

Zio™

SPECIMEN



Fungicide for disease control on turfgrass and landscapes, on vegetable and fruit transplants grown in greenhouses, and on landscape and ornamental plants grown in greenhouses, nurseries, interiorscapes, shadehouses, and lathhouses.

OMRI Listed™. For Use in Organic Lawn Care

Active Ingredient: Pseudomonas chlororaphis strain AFS009*50.0%
Other Ingredients:..... 50.0%
Total: 100.0%

* Contains not less than 1 X 10⁶ cfu/g of product.

KEEP OUT OF REACH OF CHILDREN CAUTION

Refer to inside of label booklet for additional precautionary statements and directions for use.

Notice: Read the entire label before using. Use only according to label directions. Before buying or using this product, read *Warranty Disclaimer* and *Misuse* statements inside label booklet. If terms are unacceptable, return at once unopened.

EPA Reg. No. 67690-77

FPL20171129

Zio™ is a trademark of SePRO Corporation.

Manufactured for: **SePRO Corporation**

11550 North Meridian Street, Suite 600 • Carmel, IN 46032, U.S.A.

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION

Harmful if inhaled, absorbed through the skin, or swallowed. Causes moderate eye irritation. Avoid breathing dust or spray mist. Avoid contact with skin, eyes or clothing. Remove and wash contaminated clothing before reuse. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

FIRST AID

If inhaled	<ul style="list-style-type: none"> • Move person to fresh air. • If person is not breathing, call 911 or an ambulance; then give artificial respiration, preferably mouth-to-mouth, if possible. • Call a poison control center or doctor for further treatment advice.
If in eyes	<ul style="list-style-type: none"> • Hold eye open and rinse slowly and gently with water for 15 - 20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
If on skin or clothing	<ul style="list-style-type: none"> • Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15 to 20 minutes. • Call a poison control center or doctor for treatment advice.
If swallowed	<ul style="list-style-type: none"> • 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 do so 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. In case of emergency endangering health or the environment involving this product, call **INFOTRAC** at **1-800-535-5053**.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- long-sleeved shirt and long pants
- protective eyewear
- waterproof gloves
- shoes plus socks

Mixers / loaders and applicators must wear a NIOSH-approved particulate respirator with any N, R, or P filter with NIOSH approval number prefix TC-84A; or a NIOSH-approved powered air purifying respirator with an HE filter with NIOSH approval number prefix TC-21C. Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization. Follow the manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables are available, use detergent and hot water. Keep and wash PPE separately from other laundry.

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

IMPORTANT: When reduced PPE is worn because a closed system is being used, handlers must be provided all PPE specified above for "applicators and other handlers" and have such PPE immediately available for use in an emergency, such as a spill or equipment breakdown.

USER SAFETY RECOMMENDATIONS:

Users should:

- remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

This product may be toxic to bees and other pollinating insects exposed to direct treatment. Do not apply this product while bees or other pollinating insects are actively visiting the treatment area. This product may be toxic to certain nontarget terrestrial arthropods. Minimize spray drift away from target area to reduce effects to nontarget insects. For terrestrial uses - Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwater or rinsate.

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 State or Tribal 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 the 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 4 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
- Waterproof gloves
- Shoes plus socks
- Protective eyewear

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

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. Keep unprotected persons out of treated areas until sprays have dried.

PRODUCT INFORMATION

Zio is a biological fungicide containing the active ingredient *Pseudomonas chlororaphis* strain AFS009 for use on growing turfgrass, ornamental plants, and non-bearing vegetable and fruit transplants to control plant diseases including Dollar Spot, *Rhizoctonia*, *Pythium*, Phytophthora, *Botrytis*, Anthracnose, Fusarium, Brown Patch and Pythium Blight. Zio may be mixed with water and applied as a foliar spray, soil drench, in furrow spray, transplant spray or dip, cuttings or bare root dip, hydroponic or chemigation application in field, greenhouse, interiorscape, lathhouse, nursery, or shadehouse use sites. It may also be mixed with potting mix or applied dry in furrow.

USE INSTRUCTIONS

Do not apply by aerial application.

Zio has been evaluated for phytotoxicity on a variety of plants under various normal growing conditions. However, testing all plant varieties, in all mixtures and combinations, is not feasible. Prior to treating all plants, test a small portion of the plants for sensitivity.

Mixing directions

Important: Do not add Zio to the mix tank before introducing the correct amount of water. Fill tank with ½ to ¾ of the amount of water for the area to be treated. Start the mechanical or hydraulic agitation to provide moderate circulation before adding Zio. Allow sufficient mixing time to ensure complete dispersion and mixing of Zio. Finish filling the mix tank. Maintain circulation while loading and spraying. Do not mix more Zio than can be used in 24 hours.

Spray volume

For in-furrow spray applications, use at least 5 gallons of total volume per acre in water-based sprays.

Tank mixing

Do not combine Zio in the spray tank with other pesticides, surfactants, adjuvants, or fertilizers if there has been no previous experience or use of the combination to show it is physically compatible, effective, and non-injurious under your use conditions. Observe the most restrictive of the labeling limitations and precautions of all products used in mixtures.

To ensure compatibility of tank-mix combinations, they must be evaluated prior to use. To determine the physical compatibility of this product with other products, use a jar test. Using a quart jar, add the proportionate amounts of the products to one quart of water with agitation. Add dry formulations first, then flowables, and then emulsifiable concentrates last. After thoroughly mixing, let this mixture stand for 5 minutes. If the combination remains mixed or can be readily remixed, it is physically compatible. Once compatibility has been proven, use the same procedure for adding required ingredients to the spray tank.

CHEMIGATION USE DIRECTIONS

Spray preparation

First, prepare a suspension of Zio in a mix tank. Fill tank with ½ to ¾ of the amount of water for the area to be treated. Start mechanical or hydraulic agitation. Add the required amount of Zio, and then the remaining volume of water. Then set the system to deliver a minimum of 0.1 to 0.3 inch of water per acre. Start system and uniformly inject the suspension of Zio into the irrigation water line so as to deliver the correct rate of Zio per acre. Inject the suspension of Zio with a positive displacement pump into the main line ahead of a right angle turn to ensure adequate mixing. Zio is to be metered continuously for the duration of the water application.

Do not combine Zio with other pesticides, surfactants, adjuvants, or fertilizers for application through chemigation equipment unless prior experience has shown the combination to be physically compatible, effective and non-injurious under conditions of use.

General Requirements

- Apply this product only through drip (trickle) irrigation systems. Do not apply this product through any other type of irrigation system.
- Plant injury or lack of effectiveness 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 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.

Specific Requirements for Chemigation Systems Connected to Public Water Systems

- 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 flow outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- Do not apply when wind speed favors drift beyond the area intended for treatment.

Specific Requirements for Drip (Trickle) Chemigation

- The system must contain a functional check valve, vacuum relief valve and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch that will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being filled with a system interlock.

Application Instructions for All Types of Chemigation

- Remove scale, pesticide residues, and other foreign matter from the chemical supply tank and entire injector system. Flush with clean water. Failure to provide a clean tank, void of scale or residues, may cause product to lose effectiveness or strength.
- Determine the treatment rates as indicated in the directions for use and make proper dilutions.
- Prepare a solution in the chemical tank by filling the tank with the required water and then adding product as required. Utilize agitation to keep solution in suspension.

TARGET PLANT DISEASES

Anthracnose (*Colletotrichum graminicola*)
Aerial Blight (*Rhizoctonia* spp., *Sclerotinia*)
*Botrytis**
Brown Patch (*Rhizoctonia* spp.)
Damping Off (*Fusarium nivale*)
Dollar Spot* (*Sclerotinia*)
Pythium Blight (*Pythium* spp.)
Pythium Root Rot (*Pythium* spp.)
Phytophthora
Stem & Root Rot (*Phytophthora*, *Rhizoctonia* spp.)

*Suppression of *Botrytis* and Dollar Spot requires preventative applications and better suppression is noted in moderate to low disease pressure.

APPLICATION RATES

Repeat at 7- to 21-day intervals as needed. Thoroughly cover plant foliage until runoff and soil surfaces with spray solution. Pre-harvest Interval (PHI) = 0 days.

Vegetable and Fruit Transplants, and Ornamental Plants (Greenhouse, Lathhouse, Shadehouse, Nursery, Field)			
	APPLICATION METHOD		APPLICATION RATE
Flowers, Bedding Plants, and Ornamentals Shadehouse and Outdoor Nursery Plants Deciduous trees (Maple, Oak, etc.), Ornamentals, and Pine. Vegetable and Fruit Transplants Such as, but not limited to; Beans, beet, berry crops, carrot, celery, crucifer crops, cucurbit crops, eggplant, herbs, lettuce, onion, peppers, spices, spinach, tomato	Anthraxnose (<i>Colletotrichum graminicola</i>) Aerial Blight (<i>Rhizoctonia</i> spp.) (<i>Sclerotinia</i>) Damping Off (<i>Fusarium nivale</i>)	Soil Drench	6.7 - 10 oz per 10 gallons of water. Thorough soil coverage and soil wetting is necessary to obtain optimal control.
		Foliar Spray	6.7 - 10 oz per 10 gallons of water. Use sufficient volume to obtain thorough, uniform plant coverage.
	Pythium Blight (<i>Pythium</i> spp.) Pythium Root Rot (<i>Pythium</i> spp.) Stem & Root Rot (<i>Phytophthora</i> ; <i>Rhizoctonia</i> spp.) Botrytis Blight and Gray Mold* (<i>Botrytis</i> spp.)	Chemigation	6.7 - 10 oz per 10 gallons of water. Use 1,000 - 8,000 gallons of solution to treat 1 acre.
		Potting media incorporation	1.03 - 5.03 oz per cubic foot
		In-furrow spray or transplant starter solution	2.5 - 5.0 lbs per 1/2 acre

* Suppression of *Botrytis* requires preventative applications and maximum suppression is noted in moderate to low disease pressure.

Established Turf and Turf Production Applications:

Use on all cool and warm season turfgrass species including Bentgrass, Bluegrass, Bermudagrass (common and hybrid), Fescue, Ryegrass, St. Augustinegrass, Zoysiagrass, Seashore Paspalum and *Poa annua*. Use on greens, tees, fairways and roughs, sports turf, parks, cemeteries, commercial turf, roadsides, (residential) lawns, sod farms, seed production grasses and all ornamental grass species.

Turf Application Timing:

Apply Zio throughout the growing season on all types of soils and turfgrass species. Apply when ground temperature has reached 45° F (7° C) or above until late fall prior to light frost. Begin applications prior to when environmental conditions are conducive to disease development and throughout periods of disease and stress.

TURF APPLICATIONS				
Target Diseases	Application Rate (oz. product per 1,000 sq. ft.)	Application Interval	Application Volume	Application Directions
Anthraxnose (<i>Colletotrichum graminicola</i>) Brown Patch (<i>Rhizoctonia</i> spp.) Dollar Spot* (<i>Sclerotinia</i>) Pythium Blight (<i>Pythium</i> spp.) Pythium Root Rot (<i>Pythium</i> spp.)	1.8 - 6.0	7 - 21 days	1 - 6 gallons (3.78 - 22.7 liters per 100 m ²) per 1,000 sq. ft.	Begin applications prior to when conditions are conducive to disease development. Continue applications throughout periods of disease and stress.

*Suppression of Dollar Spot requires preventative applications and better suppression is noted in moderate to low disease pressure.

TURF ESTABLISHMENT APPLICATIONS FOR PATHOGEN/DISEASE CONTROL		
Application	Application Rate (oz product / 1,000 sq. ft.)	Frequency
New Seeding, Over Seeding, Hydro Seeding	1.8 - 6.0	Apply at time of seed germination. Repeat every 14 days during grow-in period.
Sod Installation	1.8 - 6.0	Apply at time of installation and repeat in 14 - 21 days. Continue during disease and stress period.
Sod Production	1.8 - 6.0	Begin applications at time of seeding, plugging, or newly cut ribbons. Repeat every 14 - 21 days during disease and stress periods.

Established Landscape Applications:

Use Zio on all ornamentals (i.e. landscape plants, trees, shrubs, annuals, perennials, ground covers and tropical plants), outdoors and in interiorscapes for control of a broad spectrum of plant diseases.

Landscape Application Timing:

Apply Zio throughout the growing season on all types of soils, turfgrass, lawns, woody ornamentals, trees, perennials and other landscape and horticultural materials. Apply when ground temperature has reached 45° F (7° C) or above until late fall prior to light frost. Begin applications prior to when environmental conditions are conducive to disease development and throughout periods of disease and stress.

ORNAMENTAL APPLICATIONS			
Plant Material	Target Diseases	Application Rate	Application Directions
All Types of Ornamental Trees, Ornamental Shrubs, Ornamental Flowering Plants, and Other Ornamentals Annuals Perennials Bedding Plants Ground Covers Potted Flowers Foliage Plants Woody Ornamentals Deciduous Trees & Shrubs Evergreen Trees & Shrubs Tropical Foliage Palms Container Grown Plants (Indoors, Outdoors, Fields, Landscape Areas)	Anthraxnose (<i>Colletotrichum graminicola</i>)	6.7 - 10 oz. per 10 gallons of water. Thoroughly drench soil around plug, planting hole, tree canopy, root ball, or container. Foliar Spray: 6.7 - 10 oz. per 10 gallons of water Thoroughly spray foliage until run-off.	New Plantings and Transplants: Apply at time of planting to prevent disease. Reapply 7-14 days through growing season. Established Plantings: Apply prior to disease pressure at 7-14 day intervals. While disease conditions persist, re-treat at 7-14 day intervals.
	Aerial Blight (<i>Rhizoctonia</i> spp.) (<i>Sclerotinia</i>)		
	Damping Off (<i>Fusarium nivale</i>)		
	Pythium Blight (<i>Pythium</i> spp.)		
	Pythium Root Rot (<i>Pythium</i> spp.)		
	Stem & Root Rot (<i>Rhizoctonia</i> spp.) (<i>Phytophthora</i>)		
Botrytis Blight and Gray mold* (<i>Botrytis</i> spp.)			

* Suppression of *Botrytis* requires preventative applications and maximum suppression is noted in moderate to low disease pressure.

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

Pesticide Storage: Store in original container in a cool, dry place. Avoid overheating.

Pesticide Disposal: To avoid wastes, use all material in this container by application according to label directions. If wastes cannot be avoided, offer remaining product to a waste disposal facility or pesticide disposal program (often such programs are run by state or local governments or by industry).

Container Handling: Nonrefillable container. Do not reuse or refill this container.

Completely empty bag into application equipment. Then offer for recycling if available, or dispose of empty bag in a sanitary landfill or by incineration. Do not burn, unless allowed by state and local ordinances. (For instances where state and local ordinances do allow burning): If burned, stay out of smoke.

Uses of Zio other than those specified on this label are not licensed or otherwise authorized through the purchase of this product and the use of this product for other purposes including research and/or experimental uses are expressly prohibited without the written consent of SePRO Corporation.

Warranty Disclaimer: SePRO Corporation warrants that this product conforms to the chemical description on the product label. Testing and research have also determined that this product is reasonably fit for the uses described on the product label. To the extent consistent with applicable law, SePRO Corporation makes no other express or implied warranty of fitness or merchantability nor any other express or implied warranty and any such warranties are expressly disclaimed.

Misuse: Federal law prohibits the use of this product in a manner inconsistent with its label directions. To the extent consistent with applicable law, the buyer assumes responsibility for any adverse consequences if this product is not used according to its label directions. In no case shall SePRO Corporation be liable for any losses or damages resulting from the use, handling or application of this product in a manner inconsistent with its label.

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