



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

June 30, 2017

Carolyn Link
Regulatory Affairs Manager
Marrone Bio Innovations
1540 Drew Avenue
Davis, CA 95618

Subject: Non-PRIA (Pesticide Registration Improvement Act) Labeling Amendment – Correction of typos/clarifying language, addition of additional package size and accompanying container handling language, addition of placeholder for “Pure Michigan” logo (signifying made in Michigan), addition of crops, addition of clarifying language for greenhouse use, editing of sublabel B, which consists of crops, pests, and uses already present in sublabel A and addition of optional label claims for exclusion of uses in California.
Product Name: Regalia Bioprotectant Concentrate
EPA Registration Number: 84059-3
Application Date: 01/10/2017
OPP Decision Number: 525139

Dear Ms. Link:

The amended labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, is acceptable.

This approval does not affect any terms or conditions that were previously imposed on this registration. You continue to be subject to existing terms or conditions on your registration and any deadlines connected with them.

A stamped copy of your labeling is enclosed for your records. This labeling supersedes all previously accepted labeling. You must submit one (1) copy of the final printed labeling before you release this product for shipment with the new labeling. In accordance with 40 CFR § 152.130(c), you may distribute or sell this product under the previously approved labeling for 18 months from the date of this letter. After 18 months, you may only distribute or sell this product if it bears this new revised labeling or subsequently approved labeling. “To distribute or sell” is defined under FIFRA section 2(gg) and its implementing regulation at 40 CFR § 152.3.

Should you wish to add/retain a reference to your company’s website on your label, then please be aware that the website becomes labeling under FIFRA and is subject to review by the U.S. Environmental Protection Agency (EPA). If the website is false or misleading, the product will be

considered to be misbranded and sale or distribution of the product is unlawful under FIFRA section 12(a)(1)(E). 40 CFR § 156.10(a)(5) lists examples of statements the EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product's label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the EPA find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA-approved registration, the website will be referred to the EPA's Office of Enforcement and Compliance Assurance.

Your release for shipment of this product constitutes acceptance of these terms. If these terms are not complied with, this registration will be subject to cancellation in accordance with FIFRA section 6.

If you have any questions, please contact Menyon Adams by phone at (703) 347-8496 or via email at adams.menyon@epa.gov.

Sincerely,

A handwritten signature in blue ink that reads "Andrew C. Bryceland". The signature is fluid and cursive, with the first name being the most prominent.

Andrew Bryceland, Team Leader
Biochemical Pesticides Branch
Biopesticides and Pollution
Prevention Division (7511P)
Office of Pesticide Programs

Enclosure

MASTER LABEL

ACCEPTED

06/30/2017

Under the Federal Insecticide, Fungicide
and Rodenticide Act as amended, for the
pesticide registered under
EPA Reg. No. 84059-3

REGALIA[®] Bioprotectant Concentrate

Alternate Brand Names: REGALIA[®] Biofungicide Concentrate, REGALIA[®] Biofungicide, REGALIA[®] PTO Biofungicide, REGALIA[®] Rx Biofungicide, REGALIA[®] Rx, REGALIA[®] Garden, REGALIA[®] Garden Biofungicide, REGALIA[®] Home & Garden, REGALIA[®] Home & Garden Biofungicide

Sublabel A: Specialty Crops

Sublabel B: Row Crops

Sublabel C: Greenhouse, Turf & Professional Landscape Use

Sublabel D: Home & Garden Use

EPA Registration No. 84059-3

Sublabel A: Specialty Crops

REGALIA® Bioprotectant Concentrate

A plant extract to boost the plants' defense mechanisms to protect against certain fungal and bacterial diseases, and to improve plant health.

Active ingredient: Extract of *Reynoutria sachalinensis*5 %
 Other ingredients: 95 %
 Total 100 %

EPA Reg. No. 84059-3

EPA Est. No. 085970-FL-001
 EPA Est. No. 084059-MI-001

GROUP P5 FUNGICIDE

**KEEP OUT OF REACH OF CHILDREN
 CAUTION**

FIRST AID	
IF SWALLOWED:	Call 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 the poison control center or doctor. Do not give anything by mouth to an unconscious person.
IF ON SKIN OR CLOTHING:	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control center or doctor for treatment advice.
IF INHALED:	Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.
IF IN EYES:	Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
HOTLINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor, or if going for treatment. You may also contact 1-800-222-1222 for emergency medical treatment information.	



(USDA BioBased logo placeholder)(Pure Michigan placeholder)

LOT #: _____

Net Contents: 1 pint, 1 quart, 1 gallon, 2.5 gallon, 5 gallon, 55 gallon drum, 265 gallon tote.
Marrone Bio Innovations, Inc. 1540 Drew Ave., Davis, CA 95618

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION: Causes moderate eye irritation. Avoid contact with eyes or clothing. Wear goggles or safety glasses. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

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 and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

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 washwater or rinsate.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

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

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

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

- Coveralls
- Waterproof gloves
- Shoes plus socks
- Protective eyewear

Exception: If the product is soil-injected or soil-incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated. The REI does not apply when this product is used for seed treatment at planting or in hopper box treatments.

GENERAL INFORMATION

REGALIA® Bioprotectant Concentrate is an extract from the plant *Reynoutria sachalinensis* for use on ornamental plants, turf, row, greenhouse, and edible and field crops. REGALIA® Bioprotectant Concentrate applied to actively growing plants (see DIRECTIONS FOR USE) will help protect treated portions from certain plant diseases and will improve plant health. Plant health benefits often result in greater yields at harvest, especially when crops are stressed by pathogens or environmental conditions. Use REGALIA® Bioprotectant Concentrate as a preventative rather than

a curative application. Apply prior to disease infestation to protect the growing leaf tissue, flowers and above ground fruit and vegetables. See specific information below for diseases controlled and use rates on ornamental plants, turf, row, greenhouse, field and edible crops.

REGALIA® Bioprotectant Concentrate can be used in multiple application methods to control or suppress certain soil-borne or foliar diseases and to promote healthy plant growth. See below for specific information on diseases controlled and use rates.

MODE OF ACTION

The extract obtained from *Reynoutria sachalinensis* plant material contains bioactive compounds. The extract, when applied to the host plant, activates the plant's defense system to increase phenolics and antioxidants, and strengthen cell walls. This mode of action is classified as induced systemic resistance.

When applied at rates and timing for disease control, the induced resistance against important diseases provides translaminar activity, which takes place within one to two days of application. Repeat foliar applications per label instructions. Use REGALIA® Bioprotectant Concentrate, therefore, as a preventative treatment. In addition to foliar applications, REGALIA® Bioprotectant Concentrate can be used in multiple application methods as a plant dip, soil drench, in-furrow spray, or applied through drip irrigation to control or suppress certain soil-borne diseases and to promote healthy root growth.

When applied at rates and timing for plant health effects, the improved plant defense responses minimize the impacts of stress and disease, resulting in optimized yields at harvest. Applying Regalia® Bioprotectant Concentrate has been shown to increase leaf chlorophyll content and increase soluble protein content in some crops. These effects often lead to improved crop quality and/or yields.

MIXING AND APPLICATION INSTRUCTIONS – SHAKE WELL PRIOR TO USE –

Mixing instructions: Prepare no more mixture than is required for the immediate operation. Agitate the solution continuously during mixing and application. Mechanical mixing is recommended for proper mixing of REGALIA® Bioprotectant Concentrate mixtures.

REGALIA® Bioprotectant Concentrate alone: Add ½ of the required amount of water to the mix tank. With the agitator running, add the REGALIA® Bioprotectant Concentrate to the mix tank. Continue agitation while adding the remainder of the water. Begin application of the solution after the REGALIA® Bioprotectant Concentrate has completely dispersed into the mix water. Maintain agitation until all the mixture has been applied.

REGALIA® Bioprotectant Concentrate + tank mixtures: Add ½–¾ of the required amount of water to the mix tank. Start the agitation before adding any tank mix ingredients. In general, tank mix ingredients should be added in this order: wettable powders, dry flowable formulations, liquid flowable formulations, and emulsifiable formulations such as REGALIA® Bioprotectant Concentrate. Always allow each tank mix ingredient to become completely dispersed before adding the next component. Maintain continuous agitation until all components have been dispersed and throughout the application process. After all components are completely dispersed add the remainder of the water. REGALIA® Bioprotectant Concentrate cannot be mixed with another product with a prohibition against mixing. Use of the tank mix must be in accordance with the most restrictive label limitations and precautions. **Do not pre-mix REGALIA® Bioprotectant Concentrate with any other tank mix component prior to adding to the spray tank.**

Note: When using REGALIA® Bioprotectant Concentrate in tank-mixtures, all products in water soluble packaging should be added to the tank before any other tank-mix ingredient, including REGALIA® Bioprotectant Concentrate. Allow the water-soluble packaging to completely dissolve and the product(s) to completely disperse before adding any other tank-mix ingredient to the tank.

Compatibility: Do not combine REGALIA® Bioprotectant Concentrate in the spray tank with pesticides, adjuvants, or fertilizers if there has been no previous experience or use of the combination to show it is physically compatible, effective, and non-injurious under your use conditions. REGALIA® Bioprotectant Concentrate is compatible with many commonly used pesticides, fertilizers, adjuvants, and surfactants, but has not been evaluated with all potential

combinations. To ensure compatibility of the tank mix combinations, evaluate prior to use as follows: Using a suitable container, add the proportional amounts of product to water. Add wettable powders first, then water dispersible granules, then liquid flowables, and lastly, emulsifiable concentrates. Mix thoroughly and let stand for at least five minutes. If the combination stays mixed or can be remixed, it is physically compatible. Test the mix on a small portion of the crop to be treated to ensure that a phytotoxic response will not occur as a result of the application.

Application Instructions: REGALIA® Bioprotectant Concentrate is a micro-emulsion concentrate consisting of certain ingredients extracted from *Reynoutria sachalinensis*. Use 50-mesh nozzle screens or larger. Use higher water volumes with larger sized crops and extensive foliage to obtain thorough coverage.

See **FOLIAR AERIAL** and **FOLIAR GROUND APPLICATION** section for use directions.

See **CHEMIGATION** section for use directions.

See **BACKPACK/HANDHELD SPRAYER** section for use directions.

See **PRE-PLANT DIP** section for use directions.

See **SEED TREATMENT** section for use directions.

See **SOIL TREATMENT** section for use directions.

FOLIAR AERIAL APPLICATION INSTRUCTIONS

Apply REGALIA® Bioprotectant Concentrate by aerial application to the Edible Crops listed on this label at the rate of 0.5–1 quart per acre in a minimum of 5 gallons of water per acre unless otherwise specified in the **SELECTED CROPS** section. Increasing the amount of water applied per acre will improve product performance. Follow all instructions to reduce aerial drift.

AERIAL DRIFT REDUCTION ADVISORY INFORMATION

GENERAL: Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions. Where states have more stringent regulations, they should be observed. Note: This section is advisory in nature and does not supersede the mandatory label requirements.

INFORMATION ON DROPLET SIZE: The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply droplets large enough to provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions).

CONTROLLING DROPLET SIZE: Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets. Pressure – Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types, lower pressure produces larger droplets. When high flow rates are needed, use higher flow rate nozzles instead of increasing pressure. Number of Nozzles – Use the minimum number of nozzles that provide uniform coverage. Nozzle Orientation – Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential. Nozzle Type – Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

BOOM WIDTH: For aerial applications, the boom width must not exceed 75% of the wingspan or 90% of the rotary blade. Use upwind swath displacement and apply only when wind speed is 3–10 mph as measured by an anemometer. Use medium or coarser spray according to ASAE 572 definition for standard nozzles or VMD for spinning atomizer nozzles. If application includes a no-spray zone, do not release spray at a height greater than 10 feet above the ground or crop canopy.

APPLICATION HEIGHT: Do not make application at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

SWATH ADJUSTMENT: When applications are made with a crosswind, the swath will be displaced downward. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase with increasing drift potential (higher wind, smaller drops, etc.).

WIND: Drift potential is lowest between wind speeds of 2–10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. NOTE: Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

TEMPERATURE AND HUMIDITY: When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

TEMPERATURE INVERSIONS: Do not apply during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small, suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

SENSITIVE AREAS: The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g. when wind is blowing away from the sensitive areas). Do not allow spray to drift from the application site and contact people, structures people occupy at any time and the associated property, parks and recreation areas, non-target crops, aquatic and wetland areas, woodlands, pastures, rangelands, or animals.

FOLIAR GROUND APPLICATION USE DIRECTIONS

REGALIA® Bioprotectant Concentrate can be applied in most commonly-used ground application equipment, such as tractor-mounted boom, airblast, high clearance, hose-end, backpack, and other pressurized sprayers; or hand-held sprayers; foggers or mist blowers; water wheel and other drench applicators; and shank or other soil injection method. Apply in a minimum of 50 gal. of water per acre, unless specified otherwise. Thorough coverage is necessary to provide good disease control.

BACKPACK/HAND-HELD SPRAYER USE DIRECTIONS

The use rate for REGALIA® Bioprotectant Concentrate when applied alone or as an alternate spray in a backpack or hand-held sprayer is 1.3 – 2.6 tablespoons (0.64 – 1.28 fluid ounces) per gallon of water (0.5 – 1.0% v/v dilution of REGALIA® Bioprotectant Concentrate) applied at 1.15 – 2.3 gallons per 1000 square feet (50 – 100 gallons of water per acre). When tank mixed with another fungicide, the use rate for REGALIA® Bioprotectant Concentrate in a backpack or hand-held sprayer is 0.6 – 2.6 tablespoons (0.32 – 1.28 fluid ounces) per gallon of water applied at 1.15 – 2.3 gallons per 1000 square feet (50 – 100 gallons of water per acre). Use higher water volumes with larger sized crops and extensive foliage in order to secure thorough coverage. Do not use carrier volumes and/or adjuvants that create spray runoff or drip-accumulation at the base of fruit or on the harvested commodity. See specific application recommendations pertaining to each crop for additional details.

CHEMIGATION USE DIRECTIONS

Apply this product through sprinkler center pivot sprinkler systems, lateral move, furrow irrigation, injection into water stream, end tow, side (wheel) roll, traveler, solid set, hand moved, flood (basin), border or drip (trickle) irrigation systems. Do not connect an irrigation system (including greenhouse systems) used for pesticide applications to a public water system. Do not use reclaimed water for application of this product.

Spray preparation

First prepare a suspension of REGALIA® Bioprotectant Concentrate in a mix tank. Fill tank ½ to ¾ the desired amount of water. Start mechanical or hydraulic agitation. Add the required amount of REGALIA® Bioprotectant

Concentrate, and then the remaining volume of water. Then set the irrigation system to deliver a minimum of 0.1 to 0.3 inch of water per acre. Start irrigation system and uniformly inject the suspension of REGALIA® Bioprotectant Concentrate into the irrigation water line so as to deliver the desired rate per acre. Inject the suspension of REGALIA® Bioprotectant Concentrate with a positive displacement pump into the main line after the filter, and ahead of a right angle turn to insure adequate mixing. Any questions on calibration should be directed to your State Extension Service Specialists, to equipment manufacturers or other experts.

Do not combine REGALIA® Bioprotectant Concentrate with pesticides, surfactants or fertilizers for application through chemigation equipment unless prior experience has shown the combination physically compatible, effective and non-injurious under conditions of use. REGALIA® Bioprotectant Concentrate has not been fully evaluated for compatibility with all adjuvants or surfactants. Conduct a spray compatibility test if a mixture with adjuvants or surfactants is planned.

Apply REGALIA® Bioprotectant Concentrate at 1–4 quarts per acre according to the instructions below unless specified differently in the SELECTED CROPS section.

CHEMIGATION

General Requirements –

- 1) Apply this product only through a drip or trickle system or center pivot sprinkler system, lateral move, end tow, side (wheel) roll, traveler, solid set, hand move, flood (basin), furrow, border or drip (trickle) irrigation systems.
- 2) Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water.
- 3) If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.
- 4) 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.
- 5) A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Specific Requirements for Chemigation Systems Connected to Public Water Systems –

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

Specific Requirements for Sprinkler Chemigation –

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

- 2) The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- 3) The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- 4) The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- 5) The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- 6) Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- 7) Do not apply when wind speed favors drift beyond the area intended for treatment.

Specific Requirements for Flood (Basin), Furrow and Border Chemigation –

- 1) Systems using a gravity flow pesticide dispensing system must meter the pesticide into the water at the head of the field and downstream of a hydraulic discontinuity such as a drop structure or weir box to decrease potential for water source contamination from backflow if water flow stops.
- 2) The systems utilizing a pressurized water and pesticide injection system must meet the following requirements:
 - a. The system must contain a functional check valve, vacuum relief valve and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
 - b. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
 - c. 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.
 - d. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
 - e. 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.
 - f. 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.

Specific Requirements for Drip (Trickle) Chemigation –

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

Application Instructions for All Types of Chemigation –

- 1) Remove scale, pesticide residues, and other foreign matter from the chemical supply tank and entire injector system. Flush with clean water. Failure to provide a clean tank, void of scale or residues may cause product to lose effectiveness or strength.
- 2) Determine the treatment rates as indicated in the directions for use and make proper dilutions. Product can be applied continuously or at any time during the water application.
- 3) Prepare a solution in the chemical tank by filling the tank with the required water and then adding product as required.

PRE-PLANT DIP USE DIRECTIONS

Apply REGALIA® Bioprotectant Concentrate as a pre-plant dip for improved plant health and suppression of certain soil-borne diseases (see use table for more information). Apply REGALIA® Bioprotectant Concentrate at a rate of 1–4 quarts product per 100 gallons of water as a dip (submerge roots or plugs ensuring full coverage, then remove) prior to transplanting, unless specified differently in the SELECTED CROPS section.

SEED TREATMENT USE DIRECTIONS

REGALIA® Bioprotectant Concentrate can be applied as a seed dressing for suppression of soil-borne diseases to improve early-season root growth. REGALIA® Bioprotectant Concentrate may be applied as a water-based slurry with other registered seed treatment insecticides and fungicides through standard slurry- or mist-type commercial seed treatment equipment. REGALIA® Bioprotectant Concentrate can also be used in on-farm hopper-box or planter-box treatments.

If using REGALIA® Bioprotectant Concentrate in a tank mixture with other seed treatment products, observe all directions for use, crops/sites, use rates, dilution ratios, precautions, and limitations which appear on the tank-mix ingredient label. Do not exceed label rates and the most restrictive label precautions and limitations must be followed. Do not mix this product with any product which prohibits such mixing.

SOIL TREATMENT USE DIRECTIONS

REGALIA® Bioprotectant Concentrate can be applied by soil drench or in-furrow spray to improve plant health and to protect against certain soil-borne diseases.

In general, REGALIA® Bioprotectant Concentrate can be applied by the following methods, unless specified differently in the SELECTED CROPS section:

Soil Drench Applications:

Apply REGALIA® Bioprotectant Concentrate at a concentration of 1–3 quarts per 100 gallons of water, and at a sufficient rate to thoroughly soak the growing media and root zone. Make an initial application of REGALIA® Bioprotectant Concentrate during or shortly after transplant to reduce transplant shock, suppress the listed soil-borne diseases and improve root growth. Multiple drench applications can be made on a 10–14 day interval.

Shanked-In and Injected Applications:

REGALIA® Bioprotectant Concentrate can be shanked-in or injected into the soil alone, or with most types of liquid nutrients.

In-Furrow Applications:

At planting, apply REGALIA® Bioprotectant Concentrate as an in-furrow spray at the rate of 1–4 quarts per acre or 0.73–9.8 fluid ounces per 1000 feet of row according to the chart below. Apply REGALIA® Bioprotectant Concentrate in 5–15 gallons of water so as the spray is directed into the seed furrow just before the seeds are covered.

Rate Per Acre	In-Furrow Application Rates Product per 1000 ft. row (fl. oz.)														
	12" Rows	14" Rows	16" Rows	18" Rows	20" Rows	22" Rows	24" Rows	26" Rows	28" Rows	30" Rows	32" Rows	34" Rows	36" Rows	38" Rows	40" Rows
1 quart	0.73	0.86	0.98	1.1	1.2	1.3	1.5	1.6	1.7	1.8	2.0	2.1	2.2	2.3	2.4
2 quart	1.5	1.7	2.0	2.2	2.4	2.7	2.9	3.2	3.4	3.7	3.9	4.2	4.4	4.7	4.9
3 quart	2.2	2.6	2.9	3.3	3.7	4.0	4.4	4.8	5.1	5.1	5.9	6.2	6.6	7.0	7.3

4 quart	2.9	3.4	3.9	4.4	4.9	5.4	5.9	6.4	6.9	7.3	7.8	8.3	8.8	9.3	9.8
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12" = 43,560 row ft./acre, 14" = 37,337 row ft./acre, 16" = 32,670 row ft./acre, 18" = 29,040 row ft./acre, 20" = 26,136 row ft./acre, 22" = 23,760 row ft./acre, 24" = 21,780 row ft./acre, 26" = 20,105 row ft./acre, 28" = 18,669 row ft./acre, 30" = 17,424 row ft./acre, 32" = 16,315 row ft./acre, 34" = 15,374 row ft./acre, 36" = 14,520 row ft./acre, 38" = 13,754 row ft./acre, 40" = 13,068 row ft./acre.

APPLICATION RATES FOR SELECTED CROPS

The use rate for REGALIA® Bioprotectant Concentrate when applied alone or as an alternate spray is 2–4 quarts per 100 gallons of water (0.5–1.0% v/v dilution of REGALIA® Bioprotectant Concentrate) applied at 50–100 gallons of water per acre. When tank mixed with another fungicide, the use rate for REGALIA® Bioprotectant Concentrate is 1–4 quarts in 100 gallons of water applied at 50–100 gallons of water per acre. Use higher water volumes with larger sized crops and extensive foliage in order to secure thorough coverage. Do not use carrier volumes and/or adjuvants that create spray runoff or drip-accumulation at the base of fruit or on the harvested commodity. See specific application recommendations pertaining to each crop for additional details.

GREENHOUSE USE – This product can be used to control certain diseases of container, bench, flat, plug, bed or field-grown ornamentals and edible crops in greenhouses, shade-houses, outdoor nurseries, retail nurseries and other landscape areas. For greenhouse application on the crops and diseases listed, the recommended use rate for REGALIA® Bioprotectant Concentrate is 2–4 quarts in 100 gallons of water (0.5–1.0% v/v dilution of REGALIA® Bioprotectant Concentrate) sprayed until just before point of runoff. When tank mixed with another fungicide, the use rate for REGALIA® Bioprotectant Concentrate is 1–4 quarts in 100 gallons of water. Repeat at 7–14-day intervals as needed. See specific application recommendations for each crop for additional details..

Pre-harvest Interval (PHI) = 0 days

ARTICHOKE

Target disease:

- Powdery Mildew (*Erysiphe cichoracearum*), (*Leveillula taurica*)
- Ramularia Leaf Spot (*Ramularia cynarae*)

1–4 quarts per acre for FOLIAR (GROUND) applications

- For ground applications, apply this product in 50–100 gallons of water per acre. Do not exceed 1.0% v/v of the applied solution.
- Apply this product preventatively or when the first disease symptoms are visible and reapply every 7–14 days.

0.5–1 quart per acre for FOLIAR (AERIAL) applications

- For aerial applications, apply this product in a minimum of 5 gallons of water per acre.
- Apply this product preventatively or when the first disease symptoms are visible and reapply every 7–14 days.

1–4 quarts per acre for CHEMIGATION applications

- For chemigation applications for improved plant growth and suppression of soil-borne diseases, apply this product through drip irrigation immediately after transplant and at 14-day intervals or begin 14 days after transplant when soil drench applications are used.

ASPARAGUS

Target disease:

- Botrytis Blight (*Botrytis cinerea*)
- Rust (*Puccinia asparagi*)

1–4 quarts per acre for FOLIAR (GROUND) applications

- For ground applications, apply this product in 50–100 gallons of water per acre. Do not exceed 1.0% v/v of the applied solution.
- Apply this product preventatively or when the first disease symptoms are visible and reapply every 7–14 days.

0.5–1 quart per acre for FOLIAR (AERIAL) applications

- For aerial applications, apply this product in a minimum of 5 gallons of water per acre.
- Apply this product preventatively or when the first disease symptoms are visible and reapply every 7–14 days.

BULB VEGETABLES: Onion (Bulb and Green), Garlic, Leek, Shallot

Target disease:

- Botrytis Leaf Blight (*Botrytis squamosa*)
- Botrytis Neck Rot (*Botrytis* spp.)
- Downy Mildew (*Peronospora destructor*)
- Onion Purple Blotch (*Alternaria porri*)
- Powdery Mildew (*Erysiphe* spp.)
- Rust (*Puccinia porri*)
- Stemphylium Leaf Blight (*Stemphylium vesicarium*)

1–4 quarts per acre for FOLIAR (GROUND) applications

- For ground applications, apply this product (preventatively) in 50–100 gallons of water per acre. Do not exceed 1.0% v/v of the applied solution.
- Repeat applications at 7–10 day intervals.
- Under moderate to heavy disease pressure, tank-mix this product with another fungicide.

Target disease:

- *Fusarium* spp.
- *Pythium* spp.
- *Rhizoctonia* spp.

1–3 quarts per 100 gallons of water for SOIL DRENCH applications

- For soil drench applications, apply this product at a concentration of 1–3 quarts per 100 gallons of water, and at a sufficient rate to thoroughly soak the growing media and root zone. Make an initial application of this product during or shortly after transplant to reduce transplant shock, suppress soil-borne diseases and improve root growth. Multiple drench applications can be made on a 10–14 day interval.

1–4 quarts per acre or 0.73–9.8 fluid ounces per 1000 ft. row for IN-FURROW applications

- For in-furrow applications, at planting apply this product as an in-furrow spray at the rate of 1–4 quarts per acre or 0.73–9.8 fluid ounces per 1000 feet of row according to the chart in the SOIL TREATMENT USE DIRECTIONS section. Apply this product in 5–15 gallons of water so as the spray is directed into the seed furrow just before the seeds are covered.

1–4 quarts per acre for CHEMIGATION applications

- For chemigation applications, apply this product through irrigation at the rate of 1–4 quarts per acre immediately after transplant and at 14-day intervals or begin 14 days after transplant when plant dip or soil drench applications are used.

1–4 quarts per 100 gallons of water for PLANT DIP applications

- For plant dip applications for improved plant growth and suppression of soil-borne diseases, apply this product in a 0.25–0.5 % v/v suspension (1–4 quarts of this product per 100 gallons water) as a pre-plant dip immediately prior to transplanting.

1.5–2.5 fluid ounces per 100 lbs. seed for SEED TREATMENT applications

- For suppression of soil-borne diseases, apply this product as a seed treatment at the rate of 1.5–2.5 fl. oz. per 100 lbs. seed.

BUSHBERRIES AND CANEBERRIES: Blueberry[†], Blackberry (all varieties), Cranberry, Currant, Elderberry, Gooseberry, Huckleberry, Juneberry, Ligonberry, Loganberry, Raspberry (red and black), Salal

Target disease:

- Mummy Berry (*Monilinia vaccinii-corymbosi*),
- Alternaria Fruit Rot (*Alternaria* spp.)
- Anthracnose Fruit Rot (*Colletotrichum acutatum*)
- Bacterial Canker (*Pseudomonas syringae*)
- Botrytis Blight (*Botrytis cinerea*)
- Cranberry Early Rot(*)
- Cranberry Fruit Rots(*)
- Leaf Rust (*Pucciniastrum vaccinii*)
- Leaf Spot and Blotch (*Mycosphaerella* spp.), (*Septoria* spp.)
- Phomopsis Leaf Spot, Twig Blight, and Fruit Rot (*Phomopsis* spp.)
- Powdery Mildew (*Microsphaera alni*)
- Spur Blight (*Didymella* spp.), (*Phoma* spp.)

1–4 quarts per acre for FOLIAR (GROUND) applications

- For ground applications, apply this product in 50–100 gallons of water per acre. Do not exceed 1.0% v/v of the applied solution.

- Mummy Berry – Initiate application at bud break stage of development. Apply this product preventatively and repeat on a 7–10 day interval or as needed. For best performance, tank mix this product with other registered fungicides for Mummy Berry control.
- Botrytis Blight – Apply this product preventatively or when the first disease symptoms are visible and reapply every 7–14 days.
- Bacterial Canker – Apply this product prior to Fall rains and repeat applications during dormancy before spring growth. This product can be tank mixed with another registered fungicide for improved control of bacterial canker.
- Anthraxnose Fruit Rot and Alternaria Fruit Rot on blueberries – Initiate application at green tip and continue applications on a 7–10 day interval.

0.5–1 quart per acre for FOLIAR (AERIAL) applications

For aerial applications, apply this product in a minimum of 5 gallons of water per acre.

(optional: * Not for use in California)

† Some sensitive blueberry varieties have exhibited fruit spotting as a result of application. Spray a test strip to confirm your variety is not susceptible to spotting before spraying.

CEREAL GRAINS: Barley, Buckwheat, Grain Amaranth, Milo, Oat, Millets, Rice, Rye, Sorghum, Triticale, Wheat

Target disease:

- Powdery Mildew (*Erysiphe graminis*)
- Bacterial Blight and Streak (*Xanthomonas* spp.)
- Brown Rot, Leaf Spots & Smuts (*Ceratobasidium* spp.), (*Cercospora* spp.), (*Cochliobolus* spp.), (*Drechslera* spp.)
- Fusarium Head Blight (*Fusarium graminearum*)
- Rust (*Puccinia* spp.)
- Septoria Leaf/Speckled Leaf Spot/Blotch (*Septoria* spp.)
- Sheath Spot and Blight (*Rhizoctonia oryzae*), (*Thanatephorus cucumeris*)
- Stem Rot (*Sclerotium oryzae*)
- Smut (*Tilletia barclayana*)
- Tan Spot(*) (*Pyrenophora tritici-repentis*)

1–2 quarts per acre for FOLIAR (GROUND) applications

- For ground applications to optimize disease control and to maximize yields, apply this product in 15–40 gallons of water per acre.
- It is important to apply this product at the flag leaf stage to maximize yield. Apply this product preventatively or when the first disease symptoms appear. Repeat applications in/on 7–14day intervals depending upon crop growth and disease pressure.
- When the plants are under high disease pressure, tank-mix this product with another fungicide for more effective control.

0.5–1 quart per acre for FOLIAR (AERIAL) applications

- For aerial applications, apply this product in a minimum of 5 gallons water per acre.
- It is important to apply this product at the flag leaf stage to maximize yield. Apply this product preventatively or when the first disease symptoms appear. Repeat applications in/on 7–14day intervals depending upon crop growth and disease pressure.
- When the plants are under high disease pressure, tank-mix this product with another registered fungicide for more effective control.

Target disease:

- *Fusarium* spp.
- *Phytophthora* spp.
- *Pythium* spp.
- *Rhizoctonia* spp.
- *Verticillium* spp.

1.5–2.5 fluid ounces per 100 lbs. seed for SEED TREATMENT applications

- For suppression of soil-borne diseases, apply this product as a seed treatment at the rate of 1.5–2.5 fl. oz. per 100 lbs. seed.

(optional: *Not for use in California.)

CITRUS CROPS: Orange, Grapefruit, Kumquat, Lemon, Tangelo, Tangerine, Pummelo

Target disease:

- Bacterial Canker (*Xanthomonas* spp.)
- Alternaria Brown Spot (*Alternaria alternata*)
- Bacterial Blast (*Pseudomonas syringae*)
- Black Spot (*Guignardia citricarpa*), (*Phyllosticta citricarpa*)
- Greasy Spot (*Mycosphaerella citri*)
- Melanose (*Diaporthe citri*)
- Postbloom Fruit Drop (*Colletotrichum acutatum*)
- Scab (*Elsinoe australis*) (*Elsinoe fawcetti*)

1–4 quarts per acre for FOLIAR (GROUND) applications

- For ground applications, apply this product preventatively in 50–100 gallons of water per acre. Do not exceed 1.0% v/v of the applied solution.
- For improved performance, use this product in a tank mix or rotational program with other registered fungicides.
- Repeat applications at 7–14 day intervals.
- Dilute applications: this product can be applied by ground equipment to tree crops in dilute applications of 100–400 gallons of water. Apply this product at a rate of 2–4 quarts per acre when applied alone, or at 1–4 quarts per acre when tank mixed with another fungicide. Avoid excessive amounts of water that result in the runoff of spray material.

0.5–1 quart per acre for FOLIAR (AERIAL) applications

- For aerial applications, apply this product in a minimum of 5 gallons water per acre.
- For improved performance, use this product in a tank mix or rotational program with other registered fungicides.
- Repeat applications at 7–14 day intervals.

Target disease:

- *Fusarium* spp.
- *Phytophthora* spp.
- *Pythium* spp.
- *Rhizoctonia* spp.

1–4 quarts per 100 gallons of water for PLANT DIP applications

- For plant dip applications for improved plant growth and suppression of soil-borne diseases, apply this product in a 0.25–1% v/v suspension (1–4 quarts this product per 100 gallons water) as a pre-plant dip immediately prior to transplanting.

COLE CROPS (BRASSICAS): Broccoli, Broccoli Rabe, Brussels Sprouts, Cabbage, Chinese Broccoli, Chinese Cabbage (Bok Choy), Chinese Cabbage (Napa), Chinese Mustard Cabbage (Gai Choy), Cauliflower, Cavalo, Collards, Kale, Kohlrabi, Mizuna, Mustard Greens, Mustard Spinach, Rape Greens, Turnip

Target disease:

- Powdery Mildew (*Erysiphe cruciferarum*), (*Erysiphe polygoni*)
- Alternaria Leaf Spot (*Alternaria* spp.)
- Downy Mildew (*Peronospora parasitica*)
- Pin Rot Complex (*Alternaria/Xanthomonas*)
- Xanthomonas Leaf Spot (*Xanthomonas campestris*)

1.0–4 quarts per acre for FOLIAR (GROUND) applications

- For ground applications, apply this product at 1–4 quarts per 50-100 gallons of water per acre. Do not exceed 1.0% v/v of the applied solution.
- Repeat applications at 5–14 day intervals.
- Under moderate to heavy disease pressure, tank mix this product with another fungicide.

0.5–1 quarts per acre for FOLIAR (AERIAL) applications

- For aerial applications, apply this product in a minimum of 5 gallons water per acre.
- Repeat applications at 5–14 day intervals.
- Under moderate to heavy disease pressure, tank mix this product with another fungicide.

Target disease:

- *Fusarium* spp.
- *Phytophthora* spp.

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- *Pythium* spp.
- *Rhizoctonia* spp.
- *Verticillium* spp.

1.5–2.5 fluid ounces per 100 lbs. seed for SEED TREATMENT applications

- For suppression of soil-borne diseases, apply this product as a seed treatment at the rate of 1.5–2.5 fl. oz. per 100 lbs. seed.

CORN: Sweet Corn, Field Corn, Popcorn, Silage Corn, Seed Corn

Target disease:

- Anthracnose Leaf Blight (*Colletotrichum graminicola*)
- Eye Spot (*Aureobasidium zeae*)
- Gray leafspot (*Cercospora zeae-maydis*)
- Rusts (*Puccinia* spp.)
- Northern Leaf Blight (*Exserohilum turcicum*)
- Northern Leaf Spot (*Cochliobolus carbonum*)
- Southern Leaf Blight (*Cochliobolus heterostrophus*)

0.5–2 quarts per acre for FOLIAR (GROUND) applications

- For ground applications to optimize disease control and to maximize yields, apply 1–2 quarts of this product preventatively in 15–40 gallons of water per acre prior to disease development using sufficient volume for thorough coverage.
- For improved performance, apply 0.5–2 quarts this product in a tank mix with another registered fungicide. Consult your local Extension Specialist or Crop Consultant regarding the optimum timing of fungicide applications.

0.5–1 quart per acre for FOLIAR (AERIAL) applications

- For aerial applications, apply this product in a minimum of 3 gallons of water per acre.

Target disease:

- *Fusarium* spp.
- *Phytophthora* spp.
- *Pythium* spp.
- *Rhizoctonia* spp.
- *Verticillium* spp.

1–4 quarts per acre or 0.73–9.8 fluid ounces per 1000 ft. row for IN-FURROW applications

- For in-furrow applications, at planting apply this product as an in-furrow spray at the rate of 1–4 quarts per acre or 0.73–9.8 fluid ounces per 1000 feet of row according to the chart in the SOIL TREATMENT USE DIRECTIONS section. Apply this product in 5–15 gallons of water so as the spray is directed into the seed furrow just before the seeds are covered.

1.5–2.5 fluid ounces per 100 lbs. seed for SEED TREATMENT applications

- For suppression of soil-borne diseases, apply this product as a seed treatment at the rate of 1.5–2.5 fl. oz. per 100 lbs. seed.

COTTON(*)

Target disease:

- Alternaria Leaf Spot, Boll Rot (*Alternaria* spp.)
- Anthracnose, Boll Rot (*Glomeria* spp.)
- Ascochyta Blight, Boll Rot (*Ascochyta* spp.)
- Cercospora Blight and Leaf Spot (*Cercospora* spp.)
- Diplodia Boll Rot (*Diplodia* spp.)
- Hard Lock, Boll Rot (*Fusarium* spp.)
- Leaf Spot (*Corynespora cassicola*)
- Phoma Blight, Boll Rot (*Phoma* spp.)
- Rust (*Puccinia* spp.), (*Phylopsora* spp.)
- Stemphylium Leaf Spot (*Stemphylium* spp.)

1–2 quarts per acre for FOLIAR (GROUND) applications

- For ground applications for foliar and boll rot disease control, apply this product preventatively in 15–40 gallons of water per acre prior to disease development using sufficient volume for thorough coverage.

- Repeat applications at 7–14 day intervals as necessary to maintain control.

0.5–1 quarts per acre for FOLIAR (AERIAL) applications

- For aerial applications, apply this product in a minimum of 3 gallons of water per acre.

• **Target disease:** *Fusarium* spp.

• *Phytophthora* spp.

• *Pythium* spp.

• *Rhizoctonia* spp.

• *Verticillium* spp.

1–4 quarts per acre or 2.2–8.8 fluid ounces per 1000 ft. row for IN-FURROW applications

- For in-furrow applications, at planting apply this product as an in-furrow spray at the rate of 1–4 quarts per acre or 2.2–8.8 fluid ounces per 1000 feet of row according to the chart in the SOIL TREATMENT USE DIRECTIONS section. Apply this product in 5–15 gallons of water so as the spray is directed into the seed furrow just before the seeds are covered.

7.5–15 fluid ounces per 100 lbs. seed for SEED TREATMENT applications

- For suppression of soil borne diseases, apply this product as a seed treatment at the rate of 7.5–15 fl. oz. per 100 lbs. seed.

(optional: *Not for use in California.)

CUCURBITS:

Includes all types and hybrids of: Chayote, Chinese waxgourd, Cucumber, Citron melon, Gherkin, Pumpkin, Watermelon

Edible Gourd: Chinese okra, Cucuzza, Hyotan

Momordica spp.: Balsam apple, Balsam pear, Bitter melon, Chinese cucumber

Muskmelon: Cantaloupe, Casaba, Crenshaw melon, Golden pershaw melon, Honeydew melon, Honey balls, Mango melon, Persian melon, Pineapple melon, Santa Claus melon, Snake melon

Summer Squash: Crookneck squash, Scallop squash, Straightneck squash, Vegetable marrow, Zucchini

Winter Squash: Acorn squash, Butternut squash, Calabaza, Hubbard squash, Spaghetti squash

Target disease:

- Powdery Mildew (*Erysiphe cichoracearum*), (*Sphaerotheca fuliginea*)
- Anthracnose (*Colletotrichum lagenarium*)
- Alternaria Blight (*Alternaria cucumerina*)
- Cercospora Leaf Spot (*Cercospora citrulina*)
- Damping-off (*Fusarium* spp.), (*Pythium* spp.), (*Phytophthora* sp.), (*Rhizoctonia solani*)
- Downy Mildew (*Pseudoperonospora cubensis*)
- Gummy Stem Blight (*Didymella bryoniae*)
- Phytophthora Blight (*Phytophthora capsici*)
- Bacterial Spot(*) (*Xanthomonas cucurbitae*)

1–4 quarts per acre for FOLIAR (GROUND) applications

- For ground applications, apply this product preventatively in 25–100 gallons of water per acre or when the first symptoms of disease are visible. Increase water volume as plant size increases.
- Repeat applications on 7–14 day intervals depending upon crop growth and disease pressure.
- When greenhouse cucurbits are under high disease conditions, use the shorter spray interval.
- Downy Mildew – Tank mix this product with another fungicide labeled for Downy Mildew control and re-apply at a 7-day interval or according to the label directions of the tank mix (ingredient) (partner) .
- Phytophthora Blight – Apply this product in combination with labeled rates of a copper fungicide or with another fungicide labeled for Phytophthora Blight control.

0.5–1 quart per acre for FOLIAR (AERIAL) applications

- For aerial applications, apply this product in a minimum of 2-5 gallons of water per acre.
- Repeat applications in/on 7–14 day intervals depending upon crop growth and disease pressure. Downy Mildew – Tank-mix this product with another fungicide labeled for Downy Mildew control and re-apply at a 7-day interval or according to the label directions of the tank mix ingredient.
- Phytophthora Blight – Apply this product in combination with labeled rates of a copper fungicide or with another fungicide labeled for Phytophthora Blight control.

Target disease:

- *Fusarium* spp.
- *Phytophthora* spp.

- *Pythium* spp.
- *Rhizoctonia* spp.
- *Verticillium* spp.

1–3 quarts per 100 gallons of water for SOIL DRENCH applications

- For soil drench applications, apply this product at a concentration of 1–3 quarts per 100 gallons of water, and at a sufficient rate to thoroughly soak the growing media and root zone. Make an initial application of this product during or shortly after transplant to reduce transplant shock, suppress soil-borne diseases and improve root growth.

1–4 quarts per acre or 0.73–9.8 fluid ounces per 1000 ft. row for IN-FURROW applications

- For in-furrow applications at planting, apply this product as an in-furrow spray at the rate of 1–4 quarts per acre or 0.73–9.8 fluid ounces per 1000 feet of row according to the chart in the SOIL TREATMENT USE DIRECTIONS section. Apply this product in 5–15 gallons of water so as the spray is directed into the seed furrow just before the seeds are covered.

1–4 quarts per 100 gallons of water for PLANT DIP applications

- For plant dip applications for improved plant growth and suppression of soil-borne diseases, apply this product in a 0.25–1% v/v suspension (1–4 quarts this product per 100 gallons water) as a pre-plant dip immediately prior to transplanting.

1–4 quarts per acre for CHEMIGATION applications

For chemigation applications for improved plant growth and suppression of soil-borne diseases, apply this product through drip irrigation at the rate of 1–4 quarts per acre immediately after transplant and at 14-day intervals or begin 14 days after transplant when plant dip or soil drench applications are used.

1.5–2.5 fluid ounces per 100 lbs. seed for SEED TREATMENT applications

- For suppression of soil-borne diseases, apply this product as a seed treatment at the rate of 1.5–2.5 fl. oz. per 100 lbs. seed.

(optional: * Not for use in California)

FRUITING VEGETABLES: Tomato, Pepper, Eggplant, Ground Cherry, Okra, Tomatillo

Target disease:

Anthraco-nose(*) (*Colletotrichum* spp)

Bacterial Blight (*Xanthomonas* spp.)

Bacterial Spot (*Xanthomonas* spp.)

Bacterial Speck (*Pseudomonas syringae*)

Black Mold (*Alternaria alternata*)

Damping-off (*Fusarium* spp.), (*Pythium* spp.), (*Rhizoctonia solani*)

Early Blight (*Alternaria solani*)

Gray Mold (*Botrytis cinerea*)

Late Blight (*Phytophthora infestans*)

Phytophthora Blight (*Phytophthora capsici*)

Powdery Mildew (*Erysiphe* spp.), (*Leveillula taurica*), (*Oidopsis taurica*), (*Sphaerotheca* spp.)

Target Spot (*Corynespora cassicola*)

1–4 quarts per acre for FOLIAR (GROUND) applications

- For ground applications, apply this product preventatively in 25–100 gallons of water per acre. Increase water volume as plant size increases. Do not exceed 1.0% v/v of the applied solution.
- Repeat applications at 7–10 day intervals.
- Tank mix this product with other registered fungicides for improved disease control under heavy pressure.
- Phytophthora Blight – Apply this product in combination with labeled rates of a copper fungicide or with another fungicide labeled for Phytophthora Blight control.

0.5–1 quart per acre for FOLIAR (AERIAL) applications

- For aerial applications, apply this product in a minimum of 10 gallons of water per acre.
- Repeat applications at 7–10 day intervals.
- Tank mix this product with other registered fungicides for improved disease control under heavy pressure.
- Phytophthora Blight – Apply this product in combination with labeled rates of a copper fungicide.

Target disease:

- *Fusarium* spp.
- *Phytophthora* spp.
- *Pythium* spp.
- *Rhizoctonia* spp.
- *Verticillium* spp.

1–3 quarts per 100 gallons of water for SOIL DRENCH applications

- For soil drench applications, apply this product at a concentration of 1–3 quarts per 100 gallons of water, and at a sufficient rate to thoroughly soak the growing media and root zone. Make an initial application of this product during or shortly after transplant to reduce transplant shock, suppress soil-borne diseases and improve root growth. Multiple drench applications can be made on a 10–14-day interval.

1–4 quarts per acre or 2.2–8.8 fluid ounces per 1000 ft. row for IN-FURROW applications

- For in-furrow applications at planting, apply this product as an in-furrow spray at the rate of 1–4 quarts per acre or 2.2–8.8 fluid ounces per 1000 feet of row according to the chart in the SOIL TREATMENT USE DIRECTIONS section. Apply this product in 5–15 gallons of water so as the spray is directed into the seed furrow just before the seeds are covered.

1–4 quarts per 100 gallons of water for PLANT DIP applications

- For plant dip applications for improved plant growth and suppression of soil-borne diseases, apply this product in a 0.25–1% v/v suspension (1–4 quarts this product per 100 gallons water) as a pre-plant dip immediately prior to transplanting.

1–4 quarts per acre for CHEMIGATION applications

- For chemigation applications for improved plant growth and suppression of soil-borne diseases, apply this product through drip irrigation at the rate of 1–4 quarts per acre immediately after transplant and at 14-day intervals or begin 14 days after transplant when plant dip or soil drench applications are used.

1.5–2.5 fluid ounces per 100 lbs. seed for SEED TREATMENT applications

- For suppression of soil-borne diseases, apply this product as a seed treatment at the rate of 1.5–2.5 fl. oz. per 100 lbs. seed.

(optional: * Not for use in California)

GRAPE

Target disease:

- Powdery Mildew (*Uncinula necator*)
- Angular Leaf Spot (*Mycosphaerella angulata*)
- Anthracnose (*Elsinoe ampelina*)
- Botrytis Bunch Rot (*Botrytis cinerea*)
- Black Rot (*Guignardia bidwellii*)
- Downy Mildew (*Plasmopara viticola*)
- Eutypa (*Eutypa lata*)
- Leaf Blight (*Pseudocercospora vitis*)
- Phomopsis Fruit Rot (*Phomopsis viticola*)
- Ripe Rot (*Colletotrichum gloeosporioides*)
- Sour Rot (*Alternaria tenuis*), (*Aspergillus spp.*), (*Botrytis cinerea*), (*Cladosporium herbarum*), (*Penicillium spp.*), (*Rhizopus arrhizus*)

1–4 quarts per acre for FOLIAR applications

- For ground applications, apply this product preventatively in 50–100 gallons of water per acre or when the first disease symptoms are visible. Do not exceed 1.0% v/v of the applied solution.
- Under high disease pressure, use in a tank mix with another registered fungicide for more effective control.
- Repeat applications on 7–14 day intervals depending upon crop growth and disease pressure.
- Dilute applications: this product can be applied by ground equipment to vine and tree crops in dilute applications of 100–400 gallons of water. Apply this product at a rate of 2–4 quarts per acre when applied alone or at 1–4 quarts per acre when tank mixed with another fungicide. Avoid excessive amounts of water that result in the runoff of spray material.

Target disease:

- *Phytophthora* spp.
- *Verticillium* spp.

1–4 quarts per 100 gallons of water for PLANT DIP applications

- For plant dip applications for improved plant growth and suppression of soil-borne diseases, apply this product in a 0.25–1% v/v suspension (1–4 quarts this product per 100 gallons water) as a pre-plant dip immediately prior to transplanting.

GRASS FORAGE, FODDER, AND HAY: Bermuda grass, Bluegrass, Bromegrass, Fescue, Pasture and range grasses grown for hay or silage, Sudangrass, Timothy

Target disease:

- Brown Stripe/Gray Streak (*Cercosporidium graminis*)
- Crown and Foot Rots (*Pseudocercospora herpotrichoides*, *Rhizoctonia*)
- Powdery Mildew (*Erysiphe graminis*), (*Oidium* spp.), (*Podosphaera* spp.), (*Sphaerotheca* spp.)
- Rust (*Puccinia* spp.)
- Smuts and Bunts (*Tilletia* spp.)

1–4 quarts per acre for FOLIAR (GROUND) applications

- For ground applications to optimize disease control and to maximize yields, apply this product in 15–40 gallons of water per acre.
- It is important to apply this product at the flag leaf stage to maximize yield. Apply this product preventatively or when the first disease symptoms appear. Repeat applications on 7–14 day intervals depending upon crop growth and disease pressure.
- When the plants are under high disease pressure, tank-mix this product with another fungicide for more effective control. When tank mixed with other fungicides, use 1–2 quarts of REGALIA® Bioprotectant Concentrate per acre.

0.5–1 quart per acre for FOLIAR (AERIAL) applications

- For aerial applications, apply this product in a minimum of 5 gallons water per acre.
- It is important to apply this product at the flag leaf stage to maximize yield. Apply this product preventatively or when the first disease symptoms appear. Repeat applications on 7–14 day intervals depending upon crop growth and disease pressure.
- When the plants are under high disease pressure, tank-mix this product with another registered fungicide for more effective control.

Target disease:

- *Fusarium* spp.
- *Phytophthora* spp.
- *Pythium* spp.
- *Rhizoctonia* spp.
- *Verticillium* spp.

1.5–2.5 fluid ounces per 100 lbs. seed for SEED TREATMENT applications

- For suppression of soil-borne diseases, apply this product as a seed treatment at the rate of 1.5–2.5 fl. oz. per 100 lbs. seed.

GRASS GROWN FOR SEED**Target disease:**

- Powdery Mildew (*Erysiphe graminis*), (*Oidium* spp.), (*Podosphaera* spp.), (*Sphaerotheca* spp.)
- Rust (*Puccinia* spp.)

1–4 quarts per acre for FOLIAR (GROUND) applications

- For ground applications, apply this product preventatively in 25–100 gallons of water per acre when disease symptoms are first visible or when environmental conditions are conducive to rapid disease development. Continue sprays at 7-day intervals or as needed. Do not exceed 1.0% v/v of the applied solution.

0.5–1 quart per acre for FOLIAR (AERIAL) applications

- For aerial applications, apply this product in a minimum of 5 gallons of water per acre.

Target disease:

- *Fusarium* spp.
- *Phytophthora* spp.
- *Pythium* spp.
- *Rhizoctonia* spp.
- *Verticillium* spp.

1.5–2.5 fluid ounces per 100 lbs. seed for SEED TREATMENT applications

- For suppression of soil-borne diseases, apply this product as a seed treatment at the rate of 1.5–2.5 fl. oz. per 100 lbs. seed.

HERBS/SPICES (FIELD AND GREENHOUSE): Angelica, Balm, Basil, Borage, Burnet, Chamomile, Catnip, Chervil, Chive, Clary, Coriander, Costmary, Cilantro, Curry, Dillweed, Fennel, Horehound, Hyssop, Lavender, Lemongrass, Lovage, Marjoram, Mint, Nasturtium, Parsley (dried), Peppermint, Rosemary, Sage, Savory (summer and winter), Sweet Bay, Tansy, Tarragon, Thyme, Wintergreen, Woodruff, Wormwood

Target disease:

- Bacterial Leaf Spot (*Pseudomonas* spp.)
- Downy Mildew (*Peronospora* spp.)
- Powdery Mildew (*Erysiphe* spp.)
- Rust (*Puccinia menthae*)

1–4 quarts per acre for FOLIAR (GROUND) applications

- For ground applications, apply this product preventatively in 50-100 gallons of water per acre. Do not exceed 1.0% v/v of the applied solution.
- Repeat applications at 7–14-day intervals.

0.5–1 quart per acre for FOLIAR (AERIAL) applications

- For aerial applications, apply this product in a minimum of 5 gallons water per acre.
- Repeat applications at 7–14day intervals.

HOPS

Target disease:

- Downy Mildew (*Pseudoperonospora humuli*)
- Powdery Mildew (*Sphaerotheca macularis*)

1–4 quarts per acre for FOLIAR applications

- Apply this product preventatively when disease symptoms are first visible or when environmental conditions are conducive to rapid disease development. Continue sprays at 7-day intervals or as needed.
- Apply product at 1-4 quarts per acre when applied in a tank mix, or at 2-4 quarts per acre when applied alone. Minimum spray volumes for hop growth stages are as follows:
- Emergence to Training: Apply 1–2 quarts this product per acre using a minimum spray volume of 20 gallons per acre. Coverage will vary with the size of the vines and the type of spray equipment. Apply adequate spray volume to achieve complete spray coverage.
- Training to Wire-Touch: Apply 1–2 quarts this product per acre using a minimum spray volume of 50 gallons per acre. Coverage will vary with the size of the vines and the type of spray equipment. Apply adequate spray volume to achieve complete spray coverage.
- Wire-Touch through Harvest: Apply 2–4 quarts of this product using a minimum of 100 gallons of water per acre. Higher water volumes may be necessary to achieve thorough coverage after side arms develop. Do not apply more than 4 quarts of product per acre per application. Apply adequate spray volume to achieve complete spray coverage. Use the higher rates when moderate to high disease pressure is present or expected.
- For control of downy mildew, tank mix this product with another fungicide labeled for Downy Mildew control and re-apply at a 7-day interval or according to the label directions of the tank mix (ingredient) (partner).

LEAFY VEGETABLE CROPS: Arugula, Beet, Celery, Chervil, Corn Salad, Cress, Dandelion, Dock, Edible Chrysanthemum, Endive, , Head Lettuce, Leaf Lettuce, , Purslane, Radicchio, Rhubarb, Spinach, Swiss Chard, Watercress

Target disease:

- Downy Mildew (*Bremia lactucae*), (*Peronospora* spp.)
- Bacterial Blight/Rot (*Xanthomonas* spp.)
- Cercospora leafspot (*Cercospora* spp.)
- Early Blight of celery (*Cercospora apii*)
- Late Blight (*Septoria apiicola*)
- Pink Rot (*Sclerotinia sclerotiorum*)
- Powdery Mildew (*Erysiphe cichoracearum*)
- Sclerotinia Head and Leaf Drop (*Sclerotinia minor*), (*Sclerotinia sclerotiorum*)
- White Rust (*Albugo occidentalis*)

0.5–4 quarts per acre for FOLIAR (GROUND) applications

- For ground applications, apply this product at 0.5–4 quarts in 25–100 gallons of water per acre, in a 0.5% - 1.0% v/v applied solution.
- For concentrated ground applications, apply this product at 0.5–1.5 quarts per acre in a minimum of 10 gallons of water per acre.
- Repeat applications at 5–14-day intervals.

0.5–1.5 quarts per acre for FOLIAR (AERIAL) applications

- West of the Rocky Mountains – For aerial applications, apply this product at 0.5–1.5 quarts per acre in a minimum of 10 gallons of water per acre.

- East of the Rocky Mountains – For aerial applications, apply this product at 0.5–1 quarts per acre in a minimum of 5 gallons of water per acre.
- For California – For aerial application apply REGALIA® Bioprotectant Concentrate at 1–3 pints per acre in 10–20 gallons of water per acre.
- Repeat applications at 5–14day intervals.

Target disease:

- *Fusarium* spp.
- *Phytophthora* spp.
- *Pythium* spp.
- *Rhizoctonia* spp.
- *Verticillium* spp.

1.5–2.5 fluid ounces per 100 lbs. seed for SEED TREATMENT applications

- For suppression of soil-borne diseases, apply this product as a seed treatment at the rate of 1.5–2.5 fl. oz. per 100 lbs. seed.

Restrictions:

Do not apply REGALIA® Bioprotectant Concentrate when extended/unseasonably cold or cold and cloudy conditions are expected. Regalia should **not** be applied when night-time temperatures will fall below 45°F and relative humidity is predicted to be above 80%. Applications during daylight hours are preferred over night-time applications.

LEGUME VEGETABLES (not including soybeans and peanuts): Chick Peas, Dry Beans, Garden Peas, , Green Beans, Lentils, Lima Beans, Peas, Shell Beans, Snap Beans, Split Peas (including those grown for seed or oil production)

Target disease:

- Bacterial Blight (*Xanthomonas campestris*)
- Gray Mold (*Botrytis cinerea*)
- Pythium (aerial blight phase), (*Pythium* spp.)
- Powdery Mildew (*Erysiphe* spp.)
- Rust (*Puccinia* spp.), (*Uromyces appendiculatus*)
- White Mold (*Sclerotinia sclerotiorum*)

1–4 quarts per acre for FOLIAR applications

- For foliar applications, apply this product preventatively in 20–100 gallons of water per acre.
- For improved performance, use this product in a tank mix or rotational program with another registered fungicide.
- Repeat applications at 7–14day intervals.

Target disease:

- *Fusarium* spp.
- *Phytophthora* spp.
- *Pythium* spp.
- *Rhizoctonia* spp.

1–4 quarts per acre or 2.2–8.8 fluid ounces per 1000 ft. row for IN-FURROW applications

- For in-furrow applications, at planting apply this product as an in-furrow spray at the rate of 1–4 quarts per acre or 2.2–8.8 fluid ounces per 1000 feet of row according to the chart in the SOIL TREATMENT USE DIRECTIONS section. Apply this product in 5–15 gallons of water so as the spray is directed into the seed furrow just before the seeds are covered.

1.5–2.5 fluid ounces per 100 lbs. seed for SEED TREATMENT applications

- For suppression of soil-borne diseases, apply this product as a seed treatment at the rate of 1.5–2.5 fl. oz. per 100 lbs. seed.

Crotalaria, Sessbania, Kenaf

Target disease:

- Bacterial Pustule (*Xanthomonas* spp.)
- Bacterial Speck (*Pseudomonas syringae* pv. *glycinea*)
- Brown Spot (*Septoria glycines*)
- Cercospora Leaf Spot (*Cercospora* spp.)
- Downy Mildew (*Peronospora mansherica*)

- Pod and Stem Blight (*Diaporthe phaseolorum* var. *sojae*), (*Phomopsis longicola*)
- White Mold/Sclerotinia Stem Rot (*Sclerotinia sclerotiorum*)

0.5–2 quarts per acre for FOLIAR (GROUND) applications

- For ground applications to optimize disease control and to maximize yields, apply this product preventatively in 15–40 gallons of water per acre.
- For improved performance, apply this product in a tank mix program with another registered fungicide.
- Consult your local Extension Specialist or Crop Consultant regarding the optimum timing of fungicide applications.

0.5–1 quart per acre for FOLIAR (AERIAL) applications

- For aerial applications, apply this product in a minimum of 3 gallons per acre.
- For improved performance, apply this product in a tank mix program with another registered fungicide.
- Consult your local Extension Specialist or Crop Consultant regarding the optimum timing of fungicide applications.

Target disease:

- *Fusarium* spp.
- *Phytophthora* spp.
- *Pythium* spp.
- *Rhizoctonia* spp.
- *Verticillium* spp.

1.5–2.5 fluid ounces per 100 lbs. seed for SEED TREATMENT applications

- For suppression of soil-borne diseases, apply this product as a seed treatment at the rate of 1.5–2.5 fl. oz. per 100 lbs. seed.

NON-GRASS ANIMAL FEED(*): Alfalfa, Clover, Kudzu, Lespedeza, Lupin, Sainfoin, Trefoil, Vetch

Target disease:

- Alfalfa Wilt (*Xylella* spp.)
- Anthracnose and Black Stem Rot (*Colletotrichum trifolii*)
- Bacterial Wilt (*Clavibacter michiganense*)
- Downy Mildew (*Peronospora trifoliorum*)
- Fusarium wilt (*Fusarium oxysporum*)
- Leafspots and Blotches (*Pseudopeziza medicaginus*, *Stemphyllium* spp., *Cercospora* spp., *Stagonospora* spp.)
- Mosaic viruses
- Powdery Mildew (*Erysiphe polygoni*)
- Sclerotinia stem and crown rot (*Sclerotinia sclerotiorum*)
- Seedling and Damping Off Disease Complex, including Root and Crown Rots (*Pythium*, *Phytophthora*, *Rhizoctonia*, and *Stagonospora* spp.)
- Spring Black Stem (*Phoma medicaginus*)
- Verticillium wilt (*Verticillium albo-atrum*)

1–2 quarts per acre for FOLIAR (GROUND) applications

- For ground applications to optimize disease control and to maximize yields, apply this product in 15–40 gallons of water per acre.
- It is important to apply this product at the flag leaf stage to maximize yield. Apply this product preventatively or when the first disease symptoms appear. Repeat applications on 7–14 day intervals depending upon crop growth and disease pressure.
- For plant health applications, apply 10-14 days prior to cutting.
- When the plants are under high disease pressure, tank-mix this product with another fungicide for more effective control.

0.5–1 quart per acre for FOLIAR (AERIAL) applications

- For aerial applications, apply this product in a minimum of 5 gallons water per acre.
- It is important to apply this product at the flag leaf stage to maximize yield. Apply this product preventatively or when the first disease symptoms appear. Repeat applications on 7–14 day intervals depending upon crop growth and disease pressure.
- For plant health applications, apply 10-14 days prior to cutting.
- When the plants are under high disease pressure, tank-mix this product with another registered fungicide for more effective control.

Target disease:

- *Fusarium* spp.

- *Phytophthora* spp.
- *Pythium* spp.
- *Rhizoctonia* spp.
- *Verticillium* spp.

1.5–2.5 fluid ounces per 100 lbs. seed for SEED TREATMENT applications

- For suppression of soil-borne diseases, apply this product as a seed treatment at the rate of 1.5–2.5 fl. oz. per 100 lbs. seed.

(optional: * Not for use in California)

OIL SEED CROPS (not including cotton, peanut, or soybean; see below for soybeans.): Canola, Castor, Flax, Jojoba, Rapeseed, Safflower, Sesame, and Sunflower

Target disease:

- Bacterial Pustule (*Xanthomonas* spp.)
- Bacterial Speck (*Pseudomonas syringae* pv. *glycinea*)
- Brown Spot (*Septoria glycines*)
- Cercospora Leaf Spot (*Cercospora* spp.)
- Downy Mildew (*Peronospora mansherica*)
- Pod and Stem Blight (*Diaporthe phaseolorum* var. *sojae*), (*Phomopsis longicola*)
- White Mold/Sclerotinia Stem Rot (*Sclerotinia sclerotiorum*)

0.5–2 quarts per acre for FOLIAR (GROUND) applications

- For ground applications to optimize disease control and to maximize yields, apply this product preventatively in 15–40 gallons of water per acre.
- For improved performance, apply this product in a tank mix program with another registered fungicide.
- Consult your local Extension Specialist or Crop Consultant regarding the optimum timing of fungicide applications.

0.5–1 quart per acre for FOLIAR (AERIAL) applications

- For aerial applications, apply this product in a minimum of 3 gallons per acre.
- For improved performance, apply this product in a tank mix program with another registered fungicide.
- Consult your local Extension Specialist or Crop Consultant regarding the optimum timing of fungicide applications.

Target disease:

- *Fusarium* spp.
- *Phytophthora* spp.
- *Pythium* spp.
- *Rhizoctonia* spp.
- *Verticillium* spp.

1.5–2.5 fluid ounces per 100 lbs. seed for SEED TREATMENT applications

- For suppression of soil-borne diseases, apply this product as a seed treatment at the rate of 1.5–2.5 fl. oz. per 100 lbs. seed.

OLIVE

Target disease:

- Olive Knot (*Pseudomonas savastanoi*)

1–4 quarts per acre for FOLIAR applications

- Apply this product preventatively in 50–100 gallons of water per acre. Do not exceed 1.0% v/v of the applied solution.
- Repeat applications at 7–14 day intervals.
- Dilute applications: this product can be applied by ground equipment to tree crops in dilute applications of 100–400 gallons of water. Apply this product at a rate of 2–4 quarts per acre when applied alone, or at 1–4 quarts per acre when tank mixed with another fungicide. Avoid excessive amounts of water that result in the runoff of spray material.

ORNAMENTALS

Herbaceous Ornamentals: Flowering Plants, Foliage Plants, Bedding Plants Flowering Plants, Foliage Plants, Bedding Plants

Woody Ornamentals: Broadleaves (Shrubs and Trees), Conifers (Shrubs and Trees)

Target disease:

- Anthracnose (*Colletotrichum* spp.)
- Bacteria (*Erwinia* spp.), (*Pseudomonas* spp.), (*Xanthomonas* spp.)
- Black Spot of Rose (*Diplocarpon rosae*)
- Blossom Blight (*Monilinia* spp.)
- Downy Mildew (*Peronospora* spp.), (*Plasmopara viburni*)
- Gray Mold (*Botrytis cinerea*)
- *Fusarium* spp.
- Leaf Spot (*Alternaria* spp.), (*Cercospora* spp.), (*Entomosporium* spp.), (*Myrothecium* spp.), (*Septoria* spp.)
- *Phytophthora* spp.
- Powdery Mildew (*Erysiphe* spp.), (*Oidium* spp.), (*Podosphaera* spp.), (*Sphaerotheca* spp.)
- *Pythium* spp.
- Rust (*Puccinia* spp.)
- Scab (*Venturia* spp.)
- *Verticillium* spp.

1–4 quarts per acre for FOLIAR applications

- For foliar applications, mix this product concentrate with water at a concentration of 2–4 quarts per 100 gallons of water when used alone or 1–4 quarts per 100 gallons of water when tank mixed with another fungicide.
- Begin applications preventatively (before disease symptoms become visible) at the 4 to 6-leaf stage and treat at 7–10 day intervals as needed prior to sale or harvest. Spray until just before point of runoff.
- This product may be used to control certain diseases of container, bench, flat, plug, bed, or field-grown ornamentals in **greenhouses, shade-houses, outdoor nurseries, retail nurseries, and other landscape areas.**

1–3 quarts per 100 gallons of water for SOIL DRENCH applications

- For soil drench applications, apply this product at a concentration of 1–3 quarts per 100 gallons of water, and at a sufficient rate to thoroughly soak the growing media and root zone. Make an initial application of this product during or shortly after transplant to reduce transplant shock, suppress soil-borne diseases and improve root growth. Multiple drench applications can be made on a 10–14 day interval.

1–2 quarts per 100 gallons of water for PLANT DIP applications

- For plant dip applications for improved plant growth and suppression of soil-borne diseases, apply this product in a 0.25–0.5 % v/v suspension (1–2 quarts per 100 gallons water) as a pre-plant dip immediately prior to transplanting.

1–4 quarts per acre for CHEMIGATION applications

- For chemigation applications for improved plant growth, apply this product through drip irrigation immediately after transplant and at 14-day intervals or begin 14 days after transplant when soil drench applications are used.

The following plant species have been treated with Regalia® Bioprotectant Concentrate to prevent disease.

Plants investigated:

Annual and Perennial Flowering Plants: Begonias, Freesias, Geraniums, Gerbera, Impatiens, *Lamium*, Lisianthus, Petunias, Poinsettias, Roses, Salvias, Snapdragons, Zinnias.

Trees and Shrubs: Azalea, Boxwood, Crape Myrtle, Dogwood, Indian Hawthorne, Jumbo Azalea, Lilac, Loropetalum, Japanese Maple, Japanese Privet, *Photinia*, Rhododendron, *Rosaceae*, Soft Touch Holly, Spirea, *Viburnum*.

Tropical Foliage: *Aglaonema*, *Dieffenbachia*, *Dracaena*, English Ivy, *Hibiscus*, Leatherleaf Fern, *Spathiphyllum*. Since it is not possible to test all ornamental species or varieties grown in the greenhouse, test Regalia® Bioprotectant Concentrate on a few plants prior to large-scale usage.

PEANUT**Target disease:**

- Aspergillus Crown Rot (*Aspergillus niger*)
- Damping-off (*Aspergillus flavus*), (*Fusarium* spp.), (*Pythium* spp.), (*Rhizoctonia* spp.)
- Early Leaf Spot (*Cercospora arachidicola*)
- Late Leaf Spot (*Cercosporidium personatum*)
- Rhizoctonia Foliar Blight, Peg, and Root Rot (*Rhizoctonia solani*)
- White Mold (*Sclerotium rolfsii*)

1–4 quarts per acre for FOLIAR applications

- For foliar applications, apply this product preventatively in 20–50 gallons of water per acre.
- Repeat applications at 7–14 day intervals.
- Tank-mix this product with another fungicide labeled for the target disease.

Target disease:

- Aspergillus Crown Rot (*Aspergillus niger*)
- *Fusarium* spp.
- *Phytophthora* spp.
- *Pythium* spp.
- *Rhizoctonia* spp.
- *Verticillium* spp.
- White Mold (*Sclerotium rolfsii*)

1–3 quarts per 100 gallons of water for SOIL DRENCH applications

- For soil drench applications, apply this product at a concentration of 1–3 quarts per 100 gallons of water, and at a sufficient rate to thoroughly soak the growing media and root zone. Make an initial application of this product during or shortly after transplant to reduce transplant shock, suppress soil-borne diseases and improve root growth. Multiple drench applications can be made on a 10-14-day interval.

1–4 quarts per acre 2.2–8.8 fluid ounces per 1000 ft. row for IN-FURROW applications

- For in-furrow applications at planting, apply this product as an in-furrow spray at the rate of 1–4 quarts per acre or 2.2–8.8 fluid ounces per 1000 feet of row according to the chart in the SOIL TREATMENT USE DIRECTIONS section. Apply this product in 5–15 gallons of water so as the spray is directed into the seed furrow just before the seeds are covered.

1.5–2.5 fluid ounces per 100 lbs. seed for SEED TREATMENT applications

- For suppression of soil-borne diseases, apply this product as a seed treatment at the rate of 1.5–2.5 fl. oz. per 100 lbs. seed.

POME FRUITS: Apple, Crabapple, Loquat, Oriental Pear, Pear, Quince, Mayhaw

Target disease:

- Powdery Mildew (*Podosphaera leucotricha*)
- Alternaria Blotch (*Alternaria mali*)
- Apple Scab (*Venturia inaequalis*)– suppression only
- Bitter Rot (*Colletotrichum* spp.)
- Black Rot/Frogeye Leaf Spot (*Botryosphaeria obtusa*)
- Bot Rot (*Botryosphaeria dothidea*)
- Brooks Spot (*Mycosphaerella pomi*)
- Bull's Eye Rot (*Neofabraea* spp.)
- Cedar-Apple Rust (*Gymnosporangium juniperi-virginianae*)– suppression only
- Fire Blight (*Erwinia amylovora*)– suppression only
- Flyspeck (*Zygothiala jamaicensis*)
- Fruit Finish
- Scab (*Venturia* spp.)
- Sooty Blotch (*Geastrumia polystigmati*), (*Leptodontium elatius*), (*Peltaster fructicola*)
- White Rot (*Botryosphaeria dothidea*)

1–4 quarts per acre for FOLIAR applications

- For foliar applications, apply this product in 50–100 gallons of water per acre. Do not exceed 1.0% v/v of the applied solution. Repeat applications on 7–10 day intervals. Additional sprays beyond second cover may be needed on susceptible varieties, or when environmental conditions are conducive to rapid disease development. Use high label rate and shorter spray intervals when conditions are conducive to rapid disease development.
- Use caution when selecting spray adjuvants. Select only those adjuvants which through prior experience do not affect fruit finish when combined with this product.
- Avoid excessive amounts of water that result in the runoff of spray material.
- Fire Blight – For suppression, apply 1 quart of this product in 50–100 gallons of water per acre at green tip through bloom. Following bloom, this product can be applied at 2–4 quarts per acre. For maximum control, use this product prior to infection events. During periods of rapid development and frequent infection periods, use spray intervals of 3–7 days.

- Apply in sufficient water to provide full coverage. For improved performance, use this product in a rotational program with copper or antibiotics registered for Fire Blight control such as but not limited to oxytetracycline or streptomycin.
- Proper orchard cultural practices are essential to eliminate Fire Blight-infected tissue from the orchard to assure good performance of any crop protection product. Remove and destroy dead and diseased wood from the orchard prior to and during the growing season.
- **Scab** – For suppression, apply 1 quart of this product in 50–100 gallons of water per acre at green tip and through bloom when environmental conditions become favorable for primary Scab development and repeat on a 7–10 day interval or as needed. Use this product in a tank mix or rotational program with other fungicides labeled for Scab control. Following bloom, this product can be applied at 2–4 quarts per acre.
- **Dilute applications:** this product can be applied by ground equipment to tree crops in dilute applications of 100–400 gallons of water. Apply this product at a rate of 2–4 quarts per acre when applied alone, or at 1–4 quarts per acre when tank mixed with another fungicide.

Target disease:

- *Phytophthora* spp.
- *Pythium* spp.

1–4 quarts per 100 gallons of water for PLANT DIP (bare root) applications

- For plant dip applications for improved plant growth and suppression of soil-borne diseases, apply this product in a 0.25–1% v/v suspension (1–4 quarts this product per 100 gallons water) as a pre-plant dip immediately prior to transplanting.

Some sensitive tree fruit varieties have exhibited petal staining and/or necrosis after application of higher use rates.

To minimize petal staining and/or necrosis:

- Use adjuvants that improve coverage, not penetration; follow the manufacturer's mixing instructions.
- Use adjuvants that through prior experience do not affect petal integrity when combined with this product.
- Apply 1 quart of this product in 50–100 gallons of water per acre in Pome Fruit, from 10% bloom to full bloom.

ROOT, TUBER AND CORM CROPS: Potato, Beet, Carrot, Cassava, Ginger, Ginseng, Horseradish, Radish, Sweet Potato, Turnip (including those for seed production)

Target disease:

- Anthracnose of Potato (*Colletotrichum coccodes*)
- Bacterial Leaf Blight (*Xanthomonas campestris*)
- Black Root Rot / Black Crown Rot (*Alternaria* spp.)
- Black Scurf (*Rhizoctonia solani*)
- Downy Mildew (*Peronospora* spp.)
- Early Blight (*Alternaria solani*)
- Gray Mold (*Botrytis* spp.)
- Late Blight (*Phytophthora infestans*)
- Powdery Mildew (*Erysiphe* spp.)
- White Mold (*Sclerotinia sclerotiorum*)

1–4 quarts per acre for FOLIAR applications

- For foliar applications, apply this product in 25–100 gallons of water per acre sufficient to provide thorough coverage. Do not exceed 1.0% v/v of the applied solution. Begin application soon after emergence or transplant, and when conditions are conducive to disease development. Repeat on a 7–10 day interval or as needed. Use shorter intervals when conditions are conducive to rapid disease development.
- For suppression of Early Blight, Black Root Rot/Black Crown Rot, and Late Blight, begin application of this product in 25–100 gallons of water per acre soon after emergence when conditions are conducive to disease development. Repeat on a 5–7-day interval or as needed. For improved performance, use this product in a tank mix with other registered fungicides.

Target disease:

- Clubroot (*Plasmodiophora brassicae*)
- Common Scab (*Streptomyces scabies*)
- *Fusarium* spp.
- *Phytophthora* spp.
- *Pythium* spp.
- *Rhizoctonia* spp.
- *Verticillium* spp.

1–3 quarts per 100 gallons of water for SOILD DRENCH applications

- For soil drench applications, apply this product at a concentration of 1–3 quarts per 100 gallons of water, and at a sufficient rate to thoroughly soak the growing media and root zone. Make an initial application of this product during or shortly after transplant to reduce transplant shock, suppress soil-borne diseases and improve root growth. Multiple drench applications can be made on a 10–14 day interval.

1–4 quarts per acre or 0.73–9.8 fluid ounces per 1000 ft. row for IN-FURROW applications

- For in-furrow applications at planting, apply this product as an in-furrow spray at the rate of 1–4 quarts per acre or 0.73–9.8 fluid ounces per 1000 feet of row according to the chart in the SOIL TREATMENT USE DIRECTIONS section. Apply this product in 5–15 gallons of water so as the spray is directed into the seed furrow just before the seeds are covered.

1–4 quarts per 100 gallons of water for SEED PIECE DIP applications

- For seed piece dip applications for improved plant growth and suppression of soil-borne diseases, apply this product in a 0.25–1% v/v suspension (1–4 quarts this product per 100 gallons water) as a pre-plant dip to transplants or seed pieces immediately prior to transplanting.

1–4 quarts per acre for CHEMIGATION applications

- For chemigation applications for improved plant growth and suppression of soil-borne diseases, apply this product through drip irrigation at the rate of 1–4 quarts per acre immediately after transplant and at 14-day intervals or begin 14 days after transplant when plant dip or soil drench applications are used.

1.5–2.5 fluid ounces per 100 lbs. seed for SEED TREATMENT applications

- For suppression of soil-borne diseases, apply this product as a seed treatment at the rate of 1.5–2.5 fl. oz. per 100 lbs. seed.

SORGHUM: Sweet sorghum and othersorghum varieties

Target disease:

- Anthracnose (*Colletotrichum graminicola*)
- Bacterial leaf spot (*Pseudomonas* spp.)
- Bacterial leaf streak (*Xanthomonas campestris* pv. *Holcicola*)
- Bacterial leaf stripe (*Pseudomonas* spp.)
- Gray leaf spot (*Cercospora sorghi*)
- Leaf blight (*Septosphaeria turcica*)
- Northern leaf blight (*Exserohilum turcicum*)
- Rust (*Puccinia* spp.)
- Southern leaf blight (*Bipolaris* spp.)
- Sorghum downy mildew (*Peronosclerospora sorghi*)

1–2 quarts per acre for FOLIAR (GROUND) applications

- For ground applications to optimize disease control and to maximize yields, apply this product in 15–40 gallons of water per acre.
- It is important to apply this product at the flag leaf stage to maximize yield. Apply this product preventatively or when the first disease symptoms appear. Repeat applications on 7–14 day intervals depending upon crop growth and disease pressure.
- When the plants are under high disease pressure, tank-mix this product with another fungicide for more effective control.

0.5–1 quart per acre for FOLIAR (AERIAL) applications

- For aerial applications, apply this product in a minimum of 5 gallons water per acre.
- It is important to apply this product at the flag leaf stage to maximize yield. Apply this product preventatively or when the first disease symptoms appear. Repeat applications on 7–14 day intervals depending upon crop growth and disease pressure.
- When the plants are under high disease pressure, tank-mix this product with another registered fungicide for more effective control.

Target disease:

- *Fusarium* spp.
- *Phytophthora* spp.
- *Pythium* spp.
- *Rhizoctonia* spp.
- *Verticillium* spp.

1.5–2.5 fluid ounces per 100 lbs. seed for SEED TREATMENT applications

- For suppression of soil-borne diseases, apply this product as a seed treatment at the rate of 1.5–2.5 fl. oz. per

100 lbs. seed.

SOYBEAN

Target disease:

- Aerial Web Blight (*Rhizoctonia solani*)
- Alternaria Leafspot (*Alternaria* spp.)
- Anthracnose (*Colletotrichum truncatum*)
- Asian Soybean Rust (*Phakopsora pachyrhizi*)
- Brown Spot (*Septoria glycines*)
- Cercospora Blight (*Cercospora kikuchii*)
- Frog-eyed Leaf Spot (*Cercospora sojina*)
- Pod and Stem Blight (*Diaporthe* spp.)
- Septoria Brown Spot (*Septoria glycines*)
- White Mold (*Sclerotinia sclerotiorum*)

0.5–2 quarts per acre for FOLIAR (GROUND) applications

- For ground applications to optimize disease control and to maximize yields, apply 1–2 quarts of this product preventatively in 15–40 gallons of water per acre.
- For improved performance, apply 0.5–2 quarts of this product in a tank mix with another registered fungicide.
- Consult your local Extension Specialist or Crop Consultant regarding the optimum timing of fungicide applications.

0.5–1 quart per acre for FOLIAR (AERIAL) applications

- For aerial applications, apply this product in a minimum of 3 gallons of water per acre.
- For improved performance, apply this product in a tank mix with another registered fungicide.
- Consult your local Extension Specialist or Crop Consultant regarding the optimum timing of fungicide applications.

Target disease:

- *Fusarium* spp.
- *Phytophthora* spp.
- *Pythium* spp.
- *Rhizoctonia* spp.

1–4 quarts per acre 2.2–8.8 fluid ounces per 1000 ft. row for IN-FURROW applications

- For in-furrow applications at planting, apply this product as an in-furrow spray at the rate of 1–4 quarts per acre or 2.2–8.8 fluid ounces per 1000 feet of row according to the chart in the SOIL TREATMENT USE DIRECTIONS section. Apply this product in 5–15 gallons of water so as the spray is directed into the seed furrow just before the seeds are covered.

1.5–2.5 fluid ounces per 100 lbs. seed for SEED TREATMENT applications

- For suppression of soil-borne diseases, apply this product as a seed treatment at the rate of 1.5–2.5 fl. oz. per 100 lbs. seed.

STONE FRUITS: Apricot[†], Cherry (sweet and tart), Nectarine, Peach, Plum, Plumcot, Prune

Target disease:

- Alternaria Spot/Fruit Rot (*Alternaria alternata*)
- Anthracnose (*Colletotrichum* spp.)
- Bacterial Canker (*Pseudomonas* spp.)
- Bacterial Spot (*Xanthomonas pruni*)
- Brown Rot Blossom Blight (*Monilinia laxa*)
- Brown Rot Fruit Rot (*Monilinia fruticola*)
- Cercospora Leaf Spot (*Cercospora* spp.)
- Cherry Leaf Spot (*Blumeriella jaapii*)
- Gray Mold (*Botrytis cinerea*)
- Powdery Mildew / Rusty Spot (*Podosphaera* spp.), (*Sphaerotheca pannosa*)
- Rust (*Tranzschelia discolor*)
- Scab (*Cladosporium carpophilum*)
- Shot Hole (*Wilsonomyces carpophilus*)

1–4 quarts per acre for FOLIAR applications

- For foliar applications, apply this product preventatively in 50–100 gallons of water per acre. Do not exceed 1.0% v/v of the applied solution.
- Apply 1 quart in 50 gallons or 2 quarts in 100 gallons of water per acre from pink bud through bloom.
- **Bacterial Blight** – Apply this product in 50–100 gallons of water per acre postharvest before fall rains.
- **Brown Rot Blossom Blight** – Begin application of this product in 50–100 gallons of water per acre at early bloom, and repeat through petal fall on a 7-day interval or as needed.
- **Powdery Mildew** – Begin application of this product in 50–100 gallons of water per acre at popcorn stage, and repeat on a 7-day interval or as needed. For improved performance, use this product in a tank mix or rotational program with other registered fungicides for powdery mildew control.
- **Scab** – Begin application of this product in 50–100 gallons of water per acre at petal fall, and repeat on a 7–10-day interval or as needed. For improved performance, tank mix this product with another fungicide labeled for Scab control.
- **For all other diseases** – Begin application prior to disease development when environmental conditions and plant stage are conducive to rapid disease development, and repeat on a 7–10 day interval or as needed. Use in a tank mix or rotational program when disease conditions are severe.
- **Dilute applications:** this product can be applied by ground equipment to tree crops in dilute applications of 100–400 gallons of water. Apply this product at a rate of 2–4 quarts per acre when applied alone, or at 1–4 quarts per acre when tank mixed with another fungicide. Avoid excessive amounts of water that result in the runoff of spray material.

Target disease:

- *Fusarium* spp.
- *Phytophthora* spp.
- *Pythium* spp.
- *Rhizoctonia* spp.
- *Verticillium* spp.

1–4 quarts per 100 gallons of water for PLANT DIP (bare root) applications

- For plant dip applications for improved plant growth and suppression of soil-borne diseases, apply this product in a 0.25–1% v/v suspension (1–4 quarts this product per 100 gallons water) as a pre-plant dip immediately prior to transplanting.

†Some sensitive apricot varieties have exhibited fruit spotting as a result of application. Spray a test strip to confirm your variety is not susceptible to spotting before spraying.

Some sensitive tree fruit varieties have exhibited petal staining and/or necrosis after application of higher use rates.

To minimize petal staining and/or necrosis:

- Use adjuvants that improve coverage, not penetration; follow the manufacturer's mixing instructions.
- Use adjuvants that through prior experience do not affect petal integrity when combined with this product.
- Apply 1 quart of this product in 50–100 gallons of water per acre in:
 - Cherries, from white bud (first white, popcorn) to full bloom,
 - Stone fruit, from 10% bloom to full bloom.

STRAWBERRY

Target disease:

- Anthracnose (*Colletotrichum* spp.)– suppression only
- Botrytis (*Botrytis cinerea*)
- Leaf Spot (*Mycosphaerella fragariae*)
- Phomopsis Leaf Blight (*Phomopsis obscurans*)
- Powdery Mildew (*Sphaerotheca macularis*)

1–4 quarts per acre FOLIAR applications

- For foliar applications, apply this product preventatively in 50–100 gallons of water per acre at 7 day spray intervals or as soon as first symptoms of disease appear. Do not exceed 1.0% v/v of the applied solution.
- Anthracnose – For suppression, apply this product preventatively in 50–100 gallons of water per acre and repeat on a 7-day interval or as needed. For best performance, tank mix this product with other registered fungicides for Anthracnose control.

- Anthracnose – For suppression, apply this product preventatively in 50–100 gallons of water per acre and repeat on a 7–10-day interval or as needed. For best performance, tank mix this product with other registered fungicides for Anthracnose control.
- Dilute applications: this product can be applied by ground equipment to strawberries in dilute applications of 100–200 gallons of water. Apply this product at a rate of 2–3 quarts per acre when applied alone, or at 1–3 quarts per acre when tank mixed with another fungicide. Avoid excessive amounts of water that result in the runoff of spray material.

Target disease:

- Black Root Rot (*Rhizoctonia* spp.), (*Pythium* spp.), (*Fusarium* spp.), (*Cylindrocarpon* spp.)
- Colletotrichum Crown Rot(*) (*Colletotrichum* spp.)
- Phytophthora Root Rot and Crown Rot (*Phytophthora* spp.)
- Verticillium Wilt (*Verticillium* spp.)
- *Fusarium* spp.
- *Pythium* spp.
- *Phytophthora* spp.
- *Rhizoctonia* spp.
- *Verticillium* spp.

1–4 quarts per 100 gallons of water for PLANT DIP applications

- For plant dip applications for improved plant growth and suppression of soil-borne diseases, apply this product in a 0.25–1% v/v suspension (1–4 quarts per 100 gallons water) as a pre-plant dip to strawberry plants, roots and crowns immediately prior to transplanting.

1–3 quarts per 100 gallons of water for SOIL DRENCH applications

- For soil drench applications, apply this product at a concentration of 1–3 quarts per 100 gallons of water, and at a sufficient rate to thoroughly soak the growing media and root zone. Make an initial application of this product during or shortly after transplant to reduce transplant shock, suppress soil-borne diseases and improve root growth. Multiple drench applications can be made on a 10–14 day interval.

1–4 quarts per acre for CHEMIGATION applications

- For chemigation applications for improved plant growth and suppression of soil-borne diseases, apply this product through drip irrigation at the rate of 1–4 quarts per acre immediately after transplant and at 14-day intervals or begin 14 days after transplant when plant dip or soil drench applications are used.

(optional: * Not for use in California)

SUGAR BEETS (includes crop for seed production)

Target disease

- Powdery Mildew (*Erysiphe betae*), (*Erysiphe polygoni*)
- Leaf Spot (*Cercospora beticola*)
- Ramularia (*Ramularia* spp.)
- Rust (*Uromyces betae*)

1–2 quarts per acre FOLIAR applications

- To optimize disease control and to maximize yields, apply this product preventatively in 15–40 gallons of water per acre by ground or aerial application.
- For improved performance, apply this product in a tank mix program with another registered fungicide.
- Consult your local Extension Specialist or Crop Consultant regarding the optimum timing of fungicide applications.

Target disease:

- *Fusarium* spp.
- *Phytophthora* spp.
- *Pythium* spp.
- *Rhizoctonia* spp.
- *Verticillium* spp.

1.5–2.5 fluid ounces per 100 lbs. seed for SEED TREATMENT applications

- For suppression of soil-borne diseases, apply this product as a seed treatment at the rate of 1.5–2.5 fl. oz. per 100 lbs. seed.

SUGARCANE

Target disease:

- Brown Rust (*Puccinia melanocephala*)
- Orange Rust (*Puccinia kuehnii*)
- Red Rot (*Glomerella tucumanensis*, also known as *Colletotrichum falcatum*)

1–2 quarts per acre FOLIAR (GROUND) applications

- For ground applications to optimize disease control and to maximize yields, apply this product preventatively in 15–40 gallons of water per acre by ground application.
- Consult your local Extension Specialist or Crop Consultant regarding the optimum timing of fungicide applications.
- For improved performance, apply this product in a tank mix program with another registered fungicide.

0.5–1 quarts per acre FOLIAR (AERIAL) applications

- For aerial applications, apply this product in a minimum of 3 gallons of water per acre.
- Consult your local Extension Specialist or Crop Consultant regarding the optimum timing of fungicide applications.
- For improved performance, apply this product in a tank mix program with another registered fungicide.

Target disease:

- *Fusarium* spp.
- *Phytophthora* spp.
- *Pythium* spp.
- *Rhizoctonia* spp.

1–4 quarts per acre 2.2–8.8 fluid ounces per 1000 ft. row for IN-FURROW applications

- For in-furrow applications at planting, apply this product as an in-furrow spray at the rate of 1–4 quarts per acre or 2.2–8.8 fluid ounces per 1000 feet of row according to the chart in the SOIL TREATMENT USE DIRECTIONS section. Apply this product in 5–15 gallons of water so as the spray is directed into the seed furrow just before the seeds are covered.

1.5–2.5 fluid ounces per 100 lbs. seed for SEED TREATMENT applications

- For suppression of soil-borne diseases, apply this product as a seed treatment at the rate of 1.5–2.5 fl. oz. per 100 lbs. seed.

SWITCHGRASS, MISCANTHUS**Target disease:**

- Anthracnose (*Colletotrichum* spp.)
- Barley yellow dwarf virus
- Fungal Disease Complexes (*Bipolaris* spp., *Monographella* spp., *Phaeosphaeria* spp.)
- Miscanthus blight
- Miscanthus streak virus
- Panicum mosaic virus
- Pithomyces blight
- Rust (*Puccinia* spp.)
- Smut (*Tilletia* spp.)
- Switchgrass Mosaic Virus

1–2 quarts per acre FOLIAR (GROUND) applications

- For ground applications to optimize disease control and to maximize yields, apply this product in 15–40 gallons of water per acre.
- It is important to apply this product at the flag leaf stage to maximize yield. Apply this product preventatively or when the first disease symptoms appear. Repeat applications on 7–14 day intervals depending upon crop growth and disease pressure.
- When the plants are under high disease pressure, tank-mix this product with another fungicide for more effective control.

0.5–1 quarts per acre FOLIAR (AERIAL) applications

- For aerial applications, apply this product in a minimum of 5 gallons water per acre.
- It is important to apply this product at the flag leaf stage to maximize yield. Apply this product preventatively or when the first disease symptoms appear. Repeat applications on 7–14 day intervals depending upon crop growth and disease pressure.
- When the plants are under high disease pressure, tank-mix this product with another registered fungicide for more effective control.

Target disease:

- *Fusarium* spp.
- *Phytophthora* spp.
- *Pythium* spp.
- *Rhizoctonia* spp.
- *Verticillium* spp.

1.5–2.5 fluid ounces per 100 lbs. seed for SEED TREATMENT applications

- For suppression of soil-borne diseases, apply this product as a seed treatment at the rate of 1.5–2.5 fl. oz. per 100 lbs. seed.

TOBACCO

Target disease:

- Blue Mold (*Peronospora tabacina*)
- Target Spot (*Rhizoctonia solani*)

1–4 quarts per acre FOLIAR applications

- For foliar applications, apply this product at a rate of 2–4 quarts per acre when applied alone, or at 1–4 quarts per acre when tank mixed with another fungicide preventatively in a minimum of 50 gallons of water per acre.
- Avoid excessive amounts of water that result in spray material dripping from the foliage. If necessary, repeat applications at a 7-day interval.
- Foliar applications of Regalia to improve plant health can be made during the period from layby to contact sprays

Target disease:

- *Fusarium* spp.
- *Phytophthora* spp.
- *Pythium* spp.
- *Rhizoctonia* spp.
- *Verticillium* spp.

1–4 quarts per 100 gallons of water for PLANT DIP applications

- For plant dip applications, for improved plant growth and suppression of soil-borne diseases, apply this product in a 0.25–1% v/v suspension (1–4 quarts per 100 gallons water) as a pre-plant dip to tobacco roots and plants immediately prior to transplanting.

TREE NUT CROPS: Walnut (Black and English), Almond, Beech nut, Brazil nut, Butternut, Cashew, Chestnut, Chinquapin, Filbert, Hickory nut, Macadamia nut, Pecan, Pistachio

Target disease:

- Alternaria Late Blight, Alternaria Leaf Spot (*Alternaria* spp.)
- Anthracnose (*Colletotrichum* spp.), (*Gnomonia leptostyla*)
- Bacterial Canker (*Erwinia nigrifluens*), (*Pseudomonas syringae*)
- Botryosphaeria Blight (*Botryosphaeria dothidea*)
- Brown / Hull Rot (*Monilinia* spp.)
- Eastern Filbert Blight (*Anisogramma anomala*)
- Green Fruit Rot (*Botrytis cinerea*)
- Hull Rot (*Rhizopus stolonifer* and *Monilinia* spp.)
- Leaf Rust (*Tranzschelia discolor*)
- Scab (*Cladosporium carpophilum*), (*Sphaceloma perseae*)
- Shot Hole (*Wilsonomyces carpophilus*)
- Walnut Blight (*Xanthomonas campestris*)

1–4 quarts per acre FOLIAR (GROUND) applications

- For ground applications, apply this product in 50–100 gallons of water per acre. Do not exceed 1.0% v/v of the applied solution.
- This product can be tank mixed at the lower rate with another registered fungicide under heavy disease pressure.
- Avoid excessive amounts of water that result in the runoff of spray material.
- Walnut Blight –Under conditions of heavy disease pressure, tank mix this product with a copper-based fungicide.

- **Dilute applications:** this product can be applied by ground equipment to tree crops in dilute applications of 100–400 gallons of water. Apply this product at a rate of 2–4 quarts per acre when applied alone, or at 1–4 quarts per acre when tank mixed with another fungicide.

0.5–1 quart per acre FOLIAR (AERIAL) applications

- For aerial applications, apply this product in a minimum of 10 gallons per acre.

Target disease:

- *Fusarium* spp.
- *Phytophthora* spp.
- *Pythium* spp.
- *Rhizoctonia* spp.
- *Verticillium* spp.

1–4 quarts per 100 gallons of water for PLANT DIP (bare root) applications

- For plant dip applications for improved plant growth and suppression of soil-borne diseases, apply this product in a 0.25–1% v/v suspension (1–4 quarts this product per 100 gallons water) as a pre-plant dip immediately prior to transplanting.

Some tree nut varieties have exhibited petal staining and/or necrosis after application of higher use rates.

To minimize petal staining and/or necrosis:

- Use adjuvants that improve coverage, not penetration; follow the manufacturer's mixing instructions.
- Use adjuvants that through prior experience do not affect petal integrity when combined with this product.
 - Apply 1 quart in 50 gallons or 2 quarts in 100 gallons of water per acre from pink bud through bloom.
- Apply 1 quart of this product in 50–100 gallons of water per acre from 10% bloom to full bloom.

TROPICAL FRUITS: Avocado, Banana, Kiwi, Mango, Papaya, Plantain, Pineapple, Pomegranate

Target disease:

- Anthracnose (*Colletotrichum gloeosporioides*)
- Bacterial Blight (*Pseudomonas syringae*), (*Pseudomonas viridiflava*)
- Bacterial Canker (*Xanthomonas campestris*)
- Botrytis Fruit Rot (*Botrytis cinerea*)
- Scab (*Elsinoe mangiferae*)
- Sigatoka (*Mycosphaerella fijiensis*)

1–4 quarts per acre FOLIAR (GROUND) applications

- For ground applications, apply this product preventatively in 50–100 gallons of water per acre. Do not exceed 1.0% v/v of the applied solution.
- Repeat applications at 7–14 day intervals.
- . Avoid excessive amounts of water that result in the runoff of spray material.
- **Sigatoka** – Initiate applications when leaves first appear and repeat on a 7–10 day schedule. Apply in sufficient water by ground or air to obtain thorough coverage of foliage. For improved disease control, this product may be tank-mixed with oil or other fungicides registered for Sigatoka control at label rates.

0.5–1 quart per acre FOLIAR (AERIAL) applications

- For aerial applications, apply this product in a minimum of 10 gallons per acre.
- Repeat applications at 7–14-day intervals.

Target disease:

- *Fusarium* spp.
- *Phytophthora* spp.
- *Pythium* spp.
- *Rhizoctonia* spp.
- *Verticillium* spp.

1–4 quarts per 100 gallons of water for PLANT DIP applications

- For plant dip applications for improved plant growth and suppression of soil-borne diseases, apply this product in a 0.25–1% v/v suspension (1–4 quarts per 100 gallons water) as a pre-plant dip immediately prior to transplanting.

INTEGRATED PEST MANAGEMENT (IPM)

Many conventional fungicides have been tested in an IPM regime with REGALIA® Bioprotectant Concentrate with very satisfactory results. One of the major objectives of IPM has been to reduce the probability of disease resistance development to a particular active ingredient.

The alternate use of (1–2 sprays) followed by a conventional, registered fungicide (1–2 sprays) has been successfully used in many crops. In addition, the use of tank mixes with a conventional fungicide has also been successful.

Follow label instructions of the particular registered product: Do not exceed amounts or treatment intervals on the label.

STORAGE AND DISPOSAL

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

Pesticide Storage: Store in a cool, dry place. Avoid freezing.

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

Container Handling (5 gallons or less): Non-refillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available, or puncture and dispose of in a sanitary landfill or by incineration. Do not burn unless allowed by state and local ordinances.

Container Handling (over 5 gallons): Non-refillable container. Do not reuse or refill this container. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ 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. Then offer for recycling if available, or puncture and dispose of in a sanitary landfill or by incineration. Do not burn unless allowed by state and local ordinances.

Container Handling (refillable containers – 265 gallon tote):

Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10% full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. When empty, return to point of sale or offer for recycling if available or reconditioning if appropriate.



Marrone Bio Innovations is a member of the Ag Container Recycling Council.

Visit <http://www.acrecycle.org/contact.html> for information on how to arrange pick-up of this empty pesticide container.

WARRANTY

To the extent consistent with applicable law, the seller makes no warranty, expressed or implied, of merchantability, fitness or otherwise concerning use of this product. To the extent permitted by applicable law, the user assumes all risks of use, storage or handling that are not in strict accordance with the accompanying directions.

Label date:

Made in the U.S.A.

PURE MICHIGAN

US Patents No. 4,863,734 and No. 5,989,429

REGALIA® is a trademark of Marrone Bio Innovations, Inc.

REGALIA® Bioprotectant Concentrate; EPA Reg. No. 84059-3

MASTER LABEL – v.16-May 18, 2017

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Sublabel B: Row Crops

REGALIA® Bioprotectant Concentrate

(ABN: REGALIA® Rx Bioprotectant Concentrate)

A plant extract to boost the plants' defense mechanisms to protect against certain fungal and bacterial diseases, and to improve plant health.

Active ingredient: Extract of *Reynoutria sachalinensis*5 %
Other ingredients: 95 %
Total 100 %

EPA Reg. No. 84059-3

EPA Est. No. 085970-FL-001
EPA Est. No. 084059-MI-001

GROUP P5 FUNGICIDE

**KEEP OUT OF REACH OF CHILDREN
CAUTION**

FIRST AID	
IF SWALLOWED:	Call 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 the poison control center or doctor. Do not give anything by mouth to an unconscious person.
IF ON SKIN OR CLOTHING:	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control center or doctor for treatment advice.
IF INHALED:	Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.
IF IN EYES:	Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
HOTLINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor, or if going for treatment. You may also contact 1-800-222-1222 for emergency medical treatment information.	



CAN BE USED IN ORGANIC PRODUCTION



(USDA BioBased logo placeholder) (Pure Michigan placeholder)

LOT #: _____

Net Contents: 1 pint, 1 quart, 1 gallon, 2.5 gallon, 5 gallon, 55 gallon drum, 265 gallon tote.
Marrone Bio Innovations, Inc. 1540 Drew Ave., Davis, CA 95618

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION: Causes moderate eye irritation. Avoid contact with eyes or clothing. Wear goggles or safety glasses. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

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 and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

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 washwater or rinsate.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

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

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

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

- Coveralls
- Waterproof gloves
- Shoes plus socks
- Protective eyewear

Exception: If the product is soil-injected or soil-incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated. The REI does not apply when this product is used for seed treatment at planting or in hopper box treatments.

GENERAL INFORMATION

REGALIA® Bioprotectant Concentrate is an extract from the plant *Reynoutria sachalinensis* for use on row crops. REGALIA® Bioprotectant Concentrate applied to actively growing plants (see DIRECTIONS FOR USE) will help protect treated portions from certain plant diseases and will improve plant health. Plant health benefits often result in greater yields at harvest, especially when crops are stressed by pathogens or environmental conditions. Use REGALIA® Bioprotectant Concentrate as a preventative rather than a curative application. Apply prior to disease infestation to protect the growing leaf tissue, flowers and above ground fruit and vegetables. See specific information below for diseases controlled and use rates on row crops.

REGALIA® Bioprotectant Concentrate can be used in multiple application methods to control or suppress certain soil-borne or foliar diseases and to promote healthy plant growth. See below for specific information on diseases controlled and use rates.

MODE OF ACTION

The extract obtained from *Reynoutria sachalinensis* plant material contains bioactive compounds. The extract, when applied to the host plant, activates the plant's defense system to increase phenolics and antioxidants, and strengthen cell walls. This mode of action is classified as induced systemic resistance.

When applied at rates and timing for disease control, the induced resistance against important diseases provides translaminar activity, which takes place within one to two days of application. Repeat foliar applications per label instructions. Use REGALIA® Bioprotectant Concentrate, therefore, as a preventative treatment. In addition to foliar applications, REGALIA® Bioprotectant Concentrate can be used in multiple application methods as a plant dip, soil drench, in-furrow spray, or applied through drip irrigation to control or suppress certain soil-borne diseases and to promote healthy root growth.

When applied at rates and timing for plant health effects, the improved plant defense responses minimize the impacts of stress and disease, resulting in optimized yields at harvest. Applying Regalia® Rx has been shown to increase leaf chlorophyll content and increase soluble protein content in some crops. These effects often lead to improved crop quality and/or yields.

MIXING AND APPLICATION INSTRUCTIONS

– SHAKE WELL PRIOR TO USE –

Mixing instructions: Prepare no more mixture than is required for the immediate operation. Agitate the solution continuously during mixing and application. Mechanical mixing is recommended for proper mixing of REGALIA® Bioprotectant Concentrate mixtures.

REGALIA® Bioprotectant Concentrate alone: Add ½ of the required amount of water to the mix tank. With the agitator running, add the REGALIA® Bioprotectant Concentrate to the mix tank. Continue agitation while adding the remainder of the water. Begin application of the solution after the REGALIA® Bioprotectant Concentrate has completely dispersed into the mix water. Maintain agitation until all the mixture has been applied.

REGALIA® Bioprotectant Concentrate + tank mixtures: Add ½–¾ of the required amount of water to the mix tank. Start the agitation before adding any tank mix ingredients. In general, tank mix ingredients should be added in this order: wettable powders, dry flowable formulations, liquid flowable formulations, and emulsifiable formulations such as REGALIA® Bioprotectant Concentrate. Always allow each tank mix ingredient to become completely dispersed before adding the next component. Maintain continuous agitation until all components have been dispersed and throughout the application process. After all components are completely dispersed add the remainder of the water. REGALIA® Bioprotectant Concentrate cannot be mixed with another product with a prohibition against mixing. Use of the tank mix must be in accordance with the most restrictive label limitations and precautions. **Do not pre-mix REGALIA® Bioprotectant Concentrate with any other tank mix component prior to adding to the spray tank.**

Note: When using REGALIA® Bioprotectant Concentrate in tank-mixtures, all products in water soluble packaging should be added to the tank before any other tank-mix ingredient, including REGALIA® Bioprotectant Concentrate. Allow the water-soluble packaging to completely dissolve and the product(s) to completely disperse before adding any other tank-mix ingredient to the tank.

Compatibility: Do not combine REGALIA® Bioprotectant Concentrate in the spray tank with pesticides, adjuvants, or fertilizers if there has been no previous experience or use of the combination to show it is physically compatible, effective, and non-injurious under your use conditions. REGALIA® Bioprotectant Concentrate is compatible with many commonly used pesticides, fertilizers, adjuvants, and surfactants, but has not been evaluated with all potential combinations. To ensure compatibility of the tank mix combinations, evaluate prior to use as follows: Using a suitable container, add the proportional amounts of product to water. Add wettable powders first, then water dispersible granules, then liquid flowables, and lastly, emulsifiable concentrates. Mix thoroughly and let stand for at least five minutes. If the combination stays mixed or can be remixed, it is physically compatible. Test the mix on a small portion of the crop to be treated to ensure that a phytotoxic response will not occur as a result of the application.

Application Instructions: REGALIA® Bioprotectant Concentrate is a micro-emulsion concentrate consisting of certain ingredients extracted from *Reynoutria sachalinensis*. Use 50–mesh nozzle screens or larger. Use higher water volumes with larger sized crops and extensive foliage to obtain thorough coverage.

See **FOLIAR AERIAL** and **FOLIAR GROUND APPLICATION** section for use directions.

See **CHEMIGATION** section for chemigation use directions.

See **SOIL TREATMENT** section for soil application use directions.

FOLIAR AERIAL APPLICATION INSTRUCTIONS

Apply REGALIA® Bioprotectant Concentrate by aerial application to the Edible Crops listed on this label at the rate of 0.5–1 quart per acre in a minimum of 5 gallons of water per acre unless otherwise specified in the **SELECTED CROPS** section. Increasing the amount of water applied per acre will improve product performance. Follow all instructions to reduce aerial drift.

AERIAL DRIFT REDUCTION ADVISORY INFORMATION

GENERAL: Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions. Where states have more stringent regulations, they should be observed. Note: This section is advisory in nature and does not supersede the mandatory label requirements.

INFORMATION ON DROPLET SIZE: The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply droplets large enough to provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions).

CONTROLLING DROPLET SIZE: Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets. Pressure – Do not exceed the nozzle manufacturer’s recommended pressures. For many nozzle types, lower pressure produces larger droplets. When high flow rates are needed, use higher flow rate nozzles instead of increasing pressure. Number of Nozzles – Use the minimum number of nozzles that provide uniform coverage. Nozzle Orientation – Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential. Nozzle Type – Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

BOOM WIDTH: For aerial applications, the boom width must not exceed 75% of the wingspan or 90% of the rotary blade. Use upwind swath displacement and apply only when wind speed is 3–10 mph as measured by an anemometer. Use medium or coarser spray according to ASAE 572 definition for standard nozzles or VMD for spinning atomizer nozzles. If application includes a no-spray zone, do not release spray at a height greater than 10 feet above the ground or crop canopy.

APPLICATION HEIGHT: Do not make application at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

SWATH ADJUSTMENT: When applications are made with a crosswind, the swath will be displaced downward. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase with increasing drift potential (higher wind, smaller drops, etc.).

WIND: Drift potential is lowest between wind speeds of 2–10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. NOTE: Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

TEMPERATURE AND HUMIDITY: When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

TEMPERATURE INVERSIONS: Do not apply during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small, suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

SENSITIVE AREAS: The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g. when wind is blowing away from the sensitive areas). Do not allow spray to drift from the application site and contact people, structures people occupy at any time and the associated property, parks and recreation areas, non-target crops, aquatic and wetland areas, woodlands, pastures, rangelands, or animals.

GROUND APPLICATION USE DIRECTIONS

REGALIA® Bioprotectant Concentrate can be applied in most commonly-used ground application equipment, such as tractor-mounted boom, airblast, high clearance; foggers or mist blowers; water wheel and other drench applicators; and shank or other soil injection method. Apply in a minimum of 50 gal. of water per acre, unless specified otherwise. Thorough coverage is necessary to provide good disease control.

CHEMIGATION USE DIRECTIONS

Apply this product through center pivot or drip (trickle) irrigation systems. Do not connect an irrigation system (including greenhouse systems) used for pesticide applications to a public water system. Do not use reclaimed water for application of this product.

Spray preparation

First prepare a suspension of REGALIA® Bioprotectant Concentrate in a mix tank. Fill tank $\frac{1}{2}$ to $\frac{3}{4}$ the desired amount of water. Start mechanical or hydraulic agitation. Add the required amount of REGALIA® Bioprotectant Concentrate, and then the remaining volume of water. Then set the irrigation system to deliver a minimum of 0.1 to 0.3 inch of water per acre. Start irrigation system and uniformly inject the suspension of REGALIA® Bioprotectant Concentrate into the irrigation water line so as to deliver the desired rate per acre. Inject the suspension of REGALIA® Bioprotectant Concentrate with a positive displacement pump into the main line after the filter, and ahead of a right angle turn to insure adequate mixing. Any questions on calibration should be directed to your State Extension Service Specialists, to equipment manufacturers or other experts.

Do not combine REGALIA® Bioprotectant Concentrate with pesticides, surfactants or fertilizers for application through chemigation equipment unless prior experience has shown the combination physically compatible, effective and non-injurious under conditions of use. REGALIA® Bioprotectant Concentrate has not been fully evaluated for compatibility with all adjuvants or surfactants. Conduct a spray compatibility test if a mixture with adjuvants or surfactants is planned.

Apply REGALIA® Bioprotectant Concentrate at 0.5–4 quarts per acre according to the instructions below unless specified differently in the SELECTED CROPS section.

CHEMIGATION

General Requirements –

- 1) Apply this product only through a center pivot or a drip or trickle system.
- 2) Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water.
- 3) If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.
- 4) 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.
- 5) A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Specific Requirements for Chemigation Systems Connected to Public Water Systems –

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

Specific Requirements for Drip (Trickle) Chemigation –

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

Application Instructions for All Types of Chemigation –

- 1) Remove scale, pesticide residues, and other foreign matter from the chemical supply tank and entire injector system. Flush with clean water. Failure to provide a clean tank, void of scale or residues may cause product to lose effectiveness or strength.
- 2) Determine the treatment rates as indicated in the directions for use and make proper dilutions. Product can be applied continuously or at any time during the water application.
- 3) Prepare a solution in the chemical tank by filling the tank with the required water and then adding product as required.

SOIL TREATMENT USE DIRECTIONS

REGALIA® Bioprotectant Concentrate can be applied by soil drench, in-furrow spray to improve plant health and to protect against certain soil-borne diseases.

In general, REGALIA® Bioprotectant Concentrate can be applied by the following methods, unless specified differently in the SELECTED CROPS section:

Soil Drench Applications:

Apply REGALIA® Bioprotectant Concentrate at a concentration of 1 pint per 50 gallons of water for plant health, or 1–2 quarts per 100 gallons of water for disease control, and at a sufficient rate to thoroughly soak the growing media and root zone. Make an initial application of REGALIA® Bioprotectant Concentrate during or shortly after transplant to reduce

transplant shock, suppress the listed soil-borne diseases and improve root growth. Multiple drench applications can be made on a 10–14 day interval.

In-Furrow Applications:

At planting, apply REGALIA® Bioprotectant Concentrate as an in-furrow spray at the rate of 1–2 quarts per acre (0.73–4.9 fluid ounces per 1000 feet of row according to the chart below). Apply REGALIA® Bioprotectant Concentrate in 5–15 gallons of water so as the spray is directed into the seed furrow just before the seeds are covered.

Rate Per Acre	In-Furrow Application Rates Product per 1000 ft. row (fl. oz.)														
	12" Rows	14" Rows	16" Rows	18" Rows	20" Rows	22" Rows	24" Rows	26" Rows	28" Rows	30" Rows	32" Rows	34" Rows	36" Rows	38" Rows	40" Rows
1 quart	0.73	0.86	0.98	1.1	1.2	1.3	1.5	1.6	1.7	1.8	2.0	2.1	2.2	2.3	2.4
2 quart	1.5	1.7	2.0	2.2	2.4	2.7	2.9	3.2	3.4	3.7	3.9	4.2	4.4	4.7	4.9

12" = 43,560 row ft./acre, 14" = 37,337 row ft./acre, 16" = 32,670 row ft./acre, 18" = 29,040 row ft./acre, 20" = 26,136 row ft./acre, 22" = 23,760 row ft./acre, 24" = 21,780 row ft./acre, 26" = 20,105 row ft./acre, 28" = 18,669 row ft./acre, 30" = 17,424 row ft./acre, 32" = 16,315 row ft./acre, 34" = 15,374 row ft./acre, 36" = 14,520 row ft./acre, 38" = 13,754 row ft./acre, 40" = 13,068 row ft./acre.

SEED TREATMENT USE DIRECTIONS

REGALIA® Bioprotectant Concentrate can be applied as a seed dressing for suppression of soil-borne diseases to improve early-season root growth. REGALIA® Bioprotectant Concentrate may be applied as a water-based slurry with other registered seed treatment insecticides and fungicides through standard slurry- or mist-type commercial seed treatment equipment. REGALIA® Bioprotectant Concentrate can also be used in on-farm hopper-box or planter-box treatments.

If using REGALIA® Bioprotectant Concentrate in a tank mixture with other seed treatment products, observe all directions for use, crops/sites, use rates, dilution ratios, precautions, and limitations which appear on the tank-mix ingredient label. Do not exceed label rates and the most restrictive label precautions and limitations must be followed. Do not mix this product with any product which prohibits such mixing.

APPLICATION RATES FOR SELECTED CROPS

Pre-harvest Interval (PHI) = 0 days

Crop	Target Disease	Application Method	Product Use Rate per Application	Application Instructions
Cereal Grains Barley Buckwheat Grain Amaranth(*) Oat Millets Rice(*) Rye Triticale Wheat	Powdery Mildew (<i>Erysiphe graminis</i>)	Foliar (Ground)	1–2 quarts per acre	For ground applications for disease control, apply this product in 15–40 gallons of water per acre. It is important to apply this product at the flag leaf stage to maximize yield. Apply this product preventatively or when the first disease symptoms appear. Repeat applications in 7–14-day intervals depending upon crop growth and disease pressure. When the plants are under high disease pressure, tank mix this product with another fungicide for more effective control.
	Leaf Spots (Dreschlera, Cochliobolus, Cercospora)	Disease Applications		
	Rust (<i>Puccinia</i> spp.)			
	Septoria Leaf/Speckled Leaf Spot/Blotch (<i>Septoria</i> spp.) Smut (<i>Tilletia</i> spp.)			

	Tan Spot (<i>Pyrenophora tritici-repentis</i>)	Foliar (Aerial) Disease Applications	1 quart per acre	For aerial applications, apply this product in a minimum of 5 gallons water per acre. It is important to apply this product at the flag leaf stage to maximize yield. Apply this product preventatively or when the first disease symptoms appear. Repeat applications in 7–14-day intervals depending upon crop growth and disease pressure. When the plants are under high disease pressure, tank mix this product with another registered fungicide for more effective control.
		Foliar (Ground) Plant Health Applications	1 pint per acre	For ground applications to maximize yields, apply this product in 15–40 gallons of water per acre. Apply with a preferred tank mix partner at 50-100% Flag Leaf emergence to maximize yields.
		Foliar (Aerial) Plant Health Applications	1 pint per acre	For aerial applications, apply this product in a minimum of 5 gallons water per acre. Apply with a preferred tank mix partner at 50-100% Flag Leaf emergence to maximize yields.
	<ul style="list-style-type: none"> • <i>Fusarium</i> spp. • <i>Phytophthora</i> spp. • <i>Pythium</i> spp. • <i>Rhizoctonia</i> spp. • <i>Verticillium</i> spp. 	SEED TREATMENT applications	1.5 – 2.5 fluid ounces per 100 lbs. seed	For suppression of soil-borne diseases, apply this product as a seed treatment at the rate of 1.5 – 2.5 fl. oz. per 100 lbs. seed.
(optional: *Not for use in California.)				

Crop	Target Disease	Application Method	Product Use Rate per Application	Application Instructions
Corn Field Corn Popcorn Seed Corn Silage Corn Sweet Corn	Anthracnose Leaf Blight (<i>Colletotrichum graminicola</i>) Eye Spot (<i>Aureobasidium zeae</i>) Gray leafspot (<i>Cercospora zeae-maydis</i>) Rusts (<i>Puccinia</i> spp.) Northern Leaf Blight (<i>Exserohilum turcicum</i>)	Foliar (Ground) Disease Applications	1–2 quarts per acre	Apply this product in 15–40 gallons of water per acre. Apply this product preventatively starting at V4-V7 or VT or when the first disease symptoms appear. Repeat applications on 7–10 day intervals depending upon crop growth and disease pressure. When the plants are under high disease pressure, tank-mix this product with another fungicide for more effective control.

	Northern Leaf Spot (<i>Cochliobolus carbonum</i>) Southern Leaf Blight (<i>Cochliobolus heterostrophus</i>)	Foliar (Aerial) Disease Applications	1 quart per acre	For aerial applications, apply this product in a minimum of 3 gallons of water per acre. Apply this product preventatively starting at V4-V7 or VT or when the first disease symptoms appear. Repeat applications on 7–10 day intervals depending upon crop growth and disease pressure. When the plants are under high disease pressure, tank-mix this product with another fungicide for more effective control.
		Foliar (Ground) Plant Health Applications	1 pint per acre	Apply with a preferred tank mix partner at V4-V7 or VT to maximize yields. Apply this product in 15–40 gallons of water per acre.
		Foliar (Aerial) Plant Health Applications	1 pint per acre	For aerial applications, apply this product in a minimum of 3 gallons of water per acre. Apply with a preferred tank mix partner at V4-V7 or VT to maximize yields.
	<i>Fusarium</i> spp. <i>Phytophthora</i> spp. <i>Pythium</i> spp. <i>Rhizoctonia</i> spp. <i>Verticillium</i> spp.	In-Furrow Disease Applications	1–2 quarts per acre	For in-furrow applications, at planting apply this product as an in-furrow spray at the rate of 1–2 quarts per acre or 0.73–4.9 fluid ounces per 1000 feet of row according to the chart in the SOIL TREATMENT USE DIRECTIONS section. Apply this product in 5–15 gallons of water so as the spray is directed into the seed furrow just before the seeds are covered.

Crop	Target Disease	Application Method	Product Use Rate per Application	Application Instructions
Cotton(*)	Alternaria Leaf Spot Boll Rot (<i>Alternaria</i> spp.) Anthracnose Boll Rot (<i>Glomeria</i> spp.) Ascochyta Blight Boll Rot (<i>Ascochyta</i> spp.) Cercospora Blight and Leaf Spot (<i>Cercospora</i> spp.)	Foliar (Ground) Disease Applications	1–2 quarts per acre	For ground applications for foliar and boll rot disease control, apply this product preventatively in 15–40 gallons of water per acre prior to disease development using sufficient volume for thorough coverage. Repeat applications at 7–14 day intervals as necessary to maintain control.
	Diplodia Boll Rot (<i>Diplodia</i> spp.)	Foliar (Aerial)	0.5 – 1 quart per acre	For aerial applications, apply this product in a minimum of 3 gallons

	<p>Hard Lock</p> <p>Boll Rot (<i>Fusarium</i> spp.)</p> <p>Leaf Spot (<i>Corynespora cassicola</i>)</p> <p>Phoma Blight</p> <p>Boll Rot (<i>Phoma</i> spp.)</p> <p>Rust (<i>Puccinia</i> spp.) (<i>Phykopsora</i> spp.)</p> <p>Stemphylium Leaf Spot (<i>Stemphylium</i> spp.)</p>	Disease Applications		of water per acre.
	<p><i>Fusarium</i> spp. <i>Phytophthora</i> spp. <i>Pythium</i> spp. <i>Rhizoctonia</i> spp. <i>Verticillium</i> spp.</p>	In-Furrow applications	1-4 quarts per acre or 2.2-8.8 fluid ounces per 1000 ft. row	For in-furrow applications, at planting apply this product as an in-furrow spray at the rate of 1–4 quarts per acre or 2.2–8.8 fluid ounces per 1000 feet of row according to the chart in the SOIL TREATMENT USE DIRECTIONS section. Apply this product in 5–15 gallons of water so as the spray is directed into the seed furrow just before the seeds are covered.
		Seed Treatment applications	7.5 -15 fluid ounces per 100 lbs. seed	For suppression of soil borne diseases, apply this product as a seed treatment at the rate of 7.5–15 fl. oz. per 100 lbs. seed.
		Foliar (Ground) Plant Health Applications*	1 pint per acre	For ground applications to maximize yields, apply this product in 15-40 gallons of water per acre.
		Foliar (Aerial) Plant Health Applications*	1 pint per acre	For aerial applications to maximize yields, apply this product in a minimum of 5 gallons of water per acre.

(optional: *Not for use in California.)

Crop	Target Disease	Application Method	Product Use Rate per Application	Application Instructions
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<p>Grass Forage, Fodder and Hay</p> <p>Bermuda grass Bluegrass Bromegrass Fescue Pasture and range grasses grown for hay or silage Sudangrass Timothy</p>	<p>Powdery Mildew (<i>Erysiphe graminis</i>) (<i>Oidium</i> spp.), (<i>Podosphaera</i> spp.) (<i>Sphaerotheca</i> spp.)</p> <p>Rust (<i>Puccinia</i> spp.)</p> <p>Smuts and Bunts (<i>Tilletia</i> spp.)</p> <p>Brown Stripes/Grey Streaks (<i>Cercosporidium graminis</i>)</p> <p>Crown and Foot Rots (<i>Pseudocercospora herpotrichoides</i>, <i>Rhizoctonia</i>)</p>	<p>Foliar (Ground)</p> <p>Disease Applications</p>	<p>1–4 quarts per acre</p>	<p>For ground applications to optimize disease control and to maximize yields, apply this product in 15–40 gallons of water per acre.</p> <p>It is important to apply this product at the flag leaf stage to maximize yield. Apply this product preventatively or when the first disease symptoms appear. Repeat applications on 7–14-day intervals depending upon crop growth and disease pressure.</p> <p>When the plants are under high disease pressure, tank-mix this product with another fungicide for more effective control. When tank mixed with other fungicides, use 1–2 quarts of product per acre.</p>
		<p>Foliar (Aerial)</p> <p>Disease Applications</p>	<p>0.5-1 quart per acre</p>	<p>For aerial applications, apply this product in a minimum of 5 gallons of water per acre.</p> <p>It is important to apply this product at the flag leaf stage to maximize yield. Apply this product preventatively or when the first disease symptoms appear. Repeat applications in 7-14 day intervals depending upon crop growth and disease pressure.</p> <p>When plants are under high disease pressure, tank mix this product with another fungicide for more effective control.</p>
		<p>Foliar (Ground)</p> <p>Plant Health Applications</p>	<p>1 pint per acre</p>	<p>For ground applications to maximize yields, apply this product in 15-40 gallons of water per acre.</p> <p>Apply with a preferred tank mix partner at 50% - 100% Flag Leaf emergence to maximize yields.</p>

		Foliar (Aerial) Plant Health Applications	1 pint per acre	For aerial applications to maximize yields, apply this product in a minimum of 5 gallons of water per acre. Apply with a preferred tank mix partner at 50% - 100% Flag Leaf emergence to maximize yields.
	<i>Fusarium</i> spp. <i>Phytophthora</i> spp. <i>Pythium</i> spp. <i>Rhizoctonia</i> spp. <i>Verticillium</i> spp.	Seed Treatment applications	1.5-2.5 fluid ounces per 100 lbs. seed	For suppression of soil-borne diseases, apply this product as a seed treatment at the rate of 1.5-2.5 fl. oz. per 100 lbs. seed.

Crop	Target Disease	Application Method	Product Use Rate per Application	Application Instructions
Oil Seed Crops (not including cotton, peanut, or soybean; see below for soybeans): Canola, Castor, Rapeseed, Safflower, Sesame, Sunflower	Downy Mildew (<i>Peronospora mansherica</i>) Pod and Stem Blight (<i>Diaporthe phaseolorum</i> var. <i>sojae</i>), (<i>Phomopsis longicola</i>) White Mold/ Sclerotinia Stem Rot (<i>Sclerotinia sclerotiorum</i>)	Foliar (Ground) Disease Applications	1-2 quarts per acre	Apply this product in 15-40 gallons of water per acre. Apply this product preventatively when the first disease symptoms appear. Repeat applications on 7-10 day intervals depending upon crop growth and disease pressure. <u>For white mold disease control:</u> apply at 10% bloom with a second application 7-10 days later.
		Foliar (Aerial) Disease Applications	1 quart per acre	For aerial applications, apply this product in a minimum of 3 gallons per acre. Apply this product preventatively when the first disease symptoms appear. Repeat applications on 7-10 day intervals depending upon crop growth and disease pressure. <u>For white mold disease control:</u> apply at 10% bloom with a second application 7-10 days later.
		Foliar (Ground) Plant Health Applications	1 pint per acre	Apply this product in 15-40 gallons of water per acre with a preferred tank mix partner to maximize yields.

		Foliar (Aerial) Plant Health Applications	1 pint per acre	For aerial applications, apply this product in a minimum of 3 gallons per acre. Apply with a preferred tank mix partner to maximize yields.
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Crop	Target Disease	Application Method	Product Use Rate per Application	Application Instructions
Peanut	Aspergillus Crown Rot (<i>Aspergillus niger</i>)	Foliar Disease Applications	1–4 quarts per acre	For foliar applications, apply this product preventatively in 20–50 gallons of water per acre. Repeat applications at 7–14 day intervals. Tank-mix this product with another fungicide labeled for the target disease.
	Damping-off (<i>Aspergillus flavus</i>), (<i>Fusarium</i> spp.) (<i>Pythium</i> spp.) (<i>Rhizoctonia</i> spp.)			
	Rhizoctonia			
	Foliar Blight	Foliar Plant Health Applications	1 pint per acre	For ground applications to maximize yields, apply this product in 15-40 gallons of water per acre.
	Peg			
	Root Rot (<i>Rhizoctonia solani</i>)			
White Mold (<i>Sclerotium rolfsii</i>)				
Peanut	Aspergillus Crown Rot (<i>Aspergillus niger</i>)	In-Furrow applications	1–4 quarts per acre or 2.2–8.8 fluid ounces per 1000 ft. row	For in-furrow applications at planting, apply this product as an in-furrow spray at the rate of 1–4 quarts per acre or 2.2–8.8 fluid ounces per 1000 feet of row according to the chart in the SOIL TREATMENT USE DIRECTIONS section. Apply this product in 5–15 gallons of water so as the spray is directed into the seed furrow just before the seeds are covered.
	<i>Fusarium</i> spp.			
	<i>Phytophthora</i> spp.			
	<i>Pythium</i> spp.			
	<i>Rhizoctonia</i> spp.			
	<i>Verticillium</i> spp.			
	White Mold (<i>Sclerotium rolfsii</i>)	Soil Drench Applications	1–3 quarts per 100 gallons of water	For soil drench applications, apply this product at a concentration of 1–3 quarts per 100 gallons of water, and at a sufficient rate to thoroughly soak the growing media and root zone. Make an initial application of this product during or shortly after transplant to reduce transplant shock, suppress soil-borne diseases and improve root growth. Multiple drench applications can be

				made on a 10-14-day interval.
		Seed Treatment Applications	1.5–2.5 fluid ounces per 100 lbs. seed	For suppression of soil-borne diseases, apply this product as a seed treatment at the rate of 1.5–2.5 fl. oz. per 100 lbs. seed.

Crop	Target Disease	Application Method	Product Use Rate per Application	Application Instructions
Non-grass Animal Feed Alfalfa(*) Clover Kudzu Lespedeza Lupin Sainfoin Trefoil Vetch	<u>Alfalfa Wilt</u> <i>(Xylella spp.)</i>	<u>Foliar</u> <u>(Ground)</u>	1-2 quarts per acre	For ground applications to optimize disease control and to maximize yields, apply this product in 15–40 gallons of water per acre.
	Anthracnose and Black Stem Rot <i>(Colletotrichum trifolii)</i>	<u>Disease Applications</u>		It is important to apply this product at the flag leaf stage to maximize yield. Apply this product preventatively or when the first disease symptoms appear. Repeat applications on 7–14 day intervals depending upon crop growth and disease pressure.
	Bacterial Wilt <i>(Clavibacter michiganense)</i>			When the plants are under high disease pressure, tank-mix this product with another fungicide for more effective control.
	Downy Mildew <i>(Peronospora trifoliorum)</i>	<u>Foliar</u> <u>(Aerial)</u>	0.5 - 1 quart per acre	For aerial applications, apply this product in a minimum of 5 gallons of water per acre.
Fusarium wilt <i>(Fusarium oxysporum)</i>	<u>Disease Applications</u>	It is important to apply this product at the flag leaf stage to maximize yield. Apply this product preventatively or when the first disease symptoms appear. Repeat applications on 7-14 day intervals depending upon crop growth and disease pressure.		
Leafspots and Blotches <i>(Pseudopeziza medicaginus, Stemphyllium spp., Cercospora spp.,</i>				When plants are under high disease pressure, tank mix this product with another fungicide for more effective control.

	<p><i>Stagonospora</i> spp.)</p> <p>Mosaic viruses</p> <p>Powdery Mildew (<i>Erysiphe polygoni</i>)</p> <p>Sclerotinia stem and crown rot (<i>Sclerotinia sclerotiorum</i>)</p> <p>Seedling and Damping Off Disease Complex, including Root and Crown Rots (<i>Pythium</i>, <i>Phytophthora</i>, <i>Rhizoctonia</i>, and <i>Stagonospora</i> spp.)</p> <p>Spring Black Stem (<i>Phoma medicaginus</i>)</p> <p>Verticillium wilt (<i>Verticillium albo-atrum</i>)</p>			
		<p><u>Foliar</u></p> <p><u>(Ground)</u></p> <p><u>Plant Health Applications</u></p>	1 pint per acre	<p>For ground applications to maximize yields, apply this product in 15-40 gallons of water per acre.</p> <p>For plant health applications, apply 10-14 days prior to cutting.</p>
			1 pint per acre	For aerial applications to maximize yields,

		<u>Foliar</u> <u>(Aerial)</u> <u>Plant Health Applications</u>	apply this product in a minimum of 5 gallons of water per acre. For plant health applications, apply 10-14 days prior to cutting.
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(optional: *Not for use in California.)

Crop	Target Disease	Application Method	Product Use Rate per Application	Application Instructions
Sorghum: Sweet or grain sorghum varieties	Anthracnose (<i>Colletotrichum graminicola</i>)	Foliar (Ground) Disease Applications	1–2 quarts per acre	Apply this product in 15–40 gallons of water per acre. Apply this product preventatively when the first disease symptoms appear. Repeat applications on 7–10 day intervals depending upon crop growth and disease pressure. When the plants are under high disease pressure, tank-mix this product with another registered fungicide for more effective control.
	Bacterial leaf spot (<i>Pseudomonas</i> spp.)			
	Bacterial leaf streak (<i>Xanthomonas campestris</i> pv. <i>Holcicola</i>)			
	Bacterial leaf stripe (<i>Pseudomonas</i> spp.)			
	Gray leaf spot (<i>Cercospora sorghi</i>)	Foliar (Aerial) Disease Applications	1 quart per acre	For aerial applications, apply this product in a minimum of 3 gallons per acre. Apply this product preventatively when the first disease symptoms appear. Repeat applications on 7–10 day intervals depending upon crop growth and disease pressure. When the plants are under high disease pressure, tank-mix this product with another registered fungicide for more effective control.
	Leaf blight (<i>Septosphaeria turcica</i>)			
	Northern leaf blight (<i>Exserohilum turcicum</i>)			
	Rust (<i>Puccinia</i> spp.)			
	Southern leaf blight (<i>Bipolaris</i> spp.)			
	Sorghum downy mildew (<i>Peronosclerospora sorghi</i>)			
		Foliar (Ground) Plant Health Applications	1 pint per acre	Apply this product in 15–40 gallons of water per acre with a preferred tank mix partner to maximize yields. It is important to apply this product at the flag leaf stage to maximize yield.

		Foliar (Aerial) Plant Health Applications	1 pint per acre	For aerial applications, apply this product in a minimum of 3 gallons per acre with a preferred tank mix partner to maximize yields. It is important to apply this product at the flag leaf stage to maximize yield.
	Fusarium spp. Phytophthora spp. Pythium spp. Rhizoctonia spp. Verticillium spp.	Seed Treatment applications	1.5–2.5 fluid ounces per 100 lbs. seed	For suppression of soil-borne diseases, apply this product as a seed treatment at the rate of 1.5–2.5 fl. oz. per 100 lbs. seed.

Crop	Target Disease	Application Method	Product Use Rate per Application	Application Instructions
Soybean	Aerial Web Blight (<i>Rhizoctonia solani</i>) Alternaria Leafspot (<i>Alternaria</i> spp.) Anthracnose (<i>Colletotrichum truncatum</i>) Asian Soybean Rust (<i>Phakopsora pachyrhizi</i>) Brown Spot (<i>Septoria glycines</i>) Cercospora Blight (<i>Cercospora kikuchii</i>) Frog-eyed Leaf Spot (<i>Cercospora sojina</i>)	Foliar (Ground) Disease Applications	1–2 quarts per acre	For ground applications to optimize disease control and to maximize yields, apply 1–2 quarts of this product preventatively in 15–40 gallons of water per acre. For improved performance, apply 1–2 quarts of this product in a tank mix with another registered fungicide. Consult your local Extension Specialist or Crop Consultant regarding the optimum timing of fungicide applications.
	Pod and Stem Blight (<i>Diaporthe</i> spp.) Septoria Brown Spot (<i>Septoria glycines</i>) White Mold (<i>Sclerotinia sclerotiorum</i>)	Foliar (Aerial) Disease Applications	1 quart per acre	For aerial applications, apply this product in a minimum of 3 gallons of water per acre. For improved performance, apply this product in a tank mix with another registered fungicide. Consult your local Extension Specialist or Crop Consultant regarding the optimum timing of fungicide applications. To maximize activity against <i>Sclerotinia</i> white mold in soybeans, the best timing would be R1 followed by R3 and should be tank mixed with a fungicide partner also labeled for white mold activity.

		Foliar (Ground) Plant Health Applications	1 pint per acre	Apply this product in 15–40 gallons of water per acre with a preferred tank mix partner to maximize yields. It is important to apply this product at the flag leaf stage to maximize yield.
		Foliar (Aerial) Plant Health Applications	1 pint per acre	For aerial applications, apply this product in a minimum of 3 gallons per acre with a preferred tank mix partner to maximize yields. It is important to apply this product at the flag leaf stage to maximize yield.
	<i>Fusarium spp.</i> <i>Phytophthora spp.</i> <i>Pythium spp.</i> <i>Rhizoctonia spp.</i>	In-Furrow Disease Applications	1–2 quarts per acre	For in-furrow applications, at planting apply this product as an in-furrow spray at the rate of 1–2 quarts per acre or 0.73–4.9 fluid ounces per 1000 feet of row according to the chart in the SOIL TREATMENT USE DIRECTIONS section. Apply this product in 5–15 gallons of water so as the spray is directed into the seed furrow just before the seeds are covered.

Crop	Target Disease	Application Method	Product Use Rate per Application	Application Instructions
Sugar Beets	Powdery Mildew (<i>Erysiphe betae</i>) (<i>Erysiphe polygoni</i>)	Foliar (Ground) Disease Applications	1–2 quarts per acre	To optimize disease control and to maximize yields, apply this product preventatively in 15–40 gallons of water per acre by ground or aerial application. For improved performance, apply this product in a tank mix program with another registered fungicide. Consult your local Extension Specialist or Crop Consultant regarding the optimum timing of fungicide applications.
		Foliar (Ground) Plant Health Applications	1 pint per acre	Apply this product in 15–40 gallons of water per acre with a preferred tank mix partner to maximize yields.
	Clubroot (<i>Plasmodiophora brassicae</i>) Common Scab (<i>Streptomyces scabies</i>) <i>Fusarium spp.</i> <i>Phytophthora spp.</i> <i>Pythium spp.</i> <i>Rhizoctonia spp.</i> <i>Verticillium spp.</i>	In-Furrow applications	1–4 quarts per acre or 0.73–9.8 fluid ounces per 1000 ft. row	For in-furrow applications at planting, apply this product as an in-furrow spray at the rate of 1–4 quarts per acre or 0.73–9.8 fluid ounces per 1000 feet of row according to the chart in the SOIL TREATMENT USE DIRECTIONS section. Apply this product in 5–15 gallons of water so as the spray is directed into the seed furrow just before the seeds are covered.

	<ul style="list-style-type: none"> • <i>Fusarium</i> spp. • <i>Phytophthora</i> spp. • <i>Pythium</i> spp. • <i>Rhizoctonia</i> spp. • <i>Verticillium</i> spp. 	SEED TREATMENT applications	1.5–2.5 fluid ounces per 100 lbs. seed	For suppression of soil-borne diseases, apply this product as a seed treatment at the rate of 1.5–2.5 fl. oz. per 100 lbs. seed.
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Crop	Target Disease	Application Method	Product Use Rate per Application	Application Instructions
Sugar Cane	Red Rot (<i>Glomerella tucumanensis</i> , also known as <i>Colletotrichum falcatum</i>) (Suppression Only)	Foliar (Ground) Disease Applications	1-2 quarts per acre	For disease control apply this product in 20–40 gallons of water per acre. Apply this product at the tillering or grand growth stages or both.
		Foliar (Aerial) Disease Applications	1 quart per acre	For aerial disease control applications, apply this product in a minimum of 5 gallons per acre. Apply this product at the tillering or grand growth stages or both.
		Foliar (Ground) Plant Health Applications	1 pint per acre	Apply this product in 20–40 gallons of water per acre with a preferred tank mix partner to maximize yields. Apply this product at the tillering or grand growth stages or both.
		Foliar (Aerial) Plant Health Applications	1 pint per acre	For aerial applications, apply this product in a minimum of 5 gallons per acre with a preferred tank mix partner to maximize yields. Apply this product at the tillering or grand growth stages or both.

Crop	Target Disease	Application Method	Product Use Rate per Application	Application Instructions
Tobacco	Blue Mold (<i>Peronospora tabacina</i>) Target Spot (<i>Rhizoctonia solani</i>)	Foliar (Ground) Disease Applications	1–2 quarts per acre	<p>Apply this product at a rate of 1-2 quarts per acre in a minimum of 50 gallons of water per acre.</p> <p>Avoid excessive amounts of water that result in spray material dripping from the foliage. If necessary, repeat applications at a 7-day interval.</p> <p>Foliar applications of Regalia to improve plant health can be made during the period from layby to contact sprays.</p> <p><u>For Target Spot:</u> Apply this product at a rate of 2 quarts per acre in a minimum of 50 gallons of water per acre.</p>

		Foliar (Ground) Plant Health Applications	1 pint per acre	Apply this product in 15–40 gallons of water per acre with a preferred tank mix partner to maximize yields.
	<i>Fusarium</i> spp. <i>Phytophthora</i> spp. <i>Pythium</i> spp. <i>Rhizoctonia</i> spp. <i>Verticillium</i> spp.	Plant Dip	1–2 quarts per 100 gallons of water	For plant dip applications, for improved plant growth and suppression of soil-borne diseases, apply this product in a 0.25–0.5% v/v suspension (1–2 quarts per 100 gallons water) as a pre-plant dip to tobacco roots and plants immediately prior to transplanting.

INTEGRATED PEST MANAGEMENT (IPM)

Many conventional fungicides have been tested in an IPM regime with REGALIA® Bioprotectant Concentrate with very satisfactory results. One of the major objectives of IPM has been to reduce the probability of disease resistance development to a particular active ingredient.

The alternate use of (1–2 sprays) followed by a conventional, registered fungicide (1–2 sprays) has been successfully used in many crops. In addition, the use of tank mixes with a conventional fungicide has also been successful.

Follow label instructions of the particular registered product: Do not exceed amounts or treatment intervals on the label.

STORAGE AND DISPOSAL

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

Pesticide Storage: Store in a cool, dry place. Avoid freezing.

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

Container Handling (5 gallons or less): Non-refillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available, or puncture and dispose of in a sanitary landfill or by incineration. Do not burn unless allowed by state and local ordinances.

Container Handling (over 5 gallons): Non-refillable container. Do not reuse or refill this container. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ 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. Then offer for recycling if available, or puncture and dispose of in a sanitary landfill or by incineration. Do not burn unless allowed by state and local ordinances.

Container Handling (refillable containers – 265 gallon tote):

Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10% full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. When empty, return to point of sale or offer for recycling if available or reconditioning if appropriate.

Marrone Bio Innovations is a member of the Ag Container Recycling Council. Visit <http://www.acrecycle.org/contact> for information on how to arrange pick-up of this empty pesticide container.



WARRANTY

To the extent permitted by applicable law, the seller makes no warranty, expressed or implied, of merchantability, fitness or otherwise concerning use of this product. To the extent permitted by applicable law the user assumes all risks of use, storage or handling that are not in strict accordance with the accompanying directions.

Label date: XXXXXXXX

Made in the U.S.A.

PURE  MICHIGAN

US Patents No. 4,863,734 and No. 5,989,429

REGALIA® is a trademark of Marrone Bio Innovations, Inc.

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1540 Drew Ave., Davis, CA 95618

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info@marronebio.com

Sublabel C: Greenhouse, Turf & Professional Landscape Use

REGALIA® Bioprotectant Concentrate

A plant extract to boost the plants' defense mechanisms to protect against certain fungal and bacterial diseases, and to improve plant health.

Active ingredient: Extract of *Reynoutria sachalinensis* 5 %
 Other ingredients:..... 95 %
 Total 100 %

EPA Reg. No. 84059-3

EPA Est. No. 085970-FL-001
 EPA Est. No. 084059-MI-001

GROUP	P5	FUNGICIDE
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KEEP OUT OF REACH OF CHILDREN
CAUTION

FIRST AID	
IF SWALLOWED:	Call 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 the poison control center or doctor. Do not give anything by mouth to an unconscious person.
IF ON SKIN OR CLOTHING:	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control center or doctor for treatment advice.
IF INHALED:	Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.
IF IN EYES:	Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
Have the product container or label with you when calling a poison control center or doctor, or if going for treatment.	



(USDA BioBased logo placeholder) (Pure Michigan placeholder)

LOT #: _____

Net Contents: 1 pint, 1 quart, 1 gallon, 2.5 gallon, 5 gallon, 55 gallon drum.
Marrone Bio Innovations, Inc. 1540 Drew Ave., Davis, CA 95618

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION: Causes moderate eye irritation. Avoid contact with eyes or clothing. Wear goggles or safety glasses. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

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 and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

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 washwater or rinsate.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

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

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

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

- Coveralls
- Waterproof gloves
- Shoes plus socks
- Protective eyewear

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are **not** within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries or greenhouses.

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

GENERAL INFORMATION

REGALIA® Bioprotectant Concentrate is an extract from the plant *Reynoutria sachalinensis* for use on ornamental plants, turf, field, and greenhouse crops. REGALIA® Bioprotectant Concentrate applied to actively growing plants (see DIRECTIONS FOR USE) will help protect treated portions from certain plant diseases and will improve plant health. Plant health benefits often result in greater yields at harvest, especially when crops are stressed by pathogens or environmental conditions. Use REGALIA® Bioprotectant Concentrate as a preventative rather than a curative application. Apply prior to disease infestation to protect the growing leaf tissue, flowers and above ground fruit and vegetables. See specific information below for diseases controlled and use rates on ornamental plants, turf, field and greenhouse crops.

REGALIA® Bioprotectant Concentrate can be used in multiple application methods to control or suppress certain soil-borne or foliar diseases and to promote healthy plant growth. See below for specific information on diseases controlled and use rates.

MODE OF ACTION

The extract obtained from *Reynoutria sachalinensis* plant material contains bioactive compounds. The extract, when applied to the host plant, activates the plant's defense system to increase phenolics and antioxidants, and strengthen cell walls. This mode of action is classified as induced systemic resistance.

When applied at rates and timing for disease control, the induced resistance against important diseases provides translaminar activity, which takes place within one to two days of application. Repeat foliar applications per label instructions. Use REGALIA® Bioprotectant Concentrate, therefore, as a preventative treatment. In addition to foliar applications, REGALIA® Bioprotectant Concentrate can be used in multiple application methods as a plant dip, soil drench, in-furrow spray, or applied through drip irrigation to control or suppress certain soil-borne diseases and to promote healthy root growth.

When applied at rates and timing for plant health effects, the improved plant defense responses minimize the impacts of stress and disease, resulting in optimized yields at harvest. Applying Regalia® Bioprotectant Concentrate has been shown to increase leaf chlorophyll content and increase soluble protein content in some crops. These effects often lead to improved crop quality and/or yields.

MIXING AND APPLICATION INSTRUCTIONS

– SHAKE WELL PRIOR TO USE –

Mixing instructions: Prepare no more mixture than is required for the immediate operation. Agitate the solution continuously during mixing and application. Mechanical mixing is recommended for proper mixing of REGALIA® Bioprotectant Concentrate mixtures.

REGALIA® Bioprotectant Concentrate alone: Add ½ of the required amount of water to the mix tank. With the agitator running, add the REGALIA® Bioprotectant Concentrate to the mix tank. Continue agitation while adding the remainder of the water. Begin application of the solution after the REGALIA® Bioprotectant Concentrate has completely dispersed into the mix water. Maintain agitation until all the mixture has been applied.

REGALIA® Bioprotectant Concentrate + tank mixtures: Add ½–¾ of the required amount of water to the mix tank. Start the agitation before adding any tank mix ingredients. In general, tank mix ingredients should be added in this order: wettable powders, dry flowable formulations, liquid flowable formulations, and emulsifiable formulations such as REGALIA® Bioprotectant Concentrate. Always allow each tank mix ingredient to become completely dispersed before adding the next component. Maintain continuous agitation until all components have been dispersed and throughout the application process. After all components are completely dispersed add the remainder

of the water. REGALIA® Bioprotectant Concentrate cannot be mixed with another product with a prohibition against mixing. Use of the tank mix must be in accordance with the most restrictive label limitations and precautions. **Do not pre-mix REGALIA® Bioprotectant Concentrate with any other tank mix component prior to adding to the spray tank.**

Note: When using REGALIA® Bioprotectant Concentrate in tank-mixtures, all products in water soluble packaging should be added to the tank before any other tank-mix ingredient, including REGALIA® Bioprotectant Concentrate. Allow the water-soluble packaging to completely dissolve and the product(s) to completely disperse before adding any other tank-mix ingredient to the tank.

Compatibility: Do not combine REGALIA® Bioprotectant Concentrate in the spray tank with pesticides, adjuvants, or fertilizers if there has been no previous experience or use of the combination to show it is physically compatible, effective, and non-injurious under your use conditions. REGALIA® Bioprotectant Concentrate is compatible with many commonly used pesticides, fertilizers, adjuvants, and surfactants, but has not been evaluated with all potential combinations. To ensure compatibility of the tank mix combinations, evaluate prior to use as follows: Using a suitable container, add the proportional amounts of product to water. Add wettable powders first, then water dispersible granules, then liquid flowables, and lastly, emulsifiable concentrates. Mix thoroughly and let stand for at least five minutes. If the combination stays mixed or can be remixed, it is physically compatible. Test the mix on a small portion of the crop to be treated to ensure that a phytotoxic response will not occur as a result of the application.

Application Instructions: REGALIA® Bioprotectant Concentrate is a micro-emulsion concentrate consisting of certain ingredients extracted from *Reynoutria sachalinensis*. Use 50-mesh nozzle screens or larger. Use higher water volumes with larger sized crops and extensive foliage to obtain thorough coverage.

See **FOLIAR AERIAL and GROUND APPLICATION** section for use directions.

See **CHEMIGATION** section for chemigation use directions.

See **BACKPACK/HANDHELD SPRAYER** section for use directions.

See **PRE-PLANT DIP** section for pre-plant dip use directions.

See **SOIL TREATMENT** section for soil application use directions.

AERIAL APPLICATION INSTRUCTIONS

Apply REGALIA® Bioprotectant Concentrate by aerial application to the crops listed on this label at the rate of 0.5–1 quart per acre in a minimum of 5 gallons of water per acre unless otherwise specified in the **SELECTED CROPS** section. Increasing the amount of water applied per acre will improve product performance. Follow all instructions to reduce aerial drift.

AERIAL DRIFT REDUCTION ADVISORY INFORMATION

GENERAL: Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions. Where states have more stringent regulations, they should be observed. Note: This section is advisory in nature and does not supersede the mandatory label requirements.

INFORMATION ON DROPLET SIZE: The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply droplets large enough to provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions).

CONTROLLING DROPLET SIZE: Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets. Pressure – Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types, lower pressure produces larger droplets. When high flow rates are needed, use higher flow rate nozzles instead of increasing pressure. Number of Nozzles – Use the minimum number of nozzles that provide uniform coverage. Nozzle Orientation – Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential. Nozzle Type – Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce

larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

BOOM WIDTH: For aerial applications, the boom width must not exceed 75% of the wingspan or 90% of the rotary blade. Use upwind swath displacement and apply only when wind speed is 3–10 mph as measured by an anemometer. Use medium or coarser spray according to ASAE 572 definition for standard nozzles or VMD for spinning atomizer nozzles. If application includes a no-spray zone, do not release spray at a height greater than 10 feet above the ground or crop canopy.

APPLICATION HEIGHT: Do not make application at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

SWATH ADJUSTMENT: When applications are made with a crosswind, the swath will be displaced downward. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase with increasing drift potential (higher wind, smaller drops, etc.).

WIND: Drift potential is lowest between wind speeds of 2–10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. NOTE: Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

TEMPERATURE AND HUMIDITY: When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

TEMPERATURE INVERSIONS: Do not apply during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small, suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

SENSITIVE AREAS: The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g. when wind is blowing away from the sensitive areas). Do not allow spray to drift from the application site and contact people, structures people occupy at any time and the associated property, parks and recreation areas, non-target crops, aquatic and wetland areas, woodlands, pastures, rangelands, or animals.

GROUND APPLICATION USE DIRECTIONS

REGALIA® Bioprotectant Concentrate can be applied in most commonly-used ground application equipment, such as tractor-mounted boom, airblast, high clearance, hose-end, backpack, and other pressurized sprayers; or hand-held sprayers; foggers or mist blowers; water wheel and other drench applicators; and shank or other soil injection method. Apply in a minimum of 50 gal. of water per acre, unless specified otherwise. Thorough coverage is necessary to provide good disease control

BACKPACK/HANDHELD SPRAYER USE DIRECTIONS

The use rate for REGALIA® Bioprotectant Concentrate when applied alone or as an alternate spray in a backpack or hand-held sprayer is 1.3 – 2.6 tablespoons (0.64 – 1.28 fluid ounces) per gallon of water (0.5 – 1.0% v/v dilution of REGALIA® Bioprotectant Concentrate) applied at 1.15 – 2.3 gallons per 1000 square feet (50 – 100 gallons of water per acre). When tank mixed with another fungicide, the use rate for REGALIA® Bioprotectant Concentrate in a backpack or hand-held sprayer is 0.6 – 2.6 tablespoons (0.32 – 1.28 fluid ounces) per gallon of water applied at 1.15 – 2.3 gallons per 1000 square feet (50 – 100 gallons of water per acre). Use higher water volumes with larger sized

crops and extensive foliage in order to secure thorough coverage. Do not use carrier volumes and/or adjuvants that create spray runoff or drip-accumulation at the base of fruit or on the harvested commodity. See specific application recommendations pertaining to each crop for additional details.

CHEMIGATION USE DIRECTIONS

Apply this product through drip (trickle) irrigation systems. Do not connect an irrigation system (including greenhouse systems) used for pesticide applications to a public water system. Do not use reclaimed water for application of this product.

Spray preparation

First prepare a suspension of REGALIA® Bioprotectant Concentrate in a mix tank. Fill tank ½ to ¾ the desired amount of water. Start mechanical or hydraulic agitation. Add the required amount of REGALIA® Bioprotectant Concentrate, and then the remaining volume of water. Then set the irrigation system to deliver a minimum of 0.1 to 0.3 inch of water per acre. Start irrigation system and uniformly inject the suspension of REGALIA® Bioprotectant Concentrate into the irrigation water line so as to deliver the desired rate per acre. Inject the suspension of REGALIA® Bioprotectant Concentrate with a positive displacement pump into the main line after the filter, and ahead of a right angle turn to insure adequate mixing. Any questions on calibration should be directed to your State Extension Service Specialists, to equipment manufacturers or other experts.

Do not combine REGALIA® Bioprotectant Concentrate with pesticides, surfactants or fertilizers for application through chemigation equipment unless prior experience has shown the combination physically compatible, effective and non-injurious under conditions of use. REGALIA® Bioprotectant Concentrate has not been fully evaluated for compatibility with all adjuvants or surfactants. Conduct a spray compatibility test if a mixture with adjuvants or surfactants is planned.

Apply REGALIA® Bioprotectant Concentrate at 1–4 quarts per acre according to the instructions below unless specified differently in the SELECTED CROPS section.

CHEMIGATION

General Requirements –

- 1) Apply this product only through a drip or trickle system
- 2) Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water.
- 3) If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.
- 4) 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.
- 5) A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Specific Requirements for Chemigation Systems Connected to Public Water Systems –

- 1) Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.
- 2) Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.
- 3) The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

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

Specific Requirements for Sprinkler Chemigation –

- 1) The system must contain a functional check valve, vacuum relief valve and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- 2) The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- 3) The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- 4) The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- 5) The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- 6) Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- 7) Do not apply when wind speed favors drift beyond the area intended for treatment.

Specific Requirements for Drip (Trickle) Chemigation –

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

Application Instructions for All Types of Chemigation –

- 1) Remove scale, pesticide residues, and other foreign matter from the chemical supply tank and entire injector system. Flush with clean water. Failure to provide a clean tank, void of scale or residues may cause product to lose effectiveness or strength.
- 2) Determine the treatment rates as indicated in the directions for use and make proper dilutions. Product can be applied continuously or at any time during the water application.
- 3) Prepare a solution in the chemical tank by filling the tank with the required water and then adding product as required.

PRE-PLANT DIP USE DIRECTIONS

Apply REGALIA® Bioprotectant Concentrate as a pre-plant dip for improved plant health and suppression of certain soil-borne diseases. (See use table for more information.) Apply REGALIA® Bioprotectant Concentrate at a rate of

1–2 quarts product per 100 gallons of water as a dip (submerge roots or plugs ensuring full coverage, then remove) prior to transplanting, unless specified differently in the SELECTED CROPS section.

SOIL TREATMENT USE DIRECTIONS

REGALIA® Bioprotectant Concentrate can be applied by soil drench, in-furrow spray to improve plant health and to protect against certain soil-borne diseases.

In general, REGALIA® Bioprotectant Concentrate can be applied by the following methods, unless specified differently in the SELECTED CROPS section:

Soil Drench Applications:

Apply REGALIA® Bioprotectant Concentrate at a concentration of 1–2 quarts per 100 gallons of water, and at a sufficient rate to thoroughly soak the growing media and root zone. Make an initial application of REGALIA® Bioprotectant Concentrate during or shortly after transplant to reduce transplant shock, suppress the listed soil-borne diseases and improve root growth. Multiple drench applications can be made on a 10–14 day interval.

Shanked-In and Injected Applications:

REGALIA® Bioprotectant Concentrate can be shanked-in or injected into the soil alone, or with most types of liquid nutrients.

APPLICATION RATES FOR SELECTED CROPS

The use rate for REGALIA® Bioprotectant Concentrate when applied alone or as an alternate spray is 2–4 quarts per 100 gallons of water (0.5–1.0% v/v dilution of REGALIA® Bioprotectant Concentrate) applied at 50–100 gallons of water per acre. When tank mixed with another fungicide, the use rate for REGALIA® Bioprotectant Concentrate is 1–4 quarts in 100 gallons of water applied at 50–100 gallons of water per acre. Use higher water volumes with larger sized crops and extensive foliage in order to secure thorough coverage. Do not use carrier volumes and/or adjuvants that create spray runoff or drip-accumulation at the base of fruit or on the harvested commodity. Repeat at 7–14-day intervals as needed. See specific application recommendations for each crop for additional details.

Pre-harvest Interval (PHI) = 0 days

Regalia® Bioprotectant Concentrate has a per-harvest interval (PHI) of 0 days.

ORNAMENTALS

Herbaceous Ornamentals: Flowering Plants, Foliage Plants, Bedding Plants Flowering Plants, Foliage Plants, Bedding Plants

Woody Ornamentals: Broadleaves (Shrubs and Trees), Conifers (Shrubs and Trees)

Target disease:

- Anthracnose (*Colletotrichum* spp.)
- Bacteria (*Erwinia* spp.), (*Pseudomonas* spp.), (*Xanthomonas* spp.)
- Black Spot of Rose (*Diplocarpon rosae*)
- Blossom Blight (*Monilinia* spp.)
- Downy Mildew (*Peronospora* spp.), (*Plasmopara viburni*)
- Gray Mold (*Botrytis cinerea*)
- Leaf Spot (*Alternaria* spp.), (*Cercospora* spp.), (*Entomosporium* spp.), (*Myrothecium* spp.), (*Septoria* spp.)
- Powdery Mildew (*Erysiphe* spp.), (*Oidium* spp.), (*Podosphaera* spp.), (*Sphaerotheca* spp.)
- Rust (*Puccinia* spp.)
- Scab (*Venturia* spp.)

1–4 quarts per acre for FOLIAR applications

- For foliar applications, mix this product concentrate with water at a concentration of 2–4 quarts per 100 gallons of water when used alone or 1–4 quarts per 100 gallons of water when tank mixed with another fungicide.
- Begin applications preventatively (before disease symptoms become visible) at the 4 to 6-leaf stage and treat at 7–10 day intervals as needed prior to sale or harvest. Spray until just before point of runoff.
- This product may be used to control certain diseases of container, bench, flat, plug, bed, or field-grown ornamentals in **greenhouses, shade-houses, outdoor nurseries, retail nurseries, and other landscape areas.**

Target disease:

- *Fusarium* spp.
- *Phytophthora* spp.
- *Pythium* spp.
- *Rhizoctonia* spp.
- *Verticillium* spp.

1–3 quarts per 100 gallons of water for SOIL DRENCH applications

- For soil drench applications, apply this product at a concentration of 1–3 quarts per 100 gallons of water, and at a sufficient rate to thoroughly soak the growing media and root zone. Make an initial application of this product during or shortly after transplant to reduce transplant shock, suppress soil-borne diseases and improve root growth. Multiple drench applications can be made on a 10–14 day interval.

1–2 quarts per 100 gallons of water for PLANT DIP applications

- For plant dip applications for improved plant growth and suppression of soil-borne diseases, apply this product in a 0.25–0.5 % v/v suspension (1–2 quarts per 100 gallons water) as a pre-plant dip immediately prior to transplanting.

1–4 quarts per acre for CHEMIGATION applications

- For chemigation applications for improved plant growth, apply this product through drip irrigation immediately after transplant and at 14-day intervals or begin 14 days after transplant when soil drench applications are used.

The following plant species have been treated with Regalia® Bioprotectant Concentrate to prevent disease.

Plants investigated:

Annual and Perennial Flowering Plants: Begonias, Freesias, Geraniums, Gerbera, Impatiens, *Lamium*, Lisianthus, Petunias, Poinsettias, Roses, Salvias, Snapdragons, Zinnias.

Trees and Shrubs: Azalea, Boxwood, Crape Myrtle, Dogwood, Indian Hawthorne, Jumbo Azalea, Lilac, Loropetalum, Japanese Maple, Japanese Privet, *Photinia*, Rhododendron, *Rosaceae*, Soft Touch Holly, Spirea, *Viburnum*.

Tropical Foliage: *Aglaonema*, *Dieffenbachia*, *Dracaena*, English Ivy, *Hibiscus*, Leatherleaf Fern, *Spathiphyllum*. Since it is not possible to test all ornamental species or varieties grown in the greenhouse, test Regalia® Bioprotectant Concentrate on a few plants prior to large-scale usage.

TURFGRASS AND ORNAMENTAL GRASSES: Bluegrass, Bentgrass, Bermudagrass, Dichondra, Fescue, Orchardgrass, *Poa annua*, Ryegrass, St. Augustine, Zoysia, mixtures

Target disease:

- Anthracnose (*Colletotrichum graminicola*)
- Bentgrass/Bermudagrass Dead Spot (*Ophiosphaerella agrostis*)
- Bermudagrass Decline (*Gaeumannomyces graminis* var. *graminis*)
- Brown patch (*Rhizoctonia solani*)
- Copper Spot (*Gloeocercospora sorghi*)
- Dichondra Rust (*Puccinia dichondrae*)
- Dollar Spot (*Lanzia* spp.) (*Moellerodiscus* spp. formerly *Sclerotinia homeocarpa*)
- Fusarium Patch (*Fusarium nivale*)
- Gray Leaf Spot (*Pyricularia grisea*)
- Melting Out Leaf Spot (*Bipolaris* spp.), (*Drechslera* spp.)
- Necrotic Ring Spot (*Leptosphaeria korrae*)
- Pink Patch (*Limonomyces roseipellis*)
- Powdery Mildew (*Erysiphe graminis*)
- Pythium Blight, Pythium Root Rot (*Pythium aphanidermatum*), (*Pythium* spp.)
- Red Thread (*Laetisaria fuciformis*)
- Rust (*Puccinia* spp.)
- Rhizoctonia Large Patch (*Rhizoctonia solani*)
- Snowmold, Gray (*Typhula* spp.)
- Snowmold, Pink (*Microdochium nivale*)
- Southern Blight (*Sclerotium rolfsii*)
- Spring Dead Spot (*Leptosphaeria korrae*), (*Leptosphaeria narmari*), (*Ophiosphaerella herpotricha*), (*Gaeumannomyces graminis*)

- Stripe Smut (*Ustilago striiformis*), (*Urocystis agropyri*)
- Summer Bentgrass Decline
- Summer Patch, Poa Patch (*Magnaporthe poae*)
- Take-All Patch (*Gaeumannomyces graminis*)
- Yellow Patch (*Rhizoctonia cerealis*)
- Yellow Tuft/Downy Mildew (*Sclerophthora macrospora*)
- Zoysia Patch (*Rhizoctonia solani*)

1–3 fluid ounces per 1000 square feet in a minimum of 1.5 gallons of water for FOLIAR applications, or 3–8 pints per acre in a minimum of 50 gallons of water for FOLIAR applications

- This product aids in control of turf diseases and improves turf quality. For improved performance under moderate to severe disease pressure, reduce spray intervals or use this product in a tank mix or rotational program with other registered fungicides.
- Begin applications preventatively (before disease symptoms become visible) and treat at 7 day intervals as needed. Spray water volumes must be of at least 1.15 gallons of water per 1000 sq. ft. Under moderate to high disease pressure, tank mix with other registered fungicides.

This product may be used to control certain diseases of container, bench, flat, plug, bed, or field-grown ornamentals and edible crops in **greenhouses, shade-houses, outdoor nurseries, retail nurseries, and other landscape areas.**

For greenhouse application on the crops and diseases listed, the recommended use rate for REGALIA® Bioprotectant Concentrate is 2–4 quarts in 100 gallons of water (0.5–1.0% v/v dilution for REGALIA® Bioprotectant Concentrate) sprayed until just before point of runoff. When tank mixed with another fungicide, the use rate for REGALIA® Bioprotectant Concentrate is 1–4 quarts in 100 gallons of water. Repeat at 7–14-day intervals as needed. See specific application recommendations for each crop for additional details.

REGALIA® Bioprotectant Concentrate has a **pre-harvest interval (PHI) of 0 days.**

FRUITING VEGETABLES (GREENHOUSE): Tomato, Pepper, Eggplant, Ground Cherry, Okra, Tomatillo

Target disease:

- Anthracnose (*Colletotrichum* spp.)
- Bacterial Spot (*Xanthomonas* spp.)
- Bacterial Speck (*Pseudomonas syringae*)
- Damping-off (*Fusarium* spp.), (*Pythium* spp.), (*Rhizoctonia solani*)
- Early Blight (*Alternaria solani*)
- Gray Mold (*Botrytis cinerea*)
- Late Blight (*Phytophthora infestans*)
- Phytophthora Blight (*Phytophthora capsici*)
- Powdery Mildew (*Erysiphe* spp.), (*Leveillula taurica*), (*Oidopsis taurica*), (*Sphaerotheca* spp.)

1–3 quarts per acre for FOLIAR (GROUND) applications

- For ground applications, apply this product preventatively in 25–100 gallons of water per acre. Increase water volume as plant size increases. Do not exceed 1.0% v/v of the applied solution.
- Repeat applications at 7–10 day intervals.
- Tank mix this product with other registered fungicides for improved disease control under heavy pressure.
- Phytophthora Blight – Apply this product in combination with labeled rates of a copper fungicide or with another fungicide labeled for Phytophthora Blight control.

0.5–1 quart per acre for FOLIAR (AERIAL) applications

- For aerial applications, apply this product in a minimum of 10 gallons of water per acre.
- Repeat applications at 7–10 day intervals.
- Tank mix this product with other registered fungicides for improved disease control under heavy pressure.
- Phytophthora Blight – Apply this product in combination with labeled rates of a copper fungicide.

Target disease:

- *Fusarium* spp.
- *Phytophthora* spp.
- *Pythium* spp.

Rhizoctonia

- spp.

1–2 quarts per 100 gallons of water for SOIL DRENCH applications

- For soil drench applications, apply this product at a concentration of 1–3 quarts per 100 gallons of water, and at a sufficient rate to thoroughly soak the growing media and root zone. Make an initial application of this product during or shortly after transplant to reduce transplant shock, suppress soil-borne diseases and improve root growth. Multiple drench applications can be made on a 10–14-day interval.

1–2 quarts per acre or 2.2–8.8 fluid ounces per 1000 ft. row for IN-FURROW applications

- For in-furrow applications at planting, apply this product as an in-furrow spray at the rate of 1–4 quarts per acre or 2.2–8.8 fluid ounces per 1000 feet of row according to the chart in the SOIL TREATMENT USE DIRECTIONS section. Apply this product in 5–15 gallons of water so as the spray is directed into the seed furrow just before the seeds are covered.

1–2 quarts per 100 gallons of water for PLANT DIP applications

- For plant dip applications for improved plant growth and suppression of soil-borne diseases, apply this product in a 0.25–1% v/v suspension (1–4 quarts this product per 100 gallons water) as a pre-plant dip immediately prior to transplanting.

1–2 quarts per acre for CHEMIGATION applications

- For chemigation applications for improved plant growth and suppression of soil-borne diseases, apply this product through drip irrigation at the rate of 1–4 quarts per acre immediately after transplant and at 14-day intervals or begin 14 days after transplant when plant dip or soil drench applications are used.

LEAFY VEGETABLE CROPS (GREENHOUSE): Arugula, Beet, Celery, Chervil, Cilantro, Corn Salad, Cress, Dandelion, Dock, Edible Chrysanthemum, Endive, Fennel, Garden Peas, Head Lettuce, Leaf Lettuce, Parsley, Purslane, Radicchio, Rhubarb, Spinach, Swiss Chard, Watercress

Target disease:

- Downy Mildew (*Bremia lactucae*), (*Peronospora* spp.)
- Bacterial Blight/Rot (*Xanthomonas* spp.)
- Cercospora leafspot (*Cercospora* spp.)
- Early Blight of celery (*Cercospora apii*)
- Late Blight (*Septoria apiicola*)
- Pink Rot (*Sclerotinia sclerotiorum*)
- Powdery Mildew (*Erysiphe cichoracearum*)
- Sclerotinia Head and Leaf Drop (*Sclerotinia minor*), (*Sclerotinia sclerotiorum*)
- White Rust (*Albugo occidentalis*)

0.5–4 quarts per acre for FOLIAR (GROUND) applications

- For ground applications, apply this product at 0.5–4 quarts in 25–100 gallons of water per acre, in a 0.5% - 1.0% v/v applied solution.
- For concentrated ground applications, apply this product at 0.5–1.5 quarts per acre in a minimum of 10 gallons of water per acre.
- Repeat applications at 5–14-day intervals.

0.5–1.5 quarts per acre for FOLIAR (AERIAL) applications

- West of the Rocky Mountains – For aerial applications, apply this product at 0.5–1.5 quarts per acre in a minimum of 10 gallons of water per acre.
- East of the Rocky Mountains – For aerial applications, apply this product at 0.5–1 quarts per acre in a minimum of 5 gallons of water per acre.
- For California – For aerial application apply REGALIA® Bioprotectant Concentrate at 1–3 pints per acre in 10–20 gallons of water per acre.
- Repeat applications at 5–14day intervals.

Target disease:

- *Fusarium* spp.
- *Phytophthora* spp.
- *Pythium* spp.
- *Rhizoctonia* spp.
- *Verticillium* spp.

1.5–2.5 fluid ounces per 100 lbs. seed for SEED TREATMENT applications

- For suppression of soil-borne diseases, apply this product as a seed treatment at the rate of 1.5–2.5 fl. oz. per 100 lbs. seed.

HERBS/SPICES (GREENHOUSE): Angelica, Balm, Basil, Borage, Burnet, Chamomile, Catnip, Chervil, Chive, Clary, Coriander, Costmary, Cilantro, Curry, Dillweed, Horehound, Hyssop, Lavender, Lemongrass, Lovage, Marjoram, Nasturtium, Parsley (dried), Peppermint, Rosemary, Sage, Savory (summer and winter), Sweet Bay, Tansy, Tarragon, Thyme, Wintergreen, Woodruff, Wormwood

Target disease:

- Bacterial Leaf Spot (*Pseudomonas* spp.)
- Downy Mildew (*Peronospora* spp.)
- Powdery Mildew (*Erysiphe* spp.)
- Rust (*Puccinia menthae*)

1–4 quarts per acre for FOLIAR (GROUND) applications

- For ground applications, apply this product preventatively in a minimum of 50 gallons of water per acre.
- Repeat applications at 7–14-day intervals.

0.5–1 quart per acre for FOLIAR (AERIAL) applications

- For aerial applications, apply this product in a minimum of 5 gallons water per acre.
- Repeat applications at 7–14day intervals.

SWITCHGRASS, MISCANTHUS

Target disease:

- Anthracnose (*Colletotrichum* spp.)
- Barley yellow dwarf virus
- Fungal Disease Complexes (*Bipolaris* spp., *Monographella* spp., *Phaeosphaeria* spp.)
- Miscanthus blight
- Miscanthus streak virus
- Panicum mosaic virus
- Pithomyces blight
- Rust (*Puccinia* spp.)
- Smut (*Tilletia* spp.)
- Switchgrass Mosaic Virus

1–2 quarts per acre FOLIAR (GROUND) applications

- For ground applications to optimize disease control and to maximize yields, apply this product in 15–40 gallons of water per acre.
- It is important to apply this product at the flag leaf stage to maximize yield. Apply this product preventatively or when the first disease symptoms appear. Repeat applications on 7–14 day intervals depending upon crop growth and disease pressure.
- When the plants are under high disease pressure, tank-mix this product with another fungicide for more effective control.

0.5–1 quarts per acre FOLIAR (AERIAL) applications

- For aerial applications, apply this product in a minimum of 5 gallons water per acre.
- It is important to apply this product at the flag leaf stage to maximize yield. Apply this product preventatively or when the first disease symptoms appear. Repeat applications on 7–14 day intervals depending upon crop growth and disease pressure.
- When the plants are under high disease pressure, tank-mix this product with another registered fungicide for more effective control.

STORAGE AND DISPOSAL

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

Pesticide Storage: Store in a cool, dry place. Avoid freezing.

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

Container Handling: Non-refillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available, or puncture and dispose of in a sanitary landfill or by incineration. Do not burn unless allowed by state and local ordinances.

Container Handling (over 5 gallons): Non-refillable container. Do not reuse or refill this container Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ 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. Then offer for recycling if available, or puncture and dispose of in a sanitary landfill or by incineration. Do not burn unless allowed by state and local ordinances.

Marrone Bio Innovations is a member of the Ag Container Recycling Council.

Visit <http://www.acrecycle.org/contact.html> for information on how to arrange pick-up of this empty pesticide container.



WARRANTY

To the extent consistent with applicable law, the seller makes no warranty, expressed or implied, of merchantability, fitness or otherwise concerning use of this product. To the extent permitted by applicable law, the user assumes all risks of use, storage or handling that are not in strict accordance with the accompanying directions.

Label date:

Made in the U.S.A.

PURE MICHIGAN

US Patents No. 4,863,734 and No. 5,989,429

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Sublabel D: Home & Garden Use

REGALIA® Bioprotectant Concentrate

A plant extract to boost the plants' defense mechanisms to protect against certain fungal and bacterial diseases, and to improve plant health.

Active ingredient: Extract of *Reynoutria sachalinensis* 5 %
Other ingredients:..... 95 %
Total 100 %

EPA Reg. No. 84059-3

EPA Est. No. 085970-FL-001
EPA Est. No. 084059-MI-001

KEEP OUT OF REACH OF CHILDREN

CAUTION

See back/side/top/bottom[panel/label] for additional precautionary statements.

FIRST AID	
IF SWALLOWED:	Call 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 the poison control center or doctor. Do not give anything by mouth to an unconscious person.
IF ON SKIN OR CLOTHING:	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control center or doctor for treatment advice.
IF INHALED:	Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.
IF IN EYES:	Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
HOTLINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor, or if going for treatment. You may also contact 1-800-222-1222 for emergency medical treatment information.	



(USDA BioBased logo placeholder)

(Pure Michigan placeholder)

CAN BE USE IN ORGANIC GARDENING

LOT #: _____
[superscript is first letter of lot number] or [LOT #: _____]

Net Contents: 1 pint, 1 quart, 1 gallon, 2.5 gallon.
Marrone Bio Innovations, Inc. 1540 Drew Ave., Davis, CA 95618

PURE MICHIGAN

Made in the USA

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS – CAUTION: Causes moderate eye irritation. Avoid contact with eyes, skin or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove contaminated clothing and wash before reuse.

ENVIRONMENTAL HAZARDS: To protect the environment, do not allow pesticide to enter or run off into storm drains, drainage ditches, gutters or surface waters. Applying this product in calm weather when rain is not predicted for the next 24 hours will help to ensure that wind or rain does not blow or wash pesticide off the treatment area. Rinsing application equipment over the treated area will help avoid runoff to water bodies or drainage systems.

DIRECTIONS FOR USE

It is a violation of Federal law to apply this product in a manner inconsistent with its labeling.

OPTION 1

HOME AND GARDEN USE DIRECTIONS

REGALIA® Bioprotectant Concentrate is a broad spectrum (biological/bio) fungicide used for the control or suppression of a broad range of foliar diseases. REGALIA® Bioprotectant Concentrate may be used on vegetable crops, roses, fruits, nuts, flowers, bedding plants, foliage, houseplants, trees and shrubs located in residential landscapes. REGALIA® Bioprotectant Concentrate can be applied up to and on the day of harvest on all fruits and vegetables.

WHEN TO USE

For best results, apply REGALIA® Bioprotectant Concentrate prior to disease development or at the first sign of diseases and continue applying on a 7-day schedule or as needed.

BEFORE YOU USE

Read and follow these directions when using:

Do not allow spray to drift from application site.

Use only with pressurized hand-held sprayers or spray trigger bottles.

Do not allow spray mixture to stand overnight or for prolonged periods.

REGALIA® Bioprotectant Concentrate can be applied in commonly used pressurized hand-held sprayers, spray trigger bottles and hose-end sprayers.

HOW TO USE FOR HAND-HELD SPRAYERS AND SPRAY TRIGGER BOTTLES

Shake well before use.

Fill sprayer or bottle with appropriate amount of water and concentrate.

Mix the spray solution thoroughly.

Keep the spray solution agitated during application.

HOW TO USE FOR HOSE-END SPRAYERS

Shake well before use.

Follow hose-end sprayer instructions to determine how to fill, set dial, clean and disconnect from hose.

Set dial on sprayer to deliver rate as directed below.

HOW MUCH TO USE FOR ALL APPLICATIONS:

1 fluid ounce (2 TBSP) of REGALIA® Bioprotectant Concentrate per gallon of water.

Spray plants to complete wetness, covering both top and bottom leaf surfaces to ensure complete coverage.

Some pesticides (garden care products)(plant protection products) can cause phytotoxic effects ranging from slight burning or browning of leaves to distorted leaves, fruit, flowers or stems. Damage symptoms may vary with the type of plant that has been treated. It is impossible to test all plant species for phytotoxicity. To assure that the plants to be treated are not sensitive to the treatment, apply a small amount of the product to a few leaves or the above ground portion of the plant and check back in 2–4 days for signs of phytotoxicity. Use product according to label directions.

OPTION 2

WHEN TO USE

For best results, apply REGALIA® Bioprotectant Concentrate prior to disease development or at the first sign of diseases and continue applying on a 7-day schedule or as needed.

[As a preventative, apply every 7 to 14 days until the potential for disease has passed. To control disease that is already present, apply on a 7-day schedule until disease symptoms are gone. Then continue spraying every 14 days to prevent disease recurrence.]

BEFORE YOU USE

Read label [before use]

Do not allow spray to drift from application site.

Use only with pressurized hand-held sprayers/[hand-held] trigger-spray bottles/hose-end sprayers.

Do not allow spray mixture to stand overnight or for prolonged periods.

HOW TO USE [for pressurized hand-held sprayers/[hand-held] trigger-sprayers]

Shake [concentrate] before use

Fill sprayer with 1fl.oz. (2 TBSP) of REGALIA® Bioprotectant Concentrate per gallon of water [(or 1 1/2 tsp. per 32 fl. oz. of water)]

Mix thoroughly

Spray both tops and bottoms of leaves/leaf surfaces [thoroughly] until dripping wet.

Shake sprayer occasionally during application [to keep product well mixed]

HOW TO USE [for hose-end sprayers]

Shake [concentrate] before use

Follow hose-end sprayer instructions to determine how to fill, set dial, clean and disconnect from hose.

Set dial on sprayer to deliver 1fl.oz. (2 TBSP) of REGALIA® Bioprotectant Concentrate per gallon of water

Spray both tops and bottoms of leaves/leaf surfaces [thoroughly] until dripping wet.

HOW TO USE [for Pre-Plant Dip Applications]

REGALIA® Bioprotectant Concentrate can be applied as a pre-plant dip for improved health and suppression of certain soil-borne diseases when transplanting. Shake [concentrate] before use. Mix 1oz. (2TBSP) REGALIA® Bioprotectant Concentrate per gallon of water, briefly submerge roots or plugs in mixture (ensuring full coverage, then remove) before transplanting.

HOW TO USE [for Soil Drench Applications]

Shake [concentrate] before use. Mix REGALIA® Bioprotectant Concentrate at a concentration of 1oz (2TBSP) per gallon of water and apply at a sufficient rate to thoroughly soak the soil and root zone. Make an initial application of REGALIA® Bioprotectant Concentrate during or shortly after transplant to reduce transplant shock, suppress soil-borne diseases and improve root growth. Multiple drench applications can be made on a 10-14-day interval.

[HOW IT WORKS/MODE OF ACTION]

REGALIA® Bioprotectant Concentrate contains an extract from the plant *Reynoutria sachalinensis*, that when applied according to label directions triggers an immune response that protects treated plants from numerous diseases. The induced resistance provided by REGALIA® is not systemic, therefore thorough coverage of above-ground plant parts is important to achieving optimal control. Repeat foliar applications at 7–14 day intervals to maintain induction and to protect new plant growth. Use REGALIA® Bioprotectant Concentrate as a preventative treatment prior to the development of disease symptoms.

[Phytotoxicity Note:]

or

Some garden care products can cause adverse effects such as (yellowing) (browning) (slight burning of leaves). (Some sensitive plant varieties may be slightly burned by garden care products.) In general, plant damage can be avoided by following labeled rates. Plants to be treated can be checked for sensitivity to REGALIA® by applying the product to a few leaves and checking back in 2–4 days for signs of damage.

DISEASES CONTROLLED OR SUPPRESSED† [ON VEGETABLES, FRUITS, TREE NUTS, ORNAMENTAL PLANTS, TREES, SHRUBS, FLOWERS, BEDDING PLANTS, FOLIAGE AND TROPICAL PLANTS]

Anthrachnose (*Colletotrichum* spp.)

Bacteria (*Erwinia* spp., *Pseudomonas* spp., *Xanthomonas* spp.)

Bacterial Leaf Blight (*Xanthomonas campestris*)

Bacterial Speck (*Pseudomonas syringae* pv. Tomato)

Bacterial Spot (*Xanthomonas* spp.)

Bean Rust (*Uromyces appendiculatus*)

Black Mold (*Alternaria alternata*)

Black Rot/Black Crown Rot (*Alternaria* spp.)

Black Spot of Rose (*Diplocarpon rosea*)

Botrytis (*Botrytis* spp.)

Botrytis Leaf Blight (*Botrytis squamosa*)

Botrytis Neck Rot (*Botrytis* spp.)

Brown Rot (*Monilinia* spp.)

Downy Mildew† (*Bremia lactucae*, *Peronospora* spp., and *Plasmopara viticola*)

Early Blight (*Alternaria solani*)

Fire Blight† (*Erwinia amylovora*)

Gummy Stem Blight (*Didymella bryoniae*)

Gray Mold (*Botrytis cinerea*)

Greasy Spot (*Mycosphaerella citri*)

Late Blight† (*Phytophthora infestans*)

Leaf Spots (*Alternaria* spp., *Cercospora* spp., *Septoria* spp.)

Onion Downy Mildew (*Peronospora destructor*)

Onion Purple Blotch (*Alternaria porri*)

Pin Rot (*Alternaria/Xanthomonas* complex)

Phytophthora spp.

Powdery Mildew (*Uncinula necator*, *Erysiphe* spp., *Sphaerotheca* spp., *Oidiopsis taurica*, *Leveillula taurica*,

Podosphaera leucotricha, *Oidium* spp., *Podosphaera* spp.)

Rust (*Puccinia* spp.)

Scab† (*Venturia* spp.)

Sclerotinia Head and Leaf Drop† (*Sclerotinia* spp.)

Sour Rot (*Alternaria tenuis*, *Aspergillus* spp., *Botrytis cinerea*, *Cladosporium herbarum*, *Penicillium* spp., *Rhizopus arrhizus*)

Target Spot (*Corynespora cassiicola*)

Walnut Blight (*Xanthomonas campestris*)

STORAGE AND DISPOSAL

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

Pesticide Storage: Store in a cool, dry place. Avoid freezing.

Pesticide Disposal and Container Handling: If empty: Nonrefillable container. Do not reuse or refill this container. Place in trash and offer for recycling if available.

If partially filled: Call your local solid waste agency for disposal instructions. Never place unused product down any indoor or outdoor drain.

WARRANTY

To the extent consistent with applicable law, the seller makes no warranty, expressed or implied, of merchantability, fitness or otherwise concerning use of this product. To the extent permitted by applicable law, the user assumes all risks of use, storage or handling that are not in strict accordance with the accompanying directions.

-or-

(*)The (insert company name) Guarantee – If for any reason you are not satisfied with this product, send proof of purchase to the address shown and we will gladly refund your purchase price.

OPTIONAL CLAIMS

The following claims may appear on any label panel

1. Boost plants' defenses [for stronger healthier plants]
2. Strengthens plants' immunity
3. Improves plant health
4. Controls/Prevents common garden diseases [and improves plant health]
5. Controls/Prevents powdery mildew, leaf spot and rust
6. Controls/Prevents black spot on rose
7. Fungal and bacterial disease control
8. Defends gardens by boosting plant defenses
9. Defending gardens against diseases...one plant at a time!
10. Use on fruits, vegetables and ornamentals
11. Can be applied as a pre-plant dip [for improved plant health]
12. Can be applied as a soil drench application
13. [Can be] use(d) as a preventative to protect [growing] plants from common garden diseases
14. For use on ornamental plants and edible crops/fruits/vegetables.
15. For use on vegetables, roses, fruits, berries, nuts, flowers, bedding plants, houseplants, (ornamental) trees and shrubs [located in residential landscapes].
16. REGALIA[®] Bioprotectant Concentrate may be used on vegetable(s) [crops], roses, fruits, berries, nuts, flowers, foliage, houseplants, (ornamental) trees and shrubs [located in residential landscapes].
17. REGALIA[®] Bioprotectant Concentrate is a broad spectrum fungicide used for the control or suppression of a broad range of foliar [fungal and bacterial] diseases.
18. (Active ingredient is) a plant extract to boost the plants' defense mechanisms to protect against certain fungal and bacterial diseases, and to improve plant health.
19. Active ingredient (is) made from a plant extract (botanical extract)(plant-based)
20. REGALIA[®] Bioprotectant Concentrate is an extract from the plant *Reynoutria sachalinensis*
21. REGALIA[®] Bioprotectant Concentrate can be applied up to and on the day of harvest [on all fruits and vegetables].
22. Made in the U.S.A.
23. This container is made with X% recycled material
24. Guaranteed results(*)
25. Label date:
26. US Patents No. 4,863,734 and No. 5,989,429
27. REGALIA[®] is a trademark of Marrone Bio Innovations, Inc.
28. Marrone Bio Innovations' name and logo are registered trademarks of Marrone Bio Innovations, Inc.
29. © insert company copyright information
30. World rights reserved
31. Distributed by: insert company name and address
32. company website
33. [For] questions/comments
34.  OMRI
Listed
35.  Can be used for organic gardening
36.  For (use in) organic gardening
37. GENERAL INFORMATION: REGALIA[®] Bioprotectant Concentrate is an extract from the plant *Reynoutria sachalinensis* REGALIA[®] Bioprotectant Concentrate applied to actively growing plants will improve plant health, and will help make the treated portions resistant to certain plant diseases. [Plant health benefits often result in greater yields at harvest, especially when crops/plants are stressed by pathogens or environmental conditions].
38. MODE OF ACTION: The extract obtained from *Reynoutria sachalinensis* plant material contains active chemical compounds. The extract, when applied to the host plant, increases the plant's defense system due to a five-fold increase in phenolics and antioxidants, and strengthens cell walls. This induced resistance against important diseases is not systemic, but provides some translaminar protection. The resistance induction takes place within one to two days of application.
39. MODE OF ACTION: REGALIA[®] Bioprotectant Concentrate contains an extract from the plant *Reynoutria sachalinensis*, that when applied according to label directions triggers an immune response that protects treated plants from numerous diseases. The induced resistance provided by REGALIA[®] is not systemic, therefore thorough coverage of above-ground plant parts is important to achieving optimal control. [Repeat foliar applications at 7–14-day intervals to maintain induction and to protect new plant growth]. Use REGALIA[®] Bioprotectant Concentrate as a preventative treatment prior to the development of disease symptoms.
40. REGALIA[®] Bioprotectant Concentrate is (an extract from the plant *Reynoutria sachalinensis*) for use on (ornamental plants), (turf), (agricultural crops), (edible crops), (non-edible crops), (food crops), (non-food crops), (feed crops), or (non-feed crops).
41. Optional Language: (*) and (*= Not for use in California)

42. Repackaging or relabeling of this product without express written permission from Marrone Bio Innovations is prohibited.