



U.S. ENVIRONMENTAL PROTECTION AGENCY  
Office of Pesticide Programs  
Biopesticides and Pollution Prevention Division (7511P)  
1200 Pennsylvania Avenue NW  
Washington, DC 20460

EPA Reg. Number:  
1381-236

Date of Issuance:  
FEB 21 2008

NOTICE OF PESTICIDE:

Registration  Re-registration  
(under FIFRA, as amended)

Term of Issuance: **Unconditional**

Name of Pesticide Product:  
**Phosphorous Acid Systemic Fungicide**

Name and Address of Registrant (include ZIP Code):

**Winfield Solutions LLC  
P.O. Box 64589  
St. Paul, MN 55164-0589**

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Biopesticides and Pollution Prevention Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered/reregistered under the Federal Insecticide, Fungicide and Rodenticide Act.

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is unconditionally registered in accordance with FIFRA Sec. 3(c)(5) provided you:

1. Submit and/or cite all data required for registration of your product under FIFRA section 3(c)(5) and section 4 when the Agency requires all registrants of similar products to submit such data.
2. Make the following label change before you release the product for shipment: Revise the EPA Registration Number to read, "EPA Reg. No. 1381-236.
3. Submit three (3) copies of the revised final printed labeling before you release the product for shipment. Refer to the A-79 enclosure for a further description of final printed labeling.

Signature of Approving Official:

*W. Michael McDavit*

Date: *2/21/08*

CONCURRENCES

SYMBOL	7511P	7511P					
SURNAME	<i>Peters</i>	<i>Hobbs</i>					
DATE	<i>2/11/08</i>	<i>2/21/08</i>					

**Type Size Requirements for 3 Front Panel Headings**

<u>Size of front panel square inches</u>	<u>Minimum type size for "RESTRICTED USE PESTICIDE" (if required) and Signal Word in capital letters</u>	<u>Minimum type for "Storage and Disposal" heading &amp; "Keep Out of Reach of Children" warning</u>
5 and under	6 point	6 point
above 5 to 10	10 point	6 point
above 10 to 15	12 point	8 point
above 15 to 30	14 point	10 point
over 30	18 point	12 point

(Revised 5/82)

**A-79 ENCLOSURE**

Final printed labeling is defined as that labeling which will accompany the pesticide product to market, and includes not only the container label, but also all accompanying technical information, brochures, etc.

Final printed labeling for the Agency's files should be of a size that can be stored conveniently in 8 1/2 x 11 inch files. Labels may be mounted or photo-reduced to meet the size requirements provided the printing is legible and is of microfilm reproduction quality. Should photo reduction make any of the text illegible, the text must be typed out on an accompanying sheet of paper.

PASTE-ON LABELING: This should be submitted as is, unless it requires photo reduction.

SCREEN PRINTED LABELING: These labels should be printed by taping paper on the container as it goes through the printing process. The actual container should not be submitted.

EMBOSSSED LABELING: These labels should be photocopied.

UNUSUAL SIZE LABELING: Large bags or boxes must be photo-reduced, either the entire label on one reduction or in sections so that each section is 8 1/2 x 11 inches.

**Master label encompassing Sub-label A – Commercial Agricultural Uses  
and Sub-label B – Residential Uses**

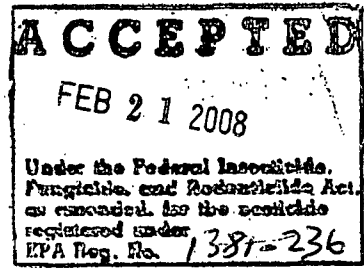
**PHOSPHOROUS ACID  
SYSTEMIC FUNGICIDE**

SYSTEMIC FUNGICIDE FOR THE EFFECTIVE CONTROL OF VARIOUS PLANT DISEASES INCLUDING BLACK SPOT OR SCAB IN APPLE, ROOT ROT IN AVOCADO, BUD ROT AND NUT FALL IN COCONUT, ROOT ROT IN CITRUS AND CUCURBITS, DOWNY MILDEW IN CUCURBITS, GRAPE, LETTUCE, AND ONION, ANTHRACNOSE IN MANGO, ROOT AND HEART ROT IN PINEAPPLE, LATE BLIGHT IN POTATO, ROOT AND COLLAR ROT IN STONEFRUIT, LEATHER ROT AND PHYTOPHTHORA DISEASES IN STRAWBERRY, LATE BLIGHT IN TOMATO, DOWNY MILDEW, PHYTOPHTHORA & PYTHIUM IN ORNAMENTALS, INTERIORSCAPES & BEDDING PLANTS, PHYTOPHTHORA AND FUSARIUM IN CONIFERS, PYTHIUM IN TURF, AND PHYTOPHTHORA AND PYTHIUM DISEASES ASSOCIATED WITH STEM AND CANKER BLIGHT (SUDDEN OAK DEATH) AND GENERAL BEECH DECLINE.

ACTIVE INGREDIENTS: Mono- and di-potassium salts of Phosphorous Acid*	45.8%
OTHER INGREDIENTS:	54.2%
TOTAL	100.0%

\*Contains 5.17 lbs/gallon of the active ingredients, mono- and di-potassium salts of Phosphorous Acid.  
Equivalent to 3.35 lbs Phosphorous Acid/gallon

**KEEP OUT OF REACH OF CHILDREN  
CAUTION**



EPA Reg. No. 1381-

Manufactured for:  
Winfield Solutions  
P.O. Box 64589  
St. Paul, MN 55164-0589

EPA Est. No. 1381-

Net Contents:  
PROP1-18-08

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**Sub-label A – Commercial Agricultural Uses**

**PHOSPHOROUS ACID  
SYSTEMIC FUNGICIDE**

SYSTEMIC FUNGICIDE FOR THE EFFECTIVE CONTROL OF VARIOUS PLANT DISEASES INCLUDING BLACK SPOT OR SCAB IN APPLE, ROOT ROT IN AVOCADO, BUD ROT AND NUT FALL IN COCONUT, ROOT ROT IN CITRUS AND CUCURBITS, DOWNY MILDEW IN CUCURBITS, GRAPE, LETTUCE, AND ONION, ANTHRACNOSE IN MANGO, ROOT AND HEART ROT IN PINEAPPLE, LATE BLIGHT IN POTATO, ROOT AND COLLAR ROT IN STONEFRUIT, LEATHER ROT AND PHYTOPHTHORA DISEASES IN STRAWBERRY, LATE BLIGHT IN TOMATO, DOWNY MILDEW, PHYTOPHTHORA & PYTHIUM IN ORNAMENTALS, INTERIORSAPES & BEDDING PLANTS, PHYTOPHTHORA AND FUSARIUM IN CONIFERS, PYTHIUM IN TURF, AND PHYTOPHTHORA AND PYTHIUM DISEASES ASSOCIATED WITH STEM AND CANKER BLIGHT (SUDDEN OAK DEATH) AND GENERAL BEECH DECLINE.

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CAUTION**

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Manufactured for:  
Winfield Solutions  
P.O. Box 64589  
St. Paul, MN 55164-0589

Net Contents:

**FIRST AID****IF SWALLOWED:**

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

**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 poison control center or doctor for treatment advice

**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

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. **For Emergency Assistance Call 1-877-424-7452.**

## PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS

**CAUTION.** Harmful if swallowed, inhaled or absorbed through skin. Avoid breathing vapors or spray mist. Causes moderate eye irritation. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

### PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators, mixers, loaders, and other handlers must wear:

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

Follow manufacturer's instructions for maintaining/cleaning personal protective equipment (PPE). If no such instructions for washables, use hot water and detergent. Keep and wash PPE separately from other laundry.

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

### USER SAFETY RECOMMENDATIONS

**Users should:**

- Wash hands before drinking, eating, chewing gum, using tobacco or using the toilet.
- Remove PPE clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

**ENVIRONMENTAL HAZARDS**

For Terrestrial Use: Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate.

**DIRECTIONS FOR USE**

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling. Read entire label before using this product.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the state or tribal agency responsible for pesticide registration.

**AGRICULTURAL USE REQUIREMENTS**

Use this product only in accordance with its labeling and with the Worker Protection Standard, CFR 40 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 4 hours, unless wearing the appropriate PPE.

PPE required for early entry to treated areas that are permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soils or water, is: coveralls worn over short-sleeved shirt and short pants, waterproof gloves, shoes plus socks and protective eyewear.

**NON-AGRICULTURAL USE REQUIREMENTS**

The requirements of 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 treated areas without protective clothing until sprays have dried.

**CHEMIGATION**

Use of PHOSPHOROUS ACID through chemigation is not permitted in California.

Apply this product only through center pivot, solid set or drip (trickle) 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 nonuniform distribution of treated water.

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

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

#### SPRINKLER AND DRIP (TRICKLE) IRRIGATION SYSTEMS:

The irrigation system must contain a functional check valve, vacuum relief valve and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

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

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

(Sprinkler Chemigation Only) Do not apply when wind speed favors drift beyond the area intended for treatment.

Apply PHOSPHOROUS ACID continuously for the duration of the water application. After treatment with PHOSPHOROUS ACID has been completed, avoid further irrigation of the treated area until foliage is dry or for 24 to 48 hours.

#### GENERAL APPLICATION INSTRUCTIONS

Apply PHOSPHOROUS ACID by various application methods, including foliar spray, soil drench, soil incorporation, basal bark application and bare root dip. For foliar sprays, apply PHOSPHOROUS ACID with sufficient water volumes for adequate coverage of foliage, according to crop and growth stage. To ensure good coverage, spray to wetness, but avoid run-off.

When using PHOSPHOROUS ACID with Pentra-Bark™, adhere to all applicable label directions. Only use Pentra-Bark™ with basal bark or tree injection applications.

#### MIXING INSTRUCTIONS

1. Fill the spray tank with  $\frac{1}{4}$  -  $\frac{1}{2}$  of the volume of water required before adding PHOSPHOROUS ACID
2. Add PHOSPHOROUS ACID slowly to the tank and agitate by mechanical or hydraulic means
3. Continue agitating as tank fills with water to the desired volume
4. Maintain agitation during application

#### COMPATIBILITY

PHOSPHOROUS ACID is compatible with most products used in agriculture. However, individual crop sensitivity to these mixtures may vary. Mixtures of PHOSPHOROUS ACID with some foliar fertilizers and copper products are not always compatible or cause phytotoxicity to some plants. If these combinations or others have not been used previously, do not tank mix without first testing the compatibility of the tank mix. Do not apply tank mixture without first assessing its safety to the

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crop (phytotoxicity). Tank mix PHOSPHOROUS ACID with fertilizers only if crop safety has been established and the PHOSPHOROUS ACID use rates are followed.

Due to PHOSPHOROUS ACID'S acidic nature, do not use acidifying-type compatibility agents. If spray adjuvants are used test them before use to confirm compatibility with PHOSPHOROUS ACID.

Use a jar test to confirm compatibility with PHOSPHOROUS ACID. In a clean jar using the same water source that is normally used to fill spray tank, add the same proportions of each product and the appropriate quantity of water and mix thoroughly. Let stand for 3 minutes. If mixture remains in solution or is remixed readily the tank mix is compatible.

Spray the solution that results from the above compatibility test onto a few plants and inspect for visual effects of phytotoxicity (leaf burn) 3 to 7 days later.



# AGRICULTURAL APPLICATIONS

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## APPLES, CRAB APPLES, LOQUATS, PEARS & QUINCE\*

Use PHOSPHOROUS ACID for effective control of black spot, root and collar rot and fire blight in apples, crab apples, loquats, pears, and quinces.

Disease	Application Method	Rate	Application Program
Apple black spot and scab ( <i>Venturia inaequalis</i> )	Foliar spray	½ gallon per acre in 25-250 gallons water per acre	First application at open cluster. Last application at fifth cover or fruit at 2" to 2½" diameter. Total of 10 applications at 10 to 12 day intervals. When conditions are conducive to a black spot outbreak, apply PHOSPHOROUS ACID immediately. Note: After 4 or 5 consecutive applications some yellowing of extension growth may be observed. If yellowing occurs use another fungicide until yellowing of leaves disappears.
Apple black spot and scab ( <i>Venturia inaequalis</i> )	Basal bark spray at bud swell or silver tip stage of growth in early spring	62.4 fl. oz. + 62.4 fl. oz. of water + 3.2 fl. oz. Pentra-Bark™ Bark Penetrating Surfactant	Spray a combination of PHOSPHOROUS ACID and Pentra-Bark™ on the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil line, including the base of the first scaffolding limbs, if present. (Treatment generally lasts 8-12 weeks depending on pathogen levels. Higher disease pressure will shorten the length of control).
Root and collar rot ( <i>Phytophthora cactorum</i> ) Fire Blight ( <i>Erwinia amylovora</i> )	Foliar spray  Basal bark spray treat in spring and fall for best results.	Apply at 1¼ to 2½ quarts per acre with a maximum of 250 gallons water per acre.  62.4 fl. oz. + 62.4 fl. oz. of water + 3.2 fl. oz. Pentra-Bark™ Bark Penetrating Surfactant	One to two month intervals between treatments. Under high disease pressure use higher application rate and shorter spray interval. Ensure thorough coverage.  Spray a combination of PHOSPHOROUS ACID and Pentra-Bark™ around the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet

Disease	Application Method	Rate	Application Program
			above the soil line, including the base of the first scaffolding limbs, if present. (Treatment generally lasts 8-12 weeks depending on pathogen levels. Higher disease pressure will shorten the length of control.)

\*Not for use in California except basal bark spray on apples and crab apples.

**ASPARAGUS\***

Use PHOSPHOROUS ACID for effective control of crown rot & asparagus spear slime disease in asparagus.

Disease	Application Method	Rate	Application Program
Crown rot & Asparagus spear slime (Phytophthora spp)	Foliar	1¼ quarts per acre in 25 gallons water to 2½ quarts per acre in 250 gallons water	Apply to ferns that have 2 to 3 inches of new growth. Do not apply to ferns that are starting to die down (senesce). Established plantings, start applications when conditions are favorable to disease (cool wet conditions). Ensure thorough coverage.

\*Not for use in California.

**AVOCADOS**

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Use PHOSPHOROUS ACID for effective control of root rot, trunk cankers and downy mildew disease in avocado.

Disease	Application Method	Rate	Application Program
<p>Root rot (Phytophthora cinnamomi)</p>	<p>Tree injection</p>	<p>Skeletal trees 1st year: ¼ fl. oz. undiluted product per yard of canopy diameter. Other situations: ¾ teaspoon diluted with ½ fl. oz. of water per yard of canopy diameter.</p>	<p>Inject trees at spring flush maturity. Repeat treatment in February or March. Drill holes 3/16 inch (5 mm) in diameter and 1 inch (25 mm) to 2 inches (50 mm) deep with slight downward angle in trunk. Place syringes in the main trunk of the tree and space evenly around the circumference of the trunk. Suitable for use with Chemjet tree injectors, Ag-murf gun, or hydraulic tree injection. Do not prune back trees before injection process as burning of new growth may occur. Do not inject trees in winter months. Do not cut back the canopy of injected trees. Do not add any material, other than water, to PHOSPHOROUS ACID by trunk injection. Do not inject more liquid in a lesser number of syringes than directed.</p>
	<p>Foliar spray</p>	<p>2 tsp. per gallon of water, ½ - 2/3 gallon of product per acre</p>	<p>Spray to run off at 2 – 2½ gallons of spray solution per adult tree. Start applications in spring, up to 4 applications a year at two-month intervals. Ensure thorough coverage</p>
<p>Canker (Phytophthora citricola)</p>	<p>Trunk spray</p>	<p>1¼ to 2½ quarts mixed with 5 gallons of water with 6 fl. oz. of Pentra-Bark™ Bark Penetrating Surfactant</p>	<p>Apply to trunk lesions using sufficient spray volume to completely wet the trunk and lesions. If lesions absent, apply to trunk from soil level to two feet up trunk. If lesions present use higher rate</p>
<p>Downy mildew</p>	<p>Foliar spray</p>	<p>3¾ pints in 500 gallons water</p>	<p>Spray to run-off, as required for disease control</p>

**BERRIES\***

Use PHOSPHOROUS ACID for effective control of root rot in bush and cane berries such as, but not limited to, blueberries, blackberries, loganberries, and raspberries (red, black, hybrids/cultivars).

Disease	Application Method	Rate	Application Program
Root rot (Phytophthora spp.)	Foliar spray	1-3 quarts in 100 gallons of water per acre. Ensure foliage is completely wet.	New plantings: start application when new growth is 2 to 3 inches long. Established plantings start applications when cool wet conditions occur which favor disease. West of Rocky Mountains: Autumn applications, apply when conditions favor disease, repeat in 4 weeks. Spring applications, first application after bud break and repeat in 4 weeks. East of Rocky Mountains: First application spring post bud break (2 to 3 inches new growth) and repeat at 50 to 60 day intervals. Do not exceed 4 applications per season.  For blueberries - First application in spring at pink bud and then on a regular schedule of application at two to three intervals.

\*Not for use in California.

**BRASSICAS**

Use PHOSPHOROUS ACID for effective control of downy mildew in brassicas such as, but not limited to, broccoli, Brussels sprouts, cabbage, cauliflower, cavalo broccolo, collards, Chinese cabbage, Chinese mustard cabbage, kale, kohlrabi, mizuna, mustard greens, mustard spinach and rape greens.

Disease	Application Method	Rate	Application Program
Downy mildew (Peronospora parasitica)	Foliar spray	1¼ quarts per acre in 25 gallons of water per acre to 2½ quarts per acre in 250 gallons of water per acre  California: 1¼ quarts per acre in 100 gallons of water to 2½ quarts per acre in 185 gallons of water	1 to 3 week intervals between applications when conditions favor disease development (cool, moist weather). Use higher rates and shorter intervals when disease pressure increases.

**CEREAL GRAINS\***

Apply PHOSPHOROUS ACID® to crops such as, but not limited to, field corn, ornamental corn, sweet corn, Indian corn, wheat, rye, barley, oats, triticale, and sorghum (milo). Use PHOSPHOROUS ACID for effective control of damping-off and root rot diseases.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp	Foliar spray	1½ quarts per acre in 25 gallons of water to 2 quarts per acre in 250 gallons of water	Corn: Apply at 14-day intervals from 4-leaf stage, as needed. Assure good coverage. Other grains: Apply at 14-21 day intervals, as needed. Assure good coverage.

\*Not for use in California.

**CITRUS - Mature trees**

Use PHOSPHOROUS ACID for effective control of root rot and collar rot diseases in citrus.

Disease	Application Method	Rate	Application Program
Brown rot and foot rot Phytophthora spp	Foliar spray	2½ quarts per acre in a maximum of 250 gallons of water	<b>When conditions favor disease.</b> Spray trees to run off ensure even coverage. Do not apply at high temperatures (above 95°F) particularly if humidity is low or to moisture-stressed trees
Root rot and collar rot (Phytophthora spp nicotianae and Phytophthora citrophthora)	Trunk spray	Mix 1¼ to 2½ quarts in a minimum of 5 gallons of water.	Spray trunk lesions with enough spray volume to ensure lesions are completely wet. When disease levels are high use higher rate

**COCONUTS**

Use PHOSPHOROUS ACID for effective control of bud rot and nut fall in coconuts.

Disease	Application Method	Rate	Application Program
Bud rot – Nut fall (Phytophthora palmivora)	Injection	Between 2 tsp. and 1 fl. oz. per tree	Dilute PHOSPHOROUS ACID® with water to give final injection volume of 1 fl. oz. to 2 fl. oz. of water and PHOSPHOROUS ACID®. Inject into the trunk or root system.

**CUCURBITS**

Use PHOSPHOROUS ACID for effective control of sudden wilt, gummy stem blight, and downy mildew diseases in cucurbits grown in field situations such as, but not limited to, cucumber, Chinese waxgourd, citron melon, gherkin rock melon, honeydew melon, pumpkin, zucchini, watermelon and squash (summer and winter), momordica spp balsam apple, balsam pear, bitter melon, and Chinese cucumber.

Disease	Application Method	Rate	Application Program
Sudden wilt – Root and fruit rot (Phytophthora spp)	Foliar spray	1-3 quarts per 100 gallons.	Entire spray coverage of plant is required. Do not exceed a total of 6 applications per season.
Gummy stem blight (Mycosphaerella melonis)		Apply 1¼ quarts per acre in 40 gallons of water. (CA only)	Apply when disease is evident. Continue applications at 21 day intervals until cure is apparent. Do not exceed a total of 6 applications per season.
Downy mildew (Pseudoperonospora cubensis)			Apply within 7 to 10 days of infection. Repeat as necessary. Do not exceed a total of 6 applications per season.

**CUCURBITS, TANK MIXTURES\***

For the effective control of downy mildew diseases, tank-mix PHOSPHOROUS ACID with a mancozeb-containing fungicide and apply to cucurbits.

Product	Disease	Rate Per Acre	Application Program
PHOSPHOROUS ACID + mancozeb-containing fungicide	Downy mildew	Light to medium foliage cover: Apply 1¼-2 quarts of product per acre.  Heavy foliage cover: Apply 3 quarts of product per acre + Label rate of mancozeb	Apply as a foliar spray the indicated quantity and dilution rates with water of both products.  For best results apply PHOSPHOROUS ACID as a tank mix with protectant fungicides such as mancozeb, copper oxychloride, etc., to ensure both pre- and post-infection activity.

\*Not for use in California.

**FRUITING VEGETABLES\***

Use PHOSPHOROUS ACID for effective control of damping-off, root rot, and gummy stem blight diseases in egg plant, tomatoes, tomatillos, and peppers such as, but not limited to, bell, chili, cooking, pimento, and sweet.

Disease	Application Method	Rate	Application Program
Eggplant: Pythium and Phytophthora spp, and Gummy stem blight (Mycosphaerella melonis)	Foliar spray	Apply 1¼ quarts per acre in 40 gallons of water.	Entire spray coverage of plant is required. Do not exceed a total of 6 applications per season.  Apply when disease is evident. Continue applications at 21-day intervals until cure is apparent.  Do not exceed a total of 6 applications per season.
Peppers: Late blight and root rot (Phytophthora infestans and Phytophthora spp)		1½ quarts per acre in 25 gallons of water to 2 quarts per acre in 250 gallons of water	First application at transplant or when direct seeded crops are at 2-4 true leaf, then at one to two week intervals as required to control disease. In high disease situations use higher rates and shorter spray intervals.
Tomatoes/Tomatillos: Late blight and root rot (Phytophthora infestans and Phytophthora spp)		1½ quarts per acre in 25 gallons of water to 2 quarts per acre in 250 gallons of water  California: 1¼ quarts per acre in 90 gallons of water	First application at transplant or when direct seeded crops are at 2-4 true leaf, then at one to two week intervals as required to control disease. In high disease situations use higher rates and shorter spray intervals

\*Use in California limited to tomatoes and tomatillos.

**GRAPES**

Use PHOSPHOROUS ACID for effective control of downy mildew diseases in grapes.

Disease	Application Method	Rate	Application Program
Downy mildew (Plasmopara viticola)	Foliar spray	Early season small canopy, 1¼ quarts per acre in 100 gallons water  Late season/large canopy, 2 quarts per acre in 150 gallons water to 2½ quarts per acre in 200 gallons water	It is essential that the rate of PHOSPHOROUS ACID be adjusted to the vine-row volume, i.e., the volume of vine foliage per acre. Spray timing is critical. Apply PHOSPHOROUS ACID at times of high disease risk, especially between the time that conditions are conducive to downy mildew infection and the appearance of oil spots. Ensure spray coverage is adequate and that the appropriate rate of PHOSPHOROUS ACID is applied to match vine growth, particularly from mid-season onwards, and especially where grapes are grown on root stock.

**GRAPES, TANK MIXTURES\***

For the effective control of downy mildew diseases, tank-mix PHOSPHOROUS ACID with a mancozeb-containing fungicide and apply to grapes.

Product	Disease	Rate Per Acre	Application Program
PHOSPHOROUS ACID + mancozeb-containing fungicide	Downy mildew	Early season small canopy, 1¼ quarts per acre in 100 gallons water  Late season/large canopy, 2 quarts per acre in 150 gallons water to 2½ quarts per acre in 200 gallons water  + Label rate of mancozeb	Apply as a foliar spray the indicated quantity and dilution rates with water of both products.  For best results apply PHOSPHOROUS ACID as a tank mix with protectant fungicides such as mancozeb, copper oxychloride, etc., to ensure both pre- and post-infection activity.

\*Not for use in California.



**HOPS\***

Use PHOSPHOROUS ACID for effective control of downy mildew in hops.

Disease	Application Method	Rate	Application Program
Downy mildew	Foliar spray by ground equipment only.	1¼ quarts in 100 gallons of water per acre	When conditions favor disease, apply when A. Shoots are ½ to 1 foot long. B. Post-training when vines are 6 feet high. C. 21 days post-application (B) D. During bloom

\*Not for use in California.

**LEAFY VEGETABLES\***

Use PHOSPHOROUS ACID for effective control of downy mildew in leafy vegetables such as, but not limited to, amaranth, arugula, cardoon, celery, chervil, corn salad, endive, fennel, lettuce, parsley, radicchio, rhubarb, spinach, and Swiss chard. Excludes Brassica vegetables.

Disease	Application Method	Rate	Application Program
Downy mildew (Bremia lactucae)	Foliar spray	½ gallon per acre in 40 gallons water	Ensure spray coverage is adequate to wet the whole plant.  During warm, wet conditions repeat application at 7 to 10 day intervals, if needed.

\*Use in California limited to lettuce.

**LEGUMES\***

Use PHOSPHOROUS ACID for effective control of damping-off and root rot diseases in legumes (succulent and dried) such as, but not limited to, green beans, soybeans, wax beans, field beans, navy beans, lima beans, fava beans, kidney beans, pinto bean, mung beans, broad beans, lentils, chickpeas, English peas, snow peas, sugar snap peas, black-eyed peas, cow peas, and pigeon peas.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp	Foliar spray	1½ quarts per acre in 25 gallons of water to 2 quarts per acre in 250 gallons of water.	Apply at 14-day intervals after plant emergence, as needed. Assure good coverage.

\*Not for use in California.

**MANGOS**

Use PHOSPHOROUS ACID for effective control of anthracnose in mangos.

Disease	Application Method	Rate	Application Program
Anthracoese (Colletotrichum gloeosporoides)	Foliar spray	2 tsp. per gallon of water	Spray tree every 14 days during blossom period, then monthly until harvest. Spray to the point of run-off

**NONGRASS ANIMAL FEED\***

Use PHOSPHOROUS ACID for effective control of damping-off and root rot diseases in forage crops such as, but not limited to, alfalfa, clover, and vetch.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp	Foliar spray	1½ quarts per acre in 25 gallons of water to 2 quarts per acre in 250 gallons of water.	Apply at 14-day intervals after plant emergence, as needed. Assure good coverage.

\*Not for use in California.

**OKRA\***

Use PHOSPHOROUS ACID for effective control of damping-off and root rot diseases in okra.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp	Foliar spray	1½ quarts per acre in 25 gallons of water to 2 quarts per acre in 250 gallons of water.	Apply at 14-day intervals after plant emergence, as needed. Assure good coverage.

\*Not for use in California.

**ONIONS**

Use PHOSPHOROUS ACID for effective control of downy mildew disease in onions, garlic, shallots, and leeks. Use as a preventative control program for best results.

Disease	Application Method	Rate	Application Program
Downy mildew (Peronospora destructor)	Foliar spray	2 quarts per acre in 100 gallons water per acre	As a regular preventative control program or when disease first appears.

**ONIONS, TANK MIXTURES\***

For the effective control of downy mildew diseases, tank-mix PHOSPHOROUS ACID with a mancozeb-containing fungicide and apply to onions, garlic and shallots.

Product	Disease	Rate Per Acre	Application Program
PHOSPHOROUS ACID + mancozeb-containing fungicide	Downy mildew	2 quarts per acre in 100 gallons water per acre + Label rate of mancozeb	Apply as a foliar spray the indicated quantity and dilution rates with water of both products.  For best results, apply PHOSPHOROUS ACID as a tank mix with protectant fungicides such as mancozeb to ensure both pre- and post-infection activity

\*Not for use in California.

**PEANUTS\***

Use PHOSPHOROUS ACID for effective control of damping-off and root rot disease in peanuts.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp	Foliar spray	1½ quarts per acre in 25 gallons of water to 2 quarts per acre in 250 gallons of water	Apply at 14-day intervals, as necessary. Ensure thorough coverage.

\*Not for use in California.

**PINEAPPLES**

Use PHOSPHOROUS ACID for effective control of Phytophthora root and heart rot diseases in pineapples.

Disease	Application Method	Rate	Application Program
Phytophthora root and heart rot (Phytophthora cinnamomi and parasitica spp)	Foliar spray	2½ quarts in 25-50 gallons water per acre.	Apply to tops, 14 days prior to harvest of planting material
	Pre-plant dip	1¼ quarts in 100 gallons water	Will treat enough slips to plant one acre
	Foliar spray	2 quarts in 100 gallons water	Established plantings when conditions favor disease. Apply at 90 day intervals Ensure thorough coverage of plants

**POTATOES, POST-HARVEST\***

Use PHOSPHOROUS ACID only on russet-skinned potatoes intended for processing for suppression of late blight (Phytophthora infestans) and pink rot (Phytophthora erythroseptica). Apply 16.5 fl. oz. of PHOSPHOROUS ACID per ton of tubers in one half gallon of water as a mist spray. For the best control, be sure the tubers are completely and evenly covered.

Disease	Application Method	Rate	Application Program
Potatoes, Post-harvest: Late blight (Phytophthora infestans) and pink rot (Phytophthora erythroseptica)	Spray on tubers	16.5 fl. oz. in ½ gallon of water/ton of tubers	Apply only to russet-skinned potatoes intended for processing. For best results, be sure tubers are thoroughly and evenly covered.

\*Not for use in California

**ROOT AND TUBER VEGETABLES\***

Use PHOSPHOROUS ACID for effective control of foliar and root rot in ginseng, damping-off and root rot diseases in carrots, and late blight disease and storage diseases such as pink rot and pythium leak in potatoes, sweet potatoes, and yams.

Disease	Application Method	Rate	Application Program
Ginseng: Foliar and root rot (Phytophthora cactorum)	Foliar spray	2½ quarts in 100 gallons of water	In cool wet conditions that favor Phytophthora. Apply at 7 day intervals.  Do not exceed a total of 8 applications per season.
Carrots: Phytophthora and Pythium spp	Foliar spray	1½ quarts per acre in 25 gallons of water to 2 quarts per acre in 250 gallons of water	Apply at 14-day intervals after plant emergence, as needed. Assure good coverage.
Potatoes, Sweet Potatoes, Yams: Pink rot and Pythium leak (Phytophthora erythroseptica and Pythium spp)	In-furrow spray	2-5 quarts per acre in 10 gallons water	Apply in a band spray directly over top of potato seed just before row is closed.
Potatoes, Sweet	Foliar spray	1¼ quarts per acre in	Apply at 5 to 14 day

Potatoes, Yams: Late blight, Pink rot and Pythium leak(Phytophthora infestans, Phytophthora erythroseptica and Pythium spp)		90-375 gallons water per acre	intervals subject to disease incidence.
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\*Use in California limited to potatoes, sweet potatoes, and yams.

**STONE FRUIT\***

Use PHOSPHOROUS ACID for effective control of root, collar rot and almond pruning wound canker disease in stone fruit such as, but not limited to, sweet and tart cherries, peaches, plums, and fresh prunes.

Disease	Application Method	Rate	Application Program
Root and collar rot (Phytophthora spp)	<p>Foliar spray</p> <p>Basal bark spray, apply in spring and fall.</p>	<p>2½ quarts per acre in 250 gallons water</p> <p>62.4 fl. oz. + 62.4 fl. oz. of water + 3.2 fl. oz. Pentra-Bark™ Bark Penetrating Surfactant</p>	<p>Three treatments are required</p> <ol style="list-style-type: none"> <li>1. Spring</li> <li>2. Mid summer</li> <li>3. Fall, post harvest</li> </ol> <p>Spray a combination of PHOSPHOROUS ACID and Pentra-Bark around the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil line, including the base of the first scaffolding limbs, if present. Treat in spring and fall for best results.</p>
Almond pruning – wound cankers (Phytophthora syringae)	Paint or spray	1¼-2½ quarts in 100 gallons water	Apply to pruning wound and surrounding area, ensure area is thoroughly wet. In high disease situations use higher rate.

\*Not for use in California.

**STRAWBERRIES**

Use PHOSPHOROUS ACID for effective control of leather rot, red stele and Phytophthora disease in strawberries.

Disease	Application Method	Rate	Application Program
Red stele (Phytophthora fragariae)	Pre-planting dip	1¼ quarts in 100 gallons water	Dip planting material in this solution for 30 minutes, then plant within one day. Use program for annual and perennial varieties
	Foliar spray	<p>1-3 quarts in 50-100 gallons water per acre.</p> <p>1¼ quarts per acre in 90 gallons water to 2½ quarts per acre in 200 gallons water (CA only)</p>	<p>Annual crops, first treatment 14 to 21 days post planting, repeat at 1-2 month intervals when disease is evident.</p> <p>Perennial crops, first treatment during spring growth flush, repeat at 1-2 month intervals when disease is evident. For susceptible varieties us higher rates and shorter spray intervals</p>
Leather rot (Phytophthora cactorum)	Foliar spray	<p>1-3 quarts in 50-100 gallons water per acre.</p> <p>1¼ quarts per acre in 90 gallons water to 2½ quarts per acre in 200 gallons water (CA only)</p>	Apply at 10% bloom and early fruit set, then at one to two week intervals as required for disease control. In high disease situations use higher rates and shorter spray intervals

**TREE NUTS\***

Use PHOSPHOROUS ACID for effective control of root and collar rot, and almond pruning-wound canker disease in tree nuts such as, but not limited to, almonds, beech nuts, Brazil nuts, butternuts, cashews, chestnuts, chinquapin, hazelnuts, hickory nuts, macadamia nuts, pecans, and walnuts.

Disease	Application Method	Rate	Application Program
Other than macadamia nuts: Root and collar rot (Phytophthora spp)	Foliar	1¼ quarts per acre in 125 gallons water	Three treatments are required 1. Spring 2. Mid summer 3. Fall, post harvest
Other than macadamia nuts: Almond pruning – wound canker (Phytophthora syringae)	Paint or spray	2½ quarts in 100 gallons water	Apply to pruning wound and surrounding area, ensure area is thoroughly wet.
Macadamia nuts: Raceme blight (Phytophthora spp)	Foliar spray	3¾ quarts per acre in 250 gallons of water	Apply when disease is first seen and reapply at 3 week intervals. Spray to the point of run-off

\*Not for use in California.

**SEED TREATMENT APPLICATIONS\***

Use PHOSPHOROUS ACID to control Phytophthora and Pythium diseases on seeds from agricultural crops listed on this label. Do not use treated seed for food, feed, or oil.

Agricultural use:

Do not use treated seed for food or feed purposes or process for oil. Treat only those seeds needed for immediate use, minimizing the interval between treatment and planting. Do not store excess treated seeds beyond planting time.

Seed treatment on agricultural establishment in hopper-box, planted box, or other seed-treatment application at or immediately before planting is within the scope of WPS, while commercial treatment of seeds is not within the scope of WPS.

Commercial use:

Federal law requires that bags containing treated seed shall be labeled with the following information: "This seed has been treated with (insert name of active ingredient of pesticide). Do not use for food, feed or oil purposes. Store away from feeds and foodstuffs."

Note: This product does not contain dye. To comply with 40 CFR 153.155, all seed treated commercially with this product must be colored with an EPA-approved dye or colorant of a suitable color to prevent accidental use as food for man or feed for animals.

Disease	Application Method	Rate
Phytophthora, Pythium and Fusarium spp	applied at-planting	8-24 oz PHOSPHOROUS ACID per 100 lbs of seed or 4-10 quarts PHOSPHOROUS ACID per ton of seed, depending on the size of the seeds to be treated.

\*Not for use in California.

GRASS GROWN FOR SEED PRODUCTION

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Use PHOSPHOROUS ACID for effective control of damping-off and root rot diseases in turf grasses such as, but not limited to, Bermuda, fescue, bent, blue, rye, zoysia, buffalo, and poa annua.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp	Foliar spray	1½ quarts per acre in 25 gallons of water to 2 quarts per acre in 250 gallons of water	Apply at 14-21 day intervals, as necessary. Ensure thorough coverage.

\*Not for use in California.

**INTERIOR AND EXTERIOR LANDSCAPE, GOLF COURSE, NURSERY, FORESTRY, AND PARK APPLICATIONS\***

Use PHOSPHOROUS ACID for effective control of Phytophthora and Pythium diseases associated with Stem and Canker Blight (Sudden Oak Death, Phytophthora ramorum), Beech Decline, and general tree decline syndromes in landscapes, nurseries, golf courses, forests, and parks. Apply PHOSPHOROUS ACID to trees such as, but not limited to, Beech, Cedar, Chestnut, Crab Apple, Dogwood, Elm, Fir, Hawthorne, Juniper, Linden, Pine, Oaks (Coastal, Live, Shreve, Black, Canyon), Ornamental Pear, Pyracantha, Sweet Birch, Sweet Gum, White Pine, White Cedar, and Willow.

Make applications before disease development and in conjunction with good cultural management practices. Use higher rate of application when disease pressure is severe. Do not exceed indicated application rates or apply more frequently than stated on label or tree injury may occur. Do not apply to trees that are heat or moisture stressed. Do not apply to trees that are in a state of dormancy. Do not exceed indicated spray intervals or label rates in order to avoid tree injury. When applying to indoor plants do not overspray and use care to apply only to target plants. If meeting these conditions is not possible, remove plants to an outdoor location for treatment and drying before bringing back indoors.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp, and Phytophthora ramorum	Injection	11 fl. oz per 21 fl. oz of water Or 1/2 tsp. per tsp. of water	Drill holes 3/16 inch (5 mm) in diameter <u>into live sapwood</u> (depth dependent upon age of tree) with downward angle into trunk uniformly around the tree circumference, using a slow drill. Do not inject into areas of obvious decay, canker or mechanical injury that appear on the tree trunk. Calculate the amount of product required by measuring the trees by one of the following 3 methods, and use the highest calculated number of injections. 1) 1 injection per square yard of canopy; 2) 1 injection hole per yard of diameter of canopy measured at the drip-line; 3) 1 injection per 6 inches of trunk circumference measured 4 feet above soil level. Make injections with applicators that maintain positive pressure differential such as ChemJet®, Sidewinder®, Ag-murf Gun®, Marley® Injector, or hydraulic applicator type equipment that forces solution into the sapwood of the tree.
Phytophthora and Pythium spp. And Phytophthora ramorium	Basal bark spray (all other tree species) apply in spring and fall	62.4 fl. oz + 62.4 fl. oz of water + 3.2 fl. oz Pentra-Bark™ Bark Penetrating Surfactant	Spray a combination of PHOSPHOROUS ACID and Pentra-Bark around the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil line, including the base of the first scaffolding limbs, if present. Treat in spring and fall for best results.
Fusarium subglutinans (Pine Pitch Canker)	Basal bark spray (pines) apply anytime active growth is observed	1 gallon of PHOSPHOROUS ACID + 2 gallons of water + 4 fl. oz. of Pentra-Bark™ Bark Penetrating Surfactant	Apply uniformly to trunk circumference up to 5 to 6 feet high from soil level. Spray from top down to ground level from either first branch or from as high as possible without exposing applicator to drift. Spray to saturation /runoff. Various types of



Disease	Application Method	Rate	Application Program
<p>Fusarium subglutinans (Pine Pitch Canker) and Gnomonia platani (Sycamore Anthracnose)</p>	<p>Injection</p>	<p>20 ml per tree of a 1 gallons Phosphorous Acid + 2 gallons of water + 4 fl. oz. of Pentra-Bark™ solution.</p>	<p>application equipment can be used such as hydraulic sprayers, handheld pump-type sprayers, and backpack sprayers.</p> <p>Drill holes 3/16 inch (5 mm) in diameter and 1 inch (25 mm) to 2 inches (50 mm) deep with slight downward angle in trunk. Place syringes in the main trunk of the tree and space evenly around the circumference of the trunk. Suitable for use with Chemjet tree injectors, Ag-murf gun or positive pressure hydraulic tree injection. Trees should be at least 10" diameter at breast height.</p>
<p>Apple black spot and scab (Venturia inaequalis)</p>	<p>Basal bark spray apply early spring at bud swell or silver tip stage of growth.</p>	<p>62.4 fl. oz. + 62.4 fl. oz. of water + 3.2 fl. oz Pentra-Bark™ Bark Penetrating Surfactant</p>	<p>Spray a combination of PHOSPHOROUS ACID and Pentra-Bark around the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil line, including the base of the first scaffolding limbs, if present. (Treatment generally lasts 8-12 weeks depending on pathogen levels. Higher disease pressure will shorten the length of control.) Various types of application equipment can be used such as hydraulic sprayers, handheld pump-type sprayers, backpack sprayers, hose-end applicators with backflow prevention devices, and other similar application devices.</p>
<p>Fire blight</p>	<p>Foliar spray</p>	<p>1¼ quarts per 100 gallons of water</p>	<p>First application pre bloom. Application intervals: 7 days until end of bloom period. Apply spray to thoroughly wet all foliage.</p>

\* Use in California limited to Oaks (Coastal, Live, Shreve, Black, Canyon). Tan Oaks, and other tree species that are host to P. ramorum. Applications limited to injection and basal bark spray of pines, basal bark spray of apples and crabapples, and injection of Sycamores for control of Sycamore anthracnose. Do not apply to any other tree species without consulting the list of P.

ramorum host species listed at the following website: <http://nature.berkeley.edu/comtf/index.html>. or questions contact your local extension office.

**INTERIOR AND EXTERIOR ORNAMENTAL APPLICATIONS**

Use PHOSPHOROUS ACID for effective control of Bacterial blight, Downy mildew, Phytophthora spp and Pythium spp diseases of Ornamentals in landscapes, nurseries, golf courses, parks, interiorscapes, and greenhouses. Apply PHOSPHOROUS ACID to plants such as, but not limited to, Aglaonema, Anthurium, Aphelandra, Arborvitae, Azaleas, Bougainvillea, Boxwood, Cattelya skinneri, Ceanothus, Cotoneaster, Cissus, Diffenbachia, English ivy, Eucalyptus, Ficus, Hibiscus, Japanese andromeda, Japanese Holly, Leather leaf Fern, Peperomia, Photinia, Pittosporum, Philodendron, Pieris, Pothos, Rhododendron, Roses (container, field, landscape, and mini varieties), Schefflera, Sedum, Sempervivum, Syngonium, Spathiphyllum, Taxus media, and Zygocactus.

Make applications before disease development and in conjunction with good cultural management practices. Use higher rate of application when disease pressure is severe. Do not exceed indicated application rates or apply more frequently than stated on label or plant injury may occur. Do not apply to plants that are heat or moisture stressed. Do not apply to plants that are in a state of dormancy. Do not exceed indicated spray intervals or label rates in order to avoid plant injury. When applying to indoor plants do not overspray and use care to apply only to target plants. If meeting these conditions is not possible, remove plants to an outdoor location for treatment and drying before bringing back indoors.

Disease	Application Method	Rate	Application Program
Bacterial blight (Xanthomonas campestris) pothovars: dieffenbachiae, fici hederiae and syngonli  Downy mildew  Phytophthora spp and Pythium spp	Foliar spray	2-4 pints per 100 gallons of water Or 2-4 tsp. per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 7 to 14 days Repeat as required.
		1¼-2½ quarts per 100 gallons of water Or 2½-5 tsp. per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required
		1-2 quarts per 100 gallons of water Or 2-4 tsp. per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required.
	Soil drench	6¼-12¾ fl oz per 100 gallons of water	Apply each 25 gallons of solution to an area of 100 square feet. Follow application with irrigation. Repeat as required. Limit of one application per month
	Soil incorporation	1-2 pints per cubic yard of soil	Just prior to potting, mix 1 to 2 pts. of PHOSPHOROUS ACID into each cubic yard of growing media. If disease pressure is high, apply foliar spray or soil drench.
	Bare rooted dipping of transplants	2 pints per 100 gallons of water Or 2 tsp. per gallon	Immediately before transplanting; dip transplants for two minutes, keep roots submerged, ensure root mass is thoroughly wet.

### BEDDING PLANTS

Use PHOSPHOROUS ACID for effective control of Downy mildew diseases and diseases caused by Phytophthora and Pythium species infecting BEDDING PLANTS grown in landscapes, nurseries and golf courses, parks, interiorscapes, and greenhouses. Apply PHOSPHOROUS ACID to plants such as, but not limited to, Ageratum, Algerian Ivy, Anthurium, Artemesia, Aster, Begonia, Baby's Breath, Caladium, Carnation, Chrysanthemum, Columbine, Coleus, Daisy, Delphinium, Easter Lily, Foxglove, Gaillardia, Geranium, Gloxinia, Impatiens, Lavender, Marigold, Petunia, Pansy, Phlox, Pinks, Poinsettia, Primrose, Prostrate Rosemary, Salvia, Snapdragon, Vinca, Verbena, and Zinnia.

Make applications before disease development and in conjunction with good cultural management practices. Use higher rate of application when disease pressure is severe. Do not exceed indicated application rates or apply more frequently than stated on label in order to avoid plant injury. Do not apply to plants that are heat or moisture stressed. When applying to indoor plants do not overspray and use care to apply only to target plants. If meeting these conditions is not possible, remove plants to an outdoor location for treatment and drying before bringing back indoors.

Disease	Application Method	Rate	Application Program
Downy Mildew	Foliar Spray	1¼-2½ quarts per 100 gallons of water Or ½-1 1/8 fl. oz. per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required.
Phytophthora spp and Pythium spp	Foliar spray	1-2 quarts per 100 gallons of water Or 2-4 tsp. per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required. Note do not apply more than 500 gallons of spray solution per acre.
	Soil drench	6¼-12¾ fl oz per 100 gallons of water	Apply each 25 gallons of solution to an area of 100 square feet. Follow application with irrigation. Repeat as required. Limit of one application per month
Phytophthora spp	Foliar spray	2 quarts per acre	Apply spray in 20-60 gallons per acre.
Phytophthora spp	Hand gun	2 quarts per 100 gallons of water	Apply spray to thoroughly wet all foliage.

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**CONIFERS IN COMMERCIAL NURSERIES, PLANTATIONS AND FORESTS\***  
**(INCLUDING CHRISTMAS TREES)**

Apply PHOSPHOROUS ACID in conjunction with good cultural management practices for effective control of root rot (Phytophthora spp) in CONIFERS including, but not limited to, Pines, Spruce and Douglas Fir. Use higher rate of application when disease pressure is severe. Do not exceed indicated application rates or apply more frequently than stated on label in order to avoid plant injury. Do not apply to CONIFERS that are moisture or heat stressed.

Disease	Application Method	Rate	Application Program
Phytophthora	Foliar spray	1-2 quarts per 100 gallons of water Or 2-4 tsp. per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required.
	Soil drench	1-2 quarts per 100 gallons of water Or 2-4 tsp. per gallon of water	Apply one gallon of solution per sq yd. Follow application with irrigation. Application intervals: 14 to 21 days. Repeat as required.
	Bare root dipping at transplanting	1 quart per 100 gallons of water Or 2 tsp. per gallon of water	Immediately before transplanting, dip transplants for two minutes; keep roots submerged and ensure root mass is thoroughly wet.
Fusarium subglutinans (Pine Pitch Canker)	Basal bark spray apply any time active growth is observed	1 gallon PHOSPHOROUS ACID + 2 gallons of water + 4 fl. oz. of Pentra-Bark™ Bark Penetrating Surfactant	Spray a combination of PHOSPHOROUS ACID and Pentra-Bark around the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil line.
Fusarium subglutinans (Pine Pitch Canker)	Injection	20 ml per tree of a 1 gallon PHOSPHOROUS ACID + 2 gallons of water + 4 fl. oz. of Pentra-Bark™ solution.	Drill holes 3/16 inch (5 mm) in diameter and 1 inch (25 mm) to 2 inches (50 mm) deep with slight downward angle in trunk. Place syringes in the main trunk of the tree and space evenly around the circumference of the trunk. Suitable for use with Chemjet tree injectors, Ag-murf gun, or hydraulic tree injection. Trees should be a least 10" diameter at breast height.

\*Not for use in California, except as an injection and/or basal bark spray on pines.  
Do not graze livestock in treated areas of conifer nurseries or plantations. Do not feed forage from treated areas of plantations and or nurseries.

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**TURF**

Use PHOSPHOROUS ACID for the effective control of Pythium and damping-off diseases of turf grasses on golf courses, parks, commercial landscapes, commercial turf production, and sod farms. When conditions favor disease, begin preventive applications and repeat at indicated intervals. Use higher rate of application when disease pressure is severe.

Disease	Application Method	Rate	Application Program
Pythium	Foliar spray	5 to 10 fl. oz. per 1000 sq. ft.	Apply indicated quantity of product in 1 to 2 gallons of water per 1000 sq. ft. Ensure foliage is thoroughly wet.  Application intervals: 14-21 days. Repeat as required. Do not irrigate or mow treated areas until spray has completely dried.

**TURF TANK MIXTURES**

For the effective control of summer stress complex caused by a complex of Rhizoctonia and Pythium diseases, tank-mix PHOSPHOROUS ACID with Fore WP® [or Protect T/O or mancozeb-containing] fungicide and apply to turf grasses on golf courses, parks, commercial landscapes, commercial turf production, and sod farms.

Product	Disease	Rate per 1000 sq. ft.	Application Program
PHOSPHOROUS ACID + FORE WP®** [or Protect T/O or mancozeb-containing fungicide]	Summer Stress Complex (Rhizoctonia and Pythium spp.)	5 to 10 fl. oz. PHOSPHOROUS ACID + 4 to 8 fl. oz. FORE WP®** [or Protect T/O or mancozeb-containing fungicide]	Apply indicated quantity of product in 1 to 5 gal. of water per 1000 sq. ft. as a foliar spray. Start as a preventive spray at two-week intervals and repeat as required. Do not irrigate or mow treated areas until spray has completely dried.

\*\*Registered trade mark of Rohm & Haas.

Do not graze animals on treated areas of turf. Do not feed treated turf clippings to poultry or livestock.

**STORAGE AND DISPOSAL**

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

**PESTICIDE STORAGE:**

Keep this product in containers stored upright and secured with the original closure. Do not store this product near any heat source. Do not store near strong oxidants.

**PESTICIDE DISPOSAL:**

Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

**CONTAINER DISPOSAL:**

Do not reuse empty container. Triple rinse (or equivalent) and offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, keep out of smoke.

**WARRANTY DISCLAIMER**

The directions for use of this product must be followed carefully. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, (1) THE GOODS DELIVERED TO YOU ARE FURNISHED "AS IS" BY

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Sub-label B – Residential Uses

31 7 52

**PHOSPHOROUS ACID  
SYSTEMIC FUNGICIDE**

SYSTEMIC FUNGICIDE FOR THE EFFECTIVE CONTROL OF VARIOUS PLANT DISEASES INCLUDING BLACK SPOT OR SCAB IN APPLE, ROOT ROT IN AVOCADO, BUD ROT AND NUT FALL IN COCONUT, ROOT ROT IN CITRUS AND CUCURBITS, DOWNY MILDEW IN CUCURBITS, GRAPE, LETTUCE, AND ONION, ANTHRACNOSE IN MANGO, ROOT AND HEART ROT IN PINEAPPLE, LATE BLIGHT IN POTATO, ROOT AND COLLAR ROT IN STONEFRUIT, LEATHER ROT AND PHYTOPHTHORA DISEASES IN STRAWBERRY, LATE BLIGHT IN TOMATO, DOWNY MILDEW, PHYTOPHTHORA & PYTHIUM IN ORNAMENTALS, INTERIORSCAPES & BEDDING PLANTS, PHYTOPHTHORA AND FUSARIUM IN CONIFERS, PYTHIUM IN TURF, AND PHYTOPHTHORA AND PYTHIUM DISEASES ASSOCIATED WITH STEM AND CANCKER BLIGHT (SUDDEN OAK DEATH) AND GENERAL BEECH DECLINE.

ACTIVE INGREDIENTS: Mono- and di-potassium salts of Phosphorous Acid*	45.8%
OTHER INGREDIENTS:	54.2%
TOTAL	100.0%

\*Contains 5.17 lbs/gallon of the active ingredients, mono- and di-potassium salts of Phosphorous Acid.  
Equivalent to 3.35 lbs Phosphorous Acid/gallon

**KEEP OUT OF REACH OF CHILDREN  
CAUTION**

EPA Reg. No. 1381-

EPA Est. No. 1381-

Manufactured for:  
Winfield Solutions  
P.O. Box 64589  
St. Paul, MN 55164-0589

Net Contents:

**FIRST AID**

**IF SWALLOWED:**

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

**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 poison control center or doctor for treatment advice

**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

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. **For Emergency Assistance Call 1-877-424-7452.**

**PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS AND DOMESTIC ANIMALS**

**CAUTION.** Harmful if swallowed, inhaled or absorbed through skin. Avoid breathing vapors or spray mist. Causes moderate eye irritation. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

**ENVIRONMENTAL HAZARDS**

For Terrestrial Use: Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate.

**DIRECTIONS FOR USE**

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling. Read entire label before using this product. For use only in home gardens, on home lawns, and on home ornamentals and related home plants.

When using PHOSPHOROUS ACID with Pentra-Bark™ adhere to all applicable label directions. Only use Pentra-Bark™ with basal bark or tree injection applicators.

**GENERAL APPLICATION INSTRUCTIONS**

Apply PHOSPHOROUS ACID by various application methods, including foliar spray, soil drench, soil incorporation, basal bark application and bare root dip. For foliar sprays, apply PHOSPHOROUS ACID with sufficient water volumes for adequate coverage of foliage, according to plant type and growth stage. To ensure good coverage, spray to wetness, but avoid run-off.

When applying PHOSPHOROUS ACID to plant species for the first time, spray a limited number of plants first and wait for 3-7 days. Then check for leaf burn (phytotoxicity).



**MIXING INSTRUCTIONS**

1. Fill the spray tank with  $\frac{1}{4}$  -  $\frac{1}{2}$  of the volume of water required before adding PHOSPHOROUS ACID
2. Add PHOSPHOROUS ACID slowly to the tank and agitate
3. Fill tank with balance of water to the desired volume
4. Agitate during application

Conversion Table			
1/8 fl. oz.	=	$\frac{3}{4}$ teaspoon (tsp.)	
1/4 fl. oz.	=	1 1/2 tsp.	
1/3 fl. oz.	=	2 tsp.	
1/2 fl. oz.	=	3 tsp.	
2/3 fl. oz.	=	4 tsp.	
3/4 fl. oz.	=	4 1/2 tsp.	
1 fl. oz.	=	2 tablespoons (Tbs.)	= 6 tsp.

**CITRUS, FRUIT, NUT AND VEGETABLE APPLICATIONS****APPLES, CRAB APPLES, LOQUATS, PEARS & QUINCE\***

Use PHOSPHOROUS ACID for effective control of black spot, root and collar rot and fire blight in apples, crab apples, loquats, pears, and quinces.

Disease	Application Method	Rate	Application Program
Apple black spot or scab (Venturia inaequalis)	Foliar spray	1/2 fl. oz. per gallon of water	First application at open cluster. Last application at fifth cover of fruit at 2" to 2 1/2" diameter. Total of 10 applications at 10 to 12 day intervals. When conditions are conducive to a black spot outbreak, apply PHOSPHOROUS ACID immediately. Note: After 4 or 5 consecutive applications some yellowing of extension growth may be observed. If yellowing occurs use another fungicide until yellowing of leaves disappears.
Apple black spot and scab (Venturia inaequalis)	Basal bark spray apply early spring at bud swell or silver tip stage of growth	31.2 fl. oz. + 31.2 fl. oz. of water + 1.6 fl. oz. Penra-Bark™ Bark Penetrating Surfactant	Spray a combination of PHOSPHOROUS ACID and Penra-Bark around the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil line, including the base of the first scaffolding limbs, if present. (Treatment generally lasts 8-12 weeks depending on



**AVOCADOS**

Use PHOSPHOROUS ACID for effective control of root rot, trunk cankers and downy mildew disease in Avocado.

Disease	Application Method	Rate	Application Program
Root rot (Phytophthora cinnamomi)	Tree injection	Skeletal trees 1st year: ¼ fl. oz. undiluted product per yard of canopy diameter. Other situations: 1/8 fl. oz. diluted with ½ fl. oz. of water per yard of canopy diameter	Inject trees at spring flush maturity. Repeat treatment in February or March. Drill holes 3/16 inch (5 mm) in diameter and 1 inch (25 mm) to 2 inches (50 mm) deep with slight downward angle in trunk. Place syringes in the main trunk of the tree and space evenly around the circumference of the trunk. Suitable for use with Chemjet tree injectors, Ag-murf-gun, or hydraulic tree injection. Do not prune back trees before injection process as burning of new growth may occur. Do not inject trees in winter months. Do not cut back the canopy of injected trees. Do not add any material, other than water, to PHOSPHOROUS ACID by trunk injection. Do not inject more liquid in a lesser number of syringes than directed.
Canker (Phytophthora citricola)	Foliar spray	1/3 fl. oz. per gallon of water	Spray to run off at 2-2½ gallons of spray solution per adult tree. Start applications in spring, up to 4 applications a year at two-month intervals. Ensure thorough coverage
	Trunk spray	8 to 16 fl. oz. with one gallon of water with 1.2 fl. oz. of Pentra-Bark™ Bark Penetrating Surfactant	Apply to trunk lesions using sufficient spray volume to completely wet the trunk and lesions. If lesions absent, apply to trunk from soil level to two feet up trunk. If lesions present use higher rate
Downy mildew	Foliar spray	¾ teaspoon per gallon of water	Spray to run-off, as required for disease control

**BERRIES\***

Use PHOSPHOROUS ACID for effective control of root rot in bush and cane berries such as, but not limited to, blueberries, blackberries, loganberries, and raspberries (red, black, hybrids/cultivars).

Disease	Application Method	Rate	Application Program
Root rot (Phytophthora spp.)	Foliar spray	2-6 tsp. per gallon of water. Ensure foliage is completely wet.	New plantings: start application when new growth is 2 to 3 inches long. Established plantings start applications when cool wet conditions occur which favor disease. West of Rocky Mountains: Autumn applications, apply when conditions favor disease, repeat in 4 weeks. Spring applications, first application after bud break and repeat in 4 weeks. East of Rocky Mountains: First application spring post bud break (2 to 3 inches new growth) and repeat at 50 to 60 day intervals. Do not exceed 4 applications per season.  For blueberries - First application in spring at pink bud and then on a regular schedule of application at two to three intervals.

\*Not for use in California.

**BRASSICAS**

Use PHOSPHOROUS ACID for effective control of downy mildew in brassicas such as, but not limited to, broccoli, Brussels sprouts, cabbage, cauliflower, cavalo broccolo, collards, Chinese cabbage, Chinese mustard cabbage, kale, kohlrabi, mizuna, mustard greens, mustard spinach and rape greens.

Disease	Application Method	Rate	Application Program
Downy mildew (Peronospora parasitica)	Foliar spray	2 tsp. to 2 oz. per gallon of water  California: 1/3 to 1/2 fl. oz. per gallon of water	1 to 3 week intervals between applications when conditions favor disease development (cool, moist weather). Use higher rates and shorter intervals when disease pressure increases.

**CITRUS - Mature trees**

Use PHOSPHOROUS ACID for effective control of root rot and collar rot diseases in citrus.

Disease	Application Method	Rate	Application Program
Brown rot and foot rot Phytophthora spp	Foliar spray	1 teaspoon per gallon of water	<b>When conditions favor disease.</b> Spray trees to run off ensure even coverage. Do not apply at high temperatures (above 95°F) particularly if humidity is low or to moisture-stressed trees
Root rot and collar rot (Phytophthora spp nicotianae and Phytophthora citrophthora)	Trunk spray	8 to 16 fl. oz. per gallon of water	Spray trunk lesions with enough spray volume to ensure lesions are completely wet. When disease levels are high use higher rate

**COCONUTS**

Use PHOSPHOROUS ACID for effective control of bud rot and nut fall in coconuts.

Disease	Application Method	Rate	Application Program
Bud rot – Nut fall (Phytophthora palmivora)	Injection	1/3 to 1 fl. oz. per tree	Dilute PHOSPHOROUS ACID® with water to give final injection volume of 1 fl. oz. to 2 fl. oz. of water and PHOSPHOROUS ACID®.  Inject into the trunk or root system.

**CUCURBITS**

Use PHOSPHOROUS ACID for effective control of sudden wilt, gummy stem blight, and downy mildew diseases in cucurbits such as, but not limited to, cucumber, Chinese waxgourd, citron melon, gherkin rock melon, honeydew melon, pumpkin, zucchini, watermelon and squash (summer and winter), momordica spp balsam apple, balsam pear, bitter melon, and Chinese cucumber.

Disease	Application Method	Rate	Application Program
Sudden wilt – Root and fruit rot (Phytophthora spp)	Foliar spray	2-6 tsp. per gallon of water	Entire spray coverage of plant is required. Do not exceed a total of 6 applications per season.
Gummy stem blight (Mycosphaerella melonis)		Apply 1 fl. oz. per gallon of water (CA only)	Apply when disease is evident. Continue applications at 21 day intervals until cure is apparent. Do not exceed a total of 6 applications per season.
Downy mildew (Pseudoperonospora cubensis)			Apply within 7 to 10 days of infection. Repeat as necessary. Do not exceed a total of 6 applications per season.

**FRUITING VEGETABLES**

Use PHOSPHOROUS ACID for effective control of damping-off, root rot, and gummy stem blight diseases in egg plant, tomatoes, tomatillos, and peppers such as, but not limited to, bell, chili, cooking, pimento, and sweet.

Disease	Application Method	Rate	Application Program
Eggplant: Pythium and Phytophthora spp, and Gummy stem blight (Mycosphaerella melonis)	Foliar spray	Apply 1 fl. oz. per gallon of water.	Entire spray coverage of plant is required. Do not exceed a total of 6 applications per season.  Apply when disease is evident. Continue applications at 21-day intervals until cure is apparent.  Do not exceed a total of 6 applications per season.
Peppers: Late blight and root rot (Phytophthora infestans and Phytophthora spp)		2 tsp. to 2 oz. per gallon of water	First application at transplant or when direct seeded crops are at 2-4 true leaf, then at one to two week intervals as required to control disease. In high disease situations use higher rates and shorter spray intervals.
Tomatoes/Tomatillos: Late blight and root rot (Phytophthora infestans and Phytophthora spp)		2 tsp. to 2 oz. per gallon of water  California: 3 tsp. per gallon of water	First application at transplant or when direct seeded crops are at 2-4 true leaf, then at one to two week intervals as required to control disease. In high disease situations use higher rates and shorter spray intervals

\*Use in California limited to tomatoes and tomatillos.

**GRAPES**

Use PHOSPHOROUS ACID for effective control of downy mildew diseases in grapes.

Disease	Application Method	Rate	Application Program
Downy mildew (Plasmopara viticola)	Foliar spray	½ fl. oz. per gallon of water	It is essential that the rate of PHOSPHOROUS ACID be adjusted to the vine-row volume, i.e., the volume of vine foliage per acre. Spray timing is critical. Apply PHOSPHOROUS ACID at times of high disease risk, especially between the time that conditions are conducive to downy mildew infection and the appearance of oil spots. Ensure spray coverage is adequate and that the appropriate rate of PHOSPHOROUS ACID is applied to match vine growth, particularly from mid-season onwards, and especially where grapes are grown on root stock.

**HOPS\***

Use PHOSPHOROUS ACID for effective control of downy mildew in hops.

Disease	Application Method	Rate	Application Program
Downy mildew	Foliar spray by ground equipment only.	2-6 tsp. per gallon of water	When conditions favor disease, apply when E. Shoots are ½ to 1 foot long. F. Post-training when vines are 6 feet high. G. 21 days post-application (B) H. During bloom

\*Not for use in California.

**LEAFY VEGETABLES\***

Use PHOSPHOROUS ACID for effective control of downy mildew in leafy vegetables such as, but not limited to, amaranth, arugula, cardoon, celery, chervil, corn salad, endive, fennel, lettuce, parsley, radicchio, rhubarb, spinach, and Swiss chard. Excludes Brassica vegetables.

Disease	Application Method	Rate	Application Program
Downy mildew (Bremia lactucae)	Foliar spray	1 2/3 fl. oz. per gallon of water	Ensure spray coverage is adequate to wet the whole plant.  During warm, wet conditions repeat application at 7 to 10 day intervals, if needed.

\*Use in California limited to lettuce.



**LEGUMES\***

Use PHOSPHOROUS ACID for effective control of damping-off and root rot diseases in legumes (succulent and dried) such as, but not limited to, green beans, soybeans, wax beans, field beans, navy beans, lima beans, fava beans, kidney beans, pinto bean, mung beans, broad beans, lentils, chickpeas, English peas, snow peas, sugar snap peas, black-eyed peas, cow peas, and pigeon peas.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp	Foliar spray	2 tsp. to 2 oz. per gallon of water	Apply at 14-day intervals after plant emergence, as needed. Assure good coverage.

\*Not for use in California.

**MANGOS**

Use PHOSPHOROUS ACID for effective control of anthracnose in mangos.

Disease	Application Method	Rate	Application Program
Anthracnose (Colletotrichum gloeosporoides)	Foliar spray	2 tsp. per gallon of water	Spray tree every 14 days during blossom period, then monthly until harvest. Spray to the point of run-off.

**NONGRASS ANIMAL FEED\***

Use PHOSPHOROUS ACID for effective control of damping-off and root rot diseases in forage crops such as, but not limited to, alfalfa, clover, and vetch.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp	Foliar spray	2 tsp. to 2 oz. per gallon of water	Apply at 14-day intervals after plant emergence, as needed. Assure good coverage.

\*Not for use in California.

**OKRA\***

Use PHOSPHOROUS ACID for effective control of damping-off and root rot diseases in okra.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp	Foliar spray	2 tsp. to 2 oz. per gallon of water	Apply at 14-day intervals after plant emergence, as needed. Assure good coverage.

\*Not for use in California.

**ONIONS**

Use PHOSPHOROUS ACID for effective control of downy mildew disease in onions, garlic, shallots, and leeks. Use as a preventative control program for best results.

Disease	Application Method	Rate	Application Program
Downy mildew (Peronospora destructor)	Foliar spray	4 tsp. per gallon of water	As a regular preventative control program or when disease first appears.

**PEANUTS\***

Use PHOSPHOROUS ACID for effective control of damping-off and root rot disease in peanuts.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp	Foliar spray	2 tsp. to 2 oz. per gallon of water	Apply at 14-day intervals, as necessary. Ensure thorough coverage.

\*Not for use in California.

**PINEAPPLES**

Use PHOSPHOROUS ACID for effective control of Phytophthora root and heart rot diseases in pineapples.

Disease	Application Method	Rate	Application Program
Phytophthora root and heart rot (Phytophthora cinnamomi and parasitica spp)	Foliar spray	1 2/3 to 3 1/3 fl. oz. per gallon of water	Apply to tops, 14 days prior to harvest of planting material.
	Pre-plant dip	2 tsp. per gallon of water	Established plantings when conditions favor disease. Apply at 90 day intervals.
	Foliar spray	2/3 fl. oz. per gallon of water	Ensure thorough coverage of plants.

**ROOT AND TUBER VEGETABLES\***

Use PHOSPHOROUS ACID for effective control of foliar and root rot in ginseng, damping-off and root rot diseases in carrots, and late blight disease and storage diseases such as pink rot and pythium leak in potatoes, sweet potatoes, and yams.

Disease	Application Method	Rate	Application Program
Ginseng: Foliar and root rot (Phytophthora cactorum)	Foliar spray	4 1/2 tsp. per gallon of water	In cool wet conditions that favor Phytophthora. Apply at 7 day intervals.  Do not exceed a total of 8 applications per season.
Carrots: Phytophthora and Pythium spp	Foliar spray	2 tsp. to 2 oz. per gallon of water	Apply at 14-day intervals after plant emergence, as needed. Assure good coverage.
Potatoes, Sweet Potatoes, Yams: Pink rot and Pythium leak (Phytophthora erythroseptica and Pythium spp)	In-furrow spray	6 1/2 to 16 fl. oz. per gallon of water	Apply in a band spray directly over top of potato seed just before row is closed.
Potatoes, Sweet Potatoes, Yams: Late blight, Pink rot and Pythium leak (Phytophthora infestans, Phytophthora erythroseptica and Pythium spp)	Foliar spray	2/3 to 3 tsp. per gallon of water	Apply at 5 to 14 day intervals subject to disease incidence.

\*Use in California limited to potatoes, sweet potatoes, and yams.



**STRAWBERRIES**

Use PHOSPHOROUS ACID for effective control of leather rot, red stele and Phytophthora disease in strawberries.

Disease	Application Method	Rate	Application Program
Red stele (Phytophthora fragariae)	Pre-planting dip	1/3 fl. oz. per gallon of water	Dip planting material in this solution for 30 minutes, then plant within one day. Use program for annual and perennial varieties
	Foliar spray	2 to 6 tsp. per gallon of water	Annual crops, first treatment 14 to 21 days post planting, repeat at 1-2 month intervals when disease is evident.
(CA only) 2 to 3 tsp. per gallon of water		Perennial crops, first treatment during spring growth flush, repeat at 1-2 month intervals when disease is evident. For susceptible varieties use higher rates and shorter spray intervals.	
Leather rot (Phytophthora cactorum)	Foliar spray	2 to 6 tsp. per gallon of water	Apply at 10% bloom and early fruit set, then at one to two week intervals as required for disease control. In high disease situations use higher rates and shorter spray intervals.
		(CA only) 2 to 3 tsp. per gallon of water	

**TREE NUTS\***

Use PHOSPHOROUS ACID for effective control of root and collar rot, and almond pruning-wound canker disease in tree nuts such as, but not limited to, almonds, beech nuts, Brazil nuts, butternuts, cashews, chestnuts, chinquapin, hazelnuts, hickory nuts, macadamia nuts, pecans, and walnuts.

Disease	Application Method	Rate	Application Program
Other than macadamia nuts: Root and collar rot (Phytophthora spp)	Foliar	2 tsp. per gallon of water	Three treatments are required 1. Spring 2. Mid summer 3. Fall, post harvest
Other than macadamia nuts: Almond pruning – wound canker (Phytophthora syringae)	Paint or spray	4½ tsp. per gallon of water	Apply to pruning wound and surrounding area, ensure area is thoroughly wet.
Macadamia nuts: Raceme blight (Phytophthora spp)	Foliar spray	3 tsp. per gallon of water	Apply when disease is first seen and reapply at 3 week intervals. Spray to the point of run-off

\*Not for use in California.

**LANDSCAPE APPLICATIONS\***

Use PHOSPHOROUS ACID for effective control of Phytophthora and Pythium spp diseases associated with Sudden Oak Death, Beech Decline, and general tree decline syndromes. Apply PHOSPHOROUS ACID to trees such as, but not limited to, Beech, Cedar, Chestnut, Crab Apple, Dogwood, Elm, Fir, Juniper, Linden, Pine, Oaks (Coastal, Live, Shreve, Black, Canyon), Ornamental Pear, Sweet Birch, Sweet Gum, Sycamore, White Pine, White Cedar, and Willow.

Make applications before disease development and in conjunction with good cultural management practices. Use higher rate of application when disease pressure is severe. Do not exceed indicated application rates or apply more frequently than stated on label or tree injury may occur. Do not apply to trees that are heat or moisture stressed. Do not apply to trees that are in a state of dormancy. Do not exceed indicated spray intervals or label rates in order to avoid tree injury.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp, and Phytophthora ramorum	Injection	11 fl. oz. per 21 fl. oz. of water Or ½ tsp. per tsp. of water	Drill holes 3/16 inch (5 mm) in diameter <u>into live sapwood</u> (depth dependent upon age of tree) with downward angle into trunk uniformly around the tree circumference, using a slow drill. Do not inject into areas of obvious decay, canker or mechanical injury that appear on the tree trunk. Calculate the amount of product required by measuring the trees by one of the following 3 methods, and use the highest calculated number of injections. 1) 1 injection per square yard of canopy; 2) 1 injection per yard of

Disease	Application Method	Rate	Application Program
Phytophthora and Phythium spp. And Phytophthora ramorum	Basal bark spray (all other tree species) apply spring and fall for best results or anytime active growth occurs	31.2 fl. oz. + 31.2 fl. oz. of water + 1.6 fl. oz. Pentra-Bark™ Bark Penetrating Surfactant	<p>diameter of canopy measured at the drip-line; 3) 1 injection per 6 inches of trunk circumference measured 4 feet above soil level. Make injections with applicators that maintain positive pressure differential such as ChemJet®, Sidewinder®, Ag-murph Gun®, Marley® Injector, or hydraulic applicator type equipment that forces solution into the sapwood of the tree.</p> <p>Apply uniformly to 6-9 feet of trunk circumference. Spray from top down to ground level from either first branch or from as high as possible without exposing applicator to drift. Spray to saturation/runoff. Various types of application equipment can be used such as hydraulic sprayers, handheld pump-type sprayers, and backpack sprayers.</p>
Fusarium subglutinans (Pine Pitch Canker)	Basal bark spray (Pine)	1 gallon PHOSPHOROUS ACID + 2 gallons of wter + 4 fl. oz. of Pentra-Bark™ Bark Penetrating Surfactant	<p>Spray a combination of PHOSPHOROUS ACID and Pentra-Bark around the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil line, including the base of the first scaffolding limbs, if present. (Treatment generally lasts 8-12 weeks depending on pathogen levels. Higher disease pressure will shorten the length of control</p>
Fusarium subglutinans (Pine Pitch Canker) and Gnomonia platani (Sycamore Anthracnose)	Injection	20 ml per tree of a 1 gallon PHOSPHOROUS ACID + 2 gallons of water + 4 fl. oz. of Pentra-Bark™ Bark Penetrating Surfactant	<p>Drill holes 3/16 inch (5 mm) in diameter and 1 inch (25 mm) to 2 inches (50 mm) deep with slight downward angle in trunk. Place syringes in the main trunk of the tree and space evenly around the circumference of the trunk. Suitable for use with Chemjet tree injectors, Ag-murf gun,</p>

Disease	Application Method	Rate	Application Program
			or hydraulic tree injection. Trees should be at least 10" diameter at breast height.
Apple black spot and scab ( <i>Venturia inaequalis</i> )	Basal bark spray apply in early spring at bud swell or silver tip stage of growth	31.2 fl. oz. + 31.2 fl. oz. of water + 1.6 fl. oz. Pentra-Bark™ Bark Penetrating Surfactant	Apply uniformly to 6-9 feet of trunk circumference. Spray from top down to ground level from either first branch or from as high as possible without exposing applicator to drift. Spray to saturation/runoff. Can be used as a preventative or curative application for trees listed. Various types of application equipment can be used such as hydraulic sprayers, handheld pump-type sprayers, backpack sprayers, and hose-end applicators with backflow prevention devices.

\* Use in California limited to Oaks (Coastal, Live, Shreve, Black, Canyon); Tan Oaks, and other tree species that are host to *P. ramorum*. Applications limited to injection and basal bark spray of pines, basal bark spray of apples and crabapples, and injection of Sycamores for control of Sycamore anthracnose. Do not apply to any other tree species without consulting the list of *P. ramorum* host species listed at the following website: <http://nature.berkeley.edu/comtf/index.html>. For questions contact your local extension office.

### ORNAMENTAL APPLICATIONS

Use PHOSPHOROUS ACID for effective control of Bacterial blight, Downy mildew, Phytophthora spp and Pythium spp diseases, and Sudden Oak Death of Ornamentals in landscapes. Apply PHOSPHOROUS ACID to plants such as, but not limited to, Aglaonema, Aphelandra, Arborvitae, Azaleas, Bougainvillea, Boxwood, Cattelya skinneri, Ceanothus, Cotoneaster, Cissus, Diffenbachia, English ivy, Eucalyptus, Ficus, Hibiscus, Japanese andromeda, Japanese Holly, Leather leaf Fern, Peperomia, Photinia, Pittosporum, Philodendron, Pieris, Pothos, Rhododendron, Roses (container, landscape, mini varieties), Schefflera, Sedum, Sempervivum, Syngonium, Spathiphyllum, Taxus media, and Zygocactus.

Make applications before disease development and in conjunction with good cultural management practices. Use higher rate of application when disease pressure is severe. Do not exceed indicated application rates or apply more frequently than stated on label in order to avoid plant injury. Do not apply to plants that are heat or moisture stressed. Do not apply to plants that are in a state of dormancy. When applying to indoor plants do not overspray and use care to apply only to target plants. If meeting these conditions is not possible, remove plants to an outdoor location for treatment and drying before bringing back indoors.

Disease	Application Method	Rate	Application Program
Bacterial blight	Foliar spray	2-4 tsp. per gallon of	Apply spray to

Disease	Application Method	Rate	Application Program
(Xanthomonas campestris) pothovars: dieffenbachiae, fici hederæ and syngonli		water	thoroughly wet all foliage. Application intervals: 7 to 14 days Repeat as required.
Downy mildew		2½-5 tsp. per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required.
Phytophthora spp and Pythium spp		2-4 tsp. per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required.
	Soil drench	1/8 tsp. per gallon of water	Apply each 25 gallons of solution to an area of 100 sq feet. Follow application with irrigation. Repeat as required. Limit of one application per month.
	Soil incorporation	1-2 pints per cubic yard of soil	Just prior to potting mix 1 to 2 pts of PHOSPHOROUS ACID into each cubic yard of growing media. If disease pressure is high, make application by foliar spray or soil drench.
	Bare rooted dipping of transplants	2 tsp. per gallon of water	Immediately before transplanting, dip transplants for two minutes, keep roots submerged, ensure root mass is thoroughly wet.

**BEDDING PLANTS**

Use PHOSPHOROUS ACID for effective control of Downy mildew, Phytophthora spp and Pythium spp diseases of BEDDING PLANTS outdoors and in interiorscapes. Apply PHOSPHOROUS ACID to plants such as, but not limited to, Ageratum, Algerian Ivy, Anthurium, Artemesia, Aster, Begonia, Baby's Breath, Caladium, Carnation, Chrysanthemum, Columbine, Coleus, Daisy, Delphinium, Easter Lily, Foxglove, Gaillardia, Geranium, Gloxinia, Impatiens, Lavender, Marigold, Petunia, Pansy, Phlox, Pinks, Poinsettia, Primrose, Prostrate Rosemary, Salvia, Snapdragon, Vinca, Verbena, and Zinnia.

Make applications to outdoor or indoor plants before disease development and in conjunction with good cultural management practices. Use higher rate of application when disease pressure is severe. Do not exceed indicated application rates or apply more frequently than stated on label in order to avoid plant injury. Do not apply to plants that are heat or moisture stressed. When applying to indoor plants do not overspray and use care to apply only to target plants. If meeting these conditions is not possible, remove plants to an outdoor location for treatment and drying before bringing back indoors.



Disease	Application Method	Rate	Application Program
Downy Mildew	Foliar Spray	½-1 1/8 fl. oz. per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required.
Phytophthora spp and Pythium spp	Foliar spray	2-4 tsp. per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required.
	Soil drench	1/8 tsp. per gallon of water	Note: Do not apply more than 500 gallons of spray solution per acre. Apply each gallon of solution to an area of 4 square feet. Follow application with irrigation. Repeat as required. Limit of one application per month
Phytophthora spp*	Foliar spray	2 quarts per acre	Apply spray in 20-60 gallons per acre.
Phytophthora spp*	Hand gun	2 quarts per 100 gallons of water	Apply spray to thoroughly wet all foliage.

\*Lavender applications

**CONIFERS\***

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Apply PHOSPHOROUS ACID in conjunction with good cultural management practices for effective control of root rot (Phytophthora spp) in CONIFERS including, but not limited to, Pines, Spruce and Douglas Fir. Use higher rate of application when disease pressure is severe. Do not exceed indicated application rates or apply more frequently than stated on label in order to avoid plant injury. Do not apply to CONIFERS that are moisture or heat stressed.

Disease	Application Methods	Rate	Application Program
Phytophthora spp	Foliar spray	2 to 4 tsp. per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required.
	Soil drench	2 to 4 tsp. per gallon of water	Apply one gallon of solution per sq yd. Follow application with irrigation. Application intervals: 14 to 21 days. Repeat as required.
	Bare root dipping at transplanting	2 tsp. per gallon of water	Immediately before transplanting, dip transplants for two minutes; keep roots submerged and ensure root mass is thoroughly wet.
Fusarium subglutinans (Pine Pitch Canker)	Basal bark spray apply any time active growth occurs	1 gallon PHOSPHOROUS ACID + 2 gallons of water + 4 fl. oz. of Pentra-Bark™ Bark Penetrating Surfactant	Apply uniformly to 6-9 feet of trunk circumference. Spray from top down to ground level from either first branch or from as high as possible without exposing applicator to drift. Spray to saturation/runoff. Various types of application equipment can be used such as hydraulic sprayers, handheld pump-type sprayers, and backpack sprayers.
Fusarium subglutinans (Pine Pitch Canker)	Injection	20 ml per tree of a 1 gallon PHOSPHOROUS ACID + 2 gallons of water + 4 fl. oz. of Pentra-Bark™ Bark Penetrating Surfactant	Drill holes 3/16 inch (5 mm) in diameter and 1 inch (25 mm) to 2 inches (50 mm) deep with slight downward angle in trunk. Place syringes in the main trunk of the tree and space evenly around the circumference of the trunk. Suitable for use with Chemjet tree injectors, Ag-murf gun, or hydraulic tree injection. Trees should be at least 10" diameter at breast height.

\*Use in California limited to injection and/or basal bark spray of pines.

**TURF**

Use PHOSPHOROUS ACID for the effective control of Pythium and damping-off diseases of turf grasses. When conditions favor disease, begin preventive applications and repeat at indicated intervals. Use higher rate of application when disease pressure is severe.

Disease	Application Method	Rate	Application Program
Pythium	Foliar spray	5 to 10 fl. oz. per 1000 sq. ft.	Apply indicated quantity of product in 1 to 5 gal. of water per 1000 sq. ft. Ensure foliage is thoroughly wet. Application intervals: 14-21 days. Repeat as required. Do not irrigate or mow treated areas until spray has completely dried.

Do not graze animals on treated areas of turf. Do not feed treated turf clippings to poultry or livestock.

**STORAGE AND DISPOSAL**

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

**PESTICIDE STORAGE:**

Keep this product in containers stored upright and secured with the original closure. Do not store this product near any heat source. Do not store near strong oxidants.

**DISPOSAL:**

If empty: Do not reuse this container. Place in trash or offer for recycling if available. If partly filled: Call your local solid waste agency or 1-800-CLEANUP (1-800-253-2687) for disposal instructions. Never place unused product down any indoor or outdoor drain.

**WARRANTY DISCLAIMER**

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