

9779-280

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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

WASHINGTON, D.C. 20460

OFFICE OF  
PREVENTION, PESTICIDES  
AND TOXIC SUBSTANCES

Gary Halvorson  
Agriliance LLC  
P.O. Box 64089  
St. Paul, MN 55164

MAR 1 2007

SUBJECT: Amendment to Label  
Terranil 90DF  
EPA Reg. No. 9779-280  
Your Submission Dated October 6, 2006

Dear Mr. Halvorson:

The amended labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act as amended is acceptable provided the following changes are made:

1. On the page 2, after the heading Personal Protective Equipment add "PPE".
2. On page 6, delete "as necessary" in the application directions for bean (snap).
3. On page 7, delete "or as necessary" in the application directions for cabbage and carrot.
4. On page 10, delete "or as necessary" in the application directions for mint.
5. The following sentence must be added to the label: "This product must not be used or formulated into products labeled for use on home lawns, daycare centers, on playgrounds, parks, athletic fields, campgrounds, schools, churches, or similar turf sites."

NOTE: Other parts of the label (e.g. tables. etc) must be in harmony with this change.

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

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).

Sincerely,



Cynthia Giles-Parker, Chief  
Fungicide Branch  
Registration Division (7505P)

Enclosure

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**Terranil™ 9ODF**  
**Agricultural Turf & Ornamental Fungicide**  
(90% water dispersible granules)

<b>ACTIVE INGREDIENT</b>	
Chlorothalonil (tetrachloroisophthalonitrile) .....	90.0%
<b>OTHER INGREDIENTS</b> .....	10.0%
<b>TOTAL</b> .....	100.0%

**KEEP OUT OF REACH OF CHILDREN**

**DANGER/PELIGRO**

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.)

**FIRST AID**

**IF IN EYES:** Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. Call a poison control center or physician for treatment advice.

**IF INHALED:** Move person to fresh air. If the person is not breathing, call 911 or ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or physician for treatment advice.

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

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

**NOTE TO PHYSICIAN:** Probable mucosal damage may contraindicate the use of gastric lavage.  
For additional information in case of emergency call toll free 1-877-424-7452.

Read Additional PRECAUTIONARY STATEMENTS.

**ACCEPTED  
with COMMENTS  
In EPA Letter Dated**

**MAR 1 2007**

**Under the Federal Insecticide,  
Fungicide, and Rodenticide Act  
as amended, for the pesticide  
registered under EPA Reg. No.**

**9779-280**

EPA Reg. No. 9779-280

EPA Est. No

Distributed By:  
Agrilience, LLC  
P. O. Box 64089, St. Paul, MN 55164-0089

NET CONTENTS

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PRECAUTIONARY STATEMENTS  
DANGER  
HAZARDS TO HUMANS AND DOMESTIC ANIMALS

Corrosive, causes irreversible eye damage. May be fatal if inhaled. Do not get in eyes, or on clothing. Do not breathe dust. Prolonged or frequently repeated skin contact may cause allergic reaction in some individuals.

**Personal Protective Equipment:**

Some materials that are chemical resistant to this product are made of barrier laminate, butyl rubber or viton. If you want more options, follow instructions for category A on the EPA chemical resistant category selection chart.

Mixers, loaders, applicators and other handlers must wear: long-sleeved shirt and long pants, shoes plus socks, goggles or face shield, and chemical resistant gloves made of any waterproof material. Also required: a respirator with an organic-vapor-removing cartridge with a prefilter approved for pesticides (MSHA/NIOSH approval number prefix TC-23C), or a canister approved for pesticides (MSHA/NIOSH approval number prefix TC-14G), or a NIOSH approved respirator with an organic vapor (OV) cartridge or canister with any N, R, P, or HE prefilter.

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.

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 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 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 washwaters or rinsate.

This chemical is known to leach through soil into groundwater under certain conditions as a result of label use. Use of the chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

The chemical can contaminate surface water through spray drift. Under some conditions, it may also 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 toward 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.

**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, 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.

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 such as or made of any waterproof material, shoes plus socks and 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 7 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.

Workers must be informed, in a manner they can understand: • that residues in the treated area may be highly irritating to 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, and • how to operate the eyeflush container.

#### 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

**PESTICIDE STORAGE:** Store in a dry location away from children, animals, foods, feeds, seeds, or other agricultural chemicals. In the event of spillage, scrape up and dispose of in accordance with information given under DISPOSAL. Repackage and relabel useable product in a sound container. In case of fire or other emergency, report at once by toll-free telephone to 800-424-9300.

**PESTICIDE DISPOSAL:** Pesticide wastes are toxic. 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:** Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

#### GENERAL PRECAUTIONS AND RESTRICTIONS

This product must not be applied with 150 feet (for aerial and air-blast applications) or 25 feet (for ground application) of marine/estuarine water bodies unless that there is an untreated buffer area of the width between the area to be treated and the water body.

#### SPRAY DRIFT ADVISORY

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 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 to 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 backwards 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

##### 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 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 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.

##### Boom Length

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

##### Application Height

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Applications should not be made at a height greater than 10 feet 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 downward. Therefore, on the up 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, non-target crops) is minimal (e.g. when wind is blowing away from the sensitive areas).

### GENERAL INFORMATION

Terranil 90DF is an excellent fungicide when used according to label directions for control of a broad spectrum of plant diseases. Terranil 90DF can be used effectively in dilute or concentrate sprays. Thorough, uniform coverage is essential for disease control. Do not combine Terranil 90DF in the spray tank with pesticides, surfactants or fertilizers, unless prior use has shown the combination physically compatible, effective and non-injurious under conditions of use.

Dosage rates on this label indicate pounds of Terranil 90DF per acre unless otherwise stated. Under conditions favoring disease development, the high rate specified and shortest application interval should be used. Applications should be made in sufficient water to obtain adequate coverage of foliage. Gallonage to be used will vary with crop and amount of plant growth. Spray volume usually will range from 20 to 150 gallons per acre for dilute sprays and 5 to 10 gallons per acre for concentrate ground sprays and aircraft applications. Both ground and aircraft methods of application are recommended unless specific directions for ground application only are given for a crop. Application through sprinkler irrigation systems is recommended for some crops which are specified on the label below. Follow application and calibration instructions.

### APPLICATION AND CALIBRATION TECHNIQUES FOR SPRINKLER IRRIGATION

Apply this product only through the following types of irrigation systems. Do not apply this product through any other type of irrigation system. 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 Experiment Station specialists, equipment manufacturers, or other experts. Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place. A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

- A. Center Pivot, Traveler, Big Gun, Motorized Lateral Move, End Tow, and Side (Wheel) Roll Irrigation Equipment: Operate system and injection equipment at normal pressures recommended by the manufacturer of injection equipment used. Fill tank of injection equipment with water. Operate system for one complete circle for center pivot or one complete run for the other recommended equipment, measuring time required, amount of water injected, and acreage contained in circle or run. Mix recommended amount of Terranil 90DF for acreage to be covered into same amount of water used during calibration and inject into system continuously for one revolution or run, but continue to operate irrigation system until Terranil 90DF has been cleared from last sprinkler head. Spray mixture in the chemical supply tank must be agitated at all times, otherwise settling and uneven application may occur.
- B. Solid Set and Hand Move Irrigation Equipment: 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 Terranil 90DF for acreage to be covered into quantity of water used during calibration and operate entire system at normal pressures recommended by the manufacturer of injection equipment used for amount of time established during calibration. Provide

constant mechanical agitation in the mix tank to insure that Terranil 90DF will remain in suspension during the injection cycle. Terranil 90DF 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 Terranil 90DF is cleared from last sprinkler head.

**SAFETY DEVICES**

(1) The systems designated above 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. (2) All Pesticide injection pipelines must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump. (3) 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. (4) The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops. (5) 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. (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. (7) Do not apply when wind speed favors drift beyond the area intended for treatment.

**SYSTEMS CONNECTED TO PUBLIC WATER SOURCES**

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.

Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow 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 fill pipe. 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.

For additional instructions on safety precautions, refer to statements (2), (3), (4), (6), and (7) in the section on SAFETY DEVICES.

**POSTING INSTRUCTIONS**

Posting of areas to be chemigated is required when any part of a treated area is within 300 feet of sensitive areas such as residential areas, labor camps, businesses, day care centers, hospitals, in-patient clinics, nursing homes, or any public areas such as schools, parks, playgrounds, or other public facilities not including public roads, or when chemigated area is open to the public, such as golf courses or retail greenhouses. This sign is in addition to any sign posted to comply with Worker Protection Standard.

Posting must conform to the following requirements. Treated areas shall be posted with signs at all usual points of entry and along likely routes of approach from the listed sensitive areas. When there are no usual points of entry, signs must be posted in the corners of the treated areas and in any other location affording maximum visibility to sensitive areas. The printed side of the sign should face away from the treated area towards the sensitive area. The signs shall be printed in English. Signs must be posted prior to application and must remain posted until foliage has dried and soil surface water has disappeared. Signs may remain in place indefinitely as long as they are composed of material to prevent deterioration and maintain legibility for the duration of the posting period.

All words shall consist of letters at least 2½ inches tall, and all letters and the symbol shall be a color which sharply contrasts with their immediate background. At the top of the sign shall be the words KEEP OUT, followed by an octagonal stop sign symbol at least 8 inches in diameter containing the word STOP. Below the symbol shall be the words PESTICIDES IN IRRIGATION WATER.

**MIXING PROCEDURES**

Be sure sprayer is clean and not contaminated with any other materials, or crop injury or sprayer clogging may result. Fill tank ¼ full with clean water; start agitation. Be certain that the agitation system is working properly and creates a rippling or rolling action on the liquid surface. Pour product directly from container into tank. Let it wet and settle into water. Continue filling tank until 90% full. Increase agitation if necessary to maintain surface action. Finish filling tank. Maintain agitation during operation. Clean sprayer thoroughly immediately after use by flushing system with water containing a detergent. Do not use on greenhouse grown crops.

CROP	DISEASES	RATE PER ACRE	APPLICATION DIRECTIONS
Asparagus	Rust ( <i>Puccinia asparagi</i> )  Purple Spot ( <i>Pleospora herbarum</i> )  Cercospora blight ( <i>C. asparagi</i> )	1.7 to 3.4 Pounds	Use water volumes of 25-50 gallons per acre. Begin applications following final harvest of spears. Repeat applications at 14-28 day intervals (the minimum retreatment interval is 14 days), depending on disease pressure. Use the higher rate and shorter interval if disease severity begins to increase during the season or weather conditions are conducive for severe epidemics.  Apply by ground.
Specific Use Restrictions: Do not apply more than 10 pounds Terranil 90DF (9.0 lbs. a.i.) per acre during each growing season. Do not apply within 190 days of the harvest of spears in the following season.			
Bean (Snap)	Rust ( <i>Uromyces appendiculatus</i> )	1.125 to 2.5 Pounds	Use in sufficient water to obtain adequate coverage. Begin applications during early bloom stage or when disease first threatens and repeat as necessary (the minimum retreatment level is 7 days) to maintain control.
	Botrytis blight (gray mold)	2.5 pounds	

CROP	DISEASES	RATE PER ACRE	APPLICATION DIRECTIONS
	( <i>B. cinerea</i> )		
<p>Specific Use Restrictions: Do not apply more than 9.9 pounds of Terranil 90DF (9.0 lbs. a.i.) per acre during each growing season. Do not apply within 7 days of harvest.</p>			
<p>Beans (Dry) (except soybeans) bean, adzuki bean, broad bean, dry bean, lablab bean, navy bean, kidney bean, lima bean, moth bean, mung bean, pink bean, pinto bean, tepary bean, urd bean, yardlong catjang chickpea (garbanzo) cowpea lupin, grain lupine bean, rice bean, runner bean, jackbean pea, blackeyed pea, southern</p>	<p>Rust (<i>Uromyces appendiculatus</i>)  Anthracnose (<i>Colletotrichum lindemuthianum</i>)  Downy Mildew (<i>Phytophthora nicotianae</i>)  Cercospora leaf blotch (<i>C. cruenta</i>)  Ascochyta blight (<i>A. phaseolorum</i>)</p>	<p>1.125 - 1.7 pounds</p>	<p>Use in sufficient water to obtain adequate coverage. Begin applications during early bloom stage and repeat at 7 to 10 day intervals (the minimum retreatment interval is 7 days). For use only on beans to be harvested dry with pods removed. Do not apply more than 4 times per growing season.  Apply by ground, air, or chemigation.</p>
<p>Specific Use Restrictions: Do not apply more than 6.7 pounds of Terranil 90DF (6 lbs. a.i.) per acre during each growing season. Do not apply within 14 days before harvest.</p>			
<p>Blueberries</p>	<p>For suppression of:  Anthracnose (ripe rot) (<i>C. gloeosporoides</i>)  Mummy Berry (<i>M. vaccinicorymbosi</i>)</p>	<p>2.5 to 3.3 Pounds</p>	<p>Terranil 90DF should be integrated into an overall disease management strategy which includes alternation with a fungicide with a different mode of action. Diseases may only be suppressed and fruit russetting may occur under heavy disease pressure or unfavorable environmental conditions.  Use 2.5 to 3.3 lbs. in sufficient water to obtain adequate coverage, normally 20-100 gallons per acre. Begin applications at budbreak (green tip). Repeat applications through early bloom and repeat at 10-day intervals (the minimum retreatment interval is 10 days). Under heavy disease pressure, use the higher rate.  Do not combine Terranil 90DF in 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 Terranil 90DF with Dipel, Latron AG-98 or Latron B-1956 as phytotoxicity may result from the combination when applied to the crops on this label.  Apply by ground or air.</p>
<p>Specific Use Restrictions: Do not apply more than 9.9 pounds of Terranil 90DF (9.0 lbs. a.i.) per acre during each growing season. Do not apply after full bloom or within 42 days of harvest.</p>			
<p>Cabbage Cauliflower Broccoli Brussels sprouts</p>	<p>Alternaria leaf spot (<i>Alternaria</i> spp.)  Downy Mildew</p>	<p>1.25 pounds</p>	<p>Use in sufficient water to obtain adequate coverage. Begin applications after transplants are set in field, or shortly after emergence of field-seeded crop, or when conditions favor disease development. Repeat at 7 to 10 day intervals or as</p>



CROP	DISEASES	RATE PER ACRE	APPLICATION DIRECTIONS
Chinese broccoli Chinese cabbage (tight-headed varieties only)	<i>(Peronospora parasitica)</i>		necessary (the minimum retreatment interval is 7 days) to maintain control.  Apply by ground, air, or chemigation.
	Ring spot (California only)	1.5 pounds	For field seeded brussels sprouts, begin applications at time of early sprout development or when conditions favor disease development. Repeat at 7 to 10 day intervals or as necessary (the minimum retreatment interval is 7 days) to maintain control.
Specific Use Restrictions: Do not apply more than 13.3 pounds Terranil 90DF (12 lbs. a.i.) per acre during each growing season. Do not apply within 7 days of harvest.			
Carrot	Cercospora leaf spot ( <i>C. carotae</i> )	1.25 - 1.3 pounds	Use in sufficient water to obtain adequate coverage. Start applications when disease threatens and repeat at 7 to 10 day intervals or as necessary (the minimum retreatment interval is 7 days) to maintain control.  Apply by ground, air, or chemigation.
	Alternaria leaf blight ( <i>A. dauci</i> )		
Specific Use Restrictions: Do not apply more than 16.7 pounds Terranil 90DF (15 lbs. a.i.) per acre during each growing season. Terranil 90DF may be applied the day of harvest.			
Celery	Early blight ( <i>Cercospora apii</i> )	0.875-1.25 pounds	Use in sufficient water to obtain adequate coverage. Start applications when transplants are set in the field and repeat at a 7-day interval as needed to maintain control (the minimum retreatment interval is 7 days).  Apply by ground, air, or chemigation.
	Late blight ( <i>Septoria apicola</i> )		
	Basal stalk rot ( <i>Rhizoctonia solani</i> )		
	Pink rot (suppression - 7-day schedule)	1.75 - 2 pounds	
	Early blight ( <i>Cercospora apii</i> ) Late blight ( <i>Septoria apicola</i> )	1.25 - 1.5 pounds per 100 gal.	For celery seedbeds, apply in a spray volume of 125 gallons per acre twice weekly or as needed to maintain control. Start applications shortly after crop emergence. Use the higher rate under severe disease conditions.
Specific Use Restrictions: Do not apply more than 19.8 pounds Terranil 90DF (18 lbs. a.i.) per acre during each growing season. Do not apply within 7 days of harvest.			
Corn (Sweet), Corn (grown for seed)	Helminthosporium leaf blights	0.625 - 1.3 pounds	Use in sufficient water to obtain adequate coverage. Begin applications when conditions favor disease development and repeat at a 7 day interval as required to maintain control (the minimum retreatment interval is 7 days). Under severe disease conditions, use 1.3 to 1.7 pounds Terranil 90DF per acre.  Apply by ground, air, or chemigation.
	Rust <i>Puccinia</i> spp.)		
Specific Use Restrictions: Do not apply more than 9.9 pounds Terranil 90DF (9 lbs. a.i.) per acre during each growing season. Do not apply within 14 days of harvest. Do not apply to sweet corn to be processed. Do not allow livestock to graze in treated fields. Do not ensile treated corn or use as livestock forage-			
Cranberries	Fruit rots	3.5 to 4.5 pounds	Apply at late early bloom and repeat at 10 to 14 day intervals (the minimum retreatment interval is 10 days). Under severe disease conditions, use the 5.5 pounds Terranil 90DF (5.0 lbs. a.i.) per acre rate on a 10 day schedule. Do not apply Terranil 90DF more than 3 times per season.  Apply by ground, air, or chemigation. When applying by chemigation, use 300 gallons of water per acre through solid set systems only.
	Lophodermium Leaf/twig blight ( <i>L. hypophyllum</i> )		
Specific Use Restrictions: Do not apply more than 16.7 pounds Terranil 90DF (15 lbs. a.i.) per acre during each growing season. Do not apply within 50 days before harvest. Do not apply to beds when flooded or allow release of irrigation water from beds for at least 3 days following application.			
Cucurbits: Cucumber Cantaloupe Muskmelon	Target spot ( <i>Corynespora cassiicola</i> ) Anthracnose	1.25 - 1.5 pounds	Use in sufficient water to obtain adequate coverage. Begin applications when plants are in first true leaf stage or when conditions are favorable for disease development. Repeat applications at 7 day intervals (the minimum retreatment

CROP	DISEASES	RATE PER ACRE	APPLICATION DIRECTIONS
Honeydew Melon Watermelon Squash Pumpkin	<p><i>(Colletotrichum spp.)</i></p> <p>Downy mildew <i>(Pseudoperonospora cubensis)</i></p> <hr/> <p>Cercospora leaf spot <i>(C. citrullina)</i></p> <p>Gummy stem blight/vine decline <i>(Didymella bryoniae)</i></p> <p>Alternaria leaf blight <i>(A. cucumerina)</i></p> <p>Alternaria leaf spot <i>(A. alternate)</i></p> <p>Scab <i>(Cladosporium cucumerinum)</i></p> <p>Powdery mildew <i>(Sphaerotheca only)</i></p>	<p>2 pounds</p>	<p>interval is 7 days).</p> <p>Note: Spraying mature watermelons may result in sunburn of the upper surface of the fruit. Do not apply Terranil 90DF to watermelons when any of the following conditions are present:</p> <ol style="list-style-type: none"> <li>1. Intense heat and sunlight</li> <li>2. Drought conditions</li> <li>3. Poor vine canopy</li> <li>4. Other crop and environmental conditions which may be conducive to increased natural sunburn.</li> </ol> <p>Do not combine Terranil 90DF with anything except water for application to watermelons unless prior use has shown the combination to be non-injurious to watermelons under your conditions of use.</p> <p>Apply by ground, air, or chemigation.</p>
<p>Specific use Restrictions: Do not apply more than 17.1 pounds Terranil 90DF (15.75 lbs. a.i.) per acre during each growing season. Terranil 90DF may be applied the day of harvest.</p>			
Grasses grown for seed	<p>Stem rust, leaf rust, stripe rust, Septoria leaf spot, Glume blotch, Bipolaris and Drechslera leaf spots</p> <hr/> <p>Selenophoma (eyespot)</p>	<p>0.875 - 1.3 pounds</p> <hr/> <p>0.875 - 1.75 pounds</p>	<p>Use in sufficient water to obtain adequate coverage. Begin applications during stem elongation when conditions favor disease development. Reapply at flag (top) leaf emergence and repeat applications at 14-day intervals (the minimum retreatment interval is 14 days). Apply by ground, air, or chemigation</p>
<p>Specific Use Restrictions: Do not apply more than 4.9 pounds Terranil 90DF (4.5 lbs. a.i.) per acre during each growing season. Do not apply within 14 days of harvest. Do not allow livestock to graze in treated areas or feed treated plant parts to livestock.</p>			
Mango	<p>Anthraco nose <i>(Collectotrichum spp.)</i></p>	<p>1.6 to 2.8 Pounds</p>	<p>Use a water volume of 20 to 300 gallons per acre. Begin applications at early bloom and repeat on a 7-14 day interval until early fruit development. Begin the season with the 1.6 lb. rate on a 14-day interval (the minimum retreatment interval is 7 days). If disease pressure is severe, use the higher rate and shorter interval.</p> <p>Apply by ground or air.</p>
<p>Specific Use Restrictions: Do not apply more than 26.6 pounds Terranil 90DF (24.0 lbs. a.i.) per acre during each growing season. Do not apply within 21 days of harvest.</p>			
Mint (Indiana, Michigan and Wisconsin only)	<p>Rust <i>(Puccinia menthae)</i></p> <p>Septoria leaf spot <i>(S. menthae)</i></p>	<p>0.9 pounds</p>	<p>Use in sufficient water to obtain adequate coverage, normally 20 to 150 gallons per acre for dilute sprays and 5 to 10 gallons per acre for concentrate ground and aircraft applications. Begin applications when emerging plants are 4-8 inches high. Repeat applications at 7 to 10 day intervals or as necessary to maintain control (the minimum retreatment interval is 7 days). Do not apply more than 3 times per season.</p>
<p>Specific Use Restrictions: Do not apply more than 3.3 pounds Terranil 90DF (3 lbs. a.i.) per acre during each growing season. Do not apply within 80 days of harvest. Do not feed fresh or extracted mint hay from treated fields to livestock.</p>			
Onion (dry bulb), and Garlic	<p>Botrytis leaf blight (blast) <i>(Botrytis spp.)</i></p> <p>Purple blotch <i>(Alternaria porri)</i></p> <p>Botrytis neck rot (suppression)</p> <p>Downy mildew (suppression) <i>(Peronospora destructor)</i></p>	<p>0.875 - 1.75 pounds</p>	<p>Apply Use in sufficient water to obtain adequate coverage of tops. Terranil 90DF is recommended for use with disease monitoring systems which adjust fungicide rates and frequency of application according to disease hazard. Apply Terranil 90DF as follows:</p> <p>Low Disease Hazard &amp; Prior to Infection: Apply .8 lbs. at a frequency of every 10 days.</p> <p>Low Disease Hazard &amp; Some Disease Present: Apply 1.2 lbs.</p>

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CROP	DISEASES	RATE PER ACRE	APPLICATION DIRECTIONS
<p>Specific Use Restrictions: Do not apply more than 16.7 pounds Terranil 90DF (15 lbs. a.i.) per acre during each growing season. Do not apply within 7 days of harvest.</p>			
<p>Onion (green bunching) Leek, Shallots Onion and Garlic (grown for seed)</p>	<p>Botrytis leaf blight (blast) (<i>Botrytis</i> spp.) Purple blotch (<i>Alternaria porri</i>) Downy mildew (suppression) (<i>Peronospora destructor</i>)</p>	<p>1.125 – 2 pounds</p>	<p>at a frequency of 7-10 days. High Disease Hazard: Apply 2.5 lbs. at a frequency of 7 days. For suppression of neck rot (<i>Botrytis</i> spp.) during storage, a minimum of three weekly applications prior to lifting, using 1.1 to 2.5 lbs. of Terranil 90DF per acre, is recommended. The minimum retreatment interval is 7 days. Apply by ground, air, or chemigation.</p> <p>Use in sufficient water to obtain thorough coverage of tops. Begin applications prior to favorable infection periods, and repeat at 7 to 10 day intervals for as long as conditions favor disease (the minimum retreatment interval is 7 days). Use the high rate and a 7-day schedule of applications when heavy dew or rain persist. Apply by ground, air, or chemigation.</p>
<p>Specific Use Restrictions: Do not apply more than 7.5 pounds Terranil 90DF (6.75 lbs. a.i.) per acre during each growing sason. Do not apply within 7 days of harvest on garlic. Do not apply within 14 days of harvest on green bunching onions, leeks or shallots.</p>			
<p>Papaya</p>	<p>Alternaria fruit spot (<i>A. alternata</i>) Anthracnose (<i>Colletotrichum</i> spp.) Stem end rot (<i>A. alternate</i>, <i>Colletotrichum</i> spp.)</p>	<p>1.75 - 2 pounds</p>	<p>Apply with ground equipment only, in sufficient water to obtain adequate coverage of fruit and leaves. Begin treatments when conditions favor development of disease and continue treatments at 14 day intervals until weather conditions no longer favor disease development (the minimum retreatment interval is 14 days).</p>
<p>Specific Use Restrictions: Do not apply more than 7.5 pounds Terranil 90DF (6.75 lbs. a.i.) per acre during each growing season. Terranil 90DF may be applied the day of harvest.</p>			
<p>Parsnip</p>	<p>Alternaria leaf spot (<i>Alternaria</i> spp.) Downy mildew (<i>Plasmopara crustosa</i>) Anthracnose (<i>Colletotrichum</i> spp.) Botrytis blight (gray mold) (<i>B. cinerea</i>) Bottom rot (<i>Rhizoctonia</i>)</p>	<p>1.125 - 1.3 pounds</p>	<p>Apply in sufficient water to obtain adequate coverage. Make the first application at the first sign of disease or when conditions are favorable for infection. Continue applications on a 7 to 10 day schedule (the minimum retreatment interval is 7 days). Do not apply more than 4 times per season. Apply by ground, air, or chemigation.</p>
<p>Specific Use Restrictions: Do not apply more than 6.7 pounds of Terranil 90DF (6 lbs. a.i.) per acre during each growing season. Do not apply within 10 days of harvest.</p>			
<p>Passion Fruit (Hawaii only)</p>	<p>Alternaria fruit and leaf spot (<i>Alternaria</i> spp.) Anthracnose (<i>Colletotrichum</i> spp.) Cercospora fruit spot</p>	<p>1.3 pounds</p>	<p>Apply with ground equipment in sufficient water to obtain adequate coverage of fruit and leaves. Begin applications during late bloom and repeat at 14 day intervals until weather conditions no longer favor disease development (the minimum retreatment interval is 14 days).</p>
<p>Specific Use Restrictions: Do not apply more than 8.3 pounds Terranil 90DF (7.5 lbs. a.i.) per acre during each growing season. Do not apply within 7 days of harvest.</p>			
<p>Peanut</p>	<p>Early leaf spot (<i>Cercospora arachidicola</i>) Late leaf spot (<i>Cercosporidium personatum</i>) Pepper Spot (<i>Leptosphaerulina crassiasca</i>)</p>	<p>1 pound</p>	<p>Apply in sufficient water for coverage when leaf wetness first occurs or 30 to 40 days after planting. Repeat at 14 day intervals (the minimum retreatment interval is 14 days). When conditions favor late leaf spot or when rust or web blotch occur, apply 1 pound Terranil 90DF per acre at 14 day intervals for the remainder of the season. Apply by ground, air, or chemigation. If applying by chemigation, use 1.36 pounds Terranil 90DF per acre. It is recommended to alternate chemigation applications with</p>

CROP	DISEASES	RATE PER ACRE	APPLICATION DIRECTIONS
	Rust ( <i>Puccinia arachidis</i> ) Web blotch ( <i>Phoma arachidicola</i> )	1.2	ground or aerial applications.

Specific Use Restrictions: Do not apply more than 9.9 pounds Terranil 90DF (9 lbs. a.i.) per acre during each growing season. Do not apply within 14 days of harvest. Do not allow livestock to graze in treated areas. Do not feed hay or threshings from treated fields to livestock.

Potato	Early blight ( <i>Alternaria solani</i> ) Late blight ( <i>Phytophthora infestans</i> ) Botrytis vine rot ( <i>B. cinerea</i> )	.625 pounds - then - 0.875 - 1 pounds	Begin applications at the low rate when vines are first exposed and leaf wetness occurs. Repeat applications at 5 to 10 day intervals (the minimum retreatment interval is 5 days).  Begin applying the higher label rates at 5 to 10 day intervals when any one of the following events occur: <ul style="list-style-type: none"><li>• Vines close between rows</li><li>• Late blight forecasting measures 18 disease severity values (DSV)</li><li>• The crop reaches 300 P-days</li></ul> Increase water spray volume as canopy density increases. Use the highest rate and shortest interval when plants are rapidly growing and disease conditions are severe.  Apply by ground, air, or chemigation. Do not exceed a 10-day interval between applications when using chemigation.
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Specific Use Restrictions: Do not apply more than 12.4 pounds of Terranil 90DF (11.25 lbs. a.i.) per acre during each growing season. Do not apply within 7 days of harvest.

Soybean	Anthrachnose ( <i>Colletotrichum truncatum</i> ) Diaporthe pod and stem rot ( <i>D. phaseolorum</i> ) Frogeye leaf spot ( <i>Cercospora sojina</i> ) Purple seed stain ( <i>C. kikuchii</i> ) Cercospora leaf blight ( <i>C. kikuchii</i> ) Septoria brown spot ( <i>S. glycines</i> ) Rust (suppression) ( <i>Phakopsora pachyrhizi</i> )		Apply in sufficient water to obtain complete coverage, using at least five gallons of water per acre for aerial application. Use the three application program in areas having a history of moderate to severe disease intensity. The minimum retreatment interval is 14 days.  Apply by ground, air, or chemigation.
		1.125 – 1.6 pounds	<b>Two application program</b> – For determinate varieties, make the first application at R3 stage (early pod set) and the second application at R5. For indeterminate varieties, make the first application when largest pods are 1-1¼ inches in length. Make the second application 14 days later.
		0.875 – 1.34 pounds	<b>Three application program</b> – For determinate varieties, make the first application at the beginning of flowering (R1), the second at early pod set (R3), and the third at beginning of seed formation (R5). For indeterminate varieties, make the first application one week after first flowering and continue applications at 14 day intervals.
	Stem canker ( <i>Diaporthe phaseolorum</i> )	0.875 pounds	Apply in 10 to 20 gallons of water per acre, as a band treatment directing spray to provide coverage of entire plant. Make the first application at time of emergence of the second trifoliate leaves (V2). If conditions favor stem canker disease, make a second and a third application. Make all applications at 14 day intervals.

Specific Use Restrictions: Do not apply more than 4.9 pounds Terranil 90DF (4.5 lbs. a.i.) per acre during each growing season. Do not apply within 6 weeks of harvest. Do not feed soybean hay or threshings from treated fields to livestock.

CROP	DISEASES	RATE PER ACRE	APPLICATION DIRECTIONS
Tomato	<b>FOLIAGE:</b> Early blight <i>(Alternaria solani)</i> Late blight <i>(Phytophthora infestans)</i> Gray leaf spot <i>(Stemphyllium botryosum)</i> Gray leaf mold <i>(Fluvia fluva; Cladosporium)</i> Septoria leaf spot <i>(S. lycopersici)</i> Target spot <i>(Corynespora cassiicola)</i>	1.25 - 1.75 pounds	Apply in sufficient water to obtain adequate coverage. Begin applications when dew or rain occur and disease threatens. Apply on a 7-10 day interval for foliage diseases. For fruit diseases, begin at fruit set and apply on a 7-14 day interval. Use the highest rate and shortest interval specified when disease conditions are severe. The minimum retreatment interval is 7 days.  Apply by ground, air, or chemigation.
	<b>FRUIT:</b> Anthracnose <i>(Colletotrichum spp.)</i> Alternaria fruit rot (black mold), <i>(A. alternata)</i> Rhizoctonia fruit rot <i>(R. solani)</i> Botrytis gray mold <i>(B. cinerea)</i> Late blight fruit rot. <i>(P. infestans)</i>	1.75 - 1.9 pounds	

Specific Use Restrictions: Do not apply more than 16.7 pounds Terranil 90DF (15.1 lbs. a.i.) per acre during each growing season. Terranil 90DF may be applied the day of harvest.

**Tree and Orchard Crops**

Apply Terranil 90DF in sufficient water and with proper calibration to obtain uniform coverage of tree canopy. For fruit and nut bearing crops, the maximum volume is 300 gallons per acre unless indicated otherwise in the specific use directions. For conifers, the maximum volume is 100 gallons per acre. 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, Terranil 90DF may be applied with aircraft using at least 20 gallons per acre. The minimum volume for application by aircraft to forest stands and Christmas trees is 10 gallons per acre. When concentrate sprays are used or when treating nonbearing or immature trees, the lower rate of Terranil 90DF listed may be used. DO NOT allow livestock to graze in treated areas.

CROP	DISEASES (Pathogen)	Lbs. Product PER (lbs. a.i. per)		APPLICATION DIRECTIONS
		ACRE	100 GAL*	
Almonds	Blossom blight/brown rot <i>(Monlinia spp.)</i> Shot hole <i>(Wilsonomyces carpophilus)</i> Scab <i>(Venturia carpophila)</i>	3.2	1.1	Use water volumes of 20-300 gallons per acre. For blossom blight, begin application at popcorn (pink bud) and follow with an application at full bloom. If weather is still conducive for disease development, another application may be made at petal fall.  For control of shot hole, make an application in the autumn at leaf fall. In the spring, make the first application at budbreak, followed by an application at shuck split to control nut infections and to control scab.  Apply by ground or air.

Specific Use Restrictions: Do not apply more than 20.9 pounds Terranil 90DF (18.75 lbs. a.i.) per acre during each growing season (leaf fall through shuck split). Do not apply within 150 days of harvest.

Filberts (Hazelnuts)	Eastern filbert blight <i>(Anisogramma anomala)</i>	3.2	1.1	Use a water volume of 20 to 300 gallons per acre. Begin applications at the onset of disease or when weather conditions favor disease development. Make applications on a 14-28 day schedule, using the shorter interval under heavy disease pressure
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		Lbs. Product PER (lbs. a.i. per)		
CROP	DISEASES (Pathogen)	ACRE	100 GAL*	APPLICATION DIRECTIONS
				(the minimum retreatment interval is 14 days). Apply by ground or air.

Specific Use Restrictions: Do not apply more than 10.1 pounds Terranil 90DF (9 lbs. a.i.) per acre during each growing season. Do not apply within 120 days of harvest. Do not apply through irrigation. Do not apply with oils, other pesticides, surfactants or fertilizers. Do not apply within one week of an oil-based pesticide application.

Peach, Nectarine, Apricot, Cherry, Plum, Prune	Leaf curl ( <i>Taphrina deformans</i> )  Shot Hole ( <i>Wilsonomyces carpophilus</i> )	2.5 – 2.7 pounds	0.875 - 1.125 pounds	For best control of both diseases apply at leaf fall in late autumn, using sufficient water and proper sprayer calibration to obtain uniform coverage. When conditions favor high disease levels, use the high rate of application and apply once or twice more in mid to late winter before budswell. If the leaf fall application is not practical, application of Terranil 90DF for control of leaf curl may be made at any time prior to budswell the following spring. Where Coryneum blight (shothole) occurs, also apply at budbreak to protect newly emerging leaves and at shuck split to prevent fruit infections.  Apply by ground or air.
	Lacy (russet) scab (plum/prune)	2.5 – 2.7 pounds	0.875 - 1.125 pounds	Make one application at popcorn (pink, red, or early white bud) and a second application at full bloom. If weather conditions favor disease development, make an additional application at petal fall.
	Cherry leaf spot ( <i>Blumeriella jaapii</i> )  Scab ( <i>Cladosporium carpophilum</i> )  Black knot (cherry, plum) ( <i>Apiosporina morbosa</i> )	2.5 – 2.7 pounds	0.875 - 1.125 pounds	In addition to the bloom applications listed above, make one application at shuck-split. Do not apply Terranil 90DF after shuck-split and before harvest. If additional disease control is needed before harvest, use another registered fungicide.  For control of cherry leaf spot after harvest, make one application to foliage within 7 days after fruit is removed. In orchards with a history of high leaf spot incidence, make a second application 10-14 days later.  Apply by ground or air.

Specific Use Restrictions: Do not apply more than 17.2 pounds of Terranil 90DF (15.5 lbs. a.i.) per acre during each growing season. Terranil 90DF may be applied the day of harvest. The minimum retreatment interval is 10 days.

Pistachio	Alternaria late blight suppression ( <i>A. Alternata</i> )  Botryosphaeria blight ( <i>B. dothidea</i> )	4.9	2.4	Use a water volume of 20 to 200 gallons per acre. Make the first application at the beginning of the blossom period followed by an application at full bloom. Make additional applications as required on a 28-day schedule (the minimum retreatment interval is 28 days). For Septoria and Botrytis, use the higher rate if disease pressure is severe.  NOTE: Use of this product may result in speckling or reddening of the fruit hull (epicarp). This effect is superficial and has not resulted in any change in nut quality.  Apply by ground or air.
	Septoria leaf spot ( <i>S. pistacina</i> )  Botrytis blight ( <i>B. cinerea</i> )	3.2 to 4.9	1.6 to 2.4	

Specific Use Restrictions: Do not apply more than 24 pounds Terranil 90DF (22.5 lbs. a.i.) per season. Do not apply within 14 days of harvest.

### CONIFERS (Pines/Spruces)

DISEASES CONTROLLED	TERRANIL 90DF RATE/ACRE	TERRANIL 90DF RATE/ 100 GALS.	APPLICATION DIRECTIONS
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Swiss needlecast ( <i>Phaeocryptopus gaeumannii</i> )	2.25 - 3.6 lbs.	2.25 - 3.6 lbs.	Single application technique: In Christmas tree plantations or forest stands, make one application in the spring when new shoot growth is ½ to 2 inches in length.
Scleroderris Canker (pines) ( <i>Gremmeniella abietina</i> )	1.125 - 2.25 lbs.	1.125 - 2.25 lbs.	Make first application in spring when new shoot growth is ½ to 2 inches in length. Make additional applications at 3 to 4 week intervals until conditions no longer favor disease development. In nursery beds, apply the highest rate specified on a 3 week schedule.
Swiss Needlecast ( <i>P. gaeumannii</i> )			
Sirococcus Tip Blight ( <i>S. conigenus</i> )	1.75 - 3 lbs.	1.75 - 3 lbs.	
Rhizosphaera Needlecast (spruces), ( <i>Rhizosphaera</i> spp.)	3.6 lbs.	3.6 lbs.	
Scirrhia brown spot (pines) ( <i>Mycosphaerella dearnessii</i> )			
Cyclaneusma and Lophodermium needlecasts (pines)	2.25 - 3.6 lbs.	2.25 - 3.6 lbs.	Apply in early spring prior to budbreak. Repeat applications at approximately 6 to 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)	1.125 - 2.25 lbs.	1.125 - 2.25 lbs.	Apply at budbreak and repeat at 3 to 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, Phoma twig blight	1.125 - 2.25 lbs.	1.125 - 2.25 lbs.	Begin applications in nursery beds when seedlings are 4 inches tall and when cool, moist conditions favor disease development. Make additional applications at 7 to 14 day intervals as long as favorable disease conditions persist.
Autoecious needle rust (Weir's cushion) (spruce)	1.75 to 3 lbs.	1.75 to 3 lbs.	Begin applications when 10% of buds have broken and twice thereafter at 7-10 day intervals.
Specific Use Restrictions: Do not apply more than 18.3 pounds Terranil 90DF (16.5 lbs. a.i.) per acre during each growing season. The minimum retreatment interval for established trees is 21 days. The minimum retreatment interval in nursery beds is 7 days.			

\*Volumetric rates to be used only with full dilute spray volume specified on this label for tree and orchard crops.

**TURF**

**Golf Course Fairways, Sod Farms, Lawns (around institutional, public, commercial and industrial buildings), & Other Turf grasses (parks, recreational areas and athletic fields) and Ornamental Turf grass:**

NOTE: Use of this product on home lawns is prohibited.

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

Do not apply more than 28.9 pounds Terranil 90DF (26 lbs. a.i.) per acre per growing season. The minimum retreatment interval for single application rates up to 8.1 pounds Terranil 90DF (7.3 lbs. a.i.) per acre is 7 days. The minimum retreatment interval after an application of a rate greater than 8.1 pounds Terranil 90DF (7.3 lbs. a.i.) per acre is 14 days. Do not apply more than one application of a rate greater than 8.1 pounds Terranil 90DF (7.3 lbs. a.i.) per acre per growing season. Apply Terranil 90DF 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.

DO NOT mow or water after treatment until spray deposited on turf grass is thoroughly dry; Terranil 90DF should always be used in conjunction with good turf management practices.

**Golf Course Tees and Greens:**

**Golf Course Tees:** Do not apply more than 57.7 pounds Terranil 90DF (52 lbs. a.i.) per acre per growing season. The minimum retreatment interval for single application rates up to 8.1 pounds Terranil 90DF (7.3 lbs. i.a.) per acre is 7 days and the minimum retreatment interval for single application rates greater than 8.1 pounds Terranil 90DF (7.3 lbs. a.i.) per acre is 14 days. Do not apply more than two applications of a rate greater than 8.1 pounds Terranil 90DF (7.3 lbs. a.i.) per acre per growing season.

**Golf Course Greens:** Do not apply more than 81 pounds Terranil 90DF (73 lbs. a.i.) per acre per growing season. The minimum retreatment interval for single application rates up to 8.1 pounds Terranil 90DF (7.3 lbs. a.i.) per acre is 7 days and the minimum retreatment interval for single application

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rates greater than 8.1 pounds Terranil 90DF (7.3 lbs. a.i.) per acre is 14 days. Do not apply more than two applications of a rate greater than 8.1 pounds Terranil 90DF (7.3 lbs. a.i.) per acre per growing season.

Apply Terranil 90DF in an adequate amount of water to provide complete coverage. This amount may vary from 90 to 450 gallons per acre. See below for suggested rates and timing. Under severe disease conditions, use the high rate and apply on a 7-day schedule.

DO NOT mow or water after treatment until spray deposited on turf grass is thoroughly dry; Terranil 90DF should always be used in conjunction with good turf management practices.

Diseases Controlled*	Application Interval (Days)	Pre-Disease Rates <sup>a</sup>			Post-Disease Rates <sup>a</sup>		
		ozs. product 1000 sq. ft.	lbs. product Per acre	lbs. ai/acre	ozs. product 1000 sq. ft.	lbs. product Per acre	lbs. ai/acre
Dollar Spot	7 to 10	0.9 <sup>b</sup> to 1.6	2.3 <sup>b</sup> to 4.5	1.9 <sup>b</sup> to 3.8	-	-	-
	7 to 21	1.6 to 3.0	4.5 to 8.1	3.8 to 6.7	-	-	-
	14	-	-	-	3.4 to 4.5	9.2 to 12.5	7.6 to 10.4
Leafspot Melting-out Brown blight	7-10	1.6	4.5	3.8	-	-	-
	7-21	1.6 to 3.0	4.5 to 8.1	3.8 to 6.7	-	-	-
	14	-	-	-	3.4 to 4.5	9.2 to 12.5	7.6 to 10.4
Brown patch	7-14	1.6 to 3.0	4.5 to 8.1	3.8 to 6.7	-	-	-
	14	-	-	-	3.4 to 4.5	9.2 to 12.5	7.6 to 10.4
Gray Leafspot	7-10	1.6 to 3.0	4.5 to 8.1	3.8 to 6.7	-	-	-
	14	-	-	-	3.4 to 4.5	9.2 to 12.5	7.6 to 10.4
Red Thread	7-10	1.6 to 3.0	4.5 to 8.1	3.8 to 6.7	-	-	-
	14	3.0 to 4.6	8.1 to 12.5	6.8 to 10.4	4.5	12.5	10.4
Anthracnose	7 to 14	2.5 to 3.0	6.8 to 8.1	5.7 to 6.7	-	-	-
	14	3.0 to 5.6	8.1 to 12.5	6.8 to 10.4	-	-	-
Copper Spot	14	3.4 to 4.5	9.2 to 12.5	7.6 to 10.4	4.5	12.5	10.4
Stem Rust (Bluegrass)	14	3.4 to 4.5	9.2 to 12.5	7.6 to 10.4	4.5	12.5	10.4
DICHONDRA: Leafspot (CA only)	14	3.4 to 4.5	9.2 to 12.5	7.6 to 10.4	4.5	12.5	10.4
Gray Snow Mold <sup>c</sup>	30	4.5	12.5	10.4	-	-	-
Fusarium (Gerlachia) Patch <sup>c</sup>	21-28	4.5	12.5	10.4	-	-	-
Algae <sup>c</sup>	7 to 14	1.6 to 3.0	4.5 to 8.1	3.8 to 6.7	-	-	-
	14	-	-	-	-	-	-

<sup>a</sup> Golf Course Fairways, Sod Farms, Lawns (around institutional, public, commercial and industrial buildings), & Other Turf grasses (parks, recreational areas and athletic fields) and Ornamental Turf grass: Limit of one application per season at rates greater than 7.3 lbs ai/acre (8.1 lbs/acre or 3.0 oz/1000 sq. ft.) of Terranil 90DF.

Golf Course Tees and Greens: Limit of two applications per season at rates greater than 7.3 lbs ai/acre (8.1 lbs/acre or 3.0 oz/1000 sq. ft.) of Terranil 90DF.

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

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

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

- Dollar spot: *Sclerotinia homeocarpa*; *Lanzia* or *Moellerodiscus* spp.
- Leafspots, Melting-out, Brown blight: *Drechslera* spp. (including *D. poae*, *D. siccans*), *Bipolaris sorokiniana*, *Curvularia* spp.
- Brown patch: *Rhizoctonia solani*, *R. zeae*, *R. cerealis*
- Gray leafspot: *Pyricularia grisea*, *P. oryzae*
- Red thread: *Laetisaria fuciformis*
- Anthracnose: *Colletotrichum graminicola*
- Copper spot: *Gloeocercospora sorghi*
- Stem rust: *Puccinia graminis*
- Dichondra leafspot: *Alternaria* spp.
- Gray Snow Mold: *Typhula* spp.
- Fusarium (Gerlachia) Patch
- Algae

Gray snow mold caused by *Typhula* spp. – Group A and B – Turf: Apply in sufficient water to obtain adequate coverage (90 to 450 gallons per acre). Apply one application of 12.5 pounds Terranil 90DF (11.3 lbs. a.i.) per acre of turf area. 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 Terranil 90DF at 12.5 pounds (11.3 lbs. a.i.) per acre 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 Terranil 90DF at 12.5 pounds (11.3 lbs. a.i.) per acre in combination with products containing iprodione at 88 ounces active ingredient per acre 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 12.5 pounds of Terranil 90DF (11.3 lbs. a.i.) per acre of turf area. Make application in late autumn. Group B – Turf: Apply a second application of 12.5 pounds Terranil 90DF (11.3 lbs. a.i.) 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 turf grasses, apply Terranil 90DF at the rate of 4.6 to 8.1 pounds (4.1 to 7.3 lbs. a.i.) per acre on a 7 to 14 day schedule.



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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 turf grass recovery in conjunction with a Terranil 90DF application at the rate of 9.2 to 12.5 pounds (8.25 to 11.3 lbs. a.i.) per acre. Group B – Turf: A second application of Terranil 90DF at the 12.5 pound (11.3 lbs. a.i.) per acre rate may be made 14 days after the first application.

Group A and B – Turf: Following applications of the 12.5 pound (11.3 lbs. a.i.) rate, several applications of Terranil 90DF at a rate of 4.6 to 8.1 pounds (4.1 to 7.3 lbs. a.i.) per acre on a 7 to 14 day interval may be necessary for turf grass recovery. Only a preventive spray program with Terranil 90DF will prevent a recurrent of the algae when environmental conditions are favorable.

#### Ornamental Plants

Apply Terranil 90DF at a rate of 1.3 pounds (1.16 lbs. a.i.) per 100 gallons of water unless other directions are given in the tables below. DO NOT apply more than 40.3 pounds Terranil 90DF (36.4 lbs. a.i.) per 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 Terranil 90DF at 7 day intervals. The minimum retreatment interval is 7 days. Terranil 90DF should be applied to plants when both foliage and flowers are dry, or nearly dry.

DO NOT combine Terranil 90DF 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.

Terranil 90DF may be used in greenhouses. DO NOT use mistblowers or high pressure spray equipment when making applications of Terranil 90DF in greenhouses.

Use of Terranil 90DF 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 Terranil 90DF 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.

Ornamentals recommended for treatment with Terranil 90DF:

#### 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)	Rhododendrum (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 (1,2)
Begonia (1)	Lily (1)
Camelia (2)	Marigold (1)
Carnation (1,2)	Narcissus (1)
Chrysanthemum (1,2)	Pansy (1)
Crocus (1)	Petunia (1,4)
Daffodil (1)	Phlox (1)
Daisy (1)	Poinsettia <sup>b</sup> (1)
Geranium (1,6)	Rose <sup>c</sup> (1)
Gladiolus (1,2)	Statice (1)
Hollyhock (6)	Tulip (1)
Hydrangea (foliage only) (1,6)	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 0.9 pound Terranil 90DF (0.825 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)
Boston fern (1)	Parlor palm
Dumbcane (Diffenbachia) (1)	(Chamaedorea) (1)
Dracaena (1)	Peperomia (1)

Fatsia (Aralia) (1)  
Ficus (1)  
Florida Ruffie Fern (1)  
Leatherleaf Fern (1)  
Lipstick plant (1)

Philodendron (1,4)  
Prayer plant (Maranta) (1)  
Syngonium (1)  
Zebra plant (Aphelandra) (1)

<sup>d</sup>Use 2.3 pounds of Terranil 90DF (2.1 lbs. a.i.) per 100 gallons of water.

**Diseases Controlled with Terranil 90DF**

**1. Leafspots/Foliar Blights:**

Actinopelte leafspot  
Alternaria leafspot/leaf blight  
Anthracnose leaf blotch, spot  
Anthracnose (Discula) blight  
Ascochyta blight  
Bipolaris (Helminthosporium) leaf spot  
Black spot on roses  
Botrytis leaf spot, leaf blight  
Cephalosporium leafspot  
Cercospora leafspot  
Cercosporidium leafspot  
Corynespora leafspot  
Coryneum blight (shot-hole)  
Curvularia leafspot  
Cylindrosporium leafspot  
Dactylaria leafspot  
Didymellina leafspot  
Drechslera leafspot

Fabraea (Entomosporium) leafspot  
Fusarium leafspot  
Gloeosporium black leafspot  
Ink spot (Drechslera)  
Marssonina leafspot  
Monilinia blossom blight, twig blight  
Mycosphaerella ray blight  
Myrothecium leafspot, brown rot  
Nematostoma leaf blight  
Phyllosticta leafspot  
Ramularia leafspot  
Rhizoctonia web blight  
Septoria leafspot  
Sphaeropsis leafspot  
Stagonospora leaf scorch  
Tan leafspot (Curvularia)  
Volutella leaf blight

**2. Flower spots/blights:**

Botrytis flower spot, flower blight  
Curvularia flower spot  
Monilinia blossom blight  
Ovulinia flower blight  
Rhizopus blossom blight  
Sclerotinia flower blight

**3. Cylindrocladium stem canker**

**4. Phytophthora leaf blight, dieback**

**5. Powdery mildews:**

*Erysiphe cichoracearum*  
*Microsphaera* spp.

**6. Rusts:**

*Gymnosporangium* spp.  
*Pucciniastrum hydrangeae*  
*Puccinia* spp.

**7. Taphrina blister**

**8. Scab (*Venturia inaequalis*)**

The following ornamental plant species that have been tested with Terranil 90DF at recommended rates did not exhibit phytotoxicity:

**Botanical Name**

*Aechmea fasciata*  
*Araucaria heterophylla*  
*Asplenium nidus*  
*Bougainvillea* spp.  
*Caladium* spp.  
*Calathea makoyana*  
*Calistephus chinensis*  
*Carissa grandiflora*  
*Clerodendron thomsonae*  
*Codiaeum* spp.  
*Cordyline terminalis*  
*Crassula argentea*  
*Crythomium falcatum*  
*Dionaea muscipula*  
*Dizygotheca elegantissima*  
*Epipremnum aureum*  
*Episcia cupreata*  
*Fittonia* spp.

**Common Name**

Aechmea  
Norfolk Island Pine  
Birdnest Fern  
Bougainvillea  
Caladium  
Peacock plant  
Aster  
Natal plum  
Bleeding Heart  
Croton  
Ti Plant  
Jade Plant  
Holly Leaf Fern  
Venus Fly Trap  
False Aralia  
Golden Pothos, Scindapsus  
Flame Violet  
Silver-nerve Plant

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*Gerbera jamesonii*  
*Gynura sarmentosa*  
*Gypsophila paniculata*  
*Hoya spp.*  
*Ilex cornuta*  
*Ilex crenata*  
*Impatiens spp.*  
*Pilea cadierei*  
*Platynerium spp.*  
*Sansevieria trifasciata "Hahnii"*  
*Toiweia menziesii*  
*Yucca elephantipes*  
*Zygocactus truncatus*

Gerbera Daisy  
 Purple Passion Vine  
 Baby's Breath  
 Wax Plant  
 Chinese Holly  
 Japanese Holly  
 Impatiens  
 Aluminum Plant  
 Staghorn Fern  
 Birdsnest Sansevieria  
 Piggy-back Plant  
 Spineless Yucca  
 Christmas Cactus

NOTE: DO NOT apply Terranil 90DF to either green or variegated Pittosporum or to Schefflera, as multiple applications have been demonstrated to cause phytotoxic responses.

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