



A systemic fungicide-bactericide for the control of various plant diseases on agricultural crops (including those grown for seed), greenhouse crops (including those grown in shade house, lath house, and controlled environments), turf and ornamentals, and for post-harvest treatment.

ACTIVE INGREDIENTS:

Mono- and di-potassium salts of Phosphorous Acid*	59.24%
OTHER INGREDIENTS:	40.76%
TOTAL:	100.00%

* Contains 7.60 lb/gal of the active ingredients, mono- and di-potassium salts of Phosphorous Acid. Equivalent to 4.79 lb Phosphorous Acid/gal.

EPA Reg. No. 2935-560

EPA Est. No. 2935-CA-36

**KEEP OUT OF REACH OF CHILDREN
CAUTION**

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

Harmful if swallowed. Causes moderate eye irritation. Avoid contact with eyes or clothing. Wear appropriate protective eyewear. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet.

FIRST AID	
If swallowed:	<ul style="list-style-type: none"> • Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
If in eyes:	<ul style="list-style-type: none"> • Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
<p>Have the product container with you when calling a poison control center or doctor or going for treatment. You may also contact EMERGENCY TELEPHONE NUMBERS: (800) 222-1222 POISON CONTROL CENTER (human health) (888) 426-4435 ASPCA (animal health)</p>	

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks
- Waterproof gloves
- Protective eyewear

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

ENGINEERING CONTROLS STATEMENT

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

USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove PPE/clothing immediately after handling this product.
- As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

For terrestrial uses: 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.

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

Read the entire label before using this product. Use strictly in accordance with label precautionary statements and directions.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries and greenhouses and handlers of agricultural pesticides. It contains requirements for training, decontamination, 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 Workers Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours.

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

- Long-sleeved shirt and long pants
- Shoes plus socks
- Waterproof gloves
- 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.

PRODUCT INFORMATION

SPÄRRA™ is a systemic fungicide-bactericide used for control of downy mildew, powdery mildew, *Pythium*, *Phytophthora* and many other diseases of agricultural and greenhouse crops, turf and ornamentals, and conifers and other trees. It may also be used as a post-harvest treatment on labeled crops. This product may be applied up to the day of harvest (0-day PHI).

Apply SPÄRRA by various application methods, including foliar sprays, trunk injection, soil drench, soil incorporation and bare root dip. For foliar sprays, apply SPÄRRA with sufficient water for adequate coverage of foliage, according to crop and growth stage. To ensure good coverage, spray to wet, but not to the point of runoff.

COMPATIBILITY

Mixing SPÄRRA with certain surfactants, foliar fertilizers or other pesticides may cause crop injury. SPÄRRA is a slightly acidic buffer solution. Avoid mixing SPÄRRA with strongly acidic or alkaline materials. Do not tank mix without first testing the mixture's compatibility nor apply it without assessing its safety to the crop (phytotoxicity). It is not possible to test all material combinations and environmental tank mix combinations. Always conduct a test with the intended tank mix on a small area prior to any large-scale applications. To determine if a combination is phytotoxic to a specific crop, spray a small area of foliage and fruit and then evaluate 3-7 days later for visual symptoms.

Test the compatibility of spray adjuvants (i.e., stickers, spreaders, wetting agents) with SPÄRRA before use. Do not use acidifying type compatibility agents.

To determine the compatibility of SPÄRRA with other products, use a jar compatibility test. Add the correct proportions of each product and the appropriate quantity of water to clean container, thoroughly mix, then let stand for 3-5 minutes. If the mixture remains in solution or can be remixed readily, the products are considered compatible.

APPLICATION INFORMATION

USE PRECAUTIONS

- Make applications prior to disease development in conjunction with good cultural management practices. Use the higher rate when disease pressure is severe.
- Use rates and frequency are designed to prevent plant injury. If more frequent applications are necessary for disease control, consult a crop expert and follow their recommendations.
- Label rates are written for conventional application equipment. For LV/ULV equipment, use the specified per acre rate of SPÄRRA and adjust amount of water to equipment needs. Always conduct a phytotoxicity test on a small area before applying to a large area to assess any potential risk to plants.
- To avoid undesirable copper phytotoxicity, do not apply foliarly to plants treated with copper-based compounds at less than 20-day intervals unless instructed to do so by your agronomist.

USE RESTRICTIONS

- Do not exceed the highest rate per application.
- Do not apply at less than 3-day intervals.
- Do not apply to plants that are dormant or heat or moisture stressed.
- Do not apply when conditions favor wet tissue for prolonged periods (>4 hours).

MIXING INSTRUCTIONS

Remove scale, pesticide residues and other foreign matter from the pesticide supply tank and entire injection system. Flush with clean water. Fill the spray tank with 1/2 of the required volume of water. Add the specified amount of SPÄRRA slowly to the tank and start mechanical or hydraulic agitation. Follow with any adjuvants, other pesticides, nutrients, etc., then add the remaining volume of water. Maintain agitation in the supply tank during mixing and application to ensure uniformity of the solution. Observe all directions, precautions, and limitations on the labels of all products used in the tank mix.

CHEMIGATION

Apply this product only through the following types of systems: sprinkler including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, hand move; or drip (trickle). Do not apply this product through any other type of irrigation system. Crop injury, lack of effectiveness or illegal pesticide residues in the crop can result from non-uniform distribution of treated water. If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts. Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the 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.

APPLICATION INSTRUCTIONS

For fixed position irrigation systems such as center pivot, big gun, etc., apply the pesticide towards the end of the irrigation period. Exact timing will depend on the desired pesticide application rate and calibration of the system. For moving systems, apply the pesticide continuously through the irrigation system and do not irrigate the same treated area during the irrigation cycle. In all cases, provide thorough coverage of the crop. Complete the pesticide injection in sufficient time to allow the pesticide to be flushed through all lines and nozzles before the irrigation system is shut down.

Set sprinkler to deliver 0.1 to 0.25 inch of water per acre. Start sprinkler and uniformly inject the solution of SPÄRRA into the irrigation water line to deliver the desired rate per acre. Excessive water to the point of runoff may reduce efficacy. Inject the solution with a positive displacement pump into the main line ahead of a right

angle turn to ensure adequate mixing. For other questions about calibration, contact State Extension Service specialists, equipment manufacturers or other experts.

For sprinkler irrigation systems, wait a minimum of 12 hours after application before starting subsequent irrigation. This interval allows foliage to dry for improved efficacy.

CHEMIGATION SYSTEMS CONNECTED TO PUBLIC WATER SYSTEMS

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.

- Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regular serves an average of at least 25 individuals daily at least 60 days out of the year.
- Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, back flow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the flow outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection.
- The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- Do not apply when wind speed favors drift beyond the area intended for treatment.

GENERAL PRECAUTIONS FOR APPLICATIONS THROUGH SPRINKLER AND DRIP IRRIGATION SYSTEMS

- The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from back flow.
- 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.
- Do not apply when wind speed favors drift beyond the area intended for treatment.

GENERAL HYDROPONIC APPLICATION*Not for Use in California*

For use only with plants grown in recirculating (i.e., closed systems) hydroponic systems to aid in the control of pathogens. Do not remove reservoir water prior to harvest. Apply solid residue as fertilizer only at SPÄARRA concentrations at, or below, those approved on this label for direct application.

DISEASE	APPLICATION METHOD	RATE / INSTRUCTIONS
General Root Rots Pythium Phytophthora	Chemigation	Add 1-2 liters per 20,000 liters nutrient solution. Repeat every 4-6 weeks in summer and every 8 weeks in winter. Depending on crop load and the water quality, the application time interval may be reduced.

SPRAY DRIFT MANAGEMENT**SPRAY DRIFT DIRECTIONS****Aerial Applications:**

- Do not release spray at a height greater than 10 feet above the vegetative canopy unless a greater application height is necessary for pilot safety.
- Applicators are required to use a coarse or coarser droplet size (ASABE S572.1).
- The boom length must not exceed 65% of the wingspan for airplanes or 75% of the rotor blade diameter for helicopters.
- Applicators must use ½ swath displacement upwind at the downwind edge of the field.
- Nozzles must be oriented, so the spray is directed toward the back of the aircraft.
- Do not apply when wind speeds exceed 10 miles per hour at the application site.
- Do not apply during temperature inversions.

Ground Boom Applications:

- Apply with the nozzle height recommended by the manufacturer, but no more than 3 feet above the ground or crop canopy. For all other ground applications, the nozzle must be no more than 3 feet from the target vegetation.
- Applicators are required to use a medium or coarser droplet size (ASABE S572.1).
- Do not apply when wind speeds exceed 10 miles per hour at the application site.
- Do not apply during temperature inversions.

SPRAY DRIFT ADVISORIES

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

IMPORTANCE OF DROPLET SIZE

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

Controlling Droplet Size – Ground Boom

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

Controlling Droplet Size – Aircraft

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

BOOM HEIGHT – Ground Boom

For ground equipment, the boom should remain level with the crop and have minimal bounce.

RELEASE HEIGHT – Aircraft

Higher release heights increase the potential for spray drift. When applying aurally to crops, do not release spray at a height greater than 10 ft above the crop canopy, unless a greater application height is necessary for pilot safety. Safety considerations should be made appropriately with respect to application type, aircraft type, load size and weight, air speed, target or crop, size of application site, obstacles surrounding or within the application site, density altitude, temperature, and terrain.

SHIELDED SPRAYERS

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

TEMPERATURE AND HUMIDITY

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

TEMPERATURE INVERSIONS

Drift potential is high during a temperature inversion. Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. The presence of an inversion can be indicated by ground fog or by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud, (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing. Avoid applications during temperature inversions.

WIND

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

RESISTANCE MANAGEMENT

For resistance management, SPÄRRRA contains mono- and dipotassium salts of phosphorous acid making it a Group P07 fungicide-bactericide. The Mode of Action for “P” fungicides is described as host plant defense induction. Any fungal and/or bacterial population may contain individuals naturally resistant to SPÄRRRA and other Group P07 fungicides-bactericides. A gradual or total loss of pest control may occur over time if these fungicides-bactericides are used repeatedly in the same fields. Appropriate resistance-management strategies should be followed. It should be noted that there are few resistance cases reported in few pathogens, therefore, the risk of developing resistance is considered low.

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

- Rotate the use of SPÄARRA or other Group P07 fungicides within a growing season sequence with different groups that control the same pathogens.
- Use tank mixtures with fungicides from a different group that are equally effective on the target pest when such use is permitted. Use at least the minimum application rate as labeled by the manufacturer.
- Adopt an integrated disease management program for fungicide use that includes scouting, uses historical information related to pesticide use, and crop rotation, and which considers host plant resistance, impact of environmental conditions on disease development, disease thresholds, as well as cultural, biological and other chemical control practices.
- Where possible, make use of predictive disease models to effectively time fungicide-bactericide applications. Note that using predictive models alone is not sufficient to manage resistance.
- Monitor treated fungal and/or bacterial populations for resistance development.
- Contract your local extension specialist or certified crop advisor for any additional pesticide resistance-management and/or IPM recommendations for specific crops.
- For further information or to report suspected resistance contact Wilbur-Ellis Company LLC at (720) 306-6340. You can also contact your pesticide distributor or university extension specialist to report resistance.

FOOD CROP RECOMMENDATIONS

APPLICATION PROGRAM

Disease Prevention Program: Apply the lower specified rate at 7- to 28-day intervals after plants become established. Do not apply SPÄARRA at intervals less than 3 days.

Disease Control Program: Apply the higher specified rate at 7- to 14-day intervals until control is reached. Under severe circumstances, application can be made at intervals of up to every three days. Do not apply SPÄARRA at intervals less than 3 days. Consult with Farm Advisor, Licensed Agricultural Pest Control Advisor or Certified Crop Advisor to determine disease severity.

ARTICHOKE (GLOBE)		
NOTE: Refer to APPLICATION PROGRAM above for disease prevention and control programs.		
DISEASE	APPLICATION METHOD	RATE / INSTRUCTIONS
Fusarium Phytophthora Pythium Rhizoctonia	Foliar – Ground	1-3 quarts per acre in a minimum of 20 gallons of water.
	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.
	Chemigation	Apply with normal irrigation schedule. Sprinkler: 2-4 quarts per acre in a minimum of 1000 gallons of water. Drip: 2-3 quarts per acre in a minimum of 100 gallons of water.
	Root Dip	Mix a 0.5% v/v solution (2 quarts per 100 gallons of water or ½ fl oz [4 tsp] per gallon of water). Dip roots for 15-30 minutes then plant within 24 hours. Discard excess solution at the end of each day.
Downy Mildew Powdery Mildew	Foliar – Ground	1-3 quarts per acre in a minimum of 20 gallons of water.
	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.

AVOCADO

NOTE: Refer to **APPLICATION PROGRAM** on page 8 for disease prevention and control programs.

DISEASE	APPLICATION METHOD	RATE / INSTRUCTIONS
Fusarium Phytophthora Pythium Rhizoctonia	Foliar – Ground	1-3 quarts per acre in a minimum of 20 gallons of water.
	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.
	Root Dip	Mix a 0.5% v/v solution (2 quarts per 100 gallons of water or ½ fl oz [4 tsp] per gallon of water). Dip roots for 15-30 minutes, then plant within 24 hours. Discard excess solution at the end of each day.
	Chemigation	Apply with normal irrigation schedule. Drip: 2-3 quarts per acre in a minimum of 100 gallons of water.
	Trunk Injection	Mix a 15% v/v solution (20 fl oz per 1 gallon of water). Inject directly into tree at a rate of 0.5 fl oz (3 teaspoons) solution per linear yard of canopy width or 2 inches of trunk diameter at breast height (DBH). Repeat 2-4 times a year until control is reached.
Downy Mildew	Foliar – Ground	1-3 quarts per acre in a minimum of 100 gallons of water.
Powdery Mildew	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.

BERRIES AND SMALL FRUITS (Crop Groups 13 and 13-07)

Including, but not limited to, Amur river grape; Aronia berry; Bayberry; Bearberry; Bilberry; Blackberry (including bingleberry, black satin berry, boysenberry, Cherokee blackberry, Chesterberry, Cheyenne blackberry, coryberry, darrowberry, dewberry, Dirkson thornless berry, Himalayaberry, hullberry, Lavacaberry, loganberry, lowberry, Lucretiaberry, mammoth blackberry, marionberry, nectaberry, olallaberry, Oregon evergreen berry, phenomenal berry, rangeberry, ravenberry, rossberry, Shawnee blackberry, youngberry, and varieties and/or hybrids of these), Blueberry; Buffalo currant, Buffaloberry; Che; Chilean guava; Chokecherry; Cloudberry; Cranberry; Currant (black and red); Elderberry; European barberry; Gooseberry; Highbush cranberry; Huckleberry; Jostaberry; Juneberry; Kiwifruit (fuzzy and hardy); Lingonberry; Maypop; Mulberry; Muntries; Partridgeberry; Phalsa; Pincherry; Raspberry (black and red); Riberry; Salal; Schisandra berry; Sea buckthorn; Serviceberry; Strawberry; and cultivars, varieties and/or hybrids of these.

NOTE: Refer to **APPLICATION PROGRAM** on page 8 for disease prevention and control programs.

DISEASE	APPLICATION METHOD	RATE/APPLICATION
Fusarium Phytophthora Pythium Rhizoctonia	Foliar – Ground	1-3 quarts per acre in a minimum of 20 gallons of water.
	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.
	Chemigation	Apply with normal irrigation schedule. Sprinkler: 2-4 quarts per acre in a minimum of 1000 gallons of water. Drip: 2-3 quarts per acre in a minimum of 100 gallons of water.
	Root Dip or Transplant Drench or In-Furrow	Mix a 0.5% v/v solution (2 quarts per 100 gallons of water or ½ fl oz [4 tsp] per gallon of water). Discard excess solution at the end of each day. Dip: Submerge roots for 15-30 minutes, then plant within 24 hours. Drench: Apply solution prior to, during or after transplanting to wet the active root zone. In-Furrow: Apply solution in season to wet the active root zone.
	Anthracnose	Foliar – Ground
Downy Mildew Powdery Mildew	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.

BRASSICA (COLE) LEAFY VEGETABLES (Crop Group 5)

Including, but not limited to, Broccoli (all types); Brussels sprouts; Cabbage (all types); Cauliflower; Cavalo broccoli; Collards; Kale; Kohlrabi; Mizuna; Mustard greens; Mustard spinach and Rape greens.

NOTE: Refer to **APPLICATION PROGRAM** on page 8 for disease prevention and control programs.

DISEASE	APPLICATION METHOD	RATE / INSTRUCTIONS
Fusarium Phytophthora Pythium Rhizoctonia	Foliar – Ground	1-3 quarts per acre in a minimum of 20 gallons of water.
	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.
	Chemigation	Apply with normal irrigation schedule. Sprinkler: 2-4 quarts per acre in a minimum of 1000 gallons of water. Drip: 2-3 quarts per acre in a minimum of 100 gallons of water.
	Root Dip or Transplant Drench or In-Furrow	Mix a 0.5% v/v solution (2 quarts per 100 gallons of water or ⅔ fl oz [4 tsp] per gallon of water). Discard excess solution at the end of each day. Dip: Submerge roots for 15-30 minutes, then plant within 24 hours. Drench: Apply solution prior to, during or after transplanting to wet the active root zone. In-Furrow: Apply solution in season to wet the active root zone.
Anthrachnose Downy Mildew Powdery Mildew	Foliar – Ground	1-3 quarts per acre in a minimum of 20 gallons of water.

BULB VEGETABLES (Crop Group 3)

Including Garlic; Leek; Onion (dry bulb and green); Onion (Welch); and Shallot.

NOTE: Refer to **APPLICATION PROGRAM** on page 8 for disease prevention and control programs.

DISEASE	APPLICATION METHOD	RATE/APPLICATION
Phytophthora Pythium	Foliar – Ground	1-3 quarts per acre in a minimum of 20 gallons of water.
	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.
	Chemigation	Apply with normal irrigation schedule. Sprinkler: 2-4 quarts per acre in a minimum of 1000 gallons. Drip: 2-3 quarts per acre in a minimum of 100 gallons.
	Root Dip or Transplant Drench or In-Furrow	Mix a 0.5% v/v solution (2 quarts per 100 gallons of water or ⅔ fl oz [4 tsp] per gallon of water). Discard excess solution at the end of each day. Dip: Submerge roots for 15-30 minutes, then plant within 24 hours. Drench: Apply solution prior to, during or after transplanting to wet the active root zone. In-Furrow: Apply solution in season to wet the active root zone.
Downy Mildew Powdery Mildew	Foliar – Ground	1-3 quarts per acre in a minimum of 20 gallons of water.
	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.

CEREAL GRAINS (Crop Group 15) and**FORAGE, FODDER AND STRAW OF CEREAL GRAINS (Crop Group 16)**

Including, but not limited to, Barley; Buckwheat; Corn; Millet, Pearl; Millet, Proso; Oats; Popcorn; Rice; Rye; Sorghum (milo); Teosinte; Triticale; Wheat; and Wild rice.

NOTE: Refer to **APPLICATION PROGRAM** on page 8 for disease prevention and control programs.

DISEASE	APPLICATION METHOD	RATE/APPLICATION
Fusarium Phytophthora Pythium Rhizoctonia	Foliar – Ground	1-3 quarts per acre in a minimum of 20 gallons of water.
	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.
	Chemigation	Apply with normal irrigation schedule. Sprinkler: 2-4 quarts per acre in a minimum of 1000 gallons. Drip: 2-3 quarts per acre in a minimum of 100 gallons.
Downy Mildew Powdery Mildew	Foliar – Ground	1-3 quarts per acre in a minimum of 20 gallons of water.
	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.

CITRUS FRUIT GROUP (Crop Group 10)

Including, but not limited to, Australian lime (Desert, Finger, Round); Brown river finger lime; Calamondin; Citron; Citrus hybrids; Grapefruit; Japanese summer grapefruit; Kumquat; Lemon; Mediterranean mandarin; Mount white lime; New Guinea wild lime; Orange, sour; Orange, sweet; Pummelo; Russell river lime; Satsuma mandarin; Sweet lime; Tachibana orange; Tahiti lime; Tangelo; Tangerine; Tangor; Trifoliolate orange; Uniq fruit; and cultivars, varieties and/or hybrids of these.

NOTE: Refer to **APPLICATION PROGRAM** on page 8 for disease prevention and control programs.

DISEASE	APPLICATION METHOD	RATE/APPLICATION
Fusarium Phytophthora Pythium Rhizoctonia	Foliar – Ground	1-3 quarts per acre in a minimum of 100 gallons of water.
	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.
	Chemigation	Apply with normal irrigation schedule. Sprinkler: 2-4 quarts per acre in a minimum of 100 gallons of water. Drip: 2-3 quarts per acre in a minimum of 100 gallons of water.
	Root Dip or Transplant Drench or In-Furrow	Mix a 0.5% v/v solution (2 quarts per 100 gallons of water or ⅔ fl oz [4 tsp] per gallon of water). Discard excess solution at the end of each day. Dip: Submerge roots for 15-30 minutes, then plant within 24 hours. Drench: Apply solution prior to, during or after transplanting to wet the active root zone. In-Furrow: Apply solution in season to wet the active root zone.
Downy Mildew	Foliar – Ground	1-3 quarts per acre in a minimum of 100 gallons of water.
Powdery Mildew	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.

COCONUT

NOTE: Refer to **APPLICATION PROGRAM** on page 8 for disease prevention and control programs.

DISEASE	APPLICATION METHOD	RATE/APPLICATION
Bud Rot Trunk Cankers Root Rot (<i>Phytophthora</i> and <i>Pythium</i> spp.)	Soil Drench	Mix a 3% v/v solution (4 fl oz per 1 gallon of water). Apply 100 ml of solution in a 1-foot swath around the base of each tree.
	Stem Injection	Mix a 15% v/v solution (20 fl oz per 1 gallon of water). Inject directly into stem at a rate of 0.5 fl oz (3 teaspoons) solution per 2 inches of stem diameter at breast height (DBH). Inject twice per year until control is reached. As a preventative, apply once in the Spring.

COFFEE

NOTE: Refer to **APPLICATION PROGRAM** on page 8 for disease prevention and control programs.

DISEASE	APPLICATION METHOD	RATE/APPLICATION
Fusarium Phytophthora Pythium Rhizoctonia	Foliar – Ground	1-3 quarts per acre in a minimum of 20 gallons of water.
	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.
	Chemigation	Apply with normal irrigation schedule. Sprinkler: 2-4 quarts per acre in a minimum of 1000 gallons. Drip: 2-3 quarts per acre in a minimum of 100 gallons.
	Root Dip or Transplant Drench or In-Furrow	Mix a 0.5% v/v solution (2 quarts per 100 gallons of water or ⅔ fl oz [4 tsp] per gallon of water). Discard excess solution at the end of each day. Dip: Submerge roots for 15-30 minutes, then plant within 24 hours. Drench: Apply solution prior to, during or after transplanting to wet the active root zone. In-Furrow: Apply solution in season to wet the active root zone.
Downy Mildew	Foliar – Ground	1-3 quarts per acre in a minimum of 20 gallons of water.
Powdery Mildew	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.

CUCURBIT VEGETABLES (Crop Group 9)

Including, but not limited to, Cantaloupe; Chayote; Chinese Waxgourd; Citron Melon; Cucumber; Gherkin; Gourd, Edible; Momordica (Includes Balsam Apple, Balsam Pear, Bitter Melon, Chinese Cucumber); Muskmelon (Includes True Cantaloupe, Cantaloupe; Casaba, Crenshaw Melon, Golden Pershaw Melon, Honeydew Melon, Honey Balls, Mango Melon, Persian Melon, Pineapple Melon, Santa Claus Melon, and Snake Melon); Pumpkin; Squash, Summer (Includes Crookneck, Scallop, Straightneck, and Vegetable Marrow, and Zucchini); Squash, Winter (Includes Acorn Squash, Butternut Squash, Calabaza, Hubbard Squash, and Spaghetti Squash); and Watermelon.

NOTE: Refer to **APPLICATION PROGRAM** on page 8 for disease prevention and control programs.

DISEASE	APPLICATION METHOD	RATE/APPLICATION
Fusarium Phytophthora Pythium Rhizoctonia	Foliar – Ground	1-3 quarts per acre in a minimum of 20 gallons of water.
	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.
	Chemigation	Apply with normal irrigation schedule. Sprinkler: 2-4 quarts per acre in a minimum of 1000 gallons. Drip: 2-3 quarts per acre in a minimum of 100 gallons.
Downy Mildew	Foliar – Ground	1-3 quarts per acre in a minimum of 20 gallons of water.
Powdery Mildew	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.

FRUITING VEGETABLES (Crop Group 8 Except Cucurbits)

Including Eggplant; Ground Cherry; Pepino; Pepper (Bell, Chill, Cooking, Pimento, Sweet); Tomatillo; and Tomato

NOTE: Refer to **APPLICATION PROGRAM** on page 8 for disease prevention and control programs.

DISEASE	APPLICATION METHOD	RATE/APPLICATION
Fusarium Phytophthora Pythium Rhizoctonia	Foliar – Ground	1-3 quarts per acre in a minimum of 20 gallons of water.
	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.
	Chemigation	Apply with normal irrigation schedule. Sprinkler: 2-4 quarts per acre in a minimum of 1000 gallons. Drip: 2-3 quarts per acre in a minimum of 100 gallons.
Downy Mildew	Foliar – Ground	1-3 quarts per acre in a minimum of 20 gallons of water.
Powdery Mildew	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.

GRAPE

NOTE: Refer to **APPLICATION PROGRAM** on page 8 for disease prevention and control programs.

DISEASE	APPLICATION METHOD	RATE/APPLICATION
Fusarium Phytophthora Pythium Rhizoctonia	Foliar – Ground	1-3 quarts per acre in a minimum of 20 gallons of water.
	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.
	Chemigation	Apply with normal irrigation schedule. Drip: 2-3 quarts per acre in a minimum of 100 gallons.
	Root Dip or Transplant Drench or In-Furrow	Mix a 0.5% v/v solution (2 quarts per 100 gallons of water or 2/3 fl oz [4 tsp] per gallon of water). Discard excess solution at the end of each day. Dip: Submerge roots for 15-30 minutes, then plant within 24 hours. Drench: Apply solution prior to, during or after transplanting to wet the active root zone. In-Furrow: Apply solution in season to wet the active root zone.
Downy Mildew	Foliar – Ground	1-3 quarts per acre in a minimum of 20 gallons of water.
Powdery Mildew	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.

HERBS AND SPICES (Crop Group 19)

Including, but not limited to, Allspice; Angelica; Anise; Basil; Chamomile; Caraway; Cardamom; Catnip; Celery Seed; Chive; Cinnamon; Cloves; Cocoa; Coriander; Cilantro; Cumin; Curry; Dill; Fennel; Horehound; Lavender; Lemongrass; Marjoram; Mint; Mustard; Nutmeg; Parsley (all types); Pepper; Poppy Seed; Rosemary; Saffron; Sage; Savory; Tarragon; Thyme; Vanilla; Wintergreen; and Wormwood.

NOTE: Refer to **APPLICATION PROGRAM** on page 8 for disease prevention and control programs.

DISEASE	APPLICATION METHOD	RATE/APPLICATION
Fusarium Phytophthora Pythium Rhizoctonia	Foliar – Ground	1-3 quarts per acre in a minimum of 20 gallons of water.
	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.
	Chemigation	Apply with normal irrigation schedule. Sprinkler: 2-4 quarts per acre in a minimum of 1000 gallons. Drip: 2-3 quarts per acre in a minimum of 100 gallons.
	Transplant Drench or In-Furrow	Mix a 0.5% v/v solution (2 quarts per 100 gallons of water or 2/3 fl oz [4 tsp] per gallon of water). Discard excess solution at the end of each day. Drench: Apply solution prior to, during or after transplanting to wet the active root zone. In-Furrow: Apply solution in season to wet the active root zone.
Downy Mildew Powdery Mildew	Foliar – Ground	1-3 quarts per acre in a minimum of 20 gallons of water.
	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.

HOPS

NOTE: Refer to **APPLICATION PROGRAM** on page 8 for disease prevention and control programs.

DISEASE	APPLICATION METHOD	RATE/APPLICATION
Fusarium Phytophthora Pythium Rhizoctonia	Foliar – Ground	1-3 quarts per acre in a minimum of 20 gallons of water.
	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.
	Chemigation	Apply with normal irrigation schedule. Sprinkler: 2-4 quarts per acre in a minimum of 1000 gallons. Drip: 2-3 quarts per acre in a minimum of 100 gallons.
	Downy Mildew Powdery Mildew	Foliar – Ground
Foliar – Air		1-3 quarts per acre in a minimum of 10 gallons of water.

LEAFY VEGETABLES – EXCEPT BRASSICA VEGETABLES (Crop Group 4)

Including, but not limited to, Amaranth, Leafy, Chinese Spinach; Arugula; Cardoon; Celery; Celery, Chinese; Celtuce; Chervil; Chrysanthemum, Edible-Leaved, Garland; Corn Salad; Cress, Garland, Upland; Dandelion; Dock (Sorrel); Endive; Fennel, Florence; Lettuce, Head and Lettuce; Orach; Parsley; Purslane, Garden, Winter; Radicchio (Red Chicory); Rhubarb; Spinach; Spinach, New Zealand and Vine; and Swiss Chard.

NOTE: Refer to **APPLICATION PROGRAM** on page 8 for disease prevention and control programs.

DISEASE	APPLICATION METHOD	RATE/APPLICATION
Fusarium Phytophthora Pythium Rhizoctonia	Foliar – Ground	1-3 quarts per acre in a minimum of 100 gallons of water.
	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.
	Chemigation	Apply with normal irrigation schedule. Sprinkler: 2-4 quarts per acre in a minimum of 1000 gallons. Drip: 2-3 quarts per acre in a minimum of 100 gallons.
	Downy Mildew Powdery Mildew	Foliar – Ground
Foliar – Air		1-3 quarts per acre in a minimum of 10 gallons of water.

LEGUME VEGETABLES – SUCCULENT OR DRIED (Crop Group 6)

Including, but not limited to, Bean (Includes Grain Lupin, Sweet Lupin, White Lupin, and White Sweet Lupin); Bean (Includes Field, Kidney, Lima, Navy, Pinto, Runner, Snap, Tepary, and Wax); Bean (Includes Adzuki bean, Asparagus Bean, Blackeyed Pea, Catjang, Chinese Longbean, Cowpea, Crowder Pea, Moth Bean, Mung Bean, Rice Bean, Southern Pea, Urd Bean, and Yardlong Bean); Broad Bean; Chickpea (Garbanzo Bean); Guar; Jackbean; Lablab Bean; Lentil; Pea (Includes Dwarf Pea, Edible-Pod Pea, English Pea, Field Pea, Garden-Pea, Green Pea, Snow Pea, and Sugar Snap Pea); Pigeon Pea; Soybean; Soybean (immature seed); and Sword Bean.

NOTE: Refer to **APPLICATION PROGRAM** on page 8 for disease prevention and control programs.

Fusarium	Foliar – Ground	1-3 quarts per acre in a minimum of 20 gallons of water.
Phytophthora	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.
Pythium	Chemigation	Apply with normal irrigation schedule.
Rhizoctonia		Sprinkler: 2-4 quarts per acre in a minimum of 1000 gallons of water. Drip: 2-3 quarts per acre in a minimum of 100 gallons of water.
Downy Mildew	Foliar – Ground	1-3 quarts per acre in a minimum of 20 gallons of water.
Powdery Mildew	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.

NON-GRASS ANIMAL FEEDS – FORAGE, FODDER, STRAW AND HAY (Crop Group 18)

Including, but not limited to, Alfalfa; Bean, Velvet; Clover; Kudzu; Lespedeza; Lupin; Sainfoin; Trefoil; Vetch; Vetch, Crown, Vetch, Milk.

NOTE: Refer to **APPLICATION PROGRAM** on page 8 for disease prevention and control programs.

DISEASE	APPLICATION METHOD	RATE/APPLICATION
Fusarium	Foliar – Ground	1-3 quarts per acre in a minimum of 20 gallons of water.
Phytophthora	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.
Pythium	Chemigation	Apply with normal irrigation schedule.
Rhizoctonia		Sprinkler: 2-4 quarts per acre in a minimum of 1000 gallons of water. Drip: 2-3 quarts per acre in a minimum of 100 gallons of water.
Downy Mildew	Foliar – Ground	1-3 quarts per acre in a minimum of 20 gallons of water.
Powdery Mildew	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.

OILSEED (Crop Group 20)

Including, but not limited to, Cottonseed; Flax Seed; Jojoba; Milkweed; Mustard Seed; Niger Seed; Poppy Seed; Rapeseed (canola varieties only); Safflower; Sesame; Sunflower.

NOTE: Refer to **APPLICATION PROGRAM** on page 8 for disease prevention and control programs.

DISEASE	APPLICATION METHOD	RATE/APPLICATION
Fusarium	Foliar – Ground	1-3 quarts per acre in a minimum of 20 gallons of water.
Phytophthora	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.
Pythium	Chemigation	Apply with normal irrigation schedule.
Rhizoctonia		Sprinkler: 2-4 quarts per acre in a minimum of 1000 gallons of water. Drip: 2-3 quarts per acre in a minimum of 100 gallons of water.
Downy Mildew	Foliar – Ground	1-3 quarts per acre in a minimum of 20 gallons of water.
Powdery Mildew	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.

PEANUT (Not for use in California)		
NOTE: Refer to APPLICATION PROGRAM on page 8 for disease prevention and control programs.		
DISEASE	APPLICATION METHOD	RATE/APPLICATION
Fusarium Phytophthora Pythium Rhizoctonia Early and Late Leaf Spot (<i>Cercospora arachidicola</i> and <i>Cercosporidium personatum</i>)	Foliar – Ground	1-3 quarts per acre in a minimum of 20 gallons of water.
	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.
	Chemigation	Apply with normal irrigation schedule. Sprinkler: 2-4 quarts per acre in a minimum of 1000 gallons. Drip: 2-3 quarts per acre in a minimum of 100 gallons.
Downy Mildew	Foliar – Ground	1-3 quarts per acre in a minimum of 20 gallons of water.
Powdery Mildew	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.

TROPICAL AND SUBTROPICAL FRUIT (Crop Groups 23 and 24)		
Including, but not limited to, Acai; Acerola; Banana; Bayberry, Red; Breadnut; Carob; Cherimoya; Date; Feijoa; Fig; Gooseberry; Guava; Jujube, Indian; Lychee; Mango; Monkeyfruit; Olive; Papaya, Passionfruit; Persimmon; Pineapple; Plantain; Pomegranate; Prickly Pear; Starfruit; Tamarind; and Cultivars, Varieties, and Hybrids of these commodities.		
NOTE: Refer to APPLICATION PROGRAM on page 8 for disease prevention and control programs.		
DISEASE	APPLICATION METHOD	RATE/APPLICATION
Fusarium Phytophthora Pythium Rhizoctonia	Foliar – Ground	1-3 quarts per acre in a minimum of 100 gallons of water.
	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.
	Chemigation	Apply with normal irrigation schedule. Sprinkler: 2-4 quarts per acre in a minimum of 1000 gallons of water. Drip: 2-4 quarts per acre in a minimum of 100 gallons of water.
	Root Dip or Transplant Drench or In-Furrow	Mix a 0.5% v/v solution (2 quarts per 100 gallons of water or 2/3 fl oz [4 tsp] per gallon of water). Discard excess solution at the end of each day. Dip: Submerge roots for 15-30 minutes, then plant within 24 hours. Drench: Apply solution prior to, during or after transplanting to wet the active root zone. In-Furrow: Apply solution in season to wet the active root zone.
Downy Mildew	Foliar – Ground	1-3 quarts per acre in a minimum of 100 gallons of water.
Powdery Mildew	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.

POME FRUIT (Crop Group 11) (Bearing and Non-Bearing)

Including, but not limited to, Apple; Azarole; Crabapple; Loquat; Mayhaw; Hook & Arm; Medlar; Pear; Pear, Asian; Quince; Quince, Chinese and Japanese; Tejocote; and Cultivars, Varieties, and/or Hybrids of these.

NOTE: Refer to **APPLICATION PROGRAM** on page 8 for disease prevention and control programs.

DISEASE	APPLICATION METHOD	RATE/APPLICATION
Fire Blight (<i>Erwinia amylovora</i>) Fusarium Phytophthora Pythium Rhizoctonia	Foliar – Ground	1-3 quarts per acre in a minimum of 100 gallons of water.
	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.
	Chemigation	Apply with normal irrigation schedule. Sprinkler: 2-4 quarts per acre in at least 1000 gallons of water. Drip: 2-3 quarts per acre in at least 100 gallons of water.
	Root Dip or Transplant Drench or In-Furrow	Mix a 0.5% v/v solution (2 quarts per 100 gallons of water or 2/3 fl oz [4 tsp] per gallon of water). Discard excess solution at the end of each day. Dip: Submerge roots for 15-30 minutes, then plant within 24 hours. Drench: Apply solution prior to, during or after transplanting to wet the active root zone. In-Furrow: Apply solution in season to wet the active root zone.
Downy Mildew	Foliar – Ground	1-3 quarts per acre in a minimum of 100 gallons of water.
Powdery Mildew	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.

POTATO

NOTE: Refer to **APPLICATION PROGRAM** on page 8 for disease prevention and control programs.

DISEASE	APPLICATION METHOD	RATE/APPLICATION
Fusarium Phytophthora Pythium Rhizoctonia Silver Scurf (<i>Helminthosporium solani</i>)* * Not for Use in California	Foliar – Ground	3-5 quarts per acre in a minimum of 5 gallons of water.
	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.
	Chemigation	Apply with normal irrigation schedule. Sprinkler: 2-4 quarts per acre in a minimum of 1000 gallons of water. Drip: 2-3 quarts per acre in a minimum of 100 gallons of water.
	Seed Piece Spray	Mix a 15% v/v solution (19 fl oz per 1 gallon of water). Use 1 gallon of solution to treat 2 tons of tubers with a full coverage spray. Discard excess solution at the end of each day.
	In-Storage Humidification; Process and Rinse Waters	Use 1.5 pints per gallon of water used in humidification, for process water used in post-harvest storage, and for rinses of associated tanks, flumes and lines.
Downy Mildew	Foliar – Ground	1-3 quarts per acre in a minimum of 20 gallons of water.
Powdery Mildew	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.

ROOT AND TUBER VEGETABLES (Crop Group 1)

Including, but not limited to, Arracacha; Arrowroot; Artichoke, Chinese and Jerusalem; Beet, Garden and Sugar; Burdock, Edible; Canna, Edible; Carrot; Cassava, Bitter and Sweet; Celery (Celery Root); Chayote (Root); Chervil, Turnip-Rooted; Chicory; Chufa; Dasheen (Taro); Ginger; Ginseng; Horseradish; Leren; Parsley, Turnip-Rooted; Parsnip; Radish; Radish, Oriental; Rutabaga; Salsify; Salsify, Black and Spanish; Skirret; Sweet Potato; Tanier; Turmeric; Turnip; Yam (all types).

NOTE: Refer to **APPLICATION PROGRAM** on page 8 for disease prevention and control programs.

DISEASE	APPLICATION METHOD	RATE/APPLICATION
Fusarium Phytophthora Pythium Rhizoctonia	Foliar – Ground	1-3 quarts per acre in a minimum of 20 gallons of water.
	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.
	Chemigation	Apply with normal irrigation schedule. Sprinkler: 2-4 quarts per acre in at least 1000 gallons. Drip: 2-3 quarts per acre in at least 100 gallons.
	Root Dip or Transplant Drench or In-Furrow	Mix a 0.5% v/v solution (2 quarts per 100 gallons of water or ⅔ fl oz [4 tsp] per gallon of water). Discard excess solution at the end of each day. Dip: Submerge roots for 15-30 minutes, then plant within 24 hours. Drench: Apply solution prior to, during or after transplanting to wet the active root zone. In-Furrow: Apply solution in season to wet the active root zone.
Downy Mildew	Foliar – Ground	1-3 quarts per acre in a minimum of 20 gallons of water.
Powdery Mildew	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.

STONE FRUIT (Crop Group 12)

Including, but not limited to, Apricot; Apricot, Japanese; Capulin; Cherry (Black, Nanking, Sweet, and Tart); Jujube, Chinese; Nectarine; Peach; Plum (American, Beach, Canada, Cherry, Chickasaw, Damson, Japanese, Klamath, and Prune); Plumcot; Sloe; Cultivars, Varieties, and/or Hybrids of these.

NOTE: Refer to **APPLICATION PROGRAM** on page 8 for disease prevention and control programs.

DISEASE	APPLICATION METHOD	RATE/APPLICATION
Fusarium Phytophthora Pythium Rhizoctonia	Foliar – Ground	1-3 quarts per acre in a minimum of 100 gallons of water.
	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.
	Chemigation	Apply with normal irrigation schedule. Sprinkler: 2-4 quarts per acre in a minimum of 1000 gallons. Drip: 2-3 quarts per acre in a minimum of 100 gallons.
	Root Dip or Transplant Drench or In-Furrow	Mix a 0.5% v/v solution (2 quarts per 100 gallons of water or ⅔ fl oz [4 tsp] per gallon of water). Discard excess solution at the end of each day. Dip: Submerge roots for 15-30 minutes, then plant within 24 hours. Drench: Apply solution prior to, during or after transplanting to wet the active root zone. In-Furrow: Apply solution in season to wet the active root zone.
Downy Mildew	Foliar – Ground	1-3 quarts per acre in a minimum of 100 gallons of water.
Powdery Mildew	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.

TOBACCO (Not for use in CA)		
NOTE: Refer to APPLICATION PROGRAM on page 8 for disease prevention and control programs.		
DISEASE	APPLICATION METHOD	RATE/APPLICATION
Blue mold Fusarium Phytophthora Pythium Rhizoctonia	Foliar – Ground	1-3 quarts per acre in a minimum of 20 gallons of water.
	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.
	Chemigation	Apply with normal irrigation schedule. Sprinkler: 2-4 quarts per acre in a minimum of 1000 gallons. Drip: 2-3 quarts per acre in a minimum of 100 gallons.
	Root Dip or Transplant Drench or In-Furrow	Mix a 0.5% v/v solution (2 quarts per 100 gallons of water or ½ fl oz [4 tsp] per gallon of water). Discard excess solution at the end of each day. Dip: Submerge roots for 15-30 minutes, then plant within 24 hours. Drench: Apply solution prior to, during or after transplanting to wet the active root zone. In-Furrow: Apply solution in season to wet the active root zone.
Downy Mildew	Foliar – Ground	1-3 quarts per acre in a minimum of 20 gallons of water.
Powdery Mildew	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.

TREE NUTS (Crop Group 14)		
Including, but not limited to, African Nut-Tree; Almond; Beechnut; Brazil Nut; Brazilian Pine; Bunya; Bur Oak; Butternut; Cajou Nut; Candlenut; Cashew; Chestnut; Chinquapin; Coquito Nut; Dika Nut; Ginkgo; Guiana Chestnut; Hazelnut (Filbert); Heartnut; Hickory Nut; Japanese Horse-Chestnut; Macadamia Nut; Mongongo Nut; Monkey-Pot; Monkey Puzzle Nut; Okari Nut; Pachira Nut; Peach Palm Nut; Pecan; Pequi; Pili Nut; Pine Nut; Pistachio; Sapucaia Nut; Tropical Almond; Walnut, Black; Walnut, English; Yellowhorn; Cultivars, Varieties, and/or Hybrids of these.		
NOTE: Refer to APPLICATION PROGRAM on page 8 for disease prevention and control programs.		
DISEASE	APPLICATION METHOD	RATE/APPLICATION
Fusarium Phytophthora Pythium Rhizoctonia	Foliar – Ground	1-3 quarts per acre in a minimum of 100 gallons of water.
	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.
	Chemigation	Apply with normal irrigation schedule. Sprinkler: 2-4 quarts per acre in a minimum of 1000 gallons. Drip: 2-3 quarts per acre in a minimum of 100 gallons.
	Root Dip or Transplant Drench or In-Furrow	Mix a 0.5% v/v solution (2 quarts per 100 gallons of water or ½ fl oz [4 tsp] per gallon of water). Discard excess solution at the end of each day. Dip: Submerge roots for 15-30 minutes, then plant within 24 hours. Drench: Apply solution prior to, during or after transplanting to wet the active root zone. In-Furrow: Apply solution in season to wet the active root zone.
Downy Mildew	Foliar – Ground	1-3 quarts per acre in a minimum of 100 gallons of water.
Powdery Mildew	Foliar – Air	1-3 quarts per acre in a minimum of 10 gallons of water.

POST HARVEST RECOMMENDATIONS

APPLICATION PROGRAM

For control and suppression of post-harvest diseases and storage rots on various commodities listed below. Apply SPÄRRA in aqueous applications such as pressure and bin washers or dump and soak tanks. SPÄRRA is compatible with most post-harvest chemicals and will be particularly effective in preventing development of tolerant or resistant strains of fungi when tank mixed with a registered fungicide of a different class of chemistry or when registered chemicals require alternating with a different chemical class. Use a suitable non-ionic surfactant in all post-harvest applications.

CROP	DISEASE	APPLICATION RATE	APPLICATION PROGRAM
AVOCADO <i>Not for Use in California</i>	Suppression** of Anthracnose (<i>Colletotrichum</i> spp.), <i>Dothiorella</i> and <i>Cercospora</i> spp.	Apply 3.2 to 4.8 quarts per 100 gallons of water. Use approximately 100 gallons of diluted solution per 30 bins* of fruit.	Avocado should receive uniform, overall coverage of solution. Replace solution every 30 bins of fruit.
BANANA AND PLANTAIN <i>Not for Use in California</i>	Suppression** of Crown rot (<i>Fusarium</i> spp.), Anthracnose, (<i>Colletotrichum</i> spp.), Speckly, Freckly and Finger Rot	Dehanding Tank: Apply 1.6 to 2.4 gallons per 200 gallons of water. Replenish every 2 days. Fungicide application: Apply as a spray mix with other fungicides at 0.8 to 1.6 pints product per 25 gallons of water.	Apply product solution to dehanded fruit once it has passed through delatexing tank. Apply this product as part of a post-harvest fungicide treatment to bananas and plantains.
CARROT <i>Not for Use in California</i>	Suppression** of Cavity Spot, Fusarium Rot, Phytophthora Rot, Grey Mold (<i>Botrytis cinerea</i>), Crown Rot and Black Rot	Apply 2.4 pints per 75 gallons of water. Use 1 gallon of diluted mix per 6,000 lbs of carrots.	Immerse carrots for 5-10 seconds prior to storage. Replace solution when it appears dirty.
CITRUS FRUIT GROUP (Crop Group 10)	Suppression** of Brown rot (<i>Phytophthora</i> spp); Green mold (<i>Penicillium digitatum</i>); Blue Mold (<i>Penicillium italicum</i>); Sour Rot (<i>Geotrichum candidum</i>).	Make up to 1.6% v/v solution in water (1.6 gallons SPÄRRA in 98.4 gallons water). Use diluted solution per 30 bins* of fruit. For application to aqueous sprays prior to washing, apply 2.5 pints per 25 gallons spray mixture.	Fruit should receive uniform, overall coverage of solution. Make sure fruits are drenched for at least 60 seconds.
POME FRUIT (Crop Group 11) <i>Not for Use in California</i>	Suppression** of Brown Rot (<i>Phytophthora</i> spp.) Blue Mold (<i>Penicillium</i> spp.), Bitter Rot (<i>Glomularia</i> spp.) and <i>Monolinia</i> spp.	Apply 3.2 to 4.8 quarts per 100 gallons of water. Use approximately 100 gallons of diluted solution per 30 bins* of fruit.	Fruit should receive uniform, overall coverage of solution. Replace solution every 30 bins of fruit.
STONE FRUIT (Crop Group 12) <i>Not for Use in California</i>	Suppression of Brown Rot (<i>Phytophthora</i> spp), <i>Monolinia</i> spp, Grey Mold (<i>Botrytis</i> spp.) and Blue mold (<i>Penicillium</i> spp.)	Apply 3.2 quarts per 100 gallons of water. Use approximately 100 gallons of diluted solution per 30 bins* of fruit.	Fruit should receive uniform, overall coverage of solution. Replace solution every 30 bins of fruit.
TROPICAL AND SUBTROPICAL FRUIT (Crop Groups 23 and 24) , except banana and plantain <i>Not for Use in California</i>	Suppression** of <i>Anthracnose</i> spp., Black Spot, Chocolate Spot, <i>Cercospora</i> , <i>Alternaria</i> , <i>Botryodiplodia</i> , <i>Phomopsis</i> , <i>Cladosporium</i> .	Fruit Dip: Make up a 1.6% v/v solution of product in water (2 oz product plus 126 oz. water to make 1 gallon). Use 1 gallon of the diluted mix per 4,000 lb. of fruit.	Fruit should receive uniform, overall coverage of solution. Apply with other fungicides in hot or cold water.
CUT FLOWERS (Roses, Chrysanthemums, Carnations and Others) <i>Not for Use in California</i>	For the Suppression** of post-harvest storage rots, including <i>Botrytis</i> , Anthracnose, Vascular Wilts and Soft Rots.	Apply 0.4 – 1.2 pints per 100 gallons in the hydrating solution. Use the lower rate (0.4 pints/100 gallons) when low pest pressure is present. Use the higher rate (1.2 pints/100 gallons) when high pest pressure is present.	Cut flower stems should receive uniform, overall coverage of solution when immersing. DO NOT immerse flower heads.

*Average bin weight = 800 lb. or 30 bins weighs 12 tons

**Suppression: For disease suppression, use in combination with another registered bactericide or fungicide registered for the same crops as listed on this label. Note that this product has suppressive properties on certain diseases caused by bacteria or fungi.

NON-FOOD CROP RECOMMENDATIONS

SPÄRRA is used for control of labeled diseases in turf and ornamentals grown in outdoor field and container nurseries, greenhouses, lath or shade houses, conifer plantations, commercial and residential landscapes, interiorscapes, parks, athletic fields, and golf courses.

The genera and species identified on this label have been found to have acceptable plant tolerances to this product. Not every species or variety of ornamental plant has been tested for its tolerance to this product. Prior to using this product on plant genera or species that are not identified on this label, test a sample area for phytotoxicity responses using the given rates.

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.

APPLICATION PROGRAM

Disease Prevention Program: Apply the lower specified rate at 7- to 28-day intervals after plants become established. Do not apply SPÄRRA at intervals less than 3 days.

Disease Control Program: Apply the higher specified rate at 7- to 14-day intervals until control is reached. Under severe circumstances, application can be made at intervals of up to every three days. Do not apply SPÄRRA at intervals less than 3 days. Consult with Farm Advisor, Licensed Agricultural Pest Control Advisor or Certified Crop Advisor to determine disease severity.

ORNAMENTALS		
Including, but not limited to, Aglaonema, Aphelandra, Arborvitae, Ash, Azaleas, Bougainvillea, Boxwood, <i>Cattleya skinneri</i> , Cedars, Ceanothus, Cotoneaster, Cissus, Dieffenbachia, Dogwood, Ferns, Ficus, Flowering Trees, Hibiscus, Hard Wood Trees, Holly, Home Lawns, Juniper, Magnolia Trees, Maple, Pines, Oaks, Palms, Peperomia, Photinia, Pittosporum, Philodendron, Pieris, Pothos, Redwoods, Rhododendron, Roses, Schefflera, Sedum, Sempervivum, Shrubs, Spathiphyllum, Sycamore, Taxus media, Zygocactus.		
NOTE: Refer to APPLICATION PROGRAM above for disease prevention and control programs.		
DISEASE	APPLICATION METHOD	RATE/APPLICATION
Phytophthora Pythium Fusarium* Rhizoctonia* Fire Blight (<i>Erwinia amylovora</i>) Bacterial Blight* (<i>Xanthomonas campestris</i>) Green Wild (<i>Ralstonia</i> spp.)	Foliar Spray	Mix 1-2 quarts per 100 gallons of water or 2-4 tsp per gallon of water. Apply solution to thoroughly wet foliage.
	Soil Drench	Mix 12-24 fl oz in 100 gallons of water or 0.75-1.5 tsp per gallon of water. Apply 1-2 pints of diluted solution per square foot of soil. Adjust volume as needed to thoroughly wet soil.
	Soil Incorporation	Mix 1-2 pints of product with enough water to wet one cubic yard of soil; mix immediately before potting. If conditions are favorable for disease development, it is recommended to make additional applications as a foliar spray or soil drench.
	Chemigation	Apply 1-2 quarts in 100 gallons of water with normal irrigation schedule.
	Trunk Injection	Mix a 15% v/v solution (20 fl oz per 1 gallon of water). Inject directly into tree at a rate of 0.5 fl oz (3 teaspoons) solution per linear yard of canopy width or 2 inches of trunk diameter at breast height (DBH). Repeat 2-4 times a year until control is reached.
	Root Dip	Mix a 0.5% v/v solution (2 quarts per 100 gallons of water or ½ fl oz [4 tsp] per gallon of water). Dip transplants into diluted solution. Thoroughly wet plant root mass immediately before transplanting. Keep roots submerged for 1-2 minutes. Discard excess solution at the end of each day.
Downy Mildew Powdery Mildew	Foliar Spray	Mix 1-2 quarts per 100 gallons of water or 2-4 tsp per gallon of water. Apply solution to thoroughly wet foliage.

* Not for Use in California

BEDDING PLANTS

Including, but not limited to, Ageratum, Algerian Ivy, Alyssum, Anthurium, Artemisia, Aster, Baby's Breath, Begonia, Caladium, Carnation, Chrysanthemum, Coleus, Columbine, Daisy, Delphinium, Easter Lily, English Ivy, Foxglove, Gaillardia, Geranium, Gloxinia, Impatiens, Marigold, Pansy, Petunia, Phlox, Pinks, Poinsettia, Primrose, Prostrate Rosemary, Salvia, Snapdragon, Verbena, Vinca, and Zinnia.

NOTE: Refer to **APPLICATION PROGRAM** on page 21 for disease prevention and control programs.

DISEASE	APPLICATION METHOD	RATE/APPLICATION
Fire Blight (<i>Erwinia amylovora</i>) Fusarium Phytophthora Pythium Rhizoctonia	Foliar Spray	Mix 1-2 quarts per 100 gallons of water or 2-4 tsp per gallon of water. Apply solution to thoroughly wet foliage.
	Soil Drench	Mix 12-24 fl oz in 100 gallons of water or 0.75-1.5 tsp per gallon of water. Apply 1-2 pints of diluted solution per square foot of soil. Adjust volume as needed to thoroughly wet soil.
	Chemigation	Apply 1-2 quarts in 100 gallons of water with normal irrigation schedule.
	Root Dip	Mix a 0.5% v/v solution (2 quarts per 100 gallons of water or ½ fl oz [4 tsp] per gallon of water). Dip transplants into diluted solution. Thoroughly wet plant root mass immediately before transplanting. Keep roots submerged for 1-2 minutes. Discard excess solution at the end of each day.
Downy Mildew	Foliar Spray	Mix 1-2 quarts per 100 gallons of water or 2-4 tsp per gallon of water. Apply solution to thoroughly wet foliage.

CONIFERS AND TREES IN COMMERCIAL NURSERIES, PLANTATIONS, FORESTS, LANDSCAPES AND PARKS

Including, but not limited to, Christmas trees, Douglas fir, Oaks, Pines, Spruce.

NOTE: Refer to **APPLICATION PROGRAM** on page 21 for disease prevention and control programs.

DISEASE	APPLICATION METHOD	RATE/APPLICATION
Phytophthora (including Sudden Oak Death) Pythium	Foliar Spray	Mix 1-2 quarts per 100 gallons of water or 2-4 tsp per gallon of water. Apply solution to thoroughly wet foliage.
	Soil Drench	Mix 12-24 fl oz in 100 gallons of water or 0.75-1.5 tsp per gallon of water. Apply 1-2 pints of diluted solution per square foot of soil. Adjust volume as needed to thoroughly wet soil.
	Root Dip	Mix a 0.5% v/v solution (2 quarts per 100 gallons of water or ½ fl oz [4 tsp] per gallon of water). Dip transplants into diluted solution. Keep roots submerged for 15-30 minutes and plant within 24 hours after dipping. Discard excess solution at the end of each day.
<ul style="list-style-type: none"> Do not graze livestock in treated conifer nurseries and/or plantations. Do not feed forage to livestock from treated nurseries and/or plantations. 		

TURF

Including, but not limited to, turf grasses on sod farms and lawns, commercial turf production, golf courses (including tees and greens), parks and commercial landscapes.

NOTE: Refer to **APPLICATION PROGRAM** on Page 21 for disease prevention and control program.

DISEASE	APPLICATION METHOD	RATE/APPLICATION
Alternaria Anthracnose (<i>Colletotrichum graminicola</i>) Cercospora* Helminthosporium Phytophthora* Pythium (Yellow Turf) Rhizoctonia Sclerotinia * Not for use in California	Foliar Spray Chemigation	2-3 fl oz per 1,000 square feet in a minimum of 2 gallons of water. Apply at 10- to 21-day intervals. 2-3 quarts per acre in a minimum of 100 gallons of water. Apply with normal irrigation schedule at 10- to 21-day intervals.
<ul style="list-style-type: none"> • Begin preventive applications when conditions first favor disease. Use higher rates under severe disease conditions. • Do not mow or irrigate treated areas until sprays have completely dried. • Do not graze livestock on treated turf. • Do not feed clippings from treated turf to livestock and poultry. 		

STORAGE AND DISPOSAL

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

PESTICIDE STORAGE: Keep containers tightly closed when not in use. Store in a cool, dry place in original container.

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

CONTAINER HANDLING: Non-refillable container. Do not reuse or refill this container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying. Then offer for recycling if available or reconditioning if appropriate, or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by State and Local authorities, by burning. If burned, stay out of smoke.

Non-refillable ≤5 gallons: Triple rinse as follows: Empty the remaining contents into application equipment or mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

Non-refillable >5 gallons: Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. **Pressure rinse as follows:** Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY:

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

ALL STATEMENTS MADE HEREIN ARE SUBJECT TO APPLICABLE LAW, AND TO THE EXTENT THERE IS ANY INCONSISTENCY OR CONTENTION, APPLICABLE LAW SHALL GOVERN.

The Directions for Use of the product must be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of many different factors including, without limitation, manner of use or application, weather, combination with other products or crop conditions. All such risks shall be assumed by Buyer and User and Buyer and User agree to hold Manufacturer and Seller harmless from any claims relating to such factors.

Seller warrants that this product conforms to the chemical description on the label. EXCEPT FOR THIS WARRANTY, THE PRODUCT IS FURNISHED "AS-IS," AND NEITHER SELLER NOR MANUFACTURER MAKES ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, WITH RESPECT TO THE SELECTION, PURCHASE OR USE OF THIS PRODUCT; SELLER AND MANUFACTURER SPECIFICALLY DISCLAIM ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE BEYOND WHAT IS STATED ON THE LABEL. Buyer and User accept all risks arising from any use of this product, including without limitation, uses contrary to label instructions or under conditions not reasonably foreseeable to (or beyond the control of) Seller or Manufacturer.

Neither Manufacturer nor Seller shall be liable for any incidental, consequential or special damages resulting from the use or handling of this product. THE EXCLUSIVE REMEDY OF THE BUYER OR USER and THE EXCLUSIVE LIABILITY OF MANUFACTURER AND SELLER, FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THIS PRODUCT or AT THE ELECTION OF MANUFACTURER OR SELLER, THE REPLACEMENT OF THE PRODUCT.

These Conditions of Sale and Limitation of Warranty and Liability shall be interpreted, unless otherwise required by the law of the state of purchase, in accordance with the laws of the State of California, excluding its conflicts of laws rules and may not be amended by any oral or written agreement.

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Manufactured by:
WILBUR-ELLIS COMPANY LLC
P.O. Box 16458
Fresno, CA 93755
(559) 442-1220

