Daconil Zn per growing season (13 lbs. a.i./acre) per growing season. The minimum re-treatment interval for single application rates up to 14 pints/acre (5 fl. ozs./1000 sq. ft.) of Daconil Zn (7.3 lbs. a.i./acre) is 7 days. Do not apply more than one application of a rate greater than 14 pints/acre (5 fl. ozs./1000 sq. ft.) of Daconil Zn (7.3

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lbs. a.i./acre) per growing season. The maximum single application rate is 22 pints/acre (8 fl. ozs./1000 sq. ft.) of Daconil Zn (11.3 lbs. a.i./acre).

Apply Daconil Zn in 30 to 40 gallons of water per acre. Begin applications when conditions favor disease development and repeat applications as long as these conditions persist. Under severe disease conditions, use the highest rate and shortest interval corresponding with the application schedule selected from the table below.

**Group B. Golf Course Tees and Greens**

**Golf Course Tees:** Do not apply more than 100 pints/acre (37 fl. ozs./1000 sq. ft.) of Daconil Zn (52 lbs. a.i./acre) per growing season. The minimum re-treatment interval for single application rates **up to** 14 pints/acre (5 fl. ozs./1000 sq. ft.) of Daconil Zn (7.3 lbs. a.i./acre) is 7 days. The minimum re-treatment interval after an application of a rate **greater than** 14 pints/acre (5 fl. ozs./1000 sq. ft.) of Daconil Zn (7.3 lbs. a.i./acre) is 14 days. Do not apply more than two applications of a rate greater than 14 pints/acre (5 fl. ozs./1000 sq. ft.) of Daconil Zn (7.3 lbs. a.i./acre) per growing season. The maximum single application rate is 22 pints/acre (8 fl. ozs./1000 sq. ft.) of Daconil Zn (11.3 lbs. a.i./acre).

**Golf Course Greens:** Do not apply more than 140 pints/acre (52 fl. ozs./1000 sq. ft.) of Daconil Zn (73 lbs. a.i./acre) per growing season. The minimum re-treatment interval for single application rates **up to** 14 pints/acre (5 fl. ozs./1000 sq. ft.) of Daconil Zn (7.3 lbs. a.i./acre) is 7 days and the minimum re-treatment interval after an application of a rate **greater than** 14 pints/acre (5 fl. ozs./1000 sq. ft.) of Daconil Zn (7.3 lbs. a.i./acre) is 14 days. Do not apply more than two applications of a rate greater than 14 pints/acre (5 fl. ozs./1000 sq. ft.) of Daconil Zn (7.3 lbs. a.i./acre) per growing season. The maximum single application rate is 22 pints/acre (8 fl. ozs./1000 sq. ft.) of Daconil Zn (11.3 lbs. a.i./acre).

Apply Daconil Zn in an adequate amount of water to provide complete coverage. This amount may vary from 90 to 450 gallons per acre. See table below for suggested rates and timing. Under severe disease conditions use the highest rate and shortest interval corresponding with the application schedule selected from the table below.



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Diseases Controlled *	Application Interval (days)	Pre-Disease Rates <sup>a</sup>			Post-Disease Rates <sup>a</sup>		
		fl. oz. product/ 1000 sq ft	pints product/ acre	lbs a.i./ acre	fl. oz. product/ 1000 sq ft	pints product/ acre	lbs a.i./ acre
Dollar Spot	7 to 10	1.5 <sup>b</sup> to 3	4 <sup>b</sup> to 8	2.1 <sup>b</sup> to 4.16	-	-	-
	7 to 21	3 to 5	8 to 14	4.16 to 7.3	-	-	-
	14	-	-	-	6 to 8	16 to 22	8.32 to 11.3
Leaf Spot Melting-out Brown blight	7 to 10	3	8	4.16	-	-	-
	7 to 21	3 to 5	8 to 14	4.16 to 7.3	-	-	-
	14	-	-	-	6 to 8	16 to 22	8.32 to 11.3
Brown patch	7 to 14	3 to 5	8 to 14	4.16 to 7.3	-	-	-
	14	-	-	-	6 to 8	16 to 22	8.32 to 11.3
Gray Leaf Spot	7 to 10	3 to 5	8 to 14	4.16 to 7.3	-	-	-
	14	-	-	-	6 to 8	16 to 22	8.32 to 11.3
Red Thread	7 to 10	3 to 5	8 to 14	4.16 to 7.3	-	-	-
	14	5.3 to 8	14.3 to 22	7.4 to 11.3	8	22	11.3
Anthracnose	7 to 14	4.4 to 5	12 to 14	6.2 to 7.3	-	-	-
	14	5.3 to 8	14.3 to 22	7.4 to 11.3	-	-	-
Copper Spot	14	6 to 8	16 to 22	8.32 to 11.3	8	22	11.3
Stem Rust (Bluegrass)	14	6 to 8	16 to 22	8.32 to 11.3	8	22	11.3
DICHONDRA: Leaf Spot (CA only)	14	6 to 8	16 to 22	8.32 to 11.3	8	22	11.3
Gray Snow Mold <sup>c</sup>	30	8	22	11.3	-	-	-
Fusarium (Gerlachia) Patch <sup>c</sup>	21 to 28	8	22	11.3	-	-	-
Algae <sup>c</sup>	7 to 14	3 to 5	8 to 14	4.16 to 7.3	3 to 5	8 to 14	4.16 to 7.3
	14	-	-	-	6 to 8	16 to 22	8.32 to 11.3

<sup>a</sup>Group A Turf: Limit of one application per season at rates greater than 7.3 lbs. ai/acre (14 pints/acre or 5 fl. oz./1000 sq. ft. of Daconil Zn).

<sup>a</sup>Group B Turf: Limit of two applications per season at rates greater than 7.3 lbs. ai/acre (14 pints/acre or 5 fl. oz./1000 sq. ft. of Daconil Zn).

<sup>b</sup>Low rate is not effective on intensively mowed turfgrasses such as golf course tees and greens.

<sup>c</sup>See specific use directions below.

Dashes (-) in the above table: Not recommended.

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**\*Diseases listed are caused by fungi, some of which are named as follows:**

1. Dollar spot: *Sclerotinia homeocarpa*; *Lanzia* or *Moellerodiscus* spp.
2. Brown patch: *Rhizoctonia solani*, *R. zaeae*, *R. cerealis*
3. Leaf spots, Melting-out, Brown blight: *Drechslera* spp. (including *D. poae*, *D. siccans*), *Bipolaris sorokiniana*, *Curvularia* spp.
4. Gray leaf spot: *Pyricularia grisea*, *P. oryzae*
5. Red thread: *Laetisaria fuciformis*
6. Anthracnose: *Colletotrichum graminicola*
7. Copper spot: *Gloeocercospora sorghi*
8. Stem rust: *Puccinia graminis*
9. Dichondra leaf spot: *Alternaria* spp.
10. Gray Snow Mold: *Typhula* spp.
11. Fusarium (Gerlachia) Patch
12. Algae

**Gray snow mold caused by *Typhula* spp.** - Group A and B - Turf: Apply in sufficient water to obtain adequate coverage (2 to 10 gallons per 1,000 sq. ft.). Apply one application 22 pints/acre (8 fl. ozs./1000 sq. ft.) of Daconil Zn (11.3 lbs. a.i./acre). Application must be made before snow cover in autumn. Group B Turf: if snow cover is intermittent or lacking during the winter, a second application of Daconil Zn at 22 pints/acre (8 fl. ozs./1000 sq. ft.) may be applied one month after the first application.

**Fusarium (Gerlachia) Patch:** Group A and B Turf: In areas where pink snow mold (Gerlachia or Fusarium patch) is likely to occur, apply Daconil Zn at 22 pints/acre (8 fl. ozs./1000 sq. ft.) (11.3 lbs. a.i./acre) in combination with products containing iprodione at 88 ozs. a.i./acre (2 ozs. a.i./1000 sq. ft.) of turf area. Read and observe all label directions for products containing these active ingredients.

For control of Fusarium patch only in areas where snow cover is intermittent or lacking during the winter, apply 22 pints/acre (8 fl. ozs./1000 sq. ft.) of Daconil Zn (11.3 lbs. a.i./acre). Make application in late autumn. Group B Turf: Apply a second application of 22 pints/acre (8 fl. ozs./1000 sq. ft.) of Daconil Zn 21 to 28 days after the first application unless conditions favorable for Fusarium patch no longer prevail.

**Algae:** Group A and B Turf: For prevention of algae on turfgrasses, apply Daconil Zn at the rate of 8 to 14 pints/acre (3 to 5 fl. ozs./1000 sq. ft.) (4.16 to 7.3 lbs. a.i./acre) on a 7 to 14 day schedule. Under severe algae conditions use the 14 pints/acre (5 fl. ozs./1000 sq. ft.) rate and apply on a 7 day schedule.

When algae is well established, every attempt should be made to dry out the afflicted area. Once dry, spiking or verticutting should be done to enhance turfgrass recovery in conjunction with a Daconil Zn application at the rate of 16 to 22 pints/acre (6 to 8 fl. ozs./1000 sq. ft.) (8.32 to 11.3 lbs. a.i./acre). Group B Turf: A second application of Daconil Zn at the 22 pints/acre (8 fl. ozs./1000 sq. ft.) rate may be made 14 days after

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the first application. Only a preventive spray program with Daconil Zn will prevent a recurrence of the algae when environmental conditions are favorable.

### **Ornamental Plants**

Apply Daconil Zn at a rate of 2 pints (1.0 lb. a.i.) per 100 gallons of water unless other directions are given in the tables below. DO NOT apply more than 70 pints Daconil Zn (36.4 lbs. a.i./acre) per growing season to field grown ornamentals. Apply in a spray to run-off, when conditions are favorable for disease development. Repeat applications at 7 to 14 day intervals until conditions are no longer favorable. During periods when conditions favor severe disease incidence, generally cloudy or wet weather, apply Daconil Zn at 7 day intervals. The minimum re-treatment interval is 7 days. Daconil Zn should be applied to plants when both foliage and flowers are dry, or nearly dry.

DO NOT combine Daconil Zn in the spray tank with pesticides, surfactants or fertilizers, unless your prior use has shown the combination to be physically compatible, effective and noninjurious under your conditions of use.

Do not apply Daconil Zn through high pressure spray equipment. Do not use mistblowers, cold fog, or other fogging application equipment when making applications of Daconil Zn in greenhouses.

Do not apply Daconil Zn to either green or variegated Pittosporum or to Schefflera, as multiple applications may cause phytotoxic responses.

Do not apply Daconil Zn to ferns.

Use of Daconil Zn is recommended for control of fungal diseases referred to by numbers in parentheses following each ornamental. Ornamentals listed on this label have been tested and found to tolerate applications of Daconil Zn at the recommended rates. The user should test for possible phytotoxic responses, using recommended rates on ornamental plants on a small area prior to commercial use. Applications made during bloom may damage flowers and/or fruits.

**Fruits and other structures which may be borne on treated plants MUST NOT BE EATEN.**

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**Ornamentals Recommended for Treatment with Daconil Zn**

**BROADLEAF SHRUBS AND TREES**

Andromeda (Pieris) (4)	Holly (1)
Ash (Fraxinus) (1)	Lilac (5)
Aspen (1)	Magnolia (1)
Azalea (1,2,4)	Maple (1)
Buckeye, Horsechestnut (1)	Mountain Laurel (1)
Cherry-Laurel (1)	Oak (red group only) (1,7)
Crabapple (1,6,8)	Oregon-Grape (Mahonia) (6)
Dogwood (1)	Photinia (1)
Eucalyptus (3)	Poplar (1)
Euonymus (1)	Privet (Ligustrum) (1)
Firethorn (Pyracantha) (1)	Rhododendron (1,2,4)
Flowering Almond (1,2)	Sand Cherry (1,2)
Flowering Cherry (1,2)	Sequoia (1)
Flowering Peach (1,2)	Spiraea (1)
Flowering Plum (1,2)	Sycamore, Planetree (1)
Flowering Quince (1,2)	Viburnum (5)
Hawthorn (1,6)	Walnut (Juglans) (1)

**FLOWERING PLANTS<sup>a/</sup> AND BULBS**

Arabian Violet (2)	Iris, bulbous (1)
Begonia (1)	Lily (1)
Camellia (2)	Lily, asiatic (1)
Carnation (1,2)	Marigold (1)
Chrysanthemum (1,2)	Narcissus (1)
Crocus (1)	Pansy (1)
Daffodil (1)	Petunia (1,4)
Daisy (1)	Phlox (1)
Geranium (1,6)	Poinsettia <sup>b/</sup> (1)
Gladiolus (1,2)	Rose <sup>c/</sup> (1)
Hollyhock (6)	Statice (1)
Hydrangea (foliage only) (1,6)	Tulip (1)
Iris (1,2)	Zinnia (1,5)

<sup>a/</sup> Avoid applications during bloom period on plants where flower injury is unacceptable.

<sup>b/</sup> Discontinue applications prior to bract formation; phytotoxicity is possible on the bracts.

<sup>c/</sup> Use 1.5 pints Daconil Zn (0.75 lbs. a.i.) per 100 gallons of water.

**FOLIAGE PLANTS**

Aglaonema (1)	Ming aralia (1)
Areca palm (1)	Oyster plant (Rhoeo) (1)
Artemesia (1)	Pachysandra <sup>d/</sup> (1)
Dumbcané (Differnbachia) (1)	Parlor palm (Chamaedorea) (1)
Dracaena (1)	Peperomia (1)
Fatsia (Aralia) (1)	Philodendron (1,4)
Ficus (1)	Prayer plant (Maranta) (1)
Lipstick plant (1)	Syngonium (1)
	Zebra plant (Aphelandra) (1)

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<sup>d/</sup> Use 3.75 pints of Daconil Zn (2.0 lbs. a.i.) per 100 gallons of water.

**Diseases Controlled with Daconil Zn**

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1. **Leaf Spots/Foliar Blights:**

Actinopelte leaf spot	Fabraea (Entomosporium) leaf spot
Alternaria leaf spot/leaf blight	Fusarium leaf spot
Anthracnose leaf blotch, spot	Gloeosporium black leaf spot
Anthracnose (Discula) blight	Ink spot (Drechslera)
Ascochyta blight	Marssonina leaf spot
Bipolaris (Helminthosporium) leaf spot	Monilinia blossom blight, twig blight
Black spot on roses	Mycosphaerella ray blight
Botrytis leaf spot, leaf blight	Myrothecium leaf spot, brown rot
Cephalosporium leaf spot	Nematostoma leaf blight
Cercospora leaf spot	Phyllosticta leaf spot
Cercosporidium leaf spot	Ramularia leaf spot
Corynespora leaf spot	Rhizoctonia web blight
Coryneum blight (shothole)	Septoria leaf spot
Curvularia leaf spot	Sphaeropsis leaf spot
Cylindrosporium leaf spot	Stagonospora leaf scorch
Dactylaria leaf spot	Tan leaf spot (Curvularia)
Didymellina leaf spot	Volutella leaf blight
Drechslera leaf spot	
  
2. **Flower spots/blights:**

Botrytis flower spot, flower blight	Ovulinia flower blight
Curvularia flower spot	Rhizopus blossom blight
Monilinia blossom blight	Sclerotinia flower blight
  
3. **Cylindrocladium stem canker**
  
4. **Phytophthora leaf blight, dieback**

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- 5. **Powdery mildews:**  
Erysiphe cichoracearum                      *Microsphaera* spp.
- 6. **Rusts:**  
*Gymnosporangium* spp.                      *Puccinia* spp.  
Pucciniastrum hydrangeae
- 7. **Taphrina blister**
- 8. **Scab** (*Venturia inaequalis*)

The following ornamental plant species which have been tested with Daconil Zn at recommended rates did not exhibit phytotoxicity:

<b>Botanical Name</b>	<b>Common Name</b>
Aechmea fasciata	Aechmea
Araucaria heterophylla	Norfolk Island Pine
<i>Bougainvillea</i> spp.	Bougainvillea
Caladium spp.	Caladium
Calathea makoyana	Peacock plant
Calistephus chinensis	Aster
Carissa grandiflora	Natal plum
Clerodendron thomsonae	Bleeding Heart
<i>Codiaeum</i> spp.	Croton
Cordyline terminalis	Ti Plant
Crassula argentea	Jade Plant
Dionaea muscipula	Venus Fly Trap
Dizygotheca elegantissima	False Aralia
Epipremnum aureum	Golden Pothos, Scindapsus
Episcia cupreata	Flame Violet
<i>Fittonia</i> spp.	Silver-nerve Plant
Gerbera jamesonii	Gerbera Daisy
Gynura sarmentosa	Purple Passion Vine
Gypsophila paniculata	Baby's Breath
<i>Hoya</i> spp.	Wax Plant
Ilex cornuta	Chinese Holly
Ilex crenata	Japanese Holly
<i>Impatiens</i> spp.	Impatiens
Pilea cadierei	Aluminum Plant
Sansevieria trifasciata "Hahnii"	Birdsnest Sansevieria
Tolmeia menziesii	Piggy-back Plant
Yucca elephantipes	Spineless Yucca
Zygocactus truncatus	Christmas Cactus

**NOTE:** DO NOT apply Daconil Zn to either green or variegated Pittosporum or to

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Schefflera, as multiple applications may cause phytotoxic responses.

**Conifers:** Apply Daconil Zn in sufficient water and with proper calibration to obtain uniform coverage of tree canopy. Application with ground equipment is preferable to aerial application because ground applications generally give better coverage of the tree canopy. If application with ground equipment is not feasible, Daconil Zn may be applied with aircraft using at least 20 gallons per acre. When concentrate sprays are used or when treating non-bearing or immature trees, the lower rate of Daconil Zn listed may be used. DO NOT allow livestock to graze in treated areas. The following spray volumes are recommended as gallons of spray per acre:

	DILUTE	CONCENTRATE
Forest stands,	Not used	10 to 20 (aircraft)
Christmas trees	100	10 to 50 (aircraft or ground equipment)
Nursery beds	100	5 to 10 (ground equipment only)

Do not apply Daconil Zn through high pressure spray equipment. Do not use mistblowers, cold fog, or other fogging application equipment when making applications of Daconil Zn in greenhouses.

Do not apply Daconil Zn to blue spruce.

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CROP	DISEASES	Daconil Zn Rate Per (lbs. a.i. per)		APPLICATION DIRECTIONS
		ACRE	100 GALS.*	
Conifers (pines, spruces, Douglas fir)	Swiss needlecast ( <i>Phaeocryptopus gaeumannii</i> )	4 to 8 pts. (2.1 to 4.16)	4 to 8 pts. (2.1 to 4.16)	Single application technique: In Christmas tree plantations or forest stands, make one application in the spring when new shoot growth is ½-2 inches in length.
	Scleroderris canker (pines) ( <i>Gremmeniella abietina</i> )	2¼ to 4 pts. (1.17 to 2.1)	2¼ to 4 pts. (1.17 to 2.1)	Make the first application in spring when new shoot growth is ½-2 inches in length. Make additional applications at 3-4 week intervals until conditions no longer favor disease development. For use in nursery beds, apply the highest rate specified on a 3-week schedule.
	Swiss needlecast (Douglas fir) ( <i>Phaeocryptopus gaeumannii</i> )			
	Sirococcus tip blight ( <i>S. conigenus</i> )	2¾ to 5 pts. (1.5 to 2.6)	2¾ to 5 pts. (1.5 to 2.6)	
	Rhizosphaera needlecast (spruces) ( <i>Rhizosphaera</i> spp.)	8 pts. (4.16)	8 pts. (4.16)	
	Scirrhia brown spot (pines) ( <i>Mycosphaerella dearnessii</i> )			
	Cyclaneusma and Lophodermium needlecasts (pines)	4 to 8 pts. (2.1 to 4.16)	4 to 8 pts. (2.1 to 4.16)	Apply in early spring prior to budbreak. Repeat applications at approximately 6-8 week intervals, until spore release ceases in late fall. Apply monthly during periods of frequent rainfall, and where Lophodermium infections occur during dormancy (Pacific Northwest). During drought periods, applications may be suspended, then resumed upon next occurrence of needle wetness.
	Rhabdocline needlecast (Douglas fir)	2¼ to 4 pts. (1.17 to 2.1)	2¼ to 4 pts. (1.17 to 2.1)	Apply at budbreak and repeat at 3-4 week intervals until needles are fully elongated and conditions no longer favor disease development. In plantations of mixed provenance, or when irregular budbreak occurs, apply weekly until all trees have broken bud, then every 3 to 4 weeks as specified above. In nursery beds, use the high rate on a 3-week schedule.
Botrytis seedling blight	2¼ to 4 pts. (1.17 to 2.1)	2¼ to 4 pts. (1.17 to 2.1)	Begin applications in nursery beds when seedlings are 4 inches tall and when cool, moist conditions favor disease development. Make additional applications at 7-14 day intervals as long as disease favorable conditions persist.	
Phoma twig blight				



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CROP	DISEASES	Daconil Zn Rate Per (lbs. a.i. per)		APPLICATION DIRECTIONS
		ACRE	100 GALS.*	
	Autoecious needle rust (Weir's cushion) (spruce)	8 (4.16)	8 (4.16)	Begin applications when 10% of buds have broken and twice thereafter at 7-10 day intervals.

DO NOT apply more than 31.5 pints of Daconil Zn (16.5 lbs. a.i.) per acre during each growing season. The minimum re-treatment interval for established trees is 21 days. The minimum re-treatment interval in nursery beds is 7 days.

\*Volumetric rates to be used only with full dilute spray volume specified on this label.

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GB Biosciences Corporation  
 Greensboro, North Carolina 27409  
 www.syngenta-us.com

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