



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

April 22, 2021

Jane Miller
Regulatory Agent
Aquatrols Corporation of America
c/o Biologic Regulatory Consulting, Inc.
10529 Heritage Bay Blvd.
Naples, FL 34120

Subject: Registration Review Label Mitigation for Metalaxyl
Product Name: VIREO 2E
EPA Registration Number: 94396-19 formerly 70506-275
Application Dates: 11/25/2020
Decision Numbers: 568276

Dear Ms. Miller:

The Agency, in accordance with the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended, has completed reviewing all the information submitted with your application to support the Registration Review of the above referenced product in connection with the Metalaxyl Interim Decision, and has concluded that your submission is acceptable. The label referred to above, submitted in connection with registration under FIFRA, as amended, is acceptable.

Should you wish to add/retain a reference to the company's website on your label, then please be aware that the website becomes labeling under the Federal Insecticide Fungicide and Rodenticide Act and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) list examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product's label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA's Office of Enforcement and Compliance.

A copy of your label stamped "Accepted" is enclosed. Products shipped after 12 months from the date of this amendment must bear the new revised label. Your release for shipment of the product bearing the amended label constitutes acceptance of these conditions. If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6.

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If you have any questions about this letter, please contact Quinn Gavin by phone at 703-347-0325, or via email at gavin.quinn@epa.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read "Linda Arrington".

Linda Arrington, Branch Chief
Risk Management and Implementation Branch 4
Pesticide Re-Evaluation Division
Office of Pesticide Programs

Enclosure

METALAXYL	GROUP	4	FUNGICIDE
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VIREO 2E

Metalaxyl Fungicide

Active Ingredient:

Metalaxyl: N-(2,6-dimethylphenyl)-N-(methoxyacetyl) alanine methyl ester23.0%

Other Ingredients 77.0%

Total: 100.0%

Contains 2 lbs. active ingredient per gallon.

KEEP OUT OF REACH OF CHILDREN

WARNING/AVISO

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

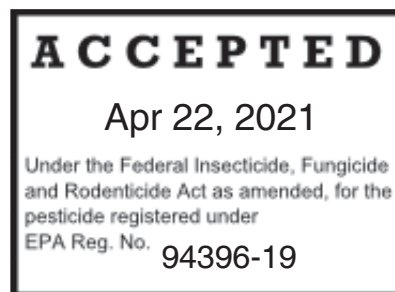
See inside label booklet for First Aid, Precautionary Statements and Directions for Use.

EPA Reg. No. 94396-19

EPA Est. No.: _____

Net Contents:

Aquatrols Corporation of America
1273 Imperial Way
Paulsboro, NJ 08066



FIRST AID	
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 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.
IF ON SKIN OR CLOTHING:	<ul style="list-style-type: none"> • Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
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.
<p>Note to Physician: Consideration should be given to gastric lavage with an endotracheal tube in place. A slurry of activated charcoal in water may be left in stomach. Give a saline laxative followed by symptomatic and supportive care.</p>	
<p>HOTLINE NUMBER</p>	
<p>For medical emergency, call the Rocky Mountain Poison Control Center at 1-866-673-6671. Have the product container or label with you when calling a poison control center or doctor, or going for treatment.</p> <p>FOR CHEMICAL EMERGENCY: Spill, leak, fire, exposure, or accident call CHEMTREC 1-800-424-9300</p>	

PRECAUTIONARY STATEMENTS
Hazards to Humans and Domestic Animals
WARNING/AVISO

Causes substantial but temporary eye injury. Harmful if swallowed, absorbed through the skin or if inhaled. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Do not get in eyes or on clothing. Avoid contact with skin. Avoid breathing vapors or spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum or using tobacco. Remove and wash contaminated clothing before reuse.

Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves made of barrier laminate, butyl rubber \geq 14 mils, neoprene rubber \geq 14 mils, nitrile rubber \geq 14 mils., polyvinyl chloride (PVC) \geq 14 mils, or Viton \geq 14 mils.
- Shoes plus socks
- Protective eyewear such as goggles, face shield or safety glasses.

User Safety Requirements:

Follow manufacturer's instructions for cleaning/maintaining PPE. If not such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering Control Statements

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

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 the gloves before removing. As soon as possible, wash thoroughly and change into clean clothing

Environmental Hazards

Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Apply only as specified on this label. Do not apply when weather conditions favor drift from treated areas. Do not contaminate water when disposing of equipment washwaters or rinsate.

Groundwater Advisory Statement

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

Physical or Chemical Hazards

Do not use or store near heat or open flame.

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.

Maximum usage when applying both metalaxyl- and mefenoxam-containing products to the same crop within the same year: Do not apply more than the maximum yearly total application rate for the active ingredient as stated on the label of the product containing the lowest yearly total on that crop.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 48 hours. Exception: If the product is soil-injected or soil-incorporated, 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.

For Turf & Ornamental: Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 48 hours. Exception: If the product is soil-incorporated, or applied by drenching, 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. There is no restricted-entry interval (REI) requirement following soil injection, soil incorporated, or a soil drench application to ornamentals.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water is:

- Coveralls
- Chemical resistant gloves made of barrier laminate, butyl rubber \geq 14 mils, neoprene rubber \geq 14 mils, nitrile rubber \geq 14 mils., polyvinyl chloride (PVC) \geq 14 mils, or Viton \geq 14 mils.
- Shoes plus socks
- Protective eyewear such as goggles, face shield or safety glasses

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 or pets to enter the treated area until sprays have dried..

For Turf & Ornamental: Do not enter treated areas without footwear until sprays have dried.

FAILURE TO FOLLOW THE DIRECTIONS FOR USE AND PRECAUTIONS ON THIS LABEL MAY RESULT IN CROP INJURY, POOR DISEASE CONTROL, OR ILLEGAL RESIDUES.

PRODUCT INFORMATION

Vireo 2E is a systemic fungicide for use on selected crops to control certain diseases caused by members of the Oomycete class of fungi. Other fungicides must be used to control diseases incited by other classes of fungi.

THIS PRODUCT IS NOT TO BE USED IN FOLIAR APPLICATIONS UNLESS SPECIFIED ON THIS LABEL OR IN SOLUTIONS USED TO DIP PLANTS.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, **Vireo 2E** contains a Group 4 fungicide. Any fungal population may contain individuals naturally resistant to **Vireo 2E** and other Group 4 fungicides. A gradual or total loss of pest control may occur over time if these fungicides are used repeatedly in the same fields. Appropriate resistance-management strategies should be followed.

To delay fungicide resistance, take one or more of the following steps:

- Rotate the use of **Vireo 2E** or other Group 4 fungicides within a growing season sequence with different groups that control the same pathogens.
- Use tank mixtures with fungicides from a different group that are equally effective on the target pest when such use is permitted. Use at least the minimum application rate as labeled by the manufacturer.
- Adopt an integrated disease management program for fungicide use that includes scouting, uses historical information related to pesticide use, and crop rotation, and which considers host plant resistance, impact of environmental conditions on disease development, disease thresholds, as

- well as cultural, biological and other chemical control practices.
- Where possible, make use of predictive disease models to effectively time fungicide applications. Note that using predictive models alone is not sufficient to manage resistance.
 - Monitor treated fungal populations for resistance development.
 - Contact your local extension specialist or certified crop advisor for any additional pesticide resistance-management and/or IPM recommendations for specific crops and pathogens.
 - For further information or to report suspected resistance contact Aquatrols Corporation of America at 1-856-537-6003. You can also contact your pesticide distributor or university extension specialist to report resistance.

RESTRICTIONS: Do not make foliar applications to field grown tobacco or other crops unless specified, since this practice may encourage more rapid development of insensitivity.

THIS LABEL IS FOR FIELD USE ONLY AND IS NOT INTENDED FOR USE ON TRANSPLANT TRAYS, GREENHOUSES, LATH HOUSES, FLOAT HOUSES, HYDROPONIC PRODUCTION, OR IN BEDDING PLANT STRUCTURES.

To avoid spray drift, do not apply under windy conditions. Avoid spray overlap, as crop injury may result.

SPRAY DRIFT ADVISORIES

THE APPLICATOR IS RESPONSIBLE FOR A VOIDING OFF-SITE SPRAY DRIFT. BE AWARE OF NEARBY NON-TARGET SITES AND ENVIRONMENTAL CONDITIONS.

IMPORTANCE OF DROPLET SIZE

An effective way to reduce spray drift is to apply large droplets. Use the largest droplets that provide target pest control. While applying larger droplets will reduce spray drift, the potential for drift will be greater if applications are made improperly or under unfavorable environmental conditions.

Controlling Droplet Size- Ground Boom

- Volume- Increasing the spray volume so that larger droplets are produced will reduce spray drift. Use the highest practical spray volume for the application. If a greater spray volume is needed, consider using a nozzle with a higher flow rate.
- Pressure- Use the lowest spray pressure recommended for the nozzle to produce the target spray volume and droplet size.
- Spray Nozzle- Use a spray nozzle that is designed for the intended application. Consider using nozzles designed to reduce drift.

Controlling Droplet Size- Aircraft

- Adjust Nozzles- Follow nozzle manufacturers recommendations for setting up nozzles. Generally, to reduce fine droplets, nozzles should be oriented parallel with the airflow in flight.

BOOM HEIGHT - Ground Boom

Use the lowest boom height that is compatible with the spray nozzles that will provide uniform coverage. For ground equipment, the boom should remain level with the crop and have minimal bounce.

RELEASE HEIGHT- Aircraft

Higher release heights increase the potential for spray drift. When applying aerially to crops, do not release spray at a height greater than 10 ft above the crop canopy, unless a greater application height is necessary for pilot safety.

SHIELDED SPRAYERS

Shielding the boom or individual nozzles can reduce spray drift. Consider using shielded sprayers. Verify that the shields are not interfering with the uniform deposition of the spray on the target area.

TEMPERATURE AND HUMIDITY

When making applications in hot and dry conditions, use larger droplets to reduce effects of evaporation.

TEMPERATURE INVERSIONS

Drift potential is high during a temperature inversion. Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. The presence of an inversion can be indicated by ground fog or 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. Avoid applications during temperature inversions.

WIND

Drift potential generally increases with wind speed. **AVOID APPLICATIONS DURING GUSTY WIND CONDITIONS.** Applicators need to be familiar with local wind patterns and terrain that could affect spray drift.

Where rate ranges are specified on this label, use the higher specified rate when heavy disease pressure is expected and the lower specified rate when disease pressure is expected to be light unless otherwise noted.

ATTENTION: UNDER CONDITIONS CONDUCTIVE TO EXTENDED INFECTION PERIODS, ADDITIONAL FUNGICIDE APPLICATIONS BEYOND THE NUMBER ALLOWED BY THIS LABEL MAY BE NEEDED. UNDER THESE CONDITIONS, USE ANOTHER FUNGICIDE REGISTERED FOR THE CROP/DISEASE APPEARING ON THIS LABEL.

Conditions conducive to extension of infection periods include:

1. A cool and wet environment for Pythium seeding disease,
2. Long growing seasons,
3. A cool and humid environment for downy mildew and
4. Use of susceptible varieties.

Mixing Instructions

Add 1/4 to 1/2 of the required amount of water to the spray tank, add the proper amount of **Vireo 2E** then add the rest of the water. When tank mixing other products with **Vireo 2E** follow the proper sequence of adding products to the spray tank. Wettable powders or water dispersible granules should be added to the water in the tank first, followed by flowable products, with emulsifiable concentrates, such as **Vireo 2E** added last. Provide sufficient agitation during mixing and application to maintain a uniform emulsion.

Vireo 2E is usually compatible with products based on the following active ingredients: benefin, chlorothalonil, disulfoton, fenamiphos, diazinon, carbofuran, chlorpyrifos, mancozeb, ethoprop, pentachloronitrobenzene, and pebulate.

To assure the compatibility of **Vireo 2E** with these and other products, pour the products into a small container of water in the correct proportions. After thorough mixing, let stand for five minutes. If the combination remains mixed, or can be remixed readily, the mixture is compatible.

BEFORE TANK MIXING VIREO 2E WITH OTHER REGISTERED PRODUCTS FOR ANY USE ON THIS LABEL, READ THE LABEL OF THE TANK MIX PARTNER TO BE CERTAIN IT IS LABELED FOR USE ON THE PARTICULAR CROP AND THAT USE PATTERNS ARE COMPATIBLE WITH THOSE OF VIREO 2E.

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Application Instructions

Apply **Vireo 2E** by ground or air in sufficient water or liquid fertilizer to provide uniform coverage of the soil surface. Apply in a minimum of 20 gals. per acre for ground applications and 5 gals. per acre by air. Refer to the specific crop directions for use for application directions.

For banded applications, the area actually is the area covered by the band, not total cropland area planted. Some row-crop specifications are based on treating in-the-row and these rates generally are specified as amounts (fl. oz.) of product per certain row length (often 1,000 ft.). Others express rates as amount per treated acre which means the total area treated with the pesticide. If rates are expressed as amount per treated acre and banded applications are used, the amount of pesticide used per acre will be proportionately less. The following formula can be used to calculate the amount of **Vireo 2E** needed per acre of crop when banded applications are made.

Calculate the amount of **Vireo 2E** needed for band treatment by the formula:

$$\frac{\text{band width in inches}}{\text{row spacing in inches}} \times \text{broadcast rate per acre} = \text{amount needed per acre of field}$$

Application Through Irrigation Systems

Vireo 2E alone or in combination with other pesticides which are registered for application through irrigation systems, may be applied through irrigation systems. Apply this product only through center pivot, solid set, hand move, moving wheel, micro-sprinkler, or drip 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 Extension Service, specialists, equipment manufacturers or other experts. Do not connect irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety device for the 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.

Operating Instructions

1. 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.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing 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.

Application Instructions

Vireo 2E must be applied on the schedule specified in the specific crop use directions, not according to the irrigation schedule.

With the exception of avocados and citrus, **Vireo 2E** has not been sufficiently tested when applied through irrigation systems to assure consistent product performance for all labeled uses. The following calibration and application techniques are provided for user reference, **but do not constitute a warranty of fitness for application through sprinkler or drip irrigation equipment**. Users must check the state and local regulatory agencies for potential use restrictions before applying any agricultural chemical through sprinkler or drip irrigation equipment.

RESTRICTIONS: Do not inject **Vireo 2E** at full strength or deterioration of valves and seals may occur. Use a dilution ratio of at least 10 parts water to 1 part **Vireo 2E** in the mix tank. **Vireo 2E** is corrosive to many seal materials. Leather seals are best. EPDM or silicone rubber seals can be used but should be replaced once a year. Do not use Viton, Buna-N, Neoprene or PVC seals.

Center Pivot Irrigation Equipment

NOTE: (1) Use only with drive systems which provide uniform water distribution. (2) Do not use end guns when chemigating **Vireo 2E** through center pivot irrigation systems because of non-uniform application. (3) Plug the first nozzle closest to well head to protect water source.

1. Determine the size of the area to be treated.
2. Determine the time required to apply 1/2 to 1 inch of water over the area to be treated when the system and injection equipment are operated at normal pressures recommended by the equipment manufacturer. Run the system at 80 to 95% of the manufacturer's rated capacity.
3. Using water, determine the injection pump output when operated at normal line pressure.
4. Determine the amount of **Vireo 2E** required to treat the area covered by the irrigation system.
5. Add the required amount of **Vireo 2E** and sufficient water to meet the injection time requirements to the solution tank.
6. Make sure the system is fully charged with water before starting injection of **Vireo 2E** solution. Time the injection to last at least as long as it takes to bring to system to full pressure.
7. Maintain constant solution tank-agitation during the injection period.
8. Continue to operate the system until the **Vireo 2E** solution has cleared the sprinkler head.

Solid Set, Hand Move and Moving Wheel Irrigation Equipment

1. Determine the acreage covered by the sprinklers.
2. Fill injector solution tank with water and adjust flow rate to use the contents over 20 to 30-minute interval.
3. Determine the amount of **Vireo 2E** required to treat the area covered by the irrigation system.
4. Add the required amount of **Vireo 2E** into the same quantity of water used to calibrate the injection period.
5. Operate the system at the same pressure and time interval established during the calibration.
6. Inject **Vireo 2E** at the end of the irrigation cycle in 1/2 -1 inch of water or as a separate application to maximize the effectiveness of the fungicide.
7. Stop injection equipment after treatment is completed.
8. Continue to operate the system until the **Vireo 2E** solution has cleared the last sprinkler head.

Micro Sprinkler or Drip Irrigation Systems

General Instructions

1. Each run of the irrigation system must be calibrated separately to determine the time it takes water to move through the system and to make sure all emitters in the system are putting out the same amount of water.
2. Only pressure injection or venturi equipment is recommended.
3. Determine the area to be treated in each irrigation run.
4. Measure the output of each of the emitter or drip tubes closest to and farthest from the injector site.
5. For calibration, substitute a concentrated detergent (such as Wisk) or a soluble fertilizer for the **Vireo 2E** in the injector tank. The detergent will bubble as it leaves the emitters. The time period over which bubbles occur should be checked for both the closest and farthest emitters. If these times are not within 2 minutes or each other, adjust the dilution ratio and/or the injector rate.
6. If a soluble fertilizer is used, measure the time intervals with a salt bridge. If a drip system is being calibrated, substitute soluble fertilizer for the **Vireo 2E** in the injector and measure the time intervals with a salt bridge.

Step-by-Step Instructions

1. Before starting to calibrate, operate the system until all the emitters are putting out at equal flow rates or until the system is operating at full pressure.
2. Make up an indicator solution of detergent or fertilizer, using the same ratio to be used when mixing **Vireo 2E**.
3. Set the injector to apply the indicator solution at the injection rate to be used in the actual **Vireo 2E** application.
4. Attach a 5-inch length of flexible tubing over the emitter closest to the injection point,

another length over the emitter farthest away. Both emitters should be monitored to determine the time intervals that the indicator solutions are observed.

5. Begin injecting the indicator solution. Direct the flow from the tubes at the emitters into a small container. Begin timing when the indicator solution is first detected, stop timing when the indicator solutions are no longer detected.
6. If the period of detection of the indicator solution between the two emitters are within two minutes of each other, comparable coverage will be obtained. If they are not, make adjustments by increasing the dilution ratio, using more water per part of **Vireo 2E**, or adjust the injector to a slower flow rate.
7. Once the system is calibrated, dilute the needed amount of **Vireo 2E** with water using a minimum of 10 parts water to 1 part **Vireo 2E**.
8. Do not begin to inject **Vireo 2E** into the system until all emitters are producing equal flow rates, or until the system is at full pressure.
9. Inject the **Vireo 2E** into the system at the end of the irrigation set in 1/2 to 1 inch or irrigation water.

ALFALFA*

*Including birdsfoot trefoil

Vireo 2E applied to the soil at planting will provide control of damping-off caused by *Pythium* spp. and root rots caused by *Phytophthora* spp.

Stand Establishment

Apply 1 to 2 pts. per acre as a broadcast surface spray at planting in a minimum of 20 gals. of water. If inter-seeding alfalfa into existing stands for renovation, apply 1 pt. per acre as a broadcast surface spray at planting in a minimum of 20 gals. of water.

If alfalfa seed was previously treated with a metalaxyl or mefenoxam seed treatment product, apply 1 pt./acre of **Vireo 2E** at planting. Use the higher rate (2 pts. per acre) in areas where disease pressure is expected to be heavy.

RESTRICTIONS:

- Do not apply more than 12.3 lbs. a.i./A of metalaxyl per year.
- Do not feed green forage or cut hay for 60 days following application.

APPLES (Bearing and Nonbearing Trees)

Use of **Vireo 2E** will aid in the control of crown, collar and root rot caused by *Phytophthora* spp. when used in conjunction with good cultural practices and rootstocks that are not tolerant to the disease. **Vireo 2E** applications should be made before symptoms appear, especially in areas of the orchard favorable for disease development. **Vireo 2E** will not revitalize trees showing moderate to severe disease symptoms.

Broadcast Spray or Banded Applications: Apply 2 gals. per treated acre as a broadcast spray (6 fl. oz. per 1,000 sq. ft.) in sufficient water to obtain thorough coverage. The treated area is based on the area under the tree canopy or the area of the sprayed row. Soil surface sprays of **Vireo 2E** will not be effective until, the fungicide is moved into the root zone by rainfall or irrigation. Applications should be made in early spring before growth starts and in the fall after harvest but before the ground freezes.

Drench: Mix 1 qt. of **Vireo 2E** with 100 gals. of water. Apply the amount of diluted mixture indicated in the table below around the trunk of each tree. Applications should be made in early spring before growth starts and in the fall after harvest but before the ground freezes. On new plantings, delay the first application until 2 weeks after planting.

To determine trunk diameter, measure the trunk 12 inches above the soil line.

Trunk Diameter	Qts. of Diluted Mixture Per Tree
< 1 inch	1 qt.
1 to 3 inches	2 qts.
3 to 5 inches	3 qts.
> 5 inches	4 qts.

RESTRICTIONS:

- Do not apply more than 12.3 lbs. a.i./A of metalaxyl per year.
- Do not dip roots of trees in or spray bare roots with solutions containing **Vireo 2E**. Do not graze or feed cover crops in treated orchards.

ASPARAGUS

Vireo 2E will control crown rot and spear rot caused by *Phytophthora* spp.

Apply 2 qts. per acre as a broadcast spray in a minimum of 10 gals. of water over the beds.

Cutting Beds: Apply 30 to 60 days before the first cutting. For additional control, make another application just before the beginning of harvest.

New Plantings: Apply after planting seedlings or after covering one-year old crowns.

RESTRICTIONS:

- Do not apply **Vireo 2E** within 1 day of harvest.
- Do not apply more than 12.3 lbs. a.i./A of metalaxyl per year.

AVOCADOS

Root Rot - *Phytophthora cinnamomi*

Begin applications at the start of the growing season or at transplanting. Two additional applications should be made at three-month intervals. Applications are not needed during the winter months of November through February. **Vireo 2E** may be applied as a sleeve drench at the time of transplanting, as a soil surface spray under sprinkler irrigation systems, as a directed spray under drip emitters or injected into the irrigation water.

Sleeve Drench: Mix 1 fl. oz. of **Vireo 2E** with 18 gals. of water. At the time of transplanting, drench the roots inside the sleeve with 1 qt. of **Vireo 2E** solution per tree.

NOTE: The sleeve drench will not replace the soil surface applications for long-term control of root rot.

Sprinkler Irrigation: Apply as a soil surface spray under the canopy of the tree in sufficient water to obtain uniform coverage. See the following table for the amount of **Vireo 2E** to use based on the diameter of the tree canopy. Start applications at the beginning of the growing season or at transplanting and continue at three-month intervals.

Drip Irrigation: Apply the specified amount of **Vireo 2E** (see table) to the soil directly under the drip emitter at each tree. If there is more than one emitter per tree, distribute the total amount of **Vireo 2E** needed among the emitters.

Injection into Irrigation Water (Sprinkler or Drip Irrigation Only): Inject **Vireo 2E** into the irrigation water at a rate of 2 to 4 fl. oz. per 1,000 gals. (3 3/4 to 7 1/2 ppm active ingredient) at each irrigation. If **Vireo 2E** is not applied at each irrigation, use the table below to determine how much **Vireo 2E** should be injected into the irrigation water. If **Vireo 2E** is to be used more frequently than every 3 months, adjust the rates so that no more than the specified amount is applied during each 3-month period. See the **Product Information** section of this label for further instructions and precautions when making applications through irrigation systems.

Diameter of Tree Canopy (Ft.)	Amount of Vireo 2E per Ten Trees Per 3 months
2	1/2 to 1 fl. oz.
5	3 to 6 fl. oz.
10	13 to 26 fl. oz.
15 or wider	29 to 58 fl. oz.

NOTE: (1) For best results, use **Vireo 2E** as soon as soil tests indicate the presence of *Phytophthora*. (2) For new plantings, the use of *Phytophthora*-resistant rot stocks with **Vireo 2E** is recommended. Mature trees in moderate to advanced stages of decline cannot be cured with **Vireo 2E**.

RESTRICTIONS:

- Do not apply more than 6 gals. per acre of **Vireo 2E** per year.
- Do not make an application within 28 days of harvest.

BERRIES

Blueberries

Use of **Vireo 2E** will aid in the control of root rot caused by *Phytophthora* spp. when used in conjunction with good cultural practices to minimize disease problems. **Vireo 2E** will not revitalize plants showing moderate to severe root rot symptoms.

Established Plantings: Apply 1 pt. per 1,000 linear ft. of row (14 1/2 pts. per acre broadcast basis) in a three-foot band over the row before the plants start growth in the spring. One additional application may be made to coincide with periods most favorable for root rot development.

New Plantings: Apply 2 gals. per acre broadcast to the soil at or after the time of planting. One or two additional applications should be made to coincide with periods most favorable for root rot development. For banded applications, an 18-inch band over the row is recommended. Use the formula in the **Product Information** section of the label to calculate the amount needed per acre.

RESTRICTIONS:

- On new plantings, do not apply more than 3.6 gals. per acre broadcast during the 12 months before bearing harvestable fruit

Cranberries

Use **Vireo 2E** as a soil application for control of *Phytophthora* root rot of cranberries caused by *Phytophthora* spp.

Apply **Vireo 2E** at 4 to 7 pts. per acre as a broadcast soil application for control of *Phytophthora* root rot of cranberries. Use three applications per crop season. Make the first application in the fall after harvest.

Make the second application in the spring followed by a third application up to but no later than 45 days before harvest

Apply **Vireo 2E** using ground or chemigation equipment. Sufficient water should be used to allow movement of **Vireo 2E** into the root zone. Use a minimum of 20 gals. of water per acre when applying by ground equipment. Refer to the **Application Through Irrigation Systems** section of the label for instructions and precautions when making applications through irrigation systems.

RESTRICTIONS:

- Do not apply **Vireo 2E** to cranberries by air.
- Do not apply within 45 days before harvest and do not apply more than 21 pts. per acre per growing season.

Raspberries

Vireo 2E is a soil-applied systemic fungicide for use in the control of *Phytophthora* root rot. Apply 1 pt. per 1,000 linear ft. of row to the soil surface in a three-foot band over the row. Make 1 application in the spring and another in the fall after harvest. Use the formula in the **Product Information** section of this label to calculate the amount of **Vireo 2E** needed per acre.

RESTRICTIONS:

- Do not apply **Vireo 2E** within 45 days before harvest

Strawberries

Vireo 2E provides control of red stele (*Phytophthora fragariae*), vascular collapse (*P. cactorum*) and leather rot (*P. cactorum*) when used as directed. Applications may be made using ground application equipment or through drip irrigation systems.

New Plantings: Apply **Vireo 2E** at 2 qts. per treated acre in sufficient water to move the fungicide into the root zone of the plants. Make one application after transplanting followed by an additional application 30 days before the beginning of harvest or at fruit set. A third application may be made during the harvest season, depending on environmental conditions and disease pressure. For banded applications, use the formula in the **Product Information** section of this label to determine the amount of **Vireo 2E** needed per acre. When applying **Vireo 2E** through drip irrigation systems, use the same amount as would be applied in a banded application to cover the root zone of the plants. Observe the precautions concerning application of **Vireo 2E** through irrigation systems in the **Product Information** section of this label.

Established Plantings: Apply **Vireo 2E** at 2 qts. per treated acre in sufficient water to move the fungicide into the root zone of the plants. Make one application in the spring after the ground thaws and before first bloom. A second application may be applied after harvest in the fall. For supplemental control of leather rot, an application may be made during the growing season at fruit set. For banded applications, use the formula in the **Product Information** section of this label to determine the amount of **Vireo 2E** needed per acre. When applying **Vireo 2E** through drip irrigation systems, use the same amount as would be applied in a banded application to cover the root zone of the plants. Observe the precautions concerning application of **Vireo 2E** through drip irrigation systems in the **Product Information** section of this label.

PRECAUTIONS:

- For low annual rainfall areas, a surface application of **Vireo 2E** needs to be moved into the root zone by rainfall, overhead irrigation, or mechanical incorporation.

RESTRICTIONS:

- Do not use more than a total of 6 qts. of **Vireo 2E** per treated acre per year.

CITRUS

Includes grapefruits, lemons, limes, oranges, tangelos, tangerines, citrus citron, kumquats, satsuma mandarin and hybrids of these.

Use **Vireo 2E** on citrus for control of citrus foot rot, root rot, and trunk cankers caused by *Phytophthora* spp. **Vireo 2E** can be applied as a topical canker application and as a soil application, as a spray or through sprinkler or drip irrigation systems. If trees are on a drip irrigation system, distribute the amount of **Vireo 2E** needed per tree (see tables) to the soil directly under the drip emitters at each tree. If there is more than one emitter per tree, distribute the total amount of **Vireo 2E** needed among the emitters.

NOTE: Where nematodes are a problem, best results can be achieved if effective EPA- registered nematicides are used. Nematicides can be used in combination or in sequence with **Vireo 2E** applications.

PRECAUTIONS: For best Phytophthora control, a combination of cultural practices and resistant varieties is recommended. The use of **Vireo 2E** is not recommended in Florida for use on the highly susceptible sweet orange rootstock.

Citrus in Nurseries (Arizona, California, Florida and Puerto Rico Only)

Make the first application of **Vireo 2E** at the time of planting. Make repeat applications at three- month intervals during the period when trees are actively growing. For banded applications, use a band wide enough to cover the root systems of the plants. .

Soil Drench: Apply 4 to 6 fl. oz. per 100 gals. of water as a drench over the row at a rate of 100- 250 gals. per 1,000 feet of row. The width of the drench treatment should be wide enough to cover the root systems of the plants. Follow with 1/2 to 1 inch irrigation over the treated area.

Soil Surface Spray: Apply 1 to 2 gals. per treated acre in a broadcast or banded surface spray to seedbeds, liners, or bedded stock in sufficient water to obtain thorough coverage. If applications are banded, the treated area should be wide enough to cover the root systems of the plants. Follow applications with a 1/2 to 1 inch irrigation over the treated area.

RESTRICTIONS:

- Do not use **Vireo 2E** for disease control in greenhouse nurseries.
- Do not apply **Vireo 2E** solutions to bare roots.

Citrus Resets or New Plantings (Arizona, California, Florida and Puerto Rico Only)

Make the first application of **Vireo 2E** to citrus resets or new plantings at the time of transplanting. Make up to three additional applications per year at three-month intervals or when root growth flushes occur.

Water Ring Drench: Mix 4 to 6 fl. oz. per 100 gals. of water. Apply 5 gals. of the mix around the base of each tree within the watering ring.

Soil Surface Spray (Arizona and California Only): Apply 1 to 2 gals. per treated acre (3 to 6 fl. oz. per 1,000 sq. ft.) in sufficient water to obtain uniform coverage of the soil surface.

Apply spray to the soil surface beneath the tree canopy or apply through irrigation water. If natural rainfall is not expected within three days of a soil surface application, irrigate with 1/2 to 1 inch water over the treated area. See instructions below for application through irrigation water.

Soil Surface Spray (Florida and Puerto Rico Only): Apply 1 gal. per treated acre (3 fl. oz. per 1,000 sq. ft.) under the canopy of the tree. Applications may be made through low volume irrigation systems at the

rate of 1 qt. per grove acre for trees less than 5 years old. Use two to three applications per year. Applications may be made on a spring+ summer, summer+ fall or spring+ summer + fall schedule.

Established Plantings

Soil Application (Florida and Puerto Rico Only): Apply 1/2 gal. per treated acre to groves that have a Phytophthora propagule count of .10 to 20 per cubic centimeter (cc) of soil as a feeder root rot disease maintenance treatment. Applications may be made through low volume irrigation for trees 5 years or older at the rate of 1 qt. per grove acre. Use two to three applications per year. Applications may be made on a spring+ summer, summer+ fall or spring+ summer+ fall schedule. **For groves with extremely high propagule counts (above 20. per cc of soil), apply 1 gal. per treated acre for one year (2 to 3 applications) to reduce the population.**

Soil Surface Spray (Arizona and California Only): For best results, begin **Vireo 2E** applications during the spring root-flush period. One or two additional applications per year can be made at three-month intervals or to coincide with flushes of root growth. Use the following table to determine the proper rate based on tree size and the number of applications per year. For applications based on broadcast rates, use **Vireo 2E** at 1 to 2 gals. per acre (3 to 6 fl. oz. per 1,000 sq. ft.) when three applications are planned and at 3 gals. per acre (9 fl. oz. per 1,000 sq. ft.) when two applications are planned. Apply in sufficient water to provide uniform coverage or apply through irrigation water. See instructions below for application through irrigation water.

Diameter of Tree Canopy (Ft.)	Fl. Oz. of Vireo 2E per Ten Trees	
	2 Applications per Year	3 Applications per Year
5	1.5	1
10	7.5	5
15	15	10
20	30	20

Trunk Spray for Control of Gummosis Caused by *Phytophthora* spp. (Arizona, California and Texas Only): Add 1 gal. of **Vireo 2E** to 3 gallons of water and spray the surface of the trunks using enough spray to thoroughly wet the cankers. In Florida, add 1 gal. of **Vireo 2E** to 10 gals. of water and spray the surface of the trunks using enough spray to thoroughly wet the cankers. **Vireo 2E** may be applied up to 3 times per year.

RESTRICTIONS:

- Do not make trunk and soil applications to the same tree in the same cropping season.
- Do not apply more than 6 gals. of **Vireo 2E** per treated acre per year.

Application Through Irrigation Water (Sprinkler or Drip Irrigation Only): See comments and precautions in the **Product Information** section of this label. Inject **Vireo 2E** into the irrigation water at rates specified in the tables above.

CLOVER

Vireo 2E applied to the soil at planting will provide control of damping-off caused by *Pythium* spp. and root rots caused by *Phytophthora* spp.

Stand Establishment

Apply 1 to 2 pts. per acre as a broadcast surface spray at planting in a minimum of 20 gals. of water. If seed was previously treated with a metalaxyl or mfenoxam seed treatment product, an application of **Vireo 2E** at 1. pt. per acre is recommended at planting. Use the higher rate (2 pts. per acre) in areas where

disease pressure is expected to be heavy.

RESTRICTIONS:

- Do not apply more than 12.3 lbs. a.i./A of metalaxyl per year.
- Do not feed green forage or cut hay for 90 days following application.

COLE CROPS

[Broccoli, Cabbage, Cauliflower, Chinese broccoli, Gai Lon, White flowering broccoli, and Chinese cabbage (Napa, Bok Choy)]

Vireo 2E applied as a soil application at planting will control damping-off caused by *Pythium* spp. arid basal stem rot caused by *Phytophthora* spp. Applications may be made preplant incorporated or as a soil surface spray after planting.

Preplant Incorporated Application: Apply 4 to 8 pts. per treated acre as a broadcast soil application in sufficient water or liquid fertilizer to provide uniform coverage and incorporate in the top 2 inches of soil. For control of *Pythium* damping-off only use 1 to 2 pts. per acre. For banded applications, a 7-inch band is recommended. Use the formula in the **Product Information** section of this label to calculate the amount of **Vireo 2E** needed per acre.

Surface Application: Apply 4 to 8 pts. per treated acre at planting in sufficient water or liquid fertilizer to provide uniform coverage. For banded applications, a 7-inch band is recommended. Use the formula in the **Product Information** section of this label to calculate the amount of **Vireo 2E** needed per acre. If natural rainfall is not expected before the seeds start germinating, **Vireo 2E** should be incorporated mechanically before planting or be moved into the seed zone after planting with 1/2 to 1 inch. sprinkler irrigation.

Vireo 2E may be tank mixed with pentachloronitrobenzene to control club root (*Plasmodiophora brassicae*) or wirestem/black root (*Rhizoctonia solani*.) Before applying observe all precautions, limitations, rates, and directions for use including the need for incorporation on the pentachloronitrobenzene label.

RESTRICTIONS:

- Do not use **Vireo 2E** for disease control in greenhouse crops or field-grown vegetable bedding plants.
- Do not dip plants in solutions containing **Vireo 2E** or crop injury may occur. Do not use **Vireo 2E** as a transplant water treatment.

COTTON

Seed Rots and Seedling Diseases of Cotton Caused by *Pythium* spp.

Apply 1/4 to 1/2 pt. per 13,000 linear feet of row (0.3 to 0.6 fl. oz. per 1,000 linear ft.) as an in-furrow spray in 5 to 15 gals. of water or liquid fertilizer at planting. Mount the spray nozzle so the spray is directed into the furrow over the seed just before the seeds are covered.

For control of *Pythium* and *Rhizoctonia* apply 2 to 4 qts.

NOTE: When **Vireo 2E** is applied with a product containing the active ingredient pentachloronitrobenzene, observe all precautions and restrictions that appear on all product labels.

CUCURBIT VEGETABLES

Includes balsam pear (bitter melon), Chinese waxgourd (Chinese preserving melon), citron melon, cucumber, gherkin, edible gourds, cantaloupe; casaba, crenshaw, honeydew melon, honey balls, mango melon, muskmelon, Persian melon, pumpkin, summer squash, winter squash; watermelon, and cucurbit hybrids only.

Vireo 2E applied at planting will provide control of damping-off and cottony leak caused by *Pythium* spp. Applications may be made preplant incorporated or as a soil surface spray after planting.

Preplant Incorporated Application: Apply 4 to 8 pts. per treated acre as a broadcast soil application in sufficient water or liquid fertilizer to provide uniform coverage and incorporate in the top 2 inches of soil. For banded applications, a 7-inch band is recommended. Use the formula in the **Product Information** section of this label to calculate the amount of **Vireo 2E** needed per acre.

Surface Application: Apply 4 to 8 pts. per treated acre at planting in sufficient water or liquid fertilizer to provide uniform coverage. For banded applications, a 7-inch band is recommended.

Use the formula in the **Product Information** section of this label to calculate the amount of **Vireo 2E** needed per acre. If natural rainfall is not expected before the seeds start germinating, **Vireo 2E** should be incorporated mechanically before planting or be moved into the seed zone after planting with 1/2 to 1 inch sprinkler irrigation.

RESTRICTIONS:

- Do not use **Vireo 2E** for disease control in greenhouse or field-grown vegetable bedding plants.
- Do not dip plants in solutions containing **Vireo 2E** or crop injury may occur. Do not use **Vireo 2E** as a transplant water treatment.

DECIDUOUS FRUITS AND NUTS IN ORCHARDS (Nonbearing)*

* For bearing Deciduous Fruits & Nuts, see **Directions for Use** under the **Apples** and **Stone Fruits, Walnuts and Almonds** sections of this label.

Phytophthora Diseases

Use of **Vireo 2E** will aid in the control of crown, collar, and root rot of deciduous fruit and nut trees caused by *Phytophthora* spp. when used in conjunction with good cultural practices and rootstocks that are most tolerant to the disease. Applications should be made before symptoms appear, especially in areas favorable for disease development. **Vireo 2E** will not revitalize trees showing moderate to severe disease symptoms.

On new plantings, make the first applications at the time of planting (See NOTE below).. Additional applications should be made at three-month intervals during the time when conditions are favorable for disease development. For established plantings, make the first application in the spring before growth starts.

Apply 2 gals. per treated acre (6 fl. oz. per 1,000 sq. ft.) in sufficient water to obtain uniform coverage of the soil under the canopy of the trees. For banded applications, use the formula in the **Product Information** section of this label to calculate the amount of **Vireo 2E** needed per acre.

Soil surface sprays of **Vireo 2E** will not be effective until the fungicide is moved into the root zone by rainfall or irrigation.

RESTRICTIONS:

- Do not apply to plantings that will bear harvestable fruit within 12 months of the last application.
- To avoid injury, do not use **Vireo 2E** to dip or spray tree roots. Do not concentrate it around the tree trunks.
- Do not apply to trees under stress.
- For intense plantings (2 to 3 times the normal planting rate), make applications on a per area basis, i.e., per acre or 1,000 sq. ft. Do not calculate the amount of **Vireo 2E** on a per tree basis.
- In California, do not apply **Vireo 2E** to newly planted trees within 90 days of planting.
- Do not apply more than 6 gals. of **Vireo 2E** per treated acre per year.

GINSENG

Vireo 2E applied to the soil before early growth followed by applications of a metalaxyl or mefenoxam granular product will control Phytophthora root rot in ginseng caused by *Phytophthora cactorum*.

Apply **Vireo 2E** at 1 1/2 qts. per acre as a drench in 100 to 400 gallons of water uniformly to the soil surface in the spring before the plants begin growing.

RESTRICTIONS:

- Do not apply more than 12.3 lbs. a.i./A of metalaxyl per year.
- Do not exceed 1 application per year.

GRASSES*

*Any grass, Graminae family (either green or cured), except the following: Do not apply to sugarcane; to any of the following that will be fed or grazed by livestock: barley, buckwheat, corn, millet (pearl or proso), oats, popcorn, rice, rye, sorghum, teosinte, triticale, wheat, or wild rice; or to any enclosed pasture grasses or grasses grown for hay or silage such as bermudagrass, bluegrass, bromegrass, or fescue.

Vireo 2E applied to the soil at planting will provide control of seedling diseases caused by *Pythium* spp.

For Stand Establishment

Apply up to 4 pts. per acre as a broadcast surface spray at planting in a minimum of 20 gals. of water. Use 1 to 2 pts. per acre if grass seed was previously treated with a metalaxyl or mefenoxam seed treatment product. Use the higher rate of 2 to 4 pts. per acre in areas where there has been a history of *Pythium* disease.

RESTRICTIONS:

- Do not apply more than 12.3 lbs. a.i./A of metalaxyl per year.
- Do not graze, feed green forage, or cut for hay for 60 days following application.
- Do not apply to range grasses.
- Do not apply to sugarcane; to any of the following that will be fed or grazed by livestock: barley, buckwheat, corn, millet (pearl or proso), oats, popcorn, rice, rye, sorghum, teosinte, triticale, wheat, or wild rice; or to any enclosed pasture grasses or grasses grown for hay or silage such as bermudagrass, bluegrass, bromegrass, or fescue.

HOPS

Vireo 2E applied as a soil drench followed by foliar applications with Kocide 101 or a comparable copper fungicide registered for use on hops will control downy mildew caused by *Pseudoperonospora humulii*

Soil Drench: Apply 1 qt. of Vireo 2E per acre of hops in a minimum of 20 gals. of water or liquid fertilizer to the soil surface over the crowns after pruning, but before training. Early application before shoots are 6 inches long is preferable.

Foliar Spray: When primary infection (spikes) persist after a soil drench treatment and/or there is the first evidence of secondary (foliar) infection, foliar sprays of **Vireo 2E** in combination with contact copper fungicides may be used. Apply **Vireo 2E** at 1 qt. per acre in a tank-mix combination with copper fungicide registered for use on hops. Apply with ground equipment in a minimum of 50 gals. of water per acre.

RESTRICTIONS:

- Do not make more than 3 applications of **Vireo 2E** per season (1 soil drench+ 2 foliar sprays)
- Do not make the last application within 45 days before harvest;
- Do not apply foliar sprays of **Vireo 2E** without a copper fungicide registered for use on hops.

LEAFY VEGETABLES*

* Celery, gardengrass, upland cress, endive, fennel, lettuce (head and leafy), parsley, rhubarb, spinach, and Swiss chard.

Vireo 2E applied as a soil application will control damping off caused by *Pythium* spp: in leafy vegetables (*Albugo occidentalis*) and downy mildew in spinach. Applications may be made banded over the row, preplant incorporated, or injected with liquid fertilizer.

Preplant Incorporated Application: Apply 4 to 8 pts. per treated acre as a broadcast soil application in sufficient water or liquid fertilizer to provide uniform coverage and incorporate in the top 2 inches of soil. For banded applications, a 7-inch band is recommended. Use the formula in the **Product Information** section of this label to calculate the amount of **Vireo 2E** needed per acre.

Surface Application: Apply 4 to 8 pts. per treated acre at planting in sufficient water or liquid fertilizer to provide uniform coverage. For banded applications, a 7-inch band is recommended. Use the formula in the **Product Information** section of this label to calculate the amount of **Vireo 2E** needed per acre. If natural rainfall is not expected before the seeds start germinating, **Vireo 2E** should be incorporated mechanically before planting or be moved into the seed zone after planting with 1/2 to 1 inch sprinkler irrigation.

White Rust and Downy Mildew Control (Spinach Only): In addition to the preplant incorporated or surface application described above, apply **Vireo 2E** at 1 pt. per acre of crop, shanked in 21 days after planting or after the first cutting. One other application may be shanked in after the next cutting. A total of 2 supplemental applications may be used on a 21- day interval. Use sufficient mechanical or bypass agitation to keep the **Vireo 2E** mixed with the water or fertilizer.

The additional applications of **Vireo 2E** noted above and made after each cutting by shanking the fungicide into the beds along with liquid fertilizer provide continuing control of white rust. However, white rust can only be controlled in a preventative disease control program that begins with an application of **Vireo 2E** to the soil at planting.

The use of Vireo 2E in curative applications greatly increases the risk of the fungus developing insensitivity to metalaxyl. The development of insensitivity will destroy the effectiveness of Vireo 2E in controlling white rust.

RESTRICTIONS:

- If Vireo 2E is not used at planting, do not use Vireo at any other time throughout the season. Do not apply **Vireo 2E** in foliar applications or in situations where white rust infections are already established.

- Do not harvest spinach within 21 days of a **Vireo 2E** application.
- Do not use **Vireo 2E** for disease control in greenhouse or field-grown vegetable bedding plants.
- Do not use **Vireo 2E** as a transplant water treatment.
- Do not apply more than 11 pts. of **Vireo 2E** per acre per growing season in spinach.
- Do not exceed a total of 2.8 lbs. active ingredient per acre of metalaxyl per growing season when using a combination of **Vireo 2E** and other metalaxyl products in spinach.

LEGUME VEGETABLES (Succulent or Dried)

Field beans, French beans, kidney beans, lima beans, mung beans, navy beans, pinto beans, runner beans, snap beans, wax beans, broad beans (fava beans), chickpeas (garbanzo beans), lentils, lupines (sweet, white sweet, white and grain), garden peas, field peas, sugar peas, southern peas (blackeyed peas, crowder peas, cowpeas, catjang) and edible soybeans.

Vireo 2E may be tank mixed with the active ingredient pentachloronitrobenzene to control Rhizoctonia root and stem rot or white mold (*Sclerotinia sclerotiorum*) in snap and dry beans. Observe all precautions, limitations, rates, and directions for use on the respective pentachloronitrobenzene label before applying.

Pythium Damping-Off and Root Rot: **Vireo 2E** applied at planting will control damping-off and root rot caused by *Pythium* spp. Applications may be made preplant incorporated, or at a soil surface spray after planting.

Preplant Incorporated Application: Apply 2 to 4 pts. per treated acre as a broadcast soil application in sufficient water or liquid fertilizer to provide uniform coverage and incorporate in the top 2 inches of soil. For banded applications, a 7-inch band is recommended. Use the formula in the **Product Information** section of this label to calculate the amount of **Vireo 2E** needed per acre.

Surface Application: Apply 2 to 4 pts. per treated acre at planting in sufficient water or liquid fertilizer to provide uniform coverage. For banded applications, a 7-inch band is recommended. Use the formula in the **Product Information** section of this label to calculate the amount of **Vireo 2E** needed per acre. If natural rainfall is not expected before the seeds start germinating, **Vireo 2E** should be incorporated mechanically before planting or be moved into the seed zone after planting with 1/2 to 1 inch sprinkler irrigation.

RESTRICTIONS:

- Do not apply more than 12.3 lbs. a.i./A of metalaxyl per year.
- Do not use **Vireo 2E** for disease control in greenhouse or field-grown vegetable bedding plants.

ONIONS - DRY BULB*, GREEN AND ONION GROWN FOR SEED**

*Garlic, onions (dry bulb), and shallots (dry bulb).

** Green onions, leeks, spring onions or scallions, Japanese bunching onions, green shallots, or green eschalots.

Vireo 2E applied at planting will control damping-off caused by *Pythium* spp. Applications may be made preplant incorporated or as a soil surface spray after planting..

Preplant Incorporated Application: Apply 2 to 4 pts. per treated acre as a broadcast soil application in sufficient water or liquid fertilizer to provide uniform coverage and incorporate in the top two inches of soil. For banded applications, a 7-inch band is recommended. Use the formula in the **Product Information** section of this label to calculate the amount of **Vireo 2E** needed per acre.

Surface Application: Apply 2 to 4 pts. per treated acre at planting in sufficient water or liquid fertilizer to provide uniform coverage. For banded applications, a 7-inch band is recommended. Use the formula in the **Product Information** section of this label to calculate the amount of **Vireo 2E** needed per acre. If natural rainfall is not expected before the seeds start germinating, **Vireo 2E** should be incorporated mechanically before planting or be moved into the seed zone after planting with ½ to 1 inch sprinkler irrigation.

RESTRICTIONS:

- Do not apply more than 12.3 lbs. a.i./A of metalaxyl per year.
- Do not use Vireo 2E for disease control in greenhouse or field-grown vegetable bedding plants.

PAPAYA (Hawaii Only)

Vireo 2E aids in the control of Phytophthora root rot of papaya in new plantings in the field.

Papaya in the Field - New Plantings: Make the first application of **Vireo 2E** at the time of transplanting to the field or within one week of transplanting. Apply 3 1/2 to 7 qts. per acre* of soil treated (2 1/2 to 5 fl. oz. per 1,000 sq. ft.) as a soil surface spray in sufficient water to obtain thorough coverage of the soil under the canopy of the trees. After application, immediately irrigate with 1/8 to 1/4 inch of water. Repeat in 2 to 4 weeks if conditions are favorable for disease. Use the table below as a guide for treating individual trees.

RESTRICTIONS:

- Do not apply more than two applications per year in the field to newly transplanted stock,
- Do not apply within 3 months of harvest.

Diameter of Tree Canopy (Ft.)	FL Oz. of Vireo 2E per Ten Trees
3	3/16 to 3/8
4	3/8 to 3/4
6	3/4 to 1 1/2
8	1 1/4 to 2 1/2

* 1 qt.=1/2 lb. a.i.

PEANUTS

Vireo 2E is a soil-applied systemic fungicide for use in control of seedling and pod diseases of peanuts incited by *Pythium* spp.

Seedling Diseases: Apply 1 pt. per acre of crop as an application to the seed in-furrow or in a 7- inch band at the time of planting. For the in-furrow applications, position the spray so the fungicide is mixed with the soil covering the seed. Avoid spraying the seed directly with the spray solution or crop injury may occur.

Pod Rot: Apply 1 to 2 qts. per acre at early pod set or pegging through overhead irrigation systems. See the **Product Information** section of this label for further instructions and precautions when making applications through irrigation systems.

RESTRICTIONS:

- Do not apply more than 12.3 lbs. a.i./A of metalaxyl per year.
- Where pathogens other than *Pythium* spp. are present, use fungicides that control those diseases in combinations with Vireo 2E.

- Where the predominant pod rot pathogens are *Rythium* spp. and *Rhizoctonia* spp., use **Vireo 2E** tank mixed with a product containing pentachloronitrobenzene.

PEPPERS AND EGGPLANT

Soil applications of **Vireo 2E** will control damping-off caused by *Pythium* spp. and crown rot caused by *Phytophthora capsici*. **Vireo 2E** must be applied to the soil before the plants are infected with *Phytophthora* to obtain satisfactory disease control.

Apply 4 to 8 pts. per treated acre at the time of planting in sufficient water (20 to 50 gals.) or liquid fertilizer to provide uniform coverage. For direct seeded peppers, apply preplant or prior to emergence. If rainfall is not expected before the plants begin growth, **Vireo 2E** should be incorporated mechanically before planting or be moved into the root zone after planting with 1/2 to 1 inch of sprinkler irrigation water. For banded applications, a 12 to 16 inch band is recommended. After the initial application, two supplemental post-directed applications at 4 pts. per treated acre should be made at 30-day intervals. The spray should be directed at the base of the plants and cover 6 to 8 inches of soil on either side of the plants. Such applications must be incorporated mechanically or by sprinkler irrigation to move the **Vireo 2E** into the root zone.

Vireo 2E may be applied with liquid fertilizer shanked in as a band treatment to either side of the plant. Use the formula in the **Product Information** section of this label to calculate the amount of **Vireo 2E** needed per acre.

PRECAUTIONS:

- **Vireo 2E** may cause some yellowing of the pepper leaves.
- Plants already infected with *Phytophthora* cannot be cured with **Vireo 2E** applications.
- The foliar blight phase of *Phytophthora* cannot be controlled with foliar applications of **Vireo 2E**
- In areas where there is a history of late *Phytophthora* infections, an application of another EPA-registered fungicide labeled for *Phytophthora* control is recommended 17 to 21 days following the last **Vireo 2E** application.

RESTRICTIONS:

- Do not apply within 7 days of harvest,
- Do not apply more than 12 pts. of **Vireo 2E** per acre of crop per season
- Do not use **Vireo 2E** for disease control in greenhouses or field-grown vegetable bedding plants.

PINEAPPLE

Vireo 2E applied as a "seed piece" dip provides effective control of heart rot disease of pineapple caused by *Phytophthora* spp.

Apply **Vireo 2E** as a crown dip before planting at the rate of 1 to 2 qts. per 100 gals. of water. Use 75 to 100 gals. of dip solution per planted acre, depending on crown size, plant density and dipping techniques.

RESTRICTIONS:

- Do not apply more than 12.3 lbs. a.i./A of metalaxyl per year.
- If there is a crop failure within one year of planting treated crowns, do not harvest plant material for animal feed.

ROOT AND TUBER VEGETABLES*

Artichoke (Jerusalem), beet (sugar** and table), carrot, cassava, chicory; dasheen (taro), ginger, ginseng***, horseradish, parsnip, potato, radish, rutabaga, salsify, sweet potato, tanager, turnip, and yams.

* See Note at end of section.

** See separate section for Sugar Beets

*** See separate section for Ginseng

Vireo 2E applied to the soil at planting will provide control of diseases caused by *Pythium* and *Phytophthora* spp. Applications may be made preplant incorporated or as a soil surface spray after planting.

Preplant Incorporated Application: Apply 4 to 8 pts. per treated acre as a broadcast soil application in sufficient water or liquid fertilizer to provide uniform coverage and incorporate in the top two inches of soil. For banded applications, a 7-inch band is recommended. Use the formula in the **Product Information** section of this label to calculate the amount of **Vireo 2E** needed per dose.

Surface Application: Apply 4 to 8 pts. per treated acre at planting in sufficient water or liquid fertilizer to provide uniform coverage. For banded applications, a 7-inch band is recommended.

Use the formula in the **Product Information** section of this label to calculate the amount of **Vireo 2E** needed per acre. If natural rainfall is not expected before the seeds start germinating, **Vireo 2E** should be incorporated mechanically before planting or be moved into the seed zone after planting with 1/2 to 1 inch sprinkler irrigation.

Potatoes

Vireo 2E will provide effective control of Pythium leak caused by *Pythium* spp., pink rot caused by *Phytophthora erythroseptica*, and Pythium seedling caused by *Pythium* spp.

Apply 1.68 oz. of product per 1,000 linear ft. of row on a 6 to 8-inch band at planting in a minimum of 3 gals. of water per acre. Make application directly over the seed piece(s) prior to row closure or use markout method (incorporated).

Vireo 2E may be impregnated on dry fertilizer provided the application rate of 1.68 fl. oz. per 1000 linear ft of row is observed and placement is in a 6 to 8-inch band incorporated within the planted hill. **Vireo 2E** may also be applied in combination with liquid fertilizers.

Storage Rots: **Vireo 2E** will effectively control storage rots caused by Pythium leak and pink rot when used in conjunction with other management practices such as crop rotation. Apply product at 12.8 fl. oz. per acre at flowering and repeat with a second application 14 days later. If the field has a history of storage rot problems, make a third application 14 days after the second application. If conditions favor the development of foliar diseases, use **Vireo 2E** in tank mixtures with a companion fungicide such as mancozeb, chlorothalonil, or other approved products. When using such tank mixtures, observe all precautions, limitations, rates, and directions for use on all product labels. Do not apply this product within 14 days of harvest.

RESTRICTIONS:

- Do not use **Vireo 2E** for disease control in greenhouse or field-grown vegetable bedding plants.
- To avoid development of insensitivity in the pathogen population, do not apply **Vireo 2E** to potatoes beyond the at-planting growth stage.

SOYBEANS

Vireo 2E is a soil-applied systemic fungicide for use in the control of Phytophthora root and stem rot and Pythium damping-off. **Vireo 2E** may be applied broadcast, banded or in the seed furrow before the seeds are covered. The seed furrow applications will provide more consistent results if rain is not expected before the seeds germinate.

For best results against Phytophthora root and stem rot, use **Vireo 2E** with soybean varieties that have some tolerance to the races of Phytophthora present in the field. The higher rate of **Vireo 2E** should be used in areas with a history of heavy Phytophthora damage.

Under heavy late season Phytophthora pressure, **Vireo 2E** may not provide complete control.

Surface Application: For full season control, apply 5 pts. per treated acre in sufficient water or liquid fertilizer to provide uniform coverage at the time of planting. For banded applications, a 7-inch band is recommended. Use the formula in the **Product Information** section of this label to calculate the amount of **Vireo 2E** needed per acre.

For early to mid-season control, apply 1 1/2 to 3 pts. per treated acre.

In-Furrow Applications: For full season control, apply 1.1 fl. oz. per 1,000 linear feet of row as an in-furrow spray in 5 to 10 gals. of water or liquid fertilizer at planting. Position the spray so the fungicide is mixed with the soil covering the seed. Avoid spraying the seed directly with the spray solution or crop injury may occur. Use sufficient water or liquid fertilizer to provide uniform coverage. Use the following table to determine the amount of **Vireo 2E** needed per acre based on row spacing. For early to mid-season control, apply 0.3 to 0.6 fl. oz. per 1,000 linear feet of row.

Application Rates Per Acre According to Row Spacing

Row Spacing	Linear Ft. of Soybean Row per Acre	Fluid Ounces of Vireo 2E Needed Per Acre Rate Desired		
		0.3 fl. oz.	0.6 fl. oz.	1.1 fl. oz.
38 in.	13,756	4	8	15
36 in.	14,520	4 1/2	9	16
30 in.	17,424	5 1/2	11	19
24 in.	21,780	6 1/2	13	24
20 in.	26,136	8	16	28

NOTE: **Vireo 2E** is specific for Pythium and Phytophthora and will not control other diseases that may attack soybeans.

RESTRICTIONS:

- Do not apply more than 12.3 lbs. a.i./A of metalaxyl per year.

STONE FRUITS*, WALNUTS, AND ALMONDS

* Apricots, cherries (sweet, tart), nectarines, peaches, plums (Chickasaw, Damson, Japanese), and prunes.

Use of **Vireo 2E** will aid in the control of crown, collar and root rot caused by *Phytophthora* spp. when used in conjunction with good cultural practices and rootstocks that are most tolerant to the disease. **Vireo 2E**

applications should be made before symptoms appear, especially in areas favorable for disease development. **Vireo 2E** will not revitalize trees showing moderate to severe disease symptoms.

On new plantings, make the first application of **Vireo 2E** 2 weeks after planting. Additional applications should be made at 2 to 3-month intervals or during periods most favorable for root, crown, or collar rot development.

For established plantings, the application should be made in the spring before plants start growth. Additional applications should be made at 2 to 3 month intervals or to coincide with periods most favorable for root, crown, or collar rot development.

Apply 2 gals. per treated acre (6 fl. oz. per 1,000 sq. ft.) in sufficient carrier to obtain thorough coverage of the soil under the canopy of the trees. Sufficient surface area should be treated in nurseries to cover the root zone on the plants. Up to 3 applications can be made per year. For banded applications, use the formula in the **Product Information** section of this label to calculate the amount of **Vireo 2E** needed per acre. Soil surface sprays of **Vireo 2E** will not be effective until the fungicide is moved into the root zone by rainfall or irrigation.

RESTRICTIONS:

- Do not apply more than 12.3 lbs. a.i./A of metalaxyl per year.
- Do not dip the roots of trees in **Vireo 2E** solutions, spray the roots or concentrate it around the tree trunks or injury may occur.
- Do not apply it to trees under stress.
- For intense plantings (2 to 3 times the normal planting rate) make applications on a per area basis, i.e., per acre or 1,000 sq. ft. Do not calculate the amount of **Vireo 2E** on a per tree basis.
- In California, do not apply **Vireo 2E** to newly planted trees within 90 days of planting.
- Do not graze livestock in treated areas, and
- Do not graze or feed cover crops in treated orchards.
- Do not apply more than 3 applications per crop year.

SUGAR BEETS

Vireo 2E will provide control of diseases caused by *Pythium* spp. Applications may be made preplant incorporated or as a surface spray at planting.

Preplant Incorporated Application: Apply 4 to 8 pts. per treated acre as a broadcast soil application in sufficient water or liquid fertilizer and incorporate in the top 2 inches of soil. For banded applications, a 7-inch band is recommended. Use the formula in the **Product Information** section of this label to calculate the amount of **Vireo 2E** needed per acre.

Surface Application: Apply 4 to 8 pts. per treated acre at planting in sufficient water or liquid fertilizer to provide uniform coverage. For banded applications, a 7-inch band is recommended. Use the formula in the **Product Information** section of this label to calculate the amount of **Vireo 2E** needed per acre. If natural rainfall is not expected before the seeds begin germinating, **Vireo 2E** should be incorporated mechanically before planting or be moved into the seed zone after planting with 1/2 to 1 inch sprinkler irrigation.

RESTRICTIONS:

- Do not apply more than 12.3 lbs. a.i./A of metalaxyl per year.

TOBACCO

Vireo 2E is a soil-applied systemic fungicide for use in the field before transplanting for control of black

shank (*Phytophthora parasitica*, var *Nicotianae*) and blue mold (*Peronospora tabacina*) on all types of tobacco. For control of anthracnose and other tobacco diseases, use approved fungi to control those diseases.

RESTRICTIONS:

- Do not apply more than 12.3 lbs. a.i./A of metalaxyl per year.
- Do not use **Vireo 2E** for disease control in greenhouse crops or tobacco plant beds.
- Do not dip plants in solutions containing **Vireo 2E**, or crop injury may occur.
- Do not use **Vireo 2E** for disease control in floathouse, floatbed production facilities, hydroponic production, or greenhouse facility.
- Do not use **Vireo 2E** as a transplant water treatment.
- Do not use **Vireo 2E** as a foliar spray to field planted tobacco.

Field Planted Tobacco

Blue Mold: Apply **Vireo 2E** as a broadcast soil application prior to transplanting and incorporated in the top 2 to 4 inches of soil. For flue-cured tobacco, use 1 to 2 qts. per treated acre, depending on disease pressure and length of control desired. Under low disease pressure or for early season control, use 1 qt. per treated acre. For burley and other tobacco types, use 2 qts. per treated acre.

For **prolonged control** of blue mold in field planted tobacco, make a supplemental application of 1 qt. per acre of crop as a soil application at lay-by or the last cultivation. Position the nozzles so that the spray is deposited under the plants and is covered by soil by the cultivator. Do not make this application if more than 2 qts. per acre of **Vireo 2E** were applied prior to transplanting or if no **Vireo 2E** was applied prior to transplanting.

Black Shank: Use **Vireo 2E** as a broadcast soil application prior to transplanting and incorporate in the top 2 to 4 inches of soil. Apply **Vireo 2E** using conventional ground application equipment in sufficient water or fertilizer to provide uniform coverage. Use the following table to determine the amount of **Vireo 2E** needed per acre depending on the black shank severity.

Type of Tobacco	Disease Level in Field	Rate of Vireo 2E per Acre
Flue-Cured	Low to moderate (less than 6% disease)	2 qts.
	High (more than 6% disease)	4 qts.*
Burley and Other**	Low to moderate (less than 6% disease)	4 qts.
	High (more than 6% disease)	6 qts.

* Florida and Georgia -Use 6 qts. per treated acre of **Vireo 2E** in fields with heavy black shank levels (greater than 6%).

** Pennsylvania-Do not use **Vireo 2E** for black shank control.

For **prolonged control** of black shank in field planted tobacco, one of the following is recommended: (1) Make a preplant incorporated and a supplemental lay-by application (last cultivation). Apply the supplemental application at last cultivation at the rate of 1 to 2 qts. per acre as a soil treatment. Position the nozzles so that the spray is deposited under the plants and is covered with soil by the cultivator. Do not make this application if more than 2 qts per acre of **Vireo 2E** was applied at transplanting; or (2) Make a preplant incorporated plus 2 supplemental soil applications at first cultivation and last cultivation (lay-by). Apply **Vireo 2E** at 2 qts. per acre just prior to transplanting **followed** by a second- application of 2 qts per acre at the first- cultivation **followed** by a third application of 2 qts. per acre at lay-by or the last cultivation.

Resistance Management:

- For best results against black shank, use **Vireo 2E** with tobacco varieties that have high resistance to black shank and use crop rotation. In fields where there is a history of severe black shank incidence, use the highest rate and plant variety that is resistant to the race of *Phytophthora* present in the field. (Burley L8 hybrids are only resistant to *Phytophthora* Race 0.)
-) **Vireo 2E** is not recommended for use in high black shank areas on highly susceptible flue-cured varieties.
- Failure to adequately control nematodes in fields treated with **Vireo 2E** may result in poor control of black shank.

No-Till Tobacco: For black shank and blue mold on all types of tobacco, apply **Vireo 2E** to the field before transplanting and incorporate in the top 2 to 4 inches of soil. Apply 1 to 2 qts. per treated acre as a preplant, broadcast or banded soil application. For banded applications, use the formula in the **Product Information** section of this label to calculate the amount of **Vireo 2E** needed per acre. A supplemental lay-by soil application may be made 30 to 35 days after planting at 1 qt. per acre. Do not make the lay-by application if more than 2 qts. per acre of **Vireo 2E** were applied at transplanting or if no **Vireo 2E** was applied at transplanting.

TOMATOES

Soil applications of **Vireo 2E** at planting will provide control of damping-off caused by *Pythium* spp. Soil applications applied 4 to 12 weeks before harvest under the vines will control fruit and root rot caused by *Pythium* spp. and *Phytophthora* spp.

Damping-Off (*Pythium* spp.): Apply 2 to 4 qts. per treated acre in sufficient water or liquid fertilizer to provide uniform coverage at the time of planting. If rainfall is not expected before the seeds start to germinate, **Vireo 2E** should be incorporated mechanically before planting, during the planting operation, or be moved into the seed zone after planting with 1/2 to 1 inch sprinkler irrigation. For banded applications, a 7-inch band is recommended. Use the formula in the **Product Information** section of this label to calculate the amount of **Vireo 2E** needed per acre.

Root and Fruit Rot (*Phytophthora* spp. and *Pythium* spp.): To aid in the control of root and fruit rot, 1 or 2 additional applications may be made during the growing season, depending on the severity of the conditions for disease infection.

Apply 2 qts per treated acre beginning 4 to 6 weeks after planting. A second application may be made as needed up to 4 weeks before harvest, but before the last irrigation. **Vireo 2E** may be applied as a directed soil surface spray under the vines or it may be injected into the beds with liquid fertilizer. If less than the full bed is treated, use the formula in the **Product Information** section to determine the amount of **Vireo 2E** needed per acre. If **Vireo 2E** is injected into the beds with liquid fertilizer, base calculations on a 7-inch band.

If soil surface sprays are used, the **Vireo 2E** must be incorporated into the soil with 1/2 to 1 inch of rainfall or sprinkler irrigation.

Vireo 2E may be applied with water or liquid fertilizer. Use the test in the **Product Information** section to check for compatibility with various fertilizers.

Keep **Vireo 2E** suspended in the fertilizer solution with bypass or mechanical agitation. Refer to the **Product Information** section for drip irrigation instructions,

RESTRICTIONS:

- Do not apply more than 6 qts. per treated acre per season.
- Do not use **Vireo 2E** for disease control in greenhouse or field-grown vegetable bedding plants.
- Do not use **Vireo 2E** as a transplant water treatment.

REPLANTING

If replanting is necessary, additional application of **Vireo 2E** may be made provided that the total amount of active ingredient in **Vireo 2E** applied does not exceed the maximum allowed for the specific crop.

ROTATION (PLANTBACK) RESTRICTION

Do not plant any crop which is not registered for use with the **Vireo 2E** active ingredient in soil treated with this active ingredient for a period of 12 months,, unless a shorter interval is specified on the following list.

Rotation Crops	Planting Time From Last Vireo 2E Application
Alfalfa (including birdsfoot trefoil), Almonds, Apples, Asparagus, Avocadoes, Blueberries, Citrus, Clover, Cole Crops, Cotton, Cranberries, Cucurbit Vegetables Deciduous Fruits and Nuts*, Eggplant, Garlic, Ginseng, Grapes, Grasses**, Hops, Leafy Vegetables (Excluding Brassica), Legume Vegetables (beans and peas – succulent and dried), Onions (dry bulb, green, and seed), Papaya, Peanuts, Peppers, Pineapples, Potatoes, Raspberries, Root and Tuber Vegetables, Soybeans, Spinach, Stone Fruits, Strawberries, Sugar Beets, Tobacco, Tomatoes, Walnuts	0 days
Cereal Grains (other than Corn)	14 days
Corn	9 months
Crops Not Intended for Food or Feed	0 days
All Other Crops Intended for Food or Feed	12 months

* These crops and other perennial crops may be planted immediately following last application of **Vireo 2E**, provided they will not bear harvestable fruit within 12 months.

** Any grass, Gramineae family (either green or cured), except the following. Do not apply to sugarcane; to any of the following that will be fed to or grazed by livestock: barley, buckwheat, corn, millet (Pearl or proso), oats, popcorn, rice, rye, sorghum, teosinte, triticale, wheat, or wild rice; or to any enclosed pasture grasses or grasses grown for hay or silage such as bermudagrass, bluegrass, bromegrass, or fescue.

CONIFERS, NON-BEARING CITRUS, NON-BEARING DECIDUOUS FRUITS AND NUTS, ORNAMENTALS AND TURF

Vireo 2E is a systemic fungicide for use on ornamentals, turf, nonbearing citrus grown in nurseries and as landscape plantings, conifers grown in nurseries and plantations, including Christmas trees and nonbearing deciduous fruit and nut trees grown in nurseries.

Resistance Management Recommendations:

For resistance management, Vireo 2E contains a Group 4 fungicide. Any fungal population may contain individuals naturally resistant to Vireo 2E and other Group 4 fungicides. A gradual or total loss of pest control may occur over time if these fungicides are used repeatedly in the same fields. Appropriate resistance-management strategies should be followed.

To delay fungicide resistance, take one or more of the following steps:

- Rotate the use of Vireo 2E or other Group 4 fungicides within a growing season sequence with different groups that control the same pathogens.
- Use tank mixtures with fungicide from a different group that are equally effective on the target pest when such use is permitted. Use at least the minimum application rate as labeled by the manufacturer.
- Adopt an integrated disease management program for fungicide use that includes scouting, uses historical information related to pesticide use, and crop rotation, and which considers host plant resistance, impact of environmental conditions on disease development, disease thresholds, as well as cultural, biological and other chemical control practices.
- Where possible, make use of predictive disease models to effectively time fungicide applications. Note that using predictive models alone is not sufficient to manage resistance.
- Monitor treated fungal populations for resistance development.
- Contact your local extension specialist or certified crop advisor for any additional pesticide resistance-management and/or IPM recommendations for specific crops and pathogens.
- For further information or to report suspected resistance contact Aquatrols Corporation of America at 1-856-537-6003. You can also contact your pesticide distributor or university extension specialist to report resistance.

To help decrease the chance of downy mildew resistance, do not use **Vireo 2E** for the control of downy mildew diseases, except for use in turf. Use **Vireo 2E** only as a soil application for control of oil-borne diseases with the exception of azalea petal blight.

To avoid drift, do not apply under windy conditions. Avoid spray overlap, or crop injury may result.

Mixing Instructions

To ensure the compatibility of **Vireo 2E** with these and other products, pour the products into a small container of water in the correct proportions. After thorough mixing, let stand for five ' minutes. If the combination remains mixed, or can be remixed readily, the mixture should be considered compatible.

Prepare no more spray mixture than is required for the immediate operation. Agitate the spray solution continuously during mixing and during application. Rinse the spray tank thoroughly with clean water after each day's use and dispose of pesticide rinsate by application to an already treated area.

Vireo 2E Alone

Add 1/4 -1/2 of the required amount of water to the spray tank. With the agitator running, add the **Vireo 2E** to the tank. Continue agitation while adding the remainder of the water. Begin application of the spray solution after the **Vireo 2E** has completely dispersed into the mix water. Maintain agitation until all the mixture has been sprayed.

Vireo 2E + Tank Mixtures

Add 1/4 to1/2 of the required amount of water to the spray tank. Start the agitator before adding any !tank mix partners. In general, tank mix partners should be added in this order: wettable powders, dry flowable formulations, liquid flowable formulations, microencapsulated formulations, and emulsifiable concentrates. Always allow each tank mix partner to become fully dispersed before adding the next product. Provide sufficient agitation while adding the remainder of the water and the **Vireo 2E** to the spray tank. Allow the

Vireo 2E to completely disperse into the mix water. Maintain agitation until all of the mixture has been sprayed.

NOTE: When using **Vireo 2E** in tank mixtures, all products in water-soluble packaging should be added to the tank before any other tank mix partner, including **Vireo 2E**. Allow the water-soluble packaging to completely dissolve and the product(s) to completely disperse before adding any other tank mix partner to the tank.

If using **Vireo 2E** in a tank mixture, observe all directions for use, sites, use rates, dilution ratios, precautions and limitations which appear on the tank mix partner label. No label dosage may be exceeded and the most restrictive label precautions and limitations must be followed. This product may not be mixed with any product which prohibits such mixing. Tank mixtures or other applications of products referenced on this label are permitted only in those states in which the products are registered.

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Application Instructions

For banded applications, calculate the amount of **Vireo 2E** needed as follows:

$$\frac{\text{band width in inches}}{\text{row width in inches}} \times \text{broadcast rate per acre} = \text{amount needed per acre}$$

Application Through Irrigation Systems

Vireo 2E alone or in tank mixture with other pesticides registered for application through irrigation systems may be applied in irrigation water at rates specified on this label. Apply this product only through micro sprinkler or drip 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 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 label-prescribed safety devices for public water supplies 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.

Vireo 2E can be injected into the irrigation line in concentrated form, or diluted with water or liquid fertilizer solutions with pH levels less than 7.5. If diluted, a pesticide supply tank should be used. Agitation is not needed unless the diluted solution will remain in the supply tank more than 24 hours. **Vireo 2E** is normally diluted at a ratio of 10:1 to 50:1, depending on injection setups. Injecting a larger volume of a more dilute mixture will usually allow a more accurate calibration of the metering equipment. Meter the fungicide into the irrigation water during the first part of the irrigation cycle.

NOTE: **Vireo 2E** is highly corrosive to seals and other pump components. Recommended components are Teflon, polyethylene, polypropylene, and nylon. When **Vireo 2E** is diluted at least 50:1, silicone rubber and viton can be used. Do not use PVC or EPDM based components.

Safety Devices for Irrigation Systems Connected to Public Water Supplies

If the source of water for your irrigation system is a public water supply, follow the instructions below.

1. Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

2. Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone (RPZ), backflow preventer or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, 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.
3. The pesticide injection pipeline must contain a functional, automatic, quick-closing check-valve to prevent the flow of fluid back toward the injection pump.
4. The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
5. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Do not apply when wind speed favors drift beyond the area intended for treatment.

Safety Devices for Irrigation Systems Not Connected to a Public Water Supply

1. 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.
2. The pesticide injection pipeline 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 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 functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where the 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.

Application Instructions

Vireo 2E must be applied on the schedule specified in the use directions, not according to the irrigation schedule.

The following calibration and application techniques are provided for the user reference, but do not constitute a warranty of fitness for application through sprinkler irrigation equipment. Users should check with state and local regulatory agencies for potential use restrictions before applying any agricultural chemical through sprinkler irrigation equipment.

Irrigation Instructions

1. Each run of the irrigation system must be calibrated separately to determine the time it takes water to move through the system and to make sure all emitters in all system are putting out the same amount of water.
2. Only pressure injection or venture equipment is recommended.
3. Determine the area to be treated in each irrigation run.
4. Measure the output of each of the emitters or drip tubes closest to and farthest from the injector site.
5. For calibration, substitute a concentrated detergent (such as Wisk) for the Vireo 2E in the injector tank. It is the important to use the same volume of soap solution as the planned volume of **Vireo 2E** solution when calibrating the system. The detergent will bubble as it leaves the emitters. The time period over which the bubbles occur should be checked for both the closest and farthest emitters. If these times are not within 2 minutes of each other, adjust the dilution ratio and/or the injection rate.

Step-by-Step Instructions

1. Before starting to calibrate, operate the system until all the emitters are putting out at equal flow rates or until the system is operating at full pressure.
2. Make up an indicator solution of detergent or fertilizer, using the same ratio to be used with mixing **Vireo 2E**.
3. Set the injector to apply the indicator solution at the injection rate to be used in the actual **Vireo 2E** application.
4. Attach a 5-inch length of flexible tubing over the emitter closest to the injection point, another length over the emitter farthest away. Both emitters should be monitored to determine the time intervals that the indicator solutions are observed.
5. Begin injecting the indicator solution. Direct the flow from the tubes at the emitters into a small container. Begin timing when the indicator solution is first detected, stop timing when the indicator solutions are no longer detected.
6. If the period of detection of the indicator solution between the 2 emitters are within 2 minutes of each other, comparable coverage will be obtained. If they are not, make adjustments by increasing the dilution ratio, using more water per part of **Vireo 2E**, or adjust the injector to a slower flow rate.
7. Once the system is calibrated, dilute the needed amount of **Vireo 2E** with water using a minimum of 15 parts water to 1 part of **Vireo 2E** in the solution tank.
8. Do not begin to inject **Vireo 2E** into the system until all emitters are producing equal flow rates, or until the system is at full pressure.
9. Inject the **Vireo 2E** into the system at the beginning of the irrigation set in 1/2 to 1 inch of irrigation water.

ORNAMENTALS

Use **Vireo 2E** on container, bench, or bed grown ornamentals in greenhouses or outdoor nurseries, and for use on ornamentals grown for indoor and outdoor landscaping, for control of damping-off, and root and stem rot diseases caused by Pythium and Phytophthora. **Vireo 2E** may be applied through irrigation systems, as a soil drench or as a soil surface spray, or incorporated into a soil mix for subsequent seeding or transplanting of ornamentals. **Vireo 2E** may be applied as a foliar spray on azaleas. **Within a rate range given for a specific group of ornamentals, use the lower rate for the shortest interval listed and the higher rate for the longest interval. Under severe disease conditions, use the highest rate and the shortest interval specified.**

For drench applications, use enough of the specified **Vireo 2E** water solution to wet the root zone of plants. In general, 1 pt. per sq. ft. of this solution is sufficient for ornamentals growing in containers with 4. inches of growth media. Containers with growth media depth greater than 4 inches generally require 1 ½ to 2 pts. Per sq. ft. of the solution. If soil surface applications are made, irrigate with at least 1/2 inch of water if rainfall does not occur within 7 days.

NOTICE TO USER: Due to the large number of species and varieties of ornamentals and nursery plants, it is impossible to test every one for tolerance to **Vireo 2E**. Neither the manufacturer nor the seller has determined whether or not **Vireo 2E** can be used safely on ornamental and nursery plants not specified on this label. The professional user should determine if Vireo 2E can be used safely prior to commercial use. In a small area, test the specified rates for a particular group of unlabeled plants, i.e., bedding plants, foliage, etc., for phytotoxicity prior to widespread use.

CROP	APPLICATION INSTRUCTIONS
<p>Foliage Plants Aglaonema, Aphelandra, Dieffenbachia, Peperomia, Philodendron*, Pothos, Schefflera, Sedum, Sempervivum, Zygocactus</p>	<p>Drench: Mix 1/2 to 1 1/4 fl. oz. with 100 gals. of water. Apply 1 pt. solution per sq. ft. For growth media depth greater than 4 inches, apply 1 1/2 to 2 pts. solution per sq. ft. Repeat applications at two to three month intervals if necessary.</p> <p>*NOTE: On Philodendron, use 1 to 2 fl. oz. per 100 gals.</p> <p>RESTRICTIONS: To minimize the potential for injury to Pothos, do not use more than 3/4 fl. oz. per 100 gals. and do not apply more frequently than once every 3 months.</p> <p>Soil Mix: Thoroughly mix 1/4 to 1/2 fl. oz. with each cu. yd. of soil mixture.</p> <p>Soil Surface Spray to Foliage Plants in the Landscape: Apply 2 fl. oz. per 1,000 sq. ft. to the soil surface in a broadcast or banded spray in sufficient water to obtain thorough coverage of the plant root zone. After application, irrigate with a minimum of 1/2 inch of water if rainfall does not occur within seven days.</p>

CROP	APPLICATION INSTRUCTIONS
<p>Bedding Plants Ageratum, Algerian ivy, Artemisia, Aster, Begonia, Caladium, Carnation, Chrysanthemum, Coleus, Daisy, English ivy*, Foxglove, Gaillardia, Geranium, Impatiens, Marigold, Pansy, Petunia, Phlox, Pinks, Primrose, Prostrate, Rosemary, Salvia, Snapdragon, Verbena, Vinca Zinnia</p>	<p>Drench at Seeding: (Soil 2-3 inches deep) Mix 1/4 to 1/2 fl. oz. with 100 gals. of water and apply 1 pt. solution per sq. ft.</p> <p>Drench at Transplanting: (Soil 2-3 inches deep) Mix 1/2 to 2 fl. oz. with 100 gals. Of water and apply 1 pt. solution per sq. ft. For growth media depth greater than 4 inches, apply 1 1/2 to 2 pts. solution per sq. ft. Repeat applications at one to two month intervals if necessary. Do not apply rates of 1 1/2 to 2 fl. oz. per 100 gals. More often than once every six weeks.</p> <p>Soil Mix at Seeding and at Transplanting: Thoroughly mix 1/4 fl. oz. with each cu. yd. of soil mixture.</p> <p>Soil Surface Spray to Bedding Plants in the Landscape: Apply 2 fl. oz. per 1,000 sq. ft. to the soil surface in a broadcast or banded spray in sufficient water to obtain thorough coverage of the plant root zone. After application irrigate with a minimum of 1/2 inch of water of rainfall does not occur within seven days.</p> <p>*RESTRICTIONS: Do not apply to English ivy more than once every 6 months or injury may occur.</p>
<p>Flowers African violet, Anthurium, Baby's breath, Carnation, Chrysanthemum, Columbine, Delphinium, Easter lily*, Geranium, Gloxinia, Poinsettia, Rose</p>	<p>Drench: Mix 1/2 to 2 fl. oz. with 100 gals. of water and apply 1 pt. solution per sq. ft. For growth media depth greater than 4 inches, apply 1 1/2 to 2 pts. solution per sq. ft. Repeat applications at one to two month intervals if necessary. Do not apply rates of 1 1/2 to 2 fl. oz. per 100 gals. more often than every six weeks.</p> <p>*RESTRICTIONS: Do not apply more than 1 fl. oz. per 100 gals of water to Easter lily and only make one at-planting application:</p> <p>Soil Surface Spray to Flowers in the Landscape: Apply 2 fl. oz. per 1,000 sq. ft. to the soil surface in a broadcast or banded spray in sufficient water to obtain thorough coverage of the plant root zone. After application irrigate with a minimum of 1/2 inch of water of rainfall does not occur within seven days.</p>

CROP	APPLICATION INSTRUCTIONS
<p>Rhododendrons and Azaleas</p>	<p>Drench: Phytophthora root and crown rot - Mix 1 to 2 1/2 fl. oz. with 100 gals. of water and apply 1 pt. solution per sq. ft. For growth media depth greater than 4 inches, apply 1 1/2 to 2 pts. solution per sq. ft. Repeat applications at two to four month intervals, if necessary.</p> <p>Soil Surface Spray: Apply 2 to 4 fl. oz. per 1,000 sq. ft. to the soil surface in a broadcast or banded spray in sufficient water to obtain thorough coverage of the plant root zone. After application irrigate with a minimum of 1/2 inch of water if rainfall does not occur within seven days.</p> <p>Foliar Spray: Phytophthora shoot blight - Mix at 1 1/2 to 2 1/2 fl. oz. with 1,000 gals. of water. Spray to runoff. Repeat at two to three month intervals if necessary.</p> <p>RESTRICTIONS: To minimize the potential for injury to azaleas, do not apply repeat soil applications of 2 1/2 fl. oz. pr 100 gals. closer than every three months and do not exceed a total of 4 fl. oz. in six months. Use the lower rate for "Coral Bell" variety.</p>
<p>Woody Ornamentals other than Azaleas <i>Aucuba japonica</i>, Arborvitae, Boxwood, Ceanothus, Cotoneaster, Dogwood, Ficus, "Halls" Honeysuckle, Ilex, <i>Juniperus</i> spp., Photinia, <i>Pieris japonica</i>, <i>Pinus</i> spp., Pittosporum, White cedar, White pine, Yew</p>	<p>Drench: Mix 1 to 4 fl. oz. with 100 gals. of water and apply 1 pt. solution per sq. ft. For growth media depth greater than 4 inches, apply 1 1/2 to 2 pts. Solution per sq. ft. Repeat applications at two to three month intervals if necessary. Do not apply rates greater than 3 1/4 fl. oz. per 100 gals. more often than once every ten weeks.</p> <p>Soil Surface Spray: Apply 2 to 5 fl. oz. per 1,000 sq. ft. to the soil surface in a broadcast or banded spray in sufficient water to obtain thorough coverage of the plant root zone. After application irrigate with a minimum of 1/2 inch of water if rainfall does not occur within seven days.</p> <p>RESTRICTIONS: Do not apply to Euonymus or injury may occur.</p>

INTERIORSCAPES AND INDIVIDUAL PLANT USE

In situations where water volumes used are much less than 100 gals. and the area treated is small, the following table provides the **Vireo 2E** rates to make small quantities of solution. Refer to the plant type for the correct fl. oz. of product to use when utilizing this table.

Rate of Vireo 2E (fl. oz.)	Amount of Vireo 2E to Add to Water to Make the Following Quantities			
	1 gal.	5 gals.	10 gals.	25 gals.
0.5	7 drops	37 drops/0.75 ml	75 drops/1.5ml	3.75 ml/ 3/4 tsp.
1.0	15 drops	75 drops/ 1.5ml	3.0 ml/1/2 tsp.	7.5 ml/ 1 1/2 tsp./ 1/2 Tbsp.
2.0	30 drops	3.0 ml/1/2 tsp.	6.0 ml/ 1 1/4 tsp	15.0 ml/3.0 tsp./ 1 Tbsp.
3.0	45 drops	4.5 ml./1 tsp.	9.0 ml/ 2 tsp.	22.5 ml/ 4 1/2 tsp./ 1 1/2 Tbsp.
4.0	60 drops/1.25 ml	6.0 ml/ 1 1/4 tsp.	12.0 ml/ 2 1/2 tsp.	30.0 ml/2 Tbsp./ 1 oz.

Soil Drench: Apply enough solution to wet the root area of the plants; apply at least one pint of solution per square foot.

CITRUS IN NURSERIES AND LANDSCAPE PLANTINGS (NONBEARING)

Use **Vireo 2E** on nonbearing citrus for control of citrus foot rot, root rot, and trunk canker caused by *Phytophthora* spp. Apply to the soil as a drench or as a spray in a banded application.

Make the first application of **Vireo 2E** at the time of planting. Make repeated applications at three-month intervals during the period when trees are actively growing.

Soil Drench: Mix 4 to 6 fl. oz. per 100 gals. of water and apply as a drench over the row at the rate of 100 to 250 gals. per 1,000 feet of row. The width of the drench treatment should be wide enough to cover the root systems of the plants.

Soil Surface Spray: Apply 2 gals. per acre of treated soil in a broadcast or banded surface spray to seedbeds, liners, or bedded stock in sufficient water to obtain uniform coverage. If applications are banded, the treated area should be wide enough to cover the root systems of the plants. Follow with a 1/2-inch irrigation.

Calculate the amount of **Vireo 2E** needed for a banded treatment by using the formula at the end of the **Product Information** section of this label.

RESTRICTIONS:

- Do not use in greenhouse citrus nursery stock intended for commercial fruit production.
- Do not exceed a maximum of 2 applications per year.

CONIFERS IN NURSERIES AND PLANTATIONS (INCLUDING CHRISTMAS TREES)

Vireo 2E provides control of Phytophthora root rot of conifers. For best results, apply 1/2 to 1 inch of water after application if rain is not expected within three days.

Conifers in Nurseries

Seedbeds and Plug-Plantings	Apply 2 1/2 pts. of Vireo 2E in at least 50 gals. of water per acre in the spring and again in the fall.
2-0 Transplants	Apply 5 pts. Vireo 2E in at least 50 gals. of water per acre in the spring and again in the fall.

Conifers in Plantations

Use of **Vireo 2E** will aid in the control of Phytophthora root rot when used in conjunction with good cultural practices. The use of **Vireo 2E** will not overcome poor management practices such as planting on sites that are prone to flooding or are poorly drained. **Vireo 2E** fungicide will not revitalize trees showing moderate to severe disease symptoms.

Apply 1 1/4 to 2 1/2 gals. of **Vireo 2E** in a minimum of 50 gals. of water as a directed soil spray. Do not apply as a foliar spray. Applications should be made in early spring before growth starts and in the fall before the ground freezes. Calculate the amount of **Vireo 2E** needed for a banded treatment by using the formula at the end of the **Product Information** section of the label.

DECIDUOUS FRUITS AND NUTS IN NURSERIES (NONBEARING)

Vireo 2E provides control of Pythium root rot and Phytophthora root, crown, and collar rot of nonbearing deciduous fruits and nuts.

Apply 6 fl. oz. per 1,000 sq. ft. in sufficient water to obtain thorough coverage of the soil under the canopy of the trees. Treat sufficient surface area in nurseries to cover the root zone of the plants. Additional applications may be made as necessary at three-month intervals during the growing season.

RESTRICTIONS:

- Do not apply to trees that will bear harvestable fruit within 12 months of the last application.
- Do not apply more than 17.6 oz. per 1,000 sq. ft. (6 gals. per acre) of **Vireo 2E** per year.

TURF

(Golf Courses, Lawns, Landscape Areas, Around Residential, Institutional, Public, Commercial and Industrial Buildings, Parks, Recreational Areas, and Athletic Fields, Sod Farms)

Vireo 2E controls Pythium blight and Pythium damping-off in turf, yellow tuft (downy mildew) in bluegrass, and downy mildew in St. Augustine grass. **Within the rate range given for turf, use the lower rate for the shortest interval listed and the higher rate for the longest interval. Under severe disease conditions, use the highest rate and shortest interval specified.**

<p>Established Turf Pythium Blight Yellow Tuft Downy Mildew</p>	<p>Apply as a preventative treatment at 1 to 2 fl. oz. in 3-5 gals. of water per 1,000 sq. ft. Retreat at 10 to 21 day intervals. During periods of prolonged conditions favorable for disease development, use 2 fl. oz. on a 14-day schedule.</p>
<p>Newly Seeded Areas Pythium Damping-Off Pythium Blight Yellow Tuft Downy Mildew</p>	<p>Apply 1 to 2 fl. oz. in 5 to 10 gals. of water per 1,000 sq. ft. immediately after seeding. Retreat at 7-14 day intervals if conditions remain favorable for disease.</p> <p>Note: For long-term control of Pythium in areas when using seed treated with the active ingredient contained in Vireo 2E, make application of Vireo 2E 7 to 10 days after seeding.</p>

NOTE: For control of other diseases of turf, use propiconazole alone or in tank mix combination with **Vireo 2E**. Refer to the propiconazole label for rates, precautions, restrictions, etc.

Resistance Management: To minimize the potential for resistance,

- Make no more than three applications of **Vireo 2E** per season and
- Apply an alternate EPA-registered fungicide for Pythium control at least once during the season.

RESTRICTIONS:

- Make no more than 3 applications of **Vireo 2E** per season.

SEED TREATMENT

Vireo 2E is a systemic fungicide for use as a seed dressing.

Resistance Management Recommendations:

For resistance management, **Vireo 2E** contains a Group 4 fungicide. Any fungal population may contain individuals naturally resistant to **Vireo 2E** and other Group 4 fungicides. A gradual or total loss of pest control may occur over time if these fungicides are used repeatedly in the same fields. Appropriate resistance-management strategies should be followed.

To delay fungicide resistance, take one or more of the following steps:

- Rotate the use of **Vireo 2E** or other Group 4 fungicides within a growing season sequence with different groups that control the same pathogens.
- Use tank mixtures with fungicides from a different group that are equally effective on the target pest when such use is permitted. Use at least the minimum application rate as labeled by the manufacturer.
- Adopt an integrated disease management program for fungicide use that includes scouting, uses historical information related to pesticide use, and crop rotation, and which considers host **plant resistance**, impact of environmental conditions on disease development, disease thresholds, as well as cultural, biological and other chemical control practices.
- Where possible, make use of predictive disease models to effectively time fungicide applications. Note that using predictive models alone is not sufficient to manage resistance.
- Monitor treated fungal populations for resistance development.
- Contact your local extension specialist or certified crop advisor for any additional pesticide resistance-management and/or IPM recommendations for specific crops and pathogens.
- For further information or to report suspected resistance contact Aquatrols Corporation of America at 1-856-537-6003. You can also contact your pesticide distributor or university extension specialist to report resistance.

Vireo 2E may be applied as a water-based slurry with other registered seed treatment insecticides and

fungicides through standard slurry or mist-type commercial seed treatment equipment.

Grain Sorghum	For Pythium damping-off control: Apply Vireo 2E as a seed treatment at the rate of 1 to 2 fl. oz. per 100 lbs. of seed.
Soybeans	For Pythium damping-off and early season Phytophthora control: Apply Vireo 2E as a seed treatment at the rate of 1 to 2 fl. oz per 100 lbs. of seed.
Sunflower	For control of systemic downy mildew: Apply Vireo 2E as a seed treatment as the rate of 4 fl. oz. per 100 lbs. of seed.

Seed Bag Label Requirement:

The Federal Seed Act requires that containers containing treated seeds shall be labeled with the following statements:

- This seed has been treated with **Vireo 2E**, a fungicide containing metalaxyl.
- Do not use treated seed for feed, food, or oil purposes.

The U.S. Environmental Protection Agency requires the following statements on containers containing seed treated with metalaxyl:

- Store treated seed away from food and feedstuffs.
- Do not allow children, pets, or livestock to have access to treated seeds.
- Wear long pants, long-sleeved shirt and chemical resistant gloves made of barrier laminate, butyl rubber \geq 14 mils, neoprene rubber \geq 14 mils, nitrile rubber \geq 14 mils., polyvinyl chloride (PVC) \geq 14 mils, or Viton \geq 14 mils when handling treated seed.
- Treated seeds exposed on the soil surface may be hazardous to wildlife. Cover or collect treated seeds spilled during loading and planting (such as in row ends).
- Dispose of all excess treated seed by burying seed away from bodies of water.
- Do not contaminate bodies of water when disposing of planting equipment wash water.
- Dispose of seed packaging or containers in accordance with local requirements.
- Excess treated seed may be used for ethanol production if (1) by-products are not used for livestock feed and (2) no measurable residues of pesticide remain in ethanol by-products that are used in agronomic practice.

Seed treated with this product must be visually identifiable from untreated seed by the use of an approved colorant or dye to prevent accidental use of treated seed as food for humans or feed for animals. Refer to 21 CFR, Part 2.25. Any colorant or dye added to treated seed must be cleared for use in accordance with 40 CFR, Part 153.155(c).

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage and disposal. Open dumping is prohibited.

Pesticide Storage: Store at temperatures above 40°F. Crystals may form at lower storage temperatures. If this occurs, place the product in a warm room (68°F or above) and roll or shake the container at frequent intervals until all crystals are dissolved.

For minor spills, leaks, etc. follow all precautions indicated on this label and clean-up immediately. Take special care to avoid contamination of equipment and facilities during cleanup procedures and disposal of wastes.

Pesticide Disposal: Wastes resulting from the use of this product are toxic. Improper disposal of unused pesticide spray mixture, or rinsate is a violation, of Federal law. Pesticide, spray mixture or rinsate that cannot be used according to label instructions must be disposed of according to Federal, State, or local procedures. For guidance in proper disposal methods, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional office.

Container Handling:

For plastic containers less than or equal to 5 gallons: Nonrefillable container. Do not reuse or refill this container. Clean container promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip, Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling, if available or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. .If burned, stay out of smoke.

For plastic containers greater than 5 gallons: Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple Rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4full with water. Recap and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration.

Returnable/Refillable Containers: Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller.

**IMPORTANT INFORMATION READ BEFORE USING PRODUCT
CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND. LIABILITY**

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

The Directions for Use of this product reflect the opinion of experts based on field use and tests: and must be followed carefully. It is impossible to eliminate all risks associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of Aquatrols Corporation of America or Seller.

Handling, storage, and use of the product by Buyer or User are beyond the control of Aquatrols Corporation of America and Seller. To the extent consistent with applicable law all such risks shall be assumed by Buyer and User, and Buyer and User agree to hold Aquatrols Corporation of America and Seller harmless for any claims relating to such factors.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, AQUATROLS CORPORATION OF AMERICA AND SELLER MAKE NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ON THIS LABEL.

To the extent consistent with applicable law, Aquatrols Corporation of America or Seller shall not be liable for any incidental, consequential or special damages resulting from the use or handling of this product and **THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF AQUATROLS CORPORATION OF AMERICA AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF AQUATROLS CORPORATION OF AMERICA OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

Aquatrols Corporation of America and Seller offer this product, and Buyer and User accept it, subject to the foregoing conditions of sale and limitations of warranty and of liability, which may not be modified except by written agreement signed by the duly authorized representative of Aquatrols Corporation of America

{LANGUAGE ON LABEL AFFIXED TO CONTAINER}

METALAXYL GROUP 4 FUNGICIDE

Vireo 2E

Active Ingredient:	(% by weight)
Metalaxyl: N-(2,6-dimethylphenyl)-N-(methoxyacetyl) alanine methyl ester	23.0%
Other Ingredients	77.0%
Total	100.00%

Contains 2 lbs. of metalaxyl per gallon. Contains petroleum distillates.

**KEEP OUT OF REACH OF CHILDREN
WARNING/AVISO**

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

FIRST AID

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

If swallowed: Call a poison control center or doctor. Have a 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 to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

Note to Physician: Consideration should be given to gastric lavage with an endotracheal tube in place. A slurry of activated charcoal in water may be left in stomach. Give a saline laxative followed by symptomatic and supportive care.

HOT LINE NUMBER

For medical emergency, call the Rocky Mountain Poison Control Center at 1-866-673-6671. Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

WARNING/AVISO: Causes substantial but temporary eye injury. Harmful if swallowed, absorbed through the skin or if inhaled. Do not get in eyes or on clothing. Avoid contact with skin. Avoid breathing vapors or spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum or using tobacco. Remove and wash contaminated clothing before reuse.

Environmental Hazards: Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Apply only as specified on this label. Do not apply when weather conditions favor drift from treated areas. Do not contaminate water when disposing of equipment washwaters or rinsate.

Groundwater Advisory Statement: This chemical is known to leach through soil into ground water under certain conditions as a result of agricultural use. This chemical may leach into groundwater if used in areas where soils are permeable, particularly where the water table is shallow.

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal. **PESTICIDE STORAGE:** Store at temperatures above 40° F. Crystals may form at lower storage temperatures. If this occurs, place the product in a warm room (68°F or above) and roll or shake the container at frequent intervals until all crystals are dissolved.

For minor spills, leaks, etc. follow all precautions indicated on this label and clean-up immediately. Take special care to avoid contamination of equipment and facilities during clean-up procedures and disposal of wastes.

PESTICIDE DISPOSAL: Wastes resulting from the use of this product are toxic. Improper disposal of unused pesticide spray mixture, or rinsate is a violation of Federal law. Pesticide, spray mixture or rinsate that cannot be used according to label instructions must be disposed of according to Federal, State, or local procedures. For guidance in proper disposal methods, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional office. Open dumping is prohibited.

CONTAINER HANDLING: For plastic containers less than or equal to 5 gallons: Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple Rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration. **For plastic containers greater than 5 gallons: Nonrefillable container.** Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple Rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4full with water. Recap and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration. **Returnable/Refillable Containers: Refillable container.** Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller.

See inside label booklet for additional Precautionary Statements and Directions for Use.

For Chemical Emergency
Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night
Within USA and Canada: 1-800-424-9300 or +1 703-527-3887 (collect calls accepted)

Manufactured for
Aquatrols Corporation of America
1273 Imperial Way
Paulsboro, NJ 08066

EPA Reg. No. 94396-19
EPA Est. No.

NET WEIGHT: