

# Actinovate® AG

biological  
fungicide

**ACTIVE INGREDIENT: (% w/w)**

*Streptomyces lydicus* WYEC 108\* ..... 0.037%

**OTHER INGREDIENTS** ..... **99.963%**

**TOTAL** ..... **100.000%**

\* End-use product contains not less than 10 million (1 X 10<sup>7</sup>) colony forming units per gram [cfu/g] *Streptomyces lydicus* WYEC 108

**Keep Out of Reach of Children**

## CAUTION

See complete label for additional precautionary statements, first aid, complete directions for use and warranty.

For product use information call: 1-800-245-4104

**For Medical, Transportation, Spill, or other Emergencies, call the poison control center at 1-800-222-1222**

FIRST AID	
<b>IF IN EYES:</b>	<ul style="list-style-type: none"><li>• 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.</li><li>• Call a poison control center or doctor for treatment advice.</li></ul>
<b>IF INHALED:</b>	<ul style="list-style-type: none"><li>• Move person to fresh air.</li><li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth if possible.</li><li>• Call a poison control center or doctor for further treatment advice.</li></ul>
<b>IF ON SKIN OR CLOTHING:</b>	<ul style="list-style-type: none"><li>• Take off contaminated clothing.</li><li>• Rinse skin immediately with plenty of water for 15 – 20 minutes.</li><li>• Call a poison control center or doctor for treatment advice.</li></ul>
<b>IF SWALLOWED:</b>	<ul style="list-style-type: none"><li>• Call a poison control center or doctor immediately for treatment advice.</li><li>• Have person sip a glass of water if able to swallow.</li><li>• Do not induce vomiting unless told to do so by a poison control center or doctor.</li><li>• Do not give anything by mouth to an unconscious person.</li></ul>
HOT LINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. In case of an emergency involving this product, or for medical assistance call the poison control center at 1-800-222-1222.	

EPA Reg. No.: 73314-20

EPA Est. 73314-WI-002

Novozymes BioAg Inc. 3101 W. Custer Ave. Milwaukee WI, 53209 1-800-245-4104

The VALENT logo is a registered trademark of Valent USA LLC. Actinovate® is a registered trademark of Novozymes A/S ©2020 Novozymes A/S. All Rights Reserved. All other trademarks are the property of their respective owners.

20005.02.21 2621-169



Batch Code: \_\_\_\_\_ Not for sale or use after \_\_\_\_\_



\_\_\_\_\_

**Net Weight**  
5 lb (2.3 kg)

novozymes®

# PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS

## CAUTION

Avoid contact with eyes, skin, or clothing. Avoid breathing dust or spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove and wash contaminated clothing before reuse.

## PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks

Mixer/loaders and applicators must wear a NIOSH-approved particulate respirator with any R or P filter with NIOSH approval number prefix TC-84A; or a NIOSH-approved powered air purifying respirator with an HE filter with NIOSH approval number prefix TC-21C. Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.

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

## ENGINEERING CONTROLS

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

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

## USER SAFETY RECOMMENDATIONS

### Users should:

- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. As soon as possible, wash thoroughly and change into clean clothing.

## ENVIRONMENTAL HAZARDS

For terrestrial uses: Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwater or rinsate. Cover or collect seeds or product spilled during use.

## DIRECTIONS FOR USE

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

## Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and 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 four (4) hours.**

**Exception:** If the product is 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.

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

- Coveralls
- Chemical-resistant gloves (made of any waterproof material)
- Shoes plus socks

## Non-Agricultural Use Requirements

The requirements in this box apply to uses of the 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 treatment area until seed have dried or have been packaged.

## PRODUCT INFORMATION:

Actinovate® AG is a biological fungicide/bactericide for the suppression or control of a broad range of soil-borne and foliar diseases across multiple crops. The active ingredient in Actinovate® AG is a microbe that colonizes the root system and foliage of the plant and protects it from harmful bacteria and fungi.

Plants treated with Actinovate® AG as a soil drench will become hardier, more vigorous and will have a robust and protected root system.

## INTEGRATED PEST MANAGEMENT (IPM):

Users may integrate this product into an overall disease and pest management strategy whenever the use of a fungicide/bactericide is necessary. Follow practices known to reduce disease development. This product may be used with compatible registered fungicide, bactericide, insecticide, or nematocidal products unless restricted. Consult manufacturer for compatibility questions and pre-check for compatibility as appropriate. Consult local agricultural authorities for specific IPM strategies developed for your crop(s) and location.

## USE INFORMATION:

Actinovate® AG contains live spores of a microbe and, for best results, should be used prior to disease onset or in the early stages of disease development. Actinovate® AG becomes active when the temperature is above 45°F and is less effective at cooler temperatures. This product can be applied to sterilized

or fumigated soil after the sterilization is complete or the fumigant has dissipated. For best results, apply to damp soil. Always follow good agricultural practices, including but not limited to, crop rotation, planting resistant varieties, sanitation, irrigation, and fertility management. If high disease pressure is anticipated, tank mix high rates of Actinovate® AG with another pesticide labeled for use on the target pest and shorten spray interval (within the label limits).

#### **PREHARVEST INTERVAL:**

Actinovate® AG can be applied up to and including the day of harvest.

#### **RESTRICTIONS AND LIMITATIONS:**

**Do not tank mix** Actinovate® AG with chlorinated water, quaternary ammonia, or hydrogen peroxide.

#### **APPLICATION DIRECTIONS:**

Carefully read and follow all label directions, use rates, and restrictions. For best results for the labeled plant diseases, apply Actinovate® AG prior to or in the early stages of disease development. Prepare only the amount of product to treat the measured area. Product should be used promptly after opening the package. Apply any unused product within 4 months of opening and before the expiry date. Accurate spray equipment calibration is essential prior to use. Use the higher labeled application rates when weather conditions are expected to be conducive for disease development, if the field has a history of disease problems, or if minimum/low till programs are in place.

#### **Foliar Applications for Plant Diseases:**

Since Actinovate® AG contains live spores of a microbe, best results will be obtained if the product is used prior to disease onset or in the early stages of disease development. Actinovate® AG becomes active on the plant foliage when the temperature is above 45°F and is less effective at cooler temperatures.

For proper foliar application, determine the number of acres to be treated and the specified label use rate, and select the appropriate gallonage to give thorough and uniform coverage of all plant parts to be protected. Mix with 10 to 150 gallons of water per acre (for use in California, mix with 20 to 150 gallons of water per acre). Apply initial application prior to disease onset or in the early stages of disease development. Actinovate® AG can be used in all types of spray equipment including that equipment used for aerial applications.

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment- and weather-related factors determines the potential for spray drift. The applicator and grower/treatment coordinator are responsible for considering all of these factors when making decisions.

#### **Soil Applications for Plant Diseases:**

Since Actinovate® AG contains live spores of a microbe, best results will be obtained if the product is used prior to disease onset or in the early stages of disease development. Actinovate® AG becomes active in soil when the temperature is above 45°F and is less effective at cooler temperatures. This product can be applied to sterilized or fumigated soil, but it must be applied after the sterilization is complete or the fumigant has dissipated.

For proper soil application, determine the number of acres to be treated and the specified label use rate, and select the appropriate gallonage to give good saturation of the soil in order for the product to establish itself on the root system. For best results, apply product solution to damp soil. Maintaining moist soil after application will enable the product to perform as expected.

• **Soil Surface (Drench) Applications:** Use at planting, seeding, transplant or any stage of growth. Apply finished spray mixture at a rate to thoroughly soak the soil through the root zone, as a drench or directed spray using hand-held, mechanical or motorized spray equipment.

• **Soil Treatment Through Irrigation:** This product may be used in drip, overhead, or other irrigation systems listed in the "Chemigation" section at any stage of plant growth as a soil treatment. Apply specified label rates of Actinovate® AG in the required amount of water per acre. See "Chemigation" section for additional information and "Crop-Specific Directions" section for crop-specific application rates.

• **In-Furrow Applications:** Apply as an in-furrow spray in the required amount of water per acre for the crop at planting. Mount the spray nozzle so the spray is directed in the furrow just before the seeds are covered.

**Seed Treatment Applications:** For treatment of seed and seedling diseases: Damping-off, Fusarium wilt, and Stem rot (*Fusarium* spp., *Rhizoctonia* spp., *Phytophthora* spp., *Pythium* spp.) in all food crop seeds for field production.

• **Seed Spray or Slurry Coating:** Apply this product through mist-type commercial seed treatment equipment, slurry or other comparable methods that provide thorough coverage of treated seed. Prior to planting, dissolve 2-6 oz (for use in California) or 2-18 oz of this product in 4 fl oz of water per acre of seed and spray directly on seed.

• **Hopper Box Dry Coating (not for use in California):** Apply this product directly to seed as a dry coating at a rate of 2-18 oz per acre of seed. Apply so as to ensure even coating of product on seeds.

**For Pre-Plant Seed Treatment** – Do not use treated seed for food or feed purposes or process for oil. Treat only those seeds needed for immediate use, minimizing the interval between treatment and planting. Do not store excess treated seeds beyond planting time.

**For Commercial Seed Treatment** – This product does not contain dye/colorant. All seed treated commercially with this product must be colored with an EPA-approved dye or colorant of a suitable color to prevent accidental use as food for humans or feed for animals.

**Treated Seed Labeling** – The user is responsible for ensuring that the seed container meets all of the requirements under the Federal Seed Act. The Federal Seed Act requires that the container of seed treated with Actinovate® AG must be labeled with the following statements:

- This seed has been treated with *Streptomyces lydicus* WYEC 108.
- Do not use treated seed for food, feed or oil production.

**Cutting or Bare-Rooted Transplant Dip:** Dip cuttings or transplants in the dry powder of this product, or in a solution of 6-18 oz of this product and 50 gallons of water. If desired, let soak for up to three hours or overnight prior to planting. Plant treated cuttings or transplants in soil in the usual manner. See table for Low Growing Berries for a listing of the specific diseases suppressed or controlled when using the dip application method.

**Dusting and Coating of Bulbs, Corms, Tubers, Rhizomes or Seeds:** Prior to planting or shipping, evenly dust at a rate of 2-6 oz of this product per 100 lb of bulbs, corms, tubers, rhizomes or seeds. See tables for Bulb Vegetables and Root and Tuber Vegetables for a listing of the specific diseases suppressed or controlled using the dusting and coating application method.

**Compatibility:** Actinovate® AG may be used in combination (e.g., tank mixed or dry mixed) with many other products including the following: chemical fungicides, insecticides, inoculants, and fertilizers. If tank mixes are desired, observe the most restrictive directions, precautions and limitations on labeling of all products used. Consult manufacturer for compatibility questions and pre-check for compatibility as appropriate. Do not apply soil fumigants to areas treated with Actinovate® AG. If fumigants must be applied to the soil, all the fumigant must be completely dissipated prior to applying this product.

**Mixing Instructions:** Actinovate® AG is completely soluble and does not require agitation to keep suspended in a solution. Use spray mixture within 4 hours.

## CHEMIGATION

### Overall Requirements:

- Apply Actinovate® AG only through 1) overhead boom and mist-type systems; 2) sprinklers such as impact, micro-sprinkler, center pivot, lateral move, end tow, side (wheel) roll, traveler, solid set, or hand-move systems; 3) pressurized drench (flood) or drip (trickle) systems; 4) micro-irrigation such as spaghetti tube or individual tube irrigation; 5) hand-held calibrated irrigation equipment such as hand-held wand with injector; and 6) ebb and flow systems. Do not apply this product through any other type of irrigation system.
- Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water.
- If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.
- Do not connect an irrigation system used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.
- A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

### 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, back flow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the flow outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.
- 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.
- 8) Continuous agitation is not required in pesticide supply tanks unless tank mixing with other products or fluid fertilizers that require it.
- 9) Application of the product may be made continuously for the duration of the water application or can be applied at the end or after the water application.
- 10) To mix in supply tank, fill tank half way with water and add product. Stir until completely dissolved. Fill tank with remaining amount of water.
- 11) Use appropriate amount of water so as not to create excessive leaching or runoff.

### Sprinkler Chemigation Requirements:

- 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 back flow.
- 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 that 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.
- 8) Continuous agitation is not required in pesticide supply tanks unless tank mixing with other products or fluid fertilizers that require it.
- 9) Application of the product may be made continuously for the duration of the water application or can be applied at the end or after the water application.
- 10) To mix in supply tank, fill tank half way with water and add product. Stir until completely dissolved. Fill tank with remaining amount of water.
- 11) Use appropriate amount of water so as not to create excessive leaching or runoff.

### Drip Chemigation Requirements:

- 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 back flow.

- 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 that 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.
- 4) Application of the product may be made continuously for the duration of the water application or can be applied at the end or after the water application.
  - 5) To mix in supply tank, fill tank half way with water and add product. Stir until completely dissolved. Fill tank with remaining amount of water.
  - 6) Use appropriate amount of water so as not to create excessive leaching or runoff.

#### CROP-SPECIFIC DIRECTIONS

ALL CROPS GROWN FOR SEED*		
Disease	Application Rates of Actinovate® AG	
	Soil Rate oz/A	Foliar Spray Rate oz/A
<b>Suppression or Control of:</b> Various fungal and bacterial diseases as specified below	3-12	3-12  Reapply every 7-14 days depending on disease pressure and environmental conditions. For best results, use with a spreader-sticker.

\*Not for use in California.

- 7) Use of a supply tank is recommended. Continuous agitation is not required in pesticide supply tanks unless tank mixing with other products or fluid fertilizers that require it.
- 8) Application of the product may be made continuously for the duration of the water application or can be applied at the end or after the water application.
- 9) To mix in supply tank, fill tank half way with water and add product. Stir until completely dissolved. Fill tank with remaining amount of water.
- 10) Use appropriate amount of water so as not to create excessive leaching or runoff.

#### Flood Chemigation Requirements:

- 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 back flow if water flow stops.
- 2) 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 back flow.
  - 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 that 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.
- 3) Use of a supply tank is recommended. Continuous agitation is not required in pesticide supply tanks unless tank mixing with other products or fluid fertilizers that require it.

BRASSICA (COLE) HEAD AND STEM VEGETABLES (Crop Group 5-16)		
Broccoli; Brussels sprouts; cabbage; Chinese napa cabbage; cauliflower; and cultivars, varieties, and hybrids of these commodities.		
Disease	Application Rates of Actinovate® AG	
	Soil Rate oz/A	Foliar Spray Rate oz/A
<b>Suppression or Control of:</b> Damping-Off ( <i>Fusarium</i> spp.) ( <i>Pythium</i> spp.) ( <i>Rhizoctonia solani</i> ) Phytophthora Root Rot ( <i>Phytophthora megasperma</i> ) Sclerotinia Stem Rot ( <i>Sclerotinia sclerotiorum</i> )* Verticillium Wilt ( <i>Verticillium</i> spp.)* Yellows ( <i>Fusarium oxysporum</i> )	3-12	Not Applicable
Gray Mold ( <i>Botrytis cinerea</i> ) Powdery Mildew ( <i>Erysiphe polygoni</i> )	Not Applicable	3-12  Reapply every 7-14 days. For best results, use with a spreader-sticker.

\*Not for use in California.

BULB VEGETABLES (Crop Group 3-07)		
Beltsville bunching onion, chive (fresh leaves), Chinese chive (fresh leaves), Chinese onion bulb, daylily bulb, elegans hosta, fritillaria (bulb and leaves), garlic bulb, great headed garlic bulb, green onion, kurrat, lady's leek, leek, lily bulb, macrostem onion, onion (bulb and fresh), pearl onion, potato onion bulb, shallot (bulb and fresh leaves), serpent garlic bulb, tree onion tops, and wild leek.		
Disease	Application Rates of Actinovate® AG	
	Soil Rate oz/A	Foliar Spray Rate oz/A
<b>Suppression or Control of:</b> Fusarium Basal Rot ( <i>Fusarium oxysporum</i> ) Neck Rot ( <i>Botrytis alli</i> )	3-12	Not Applicable
Botrytis Leaf Blight ( <i>Botrytis squamosa</i> )	Not Applicable	3-12  Reapply every 7-14 days. For best results, use with a spreader-sticker.

**Dusting and Coating of Bulbs, Corms, Tubers, Rhizomes or Seeds:**  
Prior to planting or shipping, evenly dust at a rate of 2-6 oz of this product per 100 lb of bulbs, corms, tubers, rhizomes or seeds.

<b>BUSHBERRIES (Crop Subgroup 13-07B)</b>		
Aronia berry; highbush blueberry; lowbush blueberry; buffalo currant; Chilean guava; highbush cranberry; black currant; red currant; elderberry; European barberry; gooseberry; edible honeysuckle; huckleberry; jostaberry; Juneberry (Saskatoon berry); lingonberry; native currant; salal; sea buckthorn; and cultivars, varieties, and/or hybrids of these commodities.		
Disease	Application Rates of Actinovate® AG	
	Soil Rate oz/A	Foliar Spray Rate oz/A
<b>Suppression or Control of:</b> Armillaria Root Rot ( <i>Armillaria</i> spp.) Phytophthora Root Rot ( <i>Phytophthora cinnamomi</i> )	3-12	Not Applicable
Botrytis Blight and Fruit Rot ( <i>Botrytis cinerea</i> ) Mummy Berry ( <i>Monilinia vaccinii-corymbosi</i> )	Not Applicable	3-12 Reapply every 7-14 days. For best results, use with a spreader-sticker.

<b>CANE BERRIES (Crop Subgroup 13-07A)</b>		
Blackberry; loganberry; red and black raspberry; wild raspberry; and cultivars, varieties, and/or hybrids of these commodities.		
Disease	Application Rates of Actinovate® AG	
	Soil Rate oz/A	Foliar Spray Rate oz/A
<b>Suppression or Control of:</b> Gray Mold ( <i>Botrytis cinerea</i> )	Not Applicable	3-12 Reapply every 7-14 days. For best results, use with a spreader-sticker.

<b>CEREAL GRAINS (Crop Group 15)</b>		
Barley, buckwheat, corn (field, pop and sweet), pearl millet, proso millet, oats, rice*, rye, sorghum (milo), teosinte, triticale, wheat, and wild rice*.		
Disease	Application Rates of Actinovate® AG	
	Soil Rate oz/A	Foliar Spray Rate oz/A
<b>Suppression or Control of:</b> Damping-Off ( <i>Fusarium</i> spp.) ( <i>Rhizoctonia</i> spp.) ( <i>Pythium</i> spp.)	1-3 Soil rate on all commodities, except rice and wild rice. Applied in furrow.	Not Applicable
	3-12 Soil rate on rice and wild rice only.	
Powdery Mildew ( <i>Erysiphe polygoni</i> ) Sheath Spot ( <i>Rhizoctonia oryzae</i> )	Not Applicable	3-12 Reapply every 7-14 days. For best results, use with a spreader-sticker. For rice and wild rice, spray only when there is no standing water in the bed.

\*Not for use in California.

<b>CITRUS FRUIT (Crop Group 10-10)</b>		
Australian desert lime; Australian finger lime; Australian round lime; Brown River finger lime; calamondin; citron; citrus hybrids; grapefruit; Japanese summer grapefruit; kumquat; lemon; lime; Mediterranean mandarin; Mount White lime; New Guinea wild lime; sour orange; sweet orange; pummelo; Russell River lime; satsuma mandarin; sweet lime; tachibana orange; Tahiti lime; tangelo; tangerine (mandarin); tangor; trifoliolate orange; unqi fruit; and cultivars, varieties, and/or hybrids of these commodities.		
Disease	Application Rates of Actinovate® AG	
	Soil Rate oz/A	Foliar Spray Rate oz/A
<b>Suppression or Control of:</b> Phytophthora Foot Rot and Root Rot ( <i>Phytophthora</i> spp.)	3-12	Not Applicable
Citrus Canker ( <i>Xanthomonas axonopodis</i> pv. <i>citri</i> and <i>Xanthomonas axonopodis</i> pv. <i>aurantifolii</i> )* Greasy Spot ( <i>Mycosphaerella citri</i> )*	Not Applicable	3-12 Reapply every 7-14 days. For best results, use with a spreader-sticker.

\*Not for use in California.

<b>CUCURBIT VEGETABLES (Crop Group 9)</b>		
Chayote (fruit), Chinese waxgourd (Chinese preserving melon), citron melon, cucumber, gherkin, edible gourd (includes hyotan, cucuzza, hechima, and Chinese okra), <i>Momordica</i> spp. (includes balsam apple, balsam pear, bitter melon, and Chinese cucumber), muskmelon (includes cantaloupe), pumpkin, summer squash, winter squash (includes butternut squash, calabaza, hubbard squash, acorn squash, and spaghetti squash), and watermelon.		
Disease	Application Rates of Actinovate® AG	
	Soil Rate oz/A	Foliar Spray Rate oz/A
<b>Suppression or Control of:</b> Damping-Off ( <i>Fusarium</i> spp.) ( <i>Phytophthora</i> spp.) ( <i>Pythium</i> spp.) ( <i>Rhizoctonia solani</i> ) Fusarium Wilt ( <i>Fusarium oxysporum</i> ) Phytophthora Blight ( <i>Phytophthora capsica</i> ) Verticillium Wilt ( <i>Verticillium</i> spp.)	3-12	Not Applicable
Bacterial Leaf Spot ( <i>Xanthomonas campestris</i> pv. <i>cucurbitae</i> )* Downy Mildew ( <i>Pseudoperonospora cubensis</i> )*	Not Applicable	3-12 Reapply every 7-14 days. For best results, use with a spreader-sticker.

\*Not for use in California.

<b>EDIBLE FUNGI (Crop Group 21)</b>		
Blewitt, bunashimeji, Chinese mushroom, enoki, hime-matsutake, hirmeola, maitake, morel, nameko, net bearing <i>Dictyophora</i> , oyster mushroom, pom pom, reishi mushroom, Rodman's mushroom ( <i>Agaricus bitorquis</i> ), shiitake mushroom, shimeji, <i>Stropharia</i> , truffle, white button mushroom, and white jelly fungi.		
Disease	Application Rates of Actinovate® AG	
	Soil Rate oz/A	Foliar Spray Rate oz/A
<b>Suppression or Control of:</b> Verticillium Spot ( <i>Verticillium fungicola</i> )	3-12	3-12 Reapply every 7-14 days. For best results, use with a spreader-sticker.

FRUITING VEGETABLES (EXCEPT CUCURBITS) (Crop Group 8)		
Eggplant, groundcherry ( <i>Physalis</i> spp.), pepino, pepper (includes bell pepper, chili pepper, cooking pepper, pimento, and sweet pepper), tomato, and tomato.		
Disease	Application Rates of Actinovate® AG	
	Soil Rate oz/A	Foliar Spray Rate oz/A
<b>Suppression or Control of:</b> Fusarium Crown and Root Rot ( <i>Fusarium oxysporum</i> f. spp. <i>radicis-lycopersici</i> ) Fusarium Wilt ( <i>Fusarium oxysporum</i> f. spp. <i>lycopersici</i> ) Phytophthora Blight ( <i>Phytophthora capsici</i> ) Pythium Damping-Off and Stem Rot ( <i>Pythium</i> spp.) Southern Blight ( <i>Sclerotium rolfsii</i> )* Verticillium Wilt ( <i>Verticillium</i> spp.)	3-12	Not Applicable
Anthraxnose ( <i>Colletotrichum</i> spp.)* Bacterial Speck ( <i>Pseudomonas syringae</i> )* Bacterial Spot ( <i>Xanthomonas perforans</i> ) Early Blight ( <i>Alternaria tomatophila</i> )* Gray Mold ( <i>Botrytis cinerea</i> ) Late Blight ( <i>Phytophthora infestans</i> )*	Not Applicable	3-12 Reapply every 7-14 days. For best results, use with a spreader-sticker.

\*Not for use in California.

SMALL FRUIT VINE CLIMBING (EXCEPT FUZZY KIWI FRUIT) (Crop Subgroup 13-07F)		
Amur river grape; gooseberry; grape; hardy kiwi fruit; Maypop; schisandra berry; and cultivars, varieties, and/or hybrids of these commodities.		
Disease	Application Rates of Actinovate® AG	
	Soil Rate oz/A	Foliar Spray Rate oz/A
<b>Suppression or Control of:</b> Botrytis Bunch Rot ( <i>Botrytis cinerea</i> ) Powdery Mildew ( <i>Uncinula necator</i> )	Not Applicable	3-12 Reapply every 7-14 days. For best results, use with a spreader-sticker.

HERBS AND SPICES (Crop Group 19) AND MINTS		
Allspice, angelica, anise, star anise, annatto (seed), balm, basil, borage, burnet, chamomile, caper buds, caraway, black caraway, cardamom, cassia bark, cassia buds, catnip, celery seed, chervil (dried), chive, Chinese chive, cinnamon, clary, clove buds, coriander leaf (cilantro or Chinese parsley), coriander seed (cilantro), costmary, culantro (leaf), culantro (seed), cumin, curry (leaf), dill (dillweed), dill (seed), fennel (common), Florence fennel (seed), fenugreek, grains of paradise, horehound, hyssop, juniper berry, lavender, lemongrass, lovage (leaf), lovage (seed), mace, marigold, marjoram, mustard (seed), nasturtium, nutmeg, parsley (dried), pennyroyal, black pepper, white pepper, peppermint, poppy (seed), rosemary, rue, saffron, sage, summer and winter savory, spearmint, sweet bay, tansy, tarragon, thyme, vanilla, wintergreen, woodruff, and wormwood.		
Disease	Application Rates of Actinovate® AG	
	Soil Rate oz/A	Foliar Spray Rate oz/A
<b>Suppression or Control of:</b> Verticillium Wilt ( <i>Verticillium</i> spp.)	3-12	Not Applicable
Anthraxnose ( <i>Colletotrichum</i> spp.)* Basil Downy Mildew ( <i>Peronospora belbahrii</i> )* Gray Mold ( <i>Botrytis cinerea</i> ) Powdery Mildew ( <i>Erysiphe</i> spp.)	Not Applicable	3-12 Reapply every 7-14 days. For best results, use with a spreader-sticker.

\*Not for use in California.

HOPS		
Disease	Application Rates of Actinovate® AG	
	Soil Rate oz/A	Foliar Spray Rate oz/A
<b>Suppression or Control of:</b> Canker ( <i>Fusarium</i> spp.) Verticillium Wilt ( <i>Verticillium</i> spp.)	3-12	Not Applicable
Downy Mildew ( <i>Pseudoperonospora humuli</i> )* Gray Mold ( <i>Botrytis cinerea</i> ) Powdery Mildew ( <i>Podosphaera macularis</i> )	Not Applicable	3-12 Reapply every 7-14 days. For best results, use with a spreader-sticker.

\*Not for use in California.

LEAFY VEGETABLES (Crop Group 4-16)		
Chinese amaranth; leafy amaranth; arugula; Indian aster; blackjack; Chinese broccoli; broccoli raab; Abyssinian cabbage; Chinese cabbage (bok choy); seakale cabbage; cat's whiskers; cham-chwi; cham-na-mul; chervil (fresh leaves); chipilin; garland chrysanthemum; cilantro (fresh leaves); collards; corn salad; cosmos; garden cress; upland cress; dandelion (leaves); dang-gwi (leaves); dillweed; dock; dol-nam-mul; ebolo; endive; escarole; farnelower; feather cockscomb; Good King Henry; hanover salad; huauzontle; jute (leaves); kale; bitter lettuce; head lettuce; leaf lettuce; maca (leaves); mizuna; mustard greens; orach; parsley (fresh leaves); buckthorn plantain; English primrose; garden purslane; winter purslane; radicchio; radish (leaves); rape greens; wild rocket; shepherd's purse; spinach; Malabar spinach; New Zealand spinach; taniair spinach; Swiss chard; turnip greens; Chinese violet (leaves); watercress; and cultivars, varieties, and hybrids of these commodities.		
Disease	Application Rates of Actinovate® AG	
	Soil Rate oz/A	Foliar Spray Rate oz/A
<b>Suppression or Control of:</b> Bottom Rot ( <i>Rhizoctonia solani</i> ) Damping-Off ( <i>Fusarium</i> spp.) ( <i>Pythium</i> spp.) ( <i>Rhizoctonia solani</i> ) Downy Mildew ( <i>Peronospora parasitica</i> )* ( <i>Bremia lactucae</i> ) Fusarium Wilt ( <i>Fusarium oxysporum</i> ) Lettuce Drop ( <i>Sclerotinia Rot</i> ) ( <i>Sclerotinia sclerotiorum</i> )* ( <i>Sclerotinia minor</i> )* Phytophthora Root Rot ( <i>Phytophthora megasperma</i> ) Sclerotinia Stem Rot ( <i>Sclerotinia sclerotiorum</i> )* Verticillium Wilt ( <i>Verticillium albo-atrum</i> ) ( <i>Verticillium dahlia</i> ) Yellows ( <i>Fusarium oxysporum</i> )	3-12 (except watercress)	Not Applicable
Downy Mildew ( <i>Bremia lactucae</i> )* ( <i>Peronospora parasitica</i> )* Gray Mold ( <i>Botrytis cinerea</i> ) Powdery Mildew ( <i>Erysiphe cichoracearum</i> ) ( <i>Erysiphe polygoni</i> )	Not Applicable	3-12 Reapply every 7-14 days. For best results, use with a spreader-sticker. For watercress, spray only when there is not standing water in bed.

\*Not for use in California.

LEGUME VEGETABLES (Crop Group 6)		
Bean ( <i>Lupinus</i> spp.) (includes grain lupin, sweet lupin, white lupin, and white sweet lupin), bean ( <i>Phaseolus</i> spp.) (includes field bean, kidney bean, lima bean, navy bean, pinto bean, runner bean, snap bean, tepary bean, and wax bean), bean ( <i>Vigna</i> spp.) (includes adzuki bean, asparagus bean, blackeyed pea, catjang, Chinese longbean, cowpea, Crowder pea, moth bean, mung bean, rice bean, southern pea, urd bean, and yardlong bean), broad bean (fava bean), chickpea (garbanzo bean), guar, jackbean, lablab bean, lentil, pea ( <i>Pisum</i> spp.) (includes dwarf pea, edible-pod pea, English pea, field pea, garden pea, green pea, snow pea, and sugar snap pea), pigeon pea, soybean, soybean (immature seed), and sword bean.		
Disease	Application Rates of Actinovate® AG	
	Soil Rate oz/A	Foliar Spray Rate oz/A
<b>Suppression or Control of:</b> Damping-Off ( <i>Fusarium</i> spp.) ( <i>Phytophthora</i> spp.) ( <i>Pythium</i> spp.) ( <i>Rhizoctonia solani</i> ) Fusarium Root Rot ( <i>Fusarium solani</i> ) Fusarium Wilt (Yellows) ( <i>Fusarium oxysporum</i> f. sp. phaseoli)	1-3 Applied in furrow	Not Applicable
Gray Mold ( <i>Botrytis cinerea</i> ) Powdery Mildew ( <i>Erysiphe polygoni</i> ) White Mold ( <i>Sclerotinia sclerotiorum</i> )*	3-12 Other soil applications	3-12 Reapply every 7-14 days. For best results, use with a spreader-sticker.
	Not Applicable	3-12 Reapply every 7-14 days. For best results, use with a spreader-sticker.

\*Not for use in California.

NONGRASS ANIMAL FEEDS (Crop Group 18)		
Alfalfa, velvet bean, clover ( <i>Trifolium</i> spp., <i>Melilotus</i> spp.), kudzu, lespedeza, lupin, sainfoin, trefoil, vetch, crown vetch, and milk vetch.		
Disease	Application Rates of Actinovate® AG	
	Soil Rate oz/A	Foliar Spray Rate oz/A
<b>Suppression or Control of:</b> Aphanomyces root Rot ( <i>Aphanomyces euteiches</i> ) Charcoal Rot ( <i>Macrophomina phaseolina</i> ) Damping-Off ( <i>Fusarium</i> spp.) ( <i>Phytophthora</i> spp.) ( <i>Pythium</i> spp.) ( <i>Rhizoctonia solani</i> ) Fusarium Crown and Root Rot ( <i>Fusarium oxysporum</i> , <i>Fusarium solani</i> ) Fusarium Wilt (Yellows) ( <i>Fusarium oxysporum</i> f. sp. medicaginis) Take-All ( <i>Gaeumannomyces graminis</i> var. <i>tritici</i> ) Verticillium Wilt ( <i>Verticillium</i> spp.)	1-3 Applied in furrow	Not Applicable

OILSEEDS (Crop Group 20)		
Borage; calendula; castor oil plant; Chinese tallowtree; cottonseed; crambe; cuphea; echium; euphorbia; evening primrose; flax seed; gold of pleasure; hare's ear mustard; jojoba; lesquerella; lunaria; meadowfoam; milkweed; mustard seed; niger seed; oil radish; poppy seed; rapeseed; rose hip; safflower; sesame; Stokes aster; sunflower; sweet rocket; tallowwood; tea oil plant; vernonia; and cultivars, varieties, and/or hybrids of these commodities.		
Disease	Application Rates of Actinovate® AG	
	Soil Rate oz/A	Foliar Spray Rate oz/A
<b>Suppression or Control of:</b> Aphanomyces Root and Hypocotyl Rot ( <i>Aphanomyces euteiches</i> ) Charcoal Rot ( <i>Macrophomina phaseolina</i> ) Damping-Off ( <i>Fusarium</i> spp.) ( <i>Phytophthora</i> spp.) ( <i>Pythium</i> spp.) ( <i>Rhizoctonia solani</i> ) Fusarium Root Rot ( <i>Fusarium solani</i> ) Fusarium Wilt ( <i>Fusarium oxysporum</i> ) Verticillium Wilt ( <i>Verticillium</i> spp.)	1-3 Applied in furrow	Not Applicable
Gray Mold ( <i>Botrytis cinerea</i> ) Powdery Mildew ( <i>Erysiphe</i> spp.) ( <i>Oidium</i> spp.) ( <i>Podosphaera</i> spp.)	Not Applicable	3-12 Reapply every 7-14 days. For best results, use with a spreader-sticker.

OLIVES * (Except Ceylon and Chinese Olives)		
Disease	Application Rates of Actinovate® AG	
	Soil Rate oz/A	Foliar Spray Rate oz/A
<b>Suppression or Control of:</b> Armilaria Root Rot ( <i>Armilaria mellea</i> ) Phytophthora Root and Crown Rot ( <i>Phytophthora</i> spp.) Verticillium Wilt ( <i>Verticillium dahlia</i> )	3-12	Not Applicable

\*Not for use in California.

PEANUTS		
Disease	Application Rates of Actinovate® AG	
	Soil Rate oz/A	Foliar Spray Rate oz/A
<b>Suppression or Control of:</b> Damping-Off ( <i>Fusarium</i> spp.) ( <i>Phytophthora</i> spp.) ( <i>Pythium</i> spp.) ( <i>Rhizoctonia solani</i> ) Fusarium Root Rot ( <i>Fusarium solani</i> ) Fusarium Wilt (Yellows) ( <i>Fusarium oxysporum</i> f. sp. phaseoli) Pod Rot (Pod Breakdown) ( <i>Fusarium</i> spp.) ( <i>Pythium myriotylum</i> ) ( <i>Rhizoctonia solani</i> ) Pythium Peg and Root Rot ( <i>Pythium</i> spp.)	1-3 Apply in furrow.	Not Applicable
Rhizoctonia Limb, Peg and Root Rot ( <i>Rhizoctonia solani</i> )	Not Applicable	3-12 Reapply every 7-14 days. For best results, use with a spreader-sticker.



POME FRUIT (Crop Group 11-10)		
Apple; azarole; crabapple; loquat; mayhaw; medlar; pear; Asian pear; quince; Chinese quince; Japanese quince; tejocote; and cultivars, varieties, and/or hybrids of these commodities.		
Disease	Application Rates of Actinovate® AG	
	Soil Rate oz/A	Foliar Spray Rate oz/A
<b>Suppression or Control of:</b> Phytophthora Crown, Collar, and Root Rot ( <i>Phytophthora</i> spp.)	3-12	Not Applicable
Alternaria Blotch ( <i>Alternaria mali</i> )* Brown Rot (American, European) ( <i>Monilinia fructicola</i> ) ( <i>Monilinia fructigena</i> ) ( <i>Monilinia laxa</i> ) Fire Blight ( <i>Erwinia amylovora</i> )* Powdery Mildew ( <i>Podosphaera leucotricha</i> )	Not Applicable	3-12 Reapply every 7-14 days. For best results, use with a spreader-sticker.

\*Not for use in California.

ROOT AND TUBER VEGETABLES (Crop Group 1)		
Arracacha, arrowroot, Chinese artichoke, Jerusalem artichoke, garden beet, sugar beet, edible burdock, edible canna, carrot, bitter and sweet cassava, celeriac, chayote (root), turnip-rooted chervil, chicory, chufa, dasheen (taro), ginger, ginseng*, horseradish, leren, turnip-rooted parsley, parsnip, potato, radish, oriental radish, rutabaga, salsify, black salsify, Spanish salsify, skirret, sweet potato, taniel, turmeric, turnip, yam bean, and true yam.		
Disease	Application Rates of Actinovate® AG	
	Soil Rate oz/A	Foliar Spray Rate oz/A
<b>Suppression or Control of:</b> Charcoal Rot ( <i>Macrophomina phaseolina</i> ) Fusarium Dry Rot ( <i>Fusarium</i> spp.) Fusarium Wilt ( <i>Fusarium</i> spp.) Leak ( <i>Pythium</i> spp.) Pink Rot ( <i>Phytophthora erythroseptica</i> ) ( <i>Phytophthora</i> spp.) Rhizoctonia Canker and Black Scurf ( <i>Rhizoctonia solani</i> ) Verticillium Wilt ( <i>Verticillium albo-atrum</i> Reinke & Berthier, <i>Verticillium dahlia</i> )	3-12 Applied in furrow, over treated seed pieces, or as a side dressing for all types of Irish potatoes, sweet potatoes, and other potatoes	Not Applicable
Alternaria Leaf Blight / Spot, Early Blight ( <i>Alternaria</i> spp.)* Gray Mold ( <i>Botrytis cinerea</i> ) Late Blight ( <i>Phytophthora infestans</i> ) Powdery Mildew ( <i>Erysiphe</i> spp.)	3-12 Except for potatoes	3-12 Reapply every 7-14 days. For best results, use with a spreader-sticker.
<b>Dusting and Coating of Bulbs, Corms, Tubers, Rhizomes, or Seeds:</b> Prior to planting or shipping, evenly dust at a rate of 2-6 oz of this product per 100 lb of bulbs, corms, tubers, rhizomes or seeds.		

\*Not for use in California.

STALK, STEM AND LEAF PETIOLE VEGETABLES (Crop Group 22)		
Agave; aloe vera; asparagus; bamboo (shoots); cardoon; celery; Chinese celery; celtuce; Florence fennel (fresh leaves and stalk); edible fern (fiddlehead); fuki; sea kale; kohlrabi; palm hearts; prickly pear (pads); Texas prickly pear (pads); rhubarb; udo; zuiki; and cultivars, varieties, and hybrids of these commodities.		
Disease	Application Rates of Actinovate® AG	
	Soil Rate oz/A	Foliar Spray Rate oz/A
<b>Suppression or Control of:</b> Crater Rot and Damping-Off ( <i>Rhizoctonia solani</i> ) Damping-Off, Pythium ( <i>Pythium</i> spp.) Damping-Off, Rhizoctonia ( <i>Rhizoctonia solani</i> ) Fusarium Crown and Root Rot, Yellows and Wilt ( <i>Fusarium</i> spp.) ( <i>Fusarium oxysporum</i> ) Phytophthora Spear and Crown Rot ( <i>Phytophthora megasperma</i> )	3-12	Not Applicable
Sclerotinia Pink Rot ( <i>Sclerotinia sclerotiorum</i> )	Not Applicable	3-12 (except asparagus) Reapply every 7-14 days. For best results, use with a spreader-sticker.

STONE FRUIT (Crop Group 12-12)		
Apricot, sweet cherry, tart cherry, nectarine, peach, plum, Chickasaw plum, Damson plum, Japanese plum, prune plum, and plumcot.		
Disease	Application Rates of Actinovate® AG	
	Soil Rate oz/A	Foliar Spray Rate oz/A
<b>Suppression or Control of:</b> Armillaria Root Rot ( <i>Armillaria</i> spp.) Phymatotrichum Root Rot ( <i>Phymatotrichum omnivorum</i> ) Phytophthora Crown, Collar, and Root Rot ( <i>Phytophthora</i> spp.) Rhizoctonia Root Rot ( <i>Rhizoctonia solani</i> ) Verticillium Wilt ( <i>Verticillium dahlia</i> )	3-12	Not Applicable
Bacterial Canker ( <i>Pseudomonas Syringae</i> ) Brown Rot Blossom Blight and Fruit Rot ( <i>Monilinia fructicola</i> ) ( <i>Monilinia laxa</i> ) Leaf Curl ( <i>Taphrina deformans</i> )* Powdery Mildew ( <i>Podosphaera</i> spp., <i>Sphaerotheca</i> spp.)	Not Applicable	3-12 Reapply every 7-14 days. For best results, use with a spreader-sticker.

\*Not for use in California.

LOW GROWING BERRIES (Crop Subgroup 13-07G) (except cranberry)		
Bearberry; bilberry; lowbush blueberry; cloudberry; lingonberry; muntries; partidgeberry; strawberry; and cultivars, varieties, and/or hybrids of these commodities.		
Disease	Application Rates of Actinovate® AG	
	Soil Rate oz/A	Foliar Spray Rate oz/A
<b>Suppression or Control of:</b> Armillaria Crown and Root Rot ( <i>Armillaria mellea</i> ) Charcoal Rot ( <i>Macrophomina phaseolina</i> ) Phytophthora Crown, and Root Rot ( <i>Phytophthora</i> spp.) Pythium Root Rot ( <i>Pythium</i> spp.) Rhizoctonia Root Rot ( <i>Rhizoctonia solani</i> ) Verticillium Wilt ( <i>Verticillium</i> spp.)	3-12	Not Applicable
Angular Leaf Spot ( <i>Xanthomonas fragariae</i> )* Gray Mold ( <i>Botrytis cinerea</i> ) Leather Rot ( <i>Phytophthora</i> spp.) Powdery Mildew ( <i>Sphaerotheca</i> spp.)	Not Applicable	3-12 Reapply every 7-14 days. For best results, use with a spreader-sticker.
<b>Cutting or Bare-Rooted Transplant Dip:</b> Dip cuttings or transplants in the dry powder of Actinovate® AG or in a solution of 6-18 oz of this product and 50 gallons of water. If desired, let soak for up to three hours or overnight prior to planting. Plant treated cuttings or transplants in soil in the usual manner.		

\*Not for use in California.

TREE NUTS (Crop Group 14-12)		
African nut-tree; almond; beechnut; Brazil nut; Brazilian pine; bunya; bur oak; butternut; Cajou nut; candlenut; cashew; chestnut; chinquapin; coconut; coquito nut; dika nut; ginkgo; Guiana chestnut; hazelnut (filbert); heartnut; hickory nut; Japanese horse-chestnut; macadamia nut; mongongo nut; monkey-pot; monkey puzzle nut; Okari nut; Pachira nut; peach palm nut; pecan; pequi; Pili nut; pine nut; pistachio; Sapucaia nut; tropical almond; black walnut; English walnut; yellowhorn; and cultivars, varieties, and/or hybrids of these commodities.		

Disease	Application Rates of Actinovate® AG	
	Soil Rate oz/A	Foliar Spray Rate oz/A
<b>Suppression or Control of:</b> Armillaria Crown and Root Rot ( <i>Armillaria mellea</i> ) Phytophthora Crown and Root Rot ( <i>Phytophthora</i> spp.) Verticillium Wilt ( <i>Verticillium</i> spp.)	3-12	Not Applicable
Brown Rot ( <i>Monilinia laxa</i> ) ( <i>Monilinia fructicola</i> ) Green Fruit Rot ( <i>Botrytis cinerea</i> ) Powdery Mildew ( <i>Sphaerotheca</i> spp.) ( <i>Podosphaera</i> spp.) Walnut Blight ( <i>Xanthomonas arboricola</i> pv. <i>juglandis</i> )	Not Applicable	3-12 Reapply every 7-14 days. For best results, use with a spreader-sticker.

TROPICAL AND SUBTROPICAL FRUIT, EDIBLE PEEL GROUP (Crop Group 23)		
Acai; acerola; achachairú; African plum; agrifol; almondette; ambarella; apak palm; appleberry; arazá; arbutus berry; babaco; bacaba palm; bacaba-de-leque; red bayberry; bignay; bilimbi; borojó; breadnut; cabeluda; fruit cajou; cambucá; carandas-plum; carob; cashew apple; Ceylon iron wood; Ceylon olive; cherry-of-the-Rio-Grande; black Chinese olive; white Chinese olive; chiraulli-nut; ciruela verde; cocoplum; date; Davidson's plum; desert-date; doum palm coconut; false sandalwood; feijoa; fig; fragrant manjack; Abyssinian gooseberry; Ceylon gooseberry; Indian gooseberry; otaheite gooseberry; governor's plum; grumichama; guabiroba; guava; guava berry, Brazilian guava, cattley guava; Costa Rican guava; Para guava; purple strawberry guava; strawberry guava; yellow strawberry guava; guayabillo; ilawarra plum; imbé; imbu; Indian-plum; jaborcaba; Jamaica-cherry; jambolan; jelly palm; Indian jujube; kaffir-plum; kakadu plum; kapundung; karanda; kwai muk; lemon aspen; mangaba; Marian plum; Malayan mombin; purple mombin; yellow mombin; monkeyfruit; monos plum; mountain cherry; nance; natal plum; noni; mountain papaya; pataúa; peach palm (fruit); black persimmon; Japanese persimmon; pitomba; plum-of-Martinique; pomeac; rambai; rose apple; rukam; rumberry; sea grape; sentul; sete-capotes; silver aspen; starfruit; Surinam cherry; tamarind; uvalva; water apple; water pear; water berry; wax jambu; and cultivars, varieties, and hybrids of these commodities.		

Disease	Application Rates of Actinovate® AG	
	Soil Rate oz/A	Foliar Spray Rate oz/A
<b>Suppression or Control of:</b> Armillaria Crown and Root Rot (Shoestring Rot) ( <i>Armillaria mellea</i> ) Crown Rot ( <i>Fusarium</i> spp.) Fusarium Wilt ( <i>Fusarium oxysporum</i> ) Phytophthora Crown and Root Rot ( <i>Phytophthora</i> spp.) Verticillium Wilt ( <i>Verticillium</i> spp.)	3-12	Not Applicable
Bacterial Canker ( <i>Pseudomonas syringae</i> )* Blossom Blight, Gray Mold ( <i>Botrytis cinerea</i> ) Powdery Mildew ( <i>Erysiphe</i> spp.) ( <i>Oidium</i> spp.)	Not Applicable	3-12 Reapply every 7-14 days. For best results, use with a spreader-sticker.

\*Not for use in California.

**TROPICAL AND SUBTROPICAL FRUIT, INEDIBLE PEEL GROUP  
(Crop Group 24)**

Abiu; aisen; akee apple; atemoya; avocado; Guatemalan avocado; Mexican avocado; West Indian avocado; bacury; bael fruit; banana; dwarf banana; binjai; biriba; breadfruit; Burmese grape; canistel; cat's-eyes; champedak; cherimoya; cupuacu; custard apple; dragon fruit; durian; elephant-apple; etambe; granadilla; giant granadilla; ilama; ingá; jackfruit; jatobá; karuka; kei apple; lingsat; lanjut; longan; lucuma; lychee; mabolo; maderas-thorn; mammy-apple; manduro; mango; horse mango; Saipan mango; mangosteen; marang; marmaladebox; matisia; mesquite; mongongo (fruit); monkey-bread-tree; monstera; nicobar-breadfruit; paho; pandanus; papaya; winged-stem passionflower; passionfruit; banana passionfruit; purple passionfruit; yellow passionfruit; common pawpaw; small-flower pawpaw; pelipisan; pequi; American persimmon; pineapple; pitahaya; pitaya; amarilla pitaya; roja pitaya; yellow pitaya; plantain; pomegranate; poshte; prickly pear (fruit); Texas prickly pear (fruit); pulasan; quandong; rambutan; saguaro; sapodilla; black sapote; green sapote; mamey sapote; white sapote; satav; satinleaf; screw-pine; Sierra Leone-tamarind; soncoya; soursoy; Spanish lime; star apple; sugar apple; sun sapote; tamarind-of-the-Indies; velvet tamarind; wampi; white star apple; wild loquat; and cultivars, varieties, and hybrids of these commodities.

Disease	Application Rates of Actinovate® AG	
	Soil Rate oz/A	Foliar Spray Rate oz/A
<b>Suppression or Control of:</b> Armillaria Crown and Root Rot (Shoestring Rot) ( <i>Armillaria mellea</i> ) Crown Rot ( <i>Fusarium spp.</i> ) Fusarium Wilt ( <i>Fusarium oxysporum</i> ) Phytophthora Crown and Root Rot ( <i>Phytophthora spp.</i> ) Verticillium Wilt ( <i>Verticillium spp.</i> )	3-12	Not Applicable
Bacterial Canker ( <i>Pseudomonas syringae</i> )* Blossom Blight, Gray Mold ( <i>Botrytis cinerea</i> ) Powdery Mildew ( <i>Erysiphe spp.</i> ) ( <i>Oidium spp.</i> )	Not Applicable	3-12 Reapply every 7-14 days. For best results, use with a spreader-sticker.

\*Not for use in California.

## Storage and Disposal

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

### PESTICIDE STORAGE:

Store in original container away from feed and food. Store in a cool, dry place, between 40°F and 77°F. Do not store in direct sunlight and keep away from heat sources. Keep from overheating or freezing. Product should be used promptly after opening the package. Apply any unused product within 4 months of opening and before the expiry date.

### PESTICIDE DISPOSAL:

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

### CONTAINER HANDLING:

**Nonrefillable container.** Do not reuse or refill this container. Completely empty container into application equipment. Then offer for recycling if available, or dispose of empty container in a sanitary landfill or by incineration.

## LIMITS OF LIABILITY AND WARRANTY

Novozymes warrants that this product is reasonably fit for the purposes set forth in the DIRECTIONS FOR USE ("Directions") when used in accordance with those Directions under the conditions described therein. This warranty is also subject to the inherent risks, conditions and limitations stated herein. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, NO OTHER EXPRESS WARRANTY OR IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE, INFRINGEMENT (ALONE OR IN COMBINATION WITH OTHER REGISTERED PRODUCTS) OR MERCHANTABILITY IS MADE.

To the extent consistent with applicable law, buyer and all users are responsible for all loss or damage from use or handling of the product that results from conditions beyond the control of Novozymes, including, but not limited to, crop injury, ineffectiveness due to such factors as weather conditions at planting, environmental conditions during seed storage, presence of other materials, seed of low quality or low vigor or low germination, or other unintended consequences that may result because of the manner of use or application inconsistent with that set forth in the Directions.

Novozymes does not warrant any product reformulated or repackaged from this product except in accordance with Novozymes stewardship requirements and with Novozymes express written permission.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE LIMIT OF THE LIABILITY OF NOVOZYMES OR ANY OTHER SELLER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT (INCLUDING CLAIMS BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE) SHALL BE THE PURCHASE PRICE PAID BY THE USER OR BUYER FOR THE QUANTITY OF THIS PRODUCT INVOLVED, OR, AT THE ELECTION OF NOVOZYMES OR ANY OTHER SELLER, THE REPLACEMENT OF SUCH QUANTITY, OR, IF NOT ACQUIRED BY PURCHASE, REPLACEMENT OF SUCH QUANTITY. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, IN NO EVENT SHALL NOVOZYMES OR ANY OTHER SELLER OF THE PRODUCT BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, PUNITIVE OR SPECIAL DAMAGES.

Upon opening and using this product, buyer and all users are deemed to have accepted the terms of this LIMITS OF LIABILITY AND WARRANTY that may not be varied by any verbal or written agreement. If terms are not acceptable, return at once unopened.

# Actinovate® AG

biological  
fungicide

## ACTIVE INGREDIENT: (% w/w)

*Streptomyces lydicus* WYEC 108\*

0.037%

## OTHER INGREDIENTS

99.963%

## TOTAL

100.000%

\* End-use product contains not less than 10 million ( $1 \times 10^7$ ) colony forming units per gram [cfu/g] *Streptomyces lydicus* WYEC 108

## Keep Out of Reach of Children

## CAUTION

See complete label for additional precautionary statements, first aid, complete directions for use and warranty.

For product use information call: 1-800-245-4104

For Medical, Transportation, Spill, or other Emergencies, call the poison control center at 1-800-222-1222

FIRST AID	
<b>IF IN EYES:</b>	<ul style="list-style-type: none"><li>• 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.</li><li>• Call a poison control center or doctor for treatment advice.</li></ul>
<b>IF INHALED:</b>	<ul style="list-style-type: none"><li>• Move person to fresh air.</li><li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth if possible.</li><li>• Call a poison control center or doctor for further treatment advice.</li></ul>
<b>IF ON SKIN OR CLOTHING:</b>	<ul style="list-style-type: none"><li>• Take off contaminated clothing.</li><li>• Rinse skin immediately with plenty of water for 15 – 20 minutes.</li><li>• Call a poison control center or doctor for treatment advice.</li></ul>
<b>IF SWALLOWED:</b>	<ul style="list-style-type: none"><li>• Call a poison control center or doctor immediately for treatment advice.</li><li>• Have person sip a glass of water if able to swallow.</li><li>• Do not induce vomiting unless told to do so by a poison control center or doctor.</li><li>• Do not give anything by mouth to an unconscious person.</li></ul>
<b>HOTLINE NUMBER</b>	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. In case of an emergency involving this product, or for medical assistance call the poison control center at 1-800-222-1222.	

## ENGINEERING CONTROLS

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

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

## PRECAUTIONARY STATEMENTS

### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

#### CAUTION

Avoid contact with eyes, skin, or clothing. Avoid breathing dust or spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove and wash contaminated clothing before reuse.

#### 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. Cover or collect seeds or product spilled during use.

#### PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

Long-sleeved shirt and long pants. Shoes plus socks

Mixer/loaders and applicators must wear a NIOSH-approved particulate respirator with any R or P filter with NIOSH approval number prefix TC-84A; or a NIOSH-approved powered air purifying respirator with an HE filter with NIOSH approval number prefix TC-21C. Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.

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

### STORAGE AND DISPOSAL

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

**PESTICIDE STORAGE:** Store in original container away from feed and food.

Store in a cool, dry place, between 40°F and 77°F. Do not store in direct sunlight and keep away from heat sources. Keep from overheating or freezing. Product should be used promptly after opening the package. Apply any unused product within 4 months of opening and before the expiry date.

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

**CONTAINER HANDLING: Nonrefillable container.** Do not reuse or refill this container. Completely empty container into application equipment. Then offer for recycling if available, or dispose of empty container in a sanitary landfill or by incineration.

#### USER SAFETY RECOMMENDATIONS

Users should:

Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

Remove PPE immediately after handling this product. As soon as possible, wash thoroughly and change into clean clothing.

EPA Reg. No.: 73314-20

EPA Est. 73314-WI-002

Novozymes BioAg Inc. 3101 W. Custer Ave. Milwaukee WI, 53209 1-800-245-4104

The VALENT logo is a registered trademark of Valent USA LLC. Actinovate® is a registered trademark of Novozymes A/S ©2020 Novozymes A/S. All Rights Reserved. All other trademarks are the property of their respective owners.

20005 02.21 2621-169

Batch Code:

Not for sale or use after



Net Weight  
5 lb (2.3 kg)

novozymes®

