

# Double Nickel<sup>®</sup> LC

BIOFUNGICIDE

Aqueous Suspension Biofungicide/Bactericide



FOR ORGANIC PRODUCTION



**Active Ingredient:**

*Bacillus amyloliquefaciens* strain D747\* ..... 98.85%

**Other Ingredients** ..... 1.15%

**Total** ..... 100.00%

\*Contains a minimum of  $1 \times 10^{10}$  colony-forming units (cfu) per milliliter of product

**KEEP OUT OF REACH OF CHILDREN**

See Inside Panels for Additional Precautionary Statements

**MANUFACTURED BY:**

Certis USA LLC  
9145 Guilford Road, Suite 175  
Columbia, MD 21046



**EPA Reg. No. 70051-107**

**EPA Est. No.**

**Lot Number:**

**Net Contents:**

**ESL20221028, ESN20221121**  
**Ver. 20230103**

This is a Specimen Label. It may not reflect the most-recent approved label for use in your state. Always refer to the label on the product packaging for approved use instructions. Please contact your Certis sales representative for more information.

## **PRECAUTIONARY STATEMENTS**

### **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 filter with any N, R, 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 the 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. When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR §170.607 (d), (e), and (f)), the handler PPE requirements may be reduced or modified as specified in the WPS.

### **USER SAFETY RECOMMENDATIONS**

Users should:

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

### **ENVIRONMENTAL HAZARDS**

For Terrestrial Uses: Do not apply directly to water or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate. Do not apply when weather conditions favor drift or runoff from treated areas.

### **PRODUCT INFORMATION**

This product is a broad-spectrum preventative biofungicide/bactericide for control or suppression of fungal and bacterial plant diseases. The active ingredient is a strain (D747) of the beneficial bacterium *Bacillus amyloliquefaciens*. This product also colonizes plant root hairs, preventing establishment of disease-causing fungi and bacteria.

This product can be applied alone or in combination and/or rotation with chemical fungicides as a tool for integrated disease management in agricultural crops, ornamental, and nursery plants, and turfgrass. This product offers a valuable tool for management of resistance to chemical fungicides through its multiple and unique modes of action.

This product can be applied up to and including the day of harvest.

### **DIRECTIONS FOR USE**

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

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.

### **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 intervals. 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, chemical resistant gloves (made of any waterproof material), shoes plus socks.

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.

### **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.

### **MIXING AND HANDLING INSTRUCTIONS**

Mix the required amount of product in water with sufficient agitation to maintain a uniform suspension in the spray or mixing tank. Tank should be cleaned prior to use. Do not use highly alkaline or highly acidic water to mix sprays. Use a buffering agent if necessary to maintain neutrality (pH 6 to 8) of water in the tank. Maintain agitation during application. Apply immediately after mixing; do not allow spray mix to stand overnight.

This product can be mixed and used with other agricultural chemicals for which such mixing is permitted by the product labels, in accordance with the most restrictive of those label limitations and precautions. If such a mixture is planned, a compatibility "jar test" should first be conducted by mixing the correct proportions of product and the other intended agricultural chemicals in a small volume of water.

### **APPLICATION METHODS**

*Ground:* Apply through most commonly-used ground application equipment, such as (but not limited to): tractor-mounted boom, airblast, high clearance, hose-end, backpack, and other pressurized sprayers; hose-end or hand-held sprayers; foggers or mist blowers; water wheel and other drench applicators; and shank or other soil injection method.

*Aerial:* Apply by fixed or rotary winged aircraft in a minimum of 3 gallons of water per acre. Use standard precautions to minimize spray drift.

*Chemigation:* Apply through drip (trickle) and sprinkler-type irrigation equipment. Refer to the section entitled "Chemigation Instructions" for detailed instructions.

## Agricultural Crops

Berry and Small Fruit – Caneberries; Bushberries; Large Shrub/Tree Berries; Small Fruit, Vine Climbing (Crop Subgroups 13-07A, 13-07B, 13-07C, and 13-07D):	
Amur river grape; aronia berry; bayberry; blackberry; blueberry, highbush; blueberry, lowbush; buffalo currant; buffaloberry; che; Chilean guava; chokecherry; cranberry, highbush; currant, black; currant, red; elderberry; European barberry; gooseberry; grape; honeysuckle, edible; huckleberry; jostaberry; Juneberry (Saskatoon berry); kiwifruit, fuzzy; kiwifruit, hardy; lingonberry; loganberry; maypop; mulberry; mountain pepper berries; native currant; phalsa; pincherry; raspberry, black and red; riberry; salal; schisandra berry; sea buckthorn; serviceberry; wild raspberry; cultivars, varieties, and/or hybrids of these.	
Target disease/pathogen (bacteria & fungi)	Additional information
<b>Except Grape</b>	
Mummy berry ( <i>Monilinia vaccinii-corymbosi</i> )†	† Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.
Botrytis blight ( <i>Botrytis cinerea</i> ) Sclerotinia ( <i>Sclerotinia sclerotiorum</i> )	
Bacterial canker ( <i>Pseudomonas</i> spp.)	Apply before fall rains and again during dormancy before spring growth.
Anthraxnose fruit rot ( <i>Colletotrichum acutatum</i> )	Pre-harvest applications in sufficient water to cover fruit or other harvested plant parts may improve control of postharvest infections.
<b>Grape</b>	
Powdery mildew ( <i>Erysiphe</i> (formerly <i>Uncinula</i> ) <i>necator</i> )	Start applications when new shoots are ½ to 1½ inches long. Repeat at 3-5 inches, 8-10 inches, and then at 7-14 day intervals until disease conditions no longer exist.
Gray mold ( <i>Botrytis cinerea</i> ) Sour rot complex	Apply at bloom, before bunch closure, at veraison, and before harvest.
Downy mildew ( <i>Plasmopara viticola</i> )†	† Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.
Phomopsis ( <i>Phomopsis viticola</i> )	Apply when shoots are ½ to 1 inch long and again when 6-8 inches long.
Eutypa ( <i>Eutypa lata</i> )	Mix 2 fluid ounces of product per gallon of water and apply to pruning wounds.
Root and collar rot† caused by <i>Phytophthora</i> , <i>Pythium</i> , <i>Fusarium</i> , <i>Rhizoctonia</i> , <i>Armillaria</i>	See instructions for “Root diseases” and “Collar rots.” † Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.

Berry and Small Fruit – Low Growing Berries (Crop Subgroup 13-07G):	
Bearberry; bilberry; blueberry, lowbush; cloudberry; cranberry; lingonberry; muntries; partridgeberry; strawberry; cultivars, varieties, and/or hybrids of these.	
Target disease/pathogen (bacteria & fungi)	Additional information
Powdery mildew ( <i>Sphaerotheca macularis</i> , <i>Erysiphe</i> spp.)†	Start applications at or just before flowering and repeat every 7-10 days as needed through harvest. † Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.
Gray mold ( <i>Botrytis cinerea</i> )†	Begin applications at or before pistillate bloom, repeating every 7-10 days. Apply before rainfall if possible, and tank mix or rotate with a copper-based bactericide registered for such use for improved control. † Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.
Anthraxnose ( <i>Colletotrichum acutatum</i> )	
Angular leaf spot ( <i>Xanthomonas fragariae</i> )‡	‡Tank mix or rotate with copper-based fungicides at label rates for improved control.

<b>Berry and Small Fruit – Low Growing Berries (Crop Subgroup 13-07G):</b>	
Bearberry; bilberry; blueberry, lowbush; cloudberry; cranberry; lingonberry; muntries; partridgeberry; strawberry; cultivars, varieties, and/or hybrids of these.	
Target disease/pathogen (bacteria & fungi)	Additional information
"Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> † spp. Charcoal rot ( <i>Macrophomina phaseolina</i> )**	See instructions for "Soil application" and "Root dip." For treatment of roots immediately before transplanting: immerse bare roots (individually or in bunches) for 10 seconds in a suspension of 1 or 2 pints of product per gallon of water. † Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use. ** Not for use in California.

<b>Brassica Head and Stem Vegetables (Crop Group 5-16):</b>	
Broccoli; Brussels sprouts; cabbage; cabbage, Chinese, napa; cauliflower; cultivars, varieties, and hybrids of these commodities.	
Target disease/pathogen (bacteria & fungi)	Additional information
Pin rot complex ( <i>Alternaria/Xanthomonas</i> )† Leaf spots ( <i>Alternaria</i> spp., <i>Xanthomonas</i> spp.) Downy mildew ( <i>Peronospora</i> spp.) Powdery mildew ( <i>Erysiphe polygoni</i> )	† Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.
"Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> † spp.	See instructions for "Soil application." † Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.

<b>Bulb Vegetables – Onion, Bulb (Crop Subgroup 3-07A):</b>	
Daylily, bulb; fritillaria, bulb; garlic, bulb; garlic, great-headed, bulb; garlic, serpent, bulb; lily, bulb; onion, bulb; onion, Chinese, bulb; onion, pearl; onion, potato, bulb; shallot, bulb; cultivars, varieties, and/or hybrids of these.	
Target disease/pathogen (bacteria & fungi)	Additional information
<i>Botrytis</i> spp. (neck rot, leaf blight) Purple blotch ( <i>Alternaria</i> spp.) Downy mildew ( <i>Peronospora</i> spp.) Powdery mildew ( <i>Erysiphe</i> spp.) Rust ( <i>Puccinia porii</i> )†	† Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.
"Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> † spp.	See instructions for "Soil application." † Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.

<b>Cereal Grains (Crop Group 15):</b> Barley; buckwheat; corn; millet, pearl; millet, proso; oats; popcorn; rice; rye; sorghum (milo); teosinte; triticale; wheat; wild rice	
<b>Target disease/pathogen (bacteria &amp; fungi)</b>	<b>Additional information</b>
<i>Except Corn**</i>	
Powdery mildew ( <i>Erysiphe graminis</i> ) Rust ( <i>Puccinia</i> spp.)† Rice blast ( <i>Pyricularia oryzae</i> ) Sheath spot/blight ( <i>Rhizoctonia</i> and <i>Thanatephorus</i> spp.) Smut ( <i>Tilletia barclayana</i> ) Bacterial blight/streak ( <i>Xanthomonas</i> spp.) Stem rots ( <i>Magnaporthe</i> and <i>Sclerotium</i> spp.) <i>Cercospora</i> leaf spot Brown rot/leaf spots/smuts ( <i>Ceratobasidium</i> , <i>Cochliobolus</i> , <i>Dreschlera</i> , and <i>Entyloma</i> spp.)	† Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use. ** Not for use in California.
<i>Corn Only</i>	
<i>Botrytis</i> spp. Southern leaf blight ( <i>Bipolaris maydis</i> / <i>Cochliobolus heterostrophus</i> / <i>Helminthosporium maydis</i> ) Rusts ( <i>Puccinia</i> spp.)	
Leaf spots ( <i>Cercospora</i> and <i>Cercosporidium</i> spp.)† Common rust ( <i>Puccinia sorghi</i> )†	† Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.
"Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> † spp.	See instructions for "Soil application." † Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.

<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; orange, sour; orange, sweet; pummelo; Russell River lime; satsuma mandarin; sweet lime; tachibana orange; Tahiti lime; tangelo; tangerine (mandarin); tangor; trifoliolate orange; unqi fruit; cultivars, varieties, and/or hybrids of these.	
<b>Target disease/pathogen (bacteria &amp; fungi)</b>	<b>Additional information</b>
Greasy spot ( <i>Mycosphaerella citri</i> )†	Apply at first new foliar flush and repeat with each new flush. Tank mix with spray oil or copper based fungicide at listed rates. † Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.
Citrus canker ( <i>Xanthomonas campestris</i> pv. <i>citri</i> )‡	‡ Tank mix or rotate with copper-based fungicides at label rates for improved control.
Scab ( <i>Elsinoe fawcetti</i> )†	Start applications at first new foliage flush and repeat at petal fall and when fruit are ½ inch in diameter. † Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.
Postbloom fruit drop ( <i>Colletotrichum acutatum</i> )† <i>Alternaria</i> leaf spot ( <i>Alternaria alternata</i> ) Melanose ( <i>Diaporthe citri</i> )†	† Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.
Root and collar rots† caused by <i>Phytophthora</i> , <i>Pythium</i> , <i>Fusarium</i> , <i>Rhizoctonia</i> , <i>Armillaria</i>	See instructions for "Root diseases" and "Collar rots." † Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.

Coffee	
Target disease/pathogen (bacteria & fungi)	Additional information
Coffee berry disease ( <i>Colletotrichum coffeanum</i> ) <sup>‡</sup> Coffee rust ( <i>Hemileia vastatrix</i> ) <sup>‡**</sup>	<sup>‡</sup> Tank mix or rotate with copper-based fungicides at label rates for improved control. ** Not for use in California.
Anthrachnose ( <i>Colletotrichum</i> spp.) <i>Botrytis</i> flower blight <i>Cercospora</i> leaf spot <sup>**</sup> and berry blotch <sup>**</sup>	** Not for use in California.
"Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> <sup>†</sup> spp.	See instructions for "Soil application." <sup>†</sup> Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.

Cucurbit Vegetables (Crop Group 9):	
Chayote (fruit); Chinese waxgourd (Chinese preserving melon); citron melon; cucumber; gherkin; gourd, edible (includes hyotan, cucuzza, hechima, Chinese okra); Momordica spp (includes balsam apple, balsam pear, bittermelon, Chinese cucumber); muskmelon (includes true canteloupe, cantaloupe, casaba, crenshaw melon, golden pershaw melon, honeydew melon, honey balls, mango melon, Persian melon, pineapple melon, Santa Claus melon, and snake melon); pumpkin; squash, summer (includes crookneck squash, scallop squash, straightneck squash, vegetable marrow, zucchini); squash, winter (includes butternut squash, calabaza, hubbard squash, acorn squash, spaghetti squash); watermelon.	
Target disease/pathogen (bacteria & fungi)	Additional information
Powdery mildew ( <i>Erysiphe</i> and <i>Sphaerotheca</i> spp.) Downy mildew ( <i>Pseudoperonospora</i> spp.) Gummy stem blight ( <i>Didymella bryoniae</i> and <i>Phoma cucurbitacearum</i> )	
Vine decline ( <i>Monosporascus cannonballus</i> ) <sup>**</sup> Charcoal rot ( <i>Macrophomina phaseoli</i> ) <sup>**</sup> "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> <sup>†</sup> spp.	See instructions for "Soil application." ** Not for use in California. <sup>†</sup> Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.

Fruiting Vegetables (Crop Group 8-10):	
African eggplant; bush tomato; bell pepper; cocona; currant tomato; eggplant; garden huckleberry; goji berry; groundcherry; martynia; naranjilla; okra; pea eggplant; pepino; non-bell pepper; roselle; scarlet eggplant; sunberry; tomatillo; tomato; tree tomato; cultivars, varieties, and/or hybrids of these.	
Target disease/pathogen (bacteria & fungi)	Additional information
Bacterial spot ( <i>Xanthomonas</i> spp.) <sup>†‡</sup> Bacterial speck ( <i>Pseudomonas syringae</i> pv. <i>tomato</i> ) <sup>† ‡</sup> Gray mold ( <i>Botrytis cinerea</i> ) Powdery mildew <sup>†</sup> ( <i>Leveillula</i> , <i>Oidiopsis</i> , <i>Erysiphe</i> , and <i>Sphaerotheca</i> spp.) Early blight ( <i>Alternaria solani</i> ) <sup>†</sup> Late blight ( <i>Phytophthora infestans</i> ) <sup>†</sup>	<sup>†</sup> Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use. <sup>‡</sup> Tank mix or rotate with copper-based fungicides at label rates for improved control.
"Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> <sup>†</sup> spp. Southern blight ( <i>Sclerotium rolfsii</i> ) <sup>†**</sup>	See instructions for "Soil application." <sup>†</sup> Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use. ** Not for use in California.



Globe Artichoke**	
Target disease/pathogen (bacteria & fungi)	Additional information
Black root/crown rot ( <i>Alternaria</i> spp.) Bacterial leaf blight ( <i>Xanthomonas campestris</i> ) Downy mildew ( <i>Peronospora</i> spp.) Powdery mildew ( <i>Erysiphe</i> spp.) Gray mold ( <i>Botrytis</i> spp.) Black leg /bacterial soft rot ( <i>Erwinia carotovora</i> ) Early blight ( <i>Alternaria solani</i> )† Late blight ( <i>Phytophthora infestans</i> )† Bacterial crown rot ( <i>Erwinia chrysanthemi</i> ) Ramulana leaf spot ( <i>Ramularia cynarae</i> ) Verticillium wilt ( <i>Verticillium dahlia</i> )	† Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.
White mold ( <i>Sclerotinia sclerotiorum</i> )	Apply at or immediately following planting (but before plant emergence) as a banded seedline treatment 4 to 6 inches wide. Make second application at thinning or cultivation in sufficient water and multiple nozzles to ensure thorough coverage of lower leaves and surrounding soil surface. Incorporation with light irrigation after application may improve disease control. Repeat at 10-14 day intervals if conditions promoting disease persist. Alternatively, apply at early flowering and again at petal fall.
Black scurf ( <i>Rhizoctonia solani</i> ) Cavity spot ( <i>Pythium</i> spp.) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> † spp.	See instructions for "Soil application." † Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use. For treatment of roots immediately before transplanting: immerse bare roots (individually or in bunches) for 10 seconds in a suspension of 1 to 2 pints of product per gallon of water.

\*\* Not for use in California.

Hemp	
Target disease/pathogen (bacteria & fungi)	Additional information
Anthracnose ( <i>Colletotrichum</i> spp.) Brown blight ( <i>Alternaria alternata</i> ) Brown leaf spot and stem canker ( <i>Ascochyta</i> spp.) Gray mold ( <i>Botrytis cinerea</i> ) Hemp leaf spot ( <i>Bipolaris</i> sp.) Powdery mildew ( <i>Leveillula</i> and <i>Sphaerotheca</i> spp.) White leaf spot ( <i>Phomopsis ganjae</i> ) Yellow leaf spot ( <i>Septoria</i> spp.) Olive leaf spot ( <i>Cercospora cannabis</i> ) Stemphylium leaf and stem spot ( <i>Stemphylium botryosum</i> ) Bacterial blight ( <i>Pseudomonas cannabina</i> ) Xanthomonas leaf spot ( <i>Xanthomonas campestris</i> )	



Hemp	
Target disease/pathogen (bacteria & fungi)	Additional information
"Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , <i>Botrytis</i> , <i>Verticillium</i> spp. Charcoal rot ( <i>Macrophomina phaseolina</i> ) Fusarium wilt, foot rot, stem canker ( <i>Fusarium</i> spp.) Hemp canker ( <i>Sclerotinia sclerotiorum</i> ) Southern blight/southern stem blight ( <i>Sclerotium rolfsii</i> ) Verticillium wilt ( <i>Verticillium</i> spp.)	See instructions for "Soil application."

Herbs – Fresh Leaves (Crop Subgroup 25A):		
Target disease/pathogen (bacteria & fungi)	Additional information	
<p>Agrimony, fresh leaves; Amla, fresh leaves; Angelica, fresh leaves; Angelica, dahurian, fresh leaves; Applemint, fresh leaves; Avarum, fresh leaves; Balloon pea, fresh leaves; Balm, fresh leaves; Barrenwort, fresh leaves; Basil, fresh leaves; Basil, American, fresh leaves; Basil, Greek, fresh leaves; Basil, holy, fresh leaves; Basil, lemon, fresh leaves; Basil, Russian, fresh leaves; Bay, fresh leaves; Bearberry, fresh leaves; Bisongrass, fresh leaves; Blue mallow, fresh leaves; Boneset, fresh leaves; Borage, fresh leaves; Borage, Indian, fresh leaves; Burnet, fresh leaves; Burnet, garden, fresh leaves; Burnet, salad, fresh leaves; Butterbur, fresh leaves; Calamint, fresh leaves; Calamint, large-flower, fresh leaves; Calamint, lesser, fresh leaves; Calendula, fresh leaves; Caltrop, fresh leaves; Camomile (Chamomile), fresh leaves; Camomile (Chamomile), German, fresh leaves; Camomile (Chamomile), Roman, fresh leaves; Caraway, fresh leaves; Cat's claw, fresh leaves; Catnip, fresh leaves; Catnip, Japanese, fresh leaves; Celandine, greater, fresh leaves; Celandine, lesser, fresh leaves; Centaury, fresh leaves; Chaste tree, fresh leaves; Chaste tree, Chinese, fresh leaves; Chinese blackberry, fresh leaves; Chinese foxglove, fresh leaves; Cicely, sweet, fresh leaves; Clary, fresh leaves; Coriander, Bolivian, fresh leaves; Coriander, Vietnamese, fresh leaves; Costmary, fresh leaves; Creat, fresh leaves; Culantro, fresh leaves; Curry leaf, fresh leaves; Curryplant, fresh leaves; Cut leaf, fresh leaves; Damiana, fresh leaves; Dokudami, fresh leaves; Echinacea, fresh leaves; Epazote, fresh leaves; Eucommia, fresh leaves; Evening primrose, fresh leaves; Eyebright, fresh leaves; Fennel, common, fresh leaves; Fennel, Spanish, fresh leaves; Fenugreek, fresh leaves; Feverfew, fresh leaves; Field pennycress, fresh leaves; Flowers, edible, fresh, multiple species; Fumitory, fresh leaves; Galbanum, fresh leaves; Galega, fresh leaves; Gambir, fresh leaves; Geranium, fresh leaves; Geranium, lemon, fresh leaves; Geranium, rose, fresh leaves; Germander, golden, fresh leaves; Goldenrod, European, fresh leaves; Goldenseal, fresh leaves; Gotu kola, fresh leaves; Greater periwinkle, fresh leaves; Guayusa, fresh leaves; Gumweed, fresh leaves; Gymnema, fresh leaves; Gypsywort, fresh leaves; Hawthorn, fresh leaves; Heal-all, fresh leaves; Hemp nettle, fresh leaves; Honewort, fresh leaves; Honeybush, fresh leaves; Horehound, fresh leaves; Horsemint, fresh leaves; Horsetail, fresh leaves; Hyssop, fresh leaves; Hyssop, anise, fresh leaves; Indian tobacco, fresh leaves; Ironwort, fresh leaves; Ivy, fresh leaves; Jamaica dogwood, fresh leaves; Jasmine, fresh leaves; Labrador tea, fresh leaves; Lavender, fresh leaves; Lemon verbena, fresh leaves; Lemongrass, fresh leaves; Lovage, fresh leaves; Love-in-a-mist, fresh leaves; Mamaki, fresh leaves; Marigold, fresh leaves; Marigold, African, fresh leaves; Marigold, Aztec, fresh leaves; Marigold, French, fresh leaves; Marigold, Irish lace, fresh leaves; Marigold, licorice, fresh leaves; Marigold, Mexican mint, fresh leaves; Marigold, signet, fresh leaves; Marjoram, fresh leaves; Marjoram, pot, fresh leaves; Marjoram, sweet, fresh leaves; Marshmallow, fresh leaves; Meadowsweet, fresh leaves; Mint, fresh leaves; Mint, corn, fresh leaves; Mint, Korean, fresh leaves; Monarda, fresh leaves; Moringa, fresh leaves; Motherwort, fresh leaves; Mountainmint, fresh leaves; Mountainmint, clustered, fresh leaves; Mountainmint, hoary, fresh leaves; Mountainmint, Virginia, fresh leaves; Mountainmint, whorled, fresh leaves; Mugwort, fresh leaves; Mulberry, white, fresh leaves; Mullein, fresh leaves; Mustard, hedge, fresh leaves; Nasturtium, fresh leaves; Nasturtium, bush, fresh leaves; Nasturtium, garden, fresh leaves; Nettle, stinging, fresh leaves; Oregano, fresh leaves; Oregano, Mexican, fresh leaves; Oregano, Puerto Rico, fresh leaves; Oswego tea, fresh leaves; Pandan leaf, fresh leaves; Pansy, fresh leaves; Paracress, fresh leaves; Partridge berry, fresh leaves; Patchouli, fresh leaves; Pennyroyal, fresh leaves; Pepper leaf, black, fresh leaves; Peppermint, fresh leaves; Perilla, fresh leaves; Pill bearing spurge, fresh leaves; Pipsissewa, fresh leaves; Plantain, common, fresh leaves; Rooibos, fresh leaves; Rose, fresh leaves; Rosemary, fresh leaves; Sage, fresh leaves; Sage, Greek, fresh leaves; Sage, Spanish, fresh leaves; Sage, white, fresh leaves; Savory, summer, fresh leaves; Savory, winter, fresh leaves; Senna, fresh leaves; Siberian fir, fresh leaves; Skullcap, fresh leaves; Small flower willow head, fresh leaves; Sorrel, fresh leaves; Sorrel, French, fresh leaves; Sorrel, garden, fresh leaves; Southernwood, fresh leaves; Spearmint, fresh leaves; Spearmint, Scotch, fresh leaves; Spilanthes, fresh leaves; Spotted beebalm, fresh leaves; St. John's Wort, fresh leaves; Stevia, fresh leaves; Stoneroot, fresh leaves; Swamp leaf, fresh leaves; Tansy, fresh leaves; Tarragon, fresh leaves; Thuja, fresh leaves; Thyme, fresh leaves; Thyme, creeping, fresh leaves; Thyme, lemon, fresh leaves; Thyme, mastic, fresh leaves; Toon, Chinese, fresh leaves; Toothed clubmoss, fresh leaves; Trailing arbutus, fresh leaves; Vasaka, fresh leaves; Verbena, blue, fresh leaves; Veronica, fresh leaves; Violet, fresh leaves; Watermint, fresh leaves; Waterpepper, fresh leaves; Wild bergamot, fresh leaves; Wintergreen, fresh leaves; Wood betony, fresh leaves; Woodruff, fresh leaves; Wormwood, fresh leaves; Wormwood, Roman, fresh leaves; Yarrow, fresh leaves; Yellow gentian, fresh leaves; Yerba santa, fresh leaves; Yomogi, fresh leaves; Cultivars, varieties, and hybrids of these commodities.</p>		
Powdery mildews ( <i>Oidium</i> spp. and others) Bacterial diseases ( <i>Erwinia</i> , <i>Xanthomonas</i> , and <i>Pseudomonas</i> spp.) Rusts ( <i>Puccinia</i> spp. and others)		

### Herbs – Fresh Leaves (Crop Subgroup 25A):

Agrimony, fresh leaves; Amla, fresh leaves; Angelica, fresh leaves; Angelica, dahurian, fresh leaves; Applemint, fresh leaves; Avarum, fresh leaves; Balloon pea, fresh leaves; Balm, fresh leaves; Barrenwort, fresh leaves; Basil, fresh leaves; Basil, American, fresh leaves; Basil, Greek, fresh leaves; Basil, holy, fresh leaves; Basil, lemon, fresh leaves; Basil, Russian, fresh leaves; Bay, fresh leaves; Bearberry, fresh leaves; Bisongrass, fresh leaves; Blue mallow, fresh leaves; Boneset, fresh leaves; Borage, fresh leaves; Borage, Indian, fresh leaves; Burnet, fresh leaves; Burnet, garden, fresh leaves; Burnet, salad, fresh leaves; Butterbur, fresh leaves; Calamint, fresh leaves; Calamint, large-flower, fresh leaves; Calamint, lesser, fresh leaves; Calendula, fresh leaves; Caltrop, fresh leaves; Camomile (Chamomile), fresh leaves; Camomile (Chamomile), German, fresh leaves; Camomile (Chamomile), Roman, fresh leaves; Caraway, fresh leaves; Cat's claw, fresh leaves; Catnip, fresh leaves; Catnip, Japanese, fresh leaves; Celandine, greater, fresh leaves; Celandine, lesser, fresh leaves; Centaury, fresh leaves; Chaste tree, fresh leaves; Chaste tree, Chinese, fresh leaves; Chinese blackberry, fresh leaves; Chinese foxglove, fresh leaves; Cicely, sweet, fresh leaves; Clary, fresh leaves; Coriander, Bolivian, fresh leaves; Coriander, Vietnamese, fresh leaves; Costmary, fresh leaves; Creat, fresh leaves; Culantro, fresh leaves; Curry leaf, fresh leaves; Curryplant, fresh leaves; Cut leaf, fresh leaves; Damiana, fresh leaves; Dokudami, fresh leaves; Echinacea, fresh leaves; Epazote, fresh leaves; Eucommia, fresh leaves; Evening primrose, fresh leaves; Eyebright, fresh leaves; Fennel, common, fresh leaves; Fennel, Spanish, fresh leaves; Fenugreek, fresh leaves; Feverfew, fresh leaves; Field pennycress, fresh leaves; Flowers, edible, fresh, multiple species; Fumitory, fresh leaves; Galbanum, fresh leaves; Galega, fresh leaves; Gambir, fresh leaves; Geranium, fresh leaves; Geranium, lemon, fresh leaves; Geranium, rose, fresh leaves; Germander, golden, fresh leaves; Goldenrod, European, fresh leaves; Goldenseal, fresh leaves; Gotu kola, fresh leaves; Greater periwinkle, fresh leaves; Guayusa, fresh leaves; Gumweed, fresh leaves; Gymnema, fresh leaves; Gypsywort, fresh leaves; Hawthorn, fresh leaves; Heal-all, fresh leaves; Hemp nettle, fresh leaves; Honewort, fresh leaves; Honeybush, fresh leaves; Horehound, fresh leaves; Horsemint, fresh leaves; Horsetail, fresh leaves; Hyssop, fresh leaves; Hyssop, anise, fresh leaves; Indian tobacco, fresh leaves; Ironwort, fresh leaves; Ivy, fresh leaves; Jamaica dogwood, fresh leaves; Jasmine, fresh leaves; Labrador tea, fresh leaves; Lavender, fresh leaves; Lemon verbena, fresh leaves; Lemongrass, fresh leaves; Lovage, fresh leaves; Love-in-a-mist, fresh leaves; Mamaki, fresh leaves; Marigold, fresh leaves; Marigold, African, fresh leaves; Marigold, Aztec, fresh leaves; Marigold, French, fresh leaves; Marigold, Irish lace, fresh leaves; Marigold, licorice, fresh leaves; Marigold, Mexican mint, fresh leaves; Marigold, signet, fresh leaves; Marjoram, fresh leaves; Marjoram, pot, fresh leaves; Marjoram, sweet, fresh leaves; Marshmallow, fresh leaves; Meadowsweet, fresh leaves; Mint, fresh leaves; Mint, corn, fresh leaves; Mint, Korean, fresh leaves; Monarda, fresh leaves; Moringa, fresh leaves; Motherwort, fresh leaves; Mountainmint, fresh leaves; Mountainmint, clustered, fresh leaves; Mountainmint, hoary, fresh leaves; Mountainmint, Virginia, fresh leaves; Mountainmint, whorled, fresh leaves; Mugwort, fresh leaves; Mulberry, white, fresh leaves; Mullein, fresh leaves; Mustard, hedge, fresh leaves; Nasturtium, fresh leaves; Nasturtium, bush, fresh leaves; Nasturtium, garden, fresh leaves; Nettle, stinging, fresh leaves; Oregano, fresh leaves; Oregano, Mexican, fresh leaves; Oregano, Puerto Rico, fresh leaves; Oswego tea, fresh leaves; Pandan leaf, fresh leaves; Pansy, fresh leaves; Paracress, fresh leaves; Partridge berry, fresh leaves; Patchouli, fresh leaves; Pennyroyal, fresh leaves; Pepper leaf, black, fresh leaves; Peppermint, fresh leaves; Perilla, fresh leaves; Pill bearing spurge, fresh leaves; Pipsissewa, fresh leaves; Plantain, common, fresh leaves; Rooibos, fresh leaves; Rose, fresh leaves; Rosemary, fresh leaves; Sage, fresh leaves; Sage, Greek, fresh leaves; Sage, Spanish, fresh leaves; Sage, white, fresh leaves; Savory, summer, fresh leaves; Savory, winter, fresh leaves; Senna, fresh leaves; Siberian fir, fresh leaves; Skullcap, fresh leaves; Small flower willow head, fresh leaves; Sorrel, fresh leaves; Sorrel, French, fresh leaves; Sorrel, garden, fresh leaves; Southernwood, fresh leaves; Spearmint, fresh leaves; Spearmint, Scotch, fresh leaves; Spilanthes, fresh leaves; Spotted beebalm, fresh leaves; St. John's Wort, fresh leaves; Stevia, fresh leaves; Stoneroot, fresh leaves; Swamp leaf, fresh leaves; Tansy, fresh leaves; Tarragon, fresh leaves; Thuja, fresh leaves; Thyme, fresh leaves; Thyme, creeping, fresh leaves; Thyme, lemon, fresh leaves; Thyme, mastic, fresh leaves; Toon, Chinese, fresh leaves; Toothed clubmoss, fresh leaves; Trailing arbutus, fresh leaves; Vasaka, fresh leaves; Verbena, blue, fresh leaves; Veronica, fresh leaves; Violet, fresh leaves; Watermint, fresh leaves; Waterpepper, fresh leaves; Wild bergamot, fresh leaves; Wintergreen, fresh leaves; Wood betony, fresh leaves; Woodruff, fresh leaves; Wormwood, fresh leaves; Wormwood, Roman, fresh leaves; Yarrow, fresh leaves; Yellow gentian, fresh leaves; Yerba santa, fresh leaves; Yomogi, fresh leaves; Cultivars, varieties, and hybrids of these commodities.

Target disease/pathogen (bacteria & fungi)	Additional information
Downy mildews ( <i>Peronospora</i> spp. and others)† Leaf spots ( <i>Alternaria</i> , <i>Septoria</i> , <i>Colletotrichum</i> , and <i>Cercospora</i> spp.)†	† Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.
"Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> † spp.	See instructions for "Soil application." † Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.

Hops	
Target disease/pathogen (bacteria & fungi)	Additional information
Powdery mildew ( <i>Sphaerotheca macularis</i> ) Downy mildew ( <i>Pseudoperonospora humuli</i> )	See instructions for "Foliar application" or "Chemigation."
Fusarium wilt, foot rot, stem canker ( <i>Fusarium</i> spp.)**	See instructions for "Soil application" or "Chemigation." ** Not for use in California.

<b>Leafy Vegetables (Crop Group 4-16):</b>	
<p>Amaranth, Chinese; amaranth, leafy; arugula; aster, Indian; blackjack; broccoli, Chinese; broccoli raab; cabbage, abyssinian; cabbage, Chinese, bok choy; cabbage, seakale; cat's whiskers; cham-chwi; cham-na-mul; chervil, fresh leaves; chipilin; chrysanthemum, garland; cilantro, fresh leaves; collards; corn salad; cosmos; cress, garden; cress, upland; dandelion, leaves; dang-gwi, leaves; dillweed; dock; dol-nam-mul; ebolo; endive; escarole; fameflower; feather cockscomb; Good King Henry; good king henry; hanover salad; huazontle; jute, leaves; kale; lettuce, bitter; lettuce, head; lettuce, leaf; maca, leaves; mizuna; mustard greens; orach; parsley, fresh leaves; plantain, buckhorn; primrose, English; purslane, garden; purslane, winter; radicchio; radish, leaves; rape greens; rocket, wild; shepherd's purse; spinach; spinach, Malabar; spinach, New Zealand; spinach, tanier; Swiss chard; turnip greens; violet, Chinese, leaves; watercress; cultivars, varieties, and hybrids of these commodities.</p>	
Target disease/pathogen (bacteria & fungi)	Additional information
<p>Downy mildew (<i>Bremia lactucae</i>, <i>Peronospora</i> spp.)†            Powdery mildew (<i>Golovinomyces (Erysiphe) cichoracearum</i>)†            Bacterial blights            Leaf spots (<i>Cercospora</i> spp.)  <i>Botrytis</i> spp.            Rusts (<i>Puccinia</i> spp.)</p>	<p>† Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.</p>
<p>Head and leaf drop (<i>Sclerotinia</i> spp.)            Pink rot (<i>Sclerotinia sclerotiorum</i>)            White mold (<i>Sclerotinia sclerotiorum</i>)</p>	<p>Apply at or immediately following planting (but before plant emergence) as a banded seedline treatment 4 to 6 inches wide. Make second application at thinning or cultivation in sufficient water and multiple nozzles to ensure thorough coverage of lower leaves and surrounding soil surface. Incorporation with light irrigation after application may improve disease control. Repeat at 10-14 day intervals if conditions promoting disease persist. Alternatively, apply at early flowering and again at petal fall.</p>
<p>"Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i>, <i>Rhizoctonia</i>, <i>Fusarium</i>, <i>Phytophthora</i>, or <i>Verticillium</i>† spp.            Bottom rot (<i>Rhizoctonia solani</i>)</p>	<p>See instructions for "Soil application."            † Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.</p>

<b>Legume Vegetables (Succulent or Dried) (Crop Group 6):</b>	
<p>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, 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, yardlong bean); broad bean (fava bean); chickpea (garbanzo bean); guar; jackbean; lablab bean (hyacinth bean); lentil; pea (<i>Pisum</i> spp.) (includes dwarf pea, edible-podded pea, English pea, field pea, garden pea, green pea, snowpea, sugar snap pea); pigeon pea; soybean; soybean (immature seed); sword bean.</p>	
Target disease/pathogen (bacteria & fungi)	Additional information
<p>Gray mold (<i>Botrytis cinerea</i>)            Powdery mildew (<i>Microsphaera diffusa</i>)            Rusts†, including <i>Uromyces appendiculatus</i>, <i>Puccinia</i> spp., and Asian soybean rust (<i>Phayospora pachyrhizi</i>)            Ascochyta blight (<i>Ascochyta rabiei</i>)**            Halo blight (<i>Pseudomonas syringae</i> pv. <i>Phaseolicola</i>)**            Common bacterial blight (<i>Xanthomonas axonopodis</i> pv. <i>Phaseoli</i>)**            Bacterial brown spot (<i>Pseudomonas syringae</i>)**</p>	<p>† Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.            ** Not for use in California.</p>

**Legume Vegetables (Succulent or Dried) (Crop Group 6):**

Bean (*Lupinus* spp.) (includes grain lupin, sweet lupin, white lupin, and white sweet lupin); bean (*Phaseolus* spp.) (includes field bean, kidney bean, lima bean, navy bean, pinto bean, runner bean, snap bean, tepary bean, wax bean); bean (*Vigna* spp.) (includes adzuki bean, asparagus bean, blackeyed pea, catjang, Chinese longbean, cowpea, Crowder pea, moth bean, mung bean, rice bean, southern pea, urd bean, yardlong bean); broad bean (fava bean); chickpea (garbanzo bean); guar; jackbean; lablab bean (hyacinth bean); lentil; pea (*Pisum* spp.) (includes dwarf pea, edible-podded pea, English pea, field pea, garden pea, green pea, snowpea, sugar snap pea); pigeon pea; soybean; soybean (immature seed); sword bean.

Target disease/pathogen (bacteria & fungi)	Additional information
White mold ( <i>Sclerotinia sclerotiorum</i> )	Apply at or immediately following planting (but before plant emergence) as a banded seedline treatment 4 to 6 inches wide. Make second application at thinning or cultivation in sufficient water and multiple nozzles to ensure thorough coverage of lower leaves and surrounding soil surface. Incorporation with light irrigation after application may improve disease control. Repeat at 10-14 day intervals if conditions promoting disease persist. Alternatively, apply at early flowering and again at petal fall.
"Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> † spp.	See instructions for "Soil application." † Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.

**Non-Grass Animal Feeds (Forage, Fodder, Straw and Hay)\*\* (Crop Group 18):**

Alfalfa; bean, velvet; clover (*Trifolium* spp., *Melilotus* spp.); kudzu; lespedeza; lupin; sainfoin; trefoil; vetch; vetch, crown; vetch, milk.

Target disease/pathogen (bacteria & fungi)	Additional information
Powdery mildew ( <i>Erysiphe graminis</i> ) Rust ( <i>Puccinia</i> spp.)† Rice blast ( <i>Pyricularia oryzae</i> ) Sheath spot/blight ( <i>Rhizoctonia</i> and <i>Thanatephorus</i> spp.) Smut ( <i>Tilletia barclayana</i> ) Bacterial blight/streak ( <i>Xanthomonas</i> spp.) Stem rots ( <i>Magnaporthe</i> and <i>Sclerotium</i> spp.) <i>Cercospora</i> leaf spot Brown rot/leaf spots/smuts ( <i>Ceratobasidium</i> , <i>Cochliobolus</i> , <i>Dreschlera</i> , and <i>Entyloma</i> spp.) Bacterial wilt ( <i>Clavibacter michiganensis</i> ) Spring black stem ( <i>Ascochyta medicaginicola</i> ) White mold (Sclerotinia Stem Rot; <i>Sclerotinia sclerotiorum</i> )	† Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.
<i>Aphanomyces</i> spp. <i>Fusarium</i> spp. <i>Macrophomina</i> spp. <i>Phytophthora</i> spp. <i>Pythium</i> spp. <i>Rhizoctonia</i> spp. <i>Verticillium</i> spp.	See instructions for "Soil application."

\*\* Not for use in California.

<b>Oilseed Crops** (Crop Group 20):</b>	
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; cultivars, varieties, and/or hybrids of these.	
<b>Target disease/pathogen (bacteria &amp; fungi)</b>	<b>Additional information</b>
White mold/Stem rot ( <i>Sclerotinia sclerotiorum</i> ) Rusts†, including <i>Uromyces appendiculatus</i> , <i>Puccinia</i> spp., and Asian soybean rust ( <i>Phayospora pachyrhizi</i> ) Bacterial Speck ( <i>Pseudomonas syringae</i> pv. <i>glycinea</i> ) Bacterial Pustule ( <i>Xanthomonas</i> spp.) Brown Spot ( <i>Septoria glycines</i> ) <i>Cercospora</i> Leaf Spot Pod and Stem Blights ( <i>Diaporthe</i> and <i>Phomopsis</i> spp.) Downy Mildew ( <i>Peronospora mansherica</i> )	† Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use. ** Not for use in California.

<b>Peanuts</b>	
<b>Target disease/pathogen (bacteria &amp; fungi)</b>	<b>Additional information</b>
White mold ( <i>Sclerotinia sclerotiorum</i> )	Apply at or immediately following planting (but before plant emergence) as a banded seedline treatment 4 to 6 inches wide. Make second application at thinning or cultivation in sufficient water and multiple nozzles to ensure thorough coverage of lower leaves and surrounding soil surface. Incorporation with light irrigation after application may improve disease control. Repeat at 10-14 day intervals if conditions promoting disease persist. Alternatively, apply at early flowering and again at petal fall.
<i>Botrytis</i> spp. Rusts ( <i>Puccinia</i> spp.) Leaf spots ( <i>Cercospora</i> and <i>Cercosporidium</i> spp.)†	† Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.
"Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> † spp.	See instructions for "Soil application." † Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.

<b>Pome Fruit (Crop Group 11-10):</b>	
Apple; azarole; crabapple; loquat; mayhaw; medlar; pear; pear, Asian; quince; quince, Chinese; quince, Japanese; tejocote; cultivars, varieties, and/or hybrids of these.	
<b>Target disease/pathogen (bacteria &amp; fungi)</b>	<b>Additional information</b>
Powdery mildew ( <i>Podosphaera leucotricha</i> )	Make first application at or before tight cluster if conditions favor disease development. Repeat at 7-10 day intervals through the second cover spray or longer on susceptible varieties or if environmental conditions favor rapid disease development.
Flyspeck ( <i>Zygothiala jamaicensis</i> )** Sooty blotch disease complex** Brooks spot ( <i>Mycosphaerella pomi</i> )** Bot rot/white rot ( <i>Botryosphaeria dothidea</i> )** Bitter rot ( <i>Colletotrichum</i> spp.) Cedar apple rust ( <i>Gymnosporangium juniperi-virginianae</i> )**	Begin applications before bloom when environmental conditions favor disease development, repeating at 7 to 14 day intervals or as needed. Control may be enhanced by addition of a surfactant to improve spray coverage. Use only surfactants known to be safe for use on the crop and for which such use is allowed. ** Not for use in California.



<b>Pome Fruit (Crop Group 11-10):</b> <b>Apple; azarole; crabapple; loquat; mayhaw; medlar; pear; pear, Asian; quince; quince, Chinese; quince, Japanese; tejocote; cultivars, varieties, and/or hybrids of these.</b>	
<b>Target disease/pathogen (bacteria &amp; fungi)</b>	<b>Additional information</b>
Fire blight ( <i>Erwinia amylovora</i> )†	Use as a rotation partner in a fire blight control program. Begin applications at 1-5% open blossoms and repeat every 3-7 days as necessary until petal fall, when intervals can be increased to 7 days. This product can also be used in summer "cover spray" applications to control the shoot blight phase of fire blight and summer diseases. Can be mixed with copper fungicides to improve control. † Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.
Scab ( <i>Venturia</i> spp.)†	† Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.
Root and collar rots† caused by <i>Phytophthora</i> , <i>Pythium</i> , <i>Fusarium</i> , <i>Rhizoctonia</i> , <i>Armillaria</i>	See instructions for "Root diseases" and "Collar rots." † Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.

<b>Root and Tuber Vegetables (Except Sugar Beets) (Crop Group 1):</b> Arracacha; arrowroot; artichoke, Chinese; artichoke, Jerusalem; beet, garden; burdock, edible; canna, edible; carrot; cassava, bitter and sweet; celeriac (celery root); chayote (root); chervil, turnip-rooted; chicory; chufa; dasheen (taro); ginger; ginseng; horseradish; leren; parsley, turnip-rooted; parsnip; potato; radish; radish, oriental (daikon); rutabaga; salsify (oyster plant); salsify, black; salsify, Spanish; skirret; sweet potato; tanier (cocoyam); turmeric; turnip; yam bean; yam, true.	
<b>Target disease/pathogen (bacteria &amp; fungi)</b>	<b>Additional information</b>
<b>Except Sugar Beets</b>	
Black root/crown rot ( <i>Alternaria</i> spp.) Bacterial leaf blight ( <i>Xanthomonas campestris</i> ) Downy mildew ( <i>Peronospora</i> spp.) Powdery mildew ( <i>Erysiphe</i> spp.) Gray mold ( <i>Botrytis</i> spp.) Black leg /bacterial soft rot ( <i>Erwinia carotovora</i> )** Early blight ( <i>Alternaria solani</i> )† Late blight ( <i>Phytophthora infestans</i> )†	** Not for use in California. † Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.
White mold ( <i>Sclerotinia sclerotiorum</i> )	Apply at or immediately following planting (but before plant emergence) as a banded seedline treatment 4 to 6 inches wide. Make second application at thinning or cultivation in sufficient water and multiple nozzles to ensure thorough coverage of lower leaves and surrounding soil surface. Incorporation with light irrigation after application may improve disease control. Repeat at 10-14 day intervals if conditions promoting disease persist. Alternatively, apply at early flowering and again at petal fall.
Black scurf ( <i>Rhizoctonia solani</i> ) Cavity spot ( <i>Pythium</i> spp.) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> † spp.	See instructions for "Soil application." † Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use. For treatment of horseradish roots immediately before transplanting: immerse bare roots (individually or in bunches) for 10 seconds in a suspension of 1 to 2 pints of product per gallon of water.
<b>Sugar Beets**</b>	
Leaf spots ( <i>Cercospora</i> and <i>Ramularia</i> spp.) Powdery mildew ( <i>Erysiphe</i> spp.) Rust ( <i>Uromyces betae</i> )	** Not for use in California.

### Spices (Crop Group 26):

Ajowan, seed; Alder buckhorn; Allspice; Ambrette, seed; Amla, seed; Angelica, dahurian, seed; Angelica, seed; Angostura, bark; Anise pepper; Anise, seed; Anise, star; Annatto, seed; Asafoetida; Ashwagandha, fruit; Autumn crocus; Balsam, Peruvian; Barberry, bark; Batavia-cassia, bark; Batavia-cassia, fruit; Belleric myrobalan; Betel vine; Birch, bark; Bisnaga, seed; Bitterwood; Black bread weed; Bloodroot; Blue mallee; Blushwood, seed; Boldo, leaf; Buchu; Calamus root; Candlebush; Canella, bark; Caper buds; Caper spurge, seed; Caraway, black; Caraway, fruit; Cardamom, black; Cardamom, Ethiopian; Cardamom, green; Cardamom, Nepal; Cardamom-amomum; Cascara sagrada; Cassia, bark; Cassia, Chinese, bark; Cassia, Chinese, fruit; Cassia, fruit; Cat's claw, bark; Catechu, bark; Celery, seed; Chaste tree, berry; Chaste tree, Chinese, roots; Chervil, seed; Chinese hawthorn; Chinese nutmeg tree; Chinese wineberry, fruit; Chinese-pepper; Cinnamon, bark; Cinnamon, fruit; Cinnamon, Saigon, bark; Cinnamon, Saigon, fruit; Clove buds; Clusterleaf; Comfrey; Copaiba; Coptis; Coriander, fruit; Coriander, seed; Cotton, bark; Crampbark; Cubeb, seed; Culantro, seed; Culvers root; Cumin; Cumin, black; Dill, seed; Dorrigo pepper, berry; Dorrigo pepper, leaf; Dragon blood; Echinacea, seed; Epimedium; Eucalyptus; Eucommia, bark; European beech; Felty germander; Fennel flower, seed; Fennel, common, fruit; Fennel, common, seed; Fennel, Florence, fruit; Fennel, Florence, seed; Fenugreek, seed; Fingerroot; Flame lily, seed; Frankincense; Frankincense, Indian; Fringetree, bark; Galbanum, resin; Gambooge; Grains of paradise; Grains of Selim; Guaiac; Guarana; Guggul; Gum Arabic; Gum ghatti; Gum karaya; Gum tragacanth; Haw, black; Honewort, seed; Imperatoria; Indian tobacco, seed; Iva; Jalap; Jamaica dogwood, bark; Juniper berry; Kaffir lime, leaf; Kewra; Kokam; Linden, leaf; Lovage, seed; Mace; Magnolia, bark; Mahaleb; Malabar cardamom; Malabar-tamarind; Malabathrum; Mastic; Micromeria, white; Milk thistle; Mioga; Miracle fruit; Mistletoe; Mojave yucca; Muira puama; Mustard, black; Mustard, brown; Mustard, seed; Mustard, white; Myrrh; Myrrh, bisabol; Myrtle, anise; Myrtle, leaf; Myrtle, lemon; Nasturtium, bush, pods; Nasturtium, garden, pods; Nasturtium, pods; Nettle, stinging, seed; Nutmeg; Osha; Pepper, black; Pepper, Indian long; Pepper, Javanese long; Pepper, leaf; Pepper, pink; Pepper, Sichuan; Pepper, white; Pepperbush, berry; Pepperbush, leaf; Peppercorn, green; Peppertree; Peppertree, Peruvian; Perilla, seed; Phellodendron; Pine, maritime; Poppy, seed; Prickly ash, Chinese; Prickly ash, Southern, bark; Pygeum; Qing hua jiao; Quassia, bark; Quebracho, bark; Quillaja; Quinine; Rauwolfia, bark; Resin spurge; Rue; Saffron crocus; Sandalwood, seed; Sassafras, bark; Sassafras, leaf; Saunders, red; Saw palmetto; Sesame, seed; Silktree, bark; Simaruba, bark; Skunk cabbage, root; Slippery elm; Stemona, root; Suma; Sumac, fragrant; Sumac, smooth, leaf; Taheebo, bark; Tamarind, seed; Tasmanian pepper, berry; Tasmanian pepper, leaf; Threelobed caper; Tsaoko; Vanilla; Wattleseed; White willow; Willow; Witch hazel; Yaw root; Yellow gentian, roots; Yohimbe; Cultivars, varieties, and hybrids of these commodities.

Target disease/pathogen (bacteria & fungi)	Additional information
Powdery mildews ( <i>Oidium</i> spp. and others) Bacterial diseases ( <i>Erwinia</i> , <i>Xanthomonas</i> , and <i>Pseudomonas</i> spp.) Rusts ( <i>Puccinia</i> spp. and others)	
Downy mildews ( <i>Peronospora</i> spp. and others)† Leaf spots ( <i>Alternaria</i> , <i>Septoria</i> , <i>Colletotrichum</i> , and <i>Cercospora</i> spp.)†	† Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.
"Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> † spp.	See instructions for "Soil application." † Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.

### Stalk and Stem Vegetables (Crop Subgroup 22A):

Agave; aloe vera; asparagus; bamboo, shoots; celtuce; fennel, Florence, fresh leaves, and stalk; fern, edible, fiddlehead; kale, sea; kohlrabi; palm hearts; prickly pear, pads; prickly pear, Texas, pads; cultivars, varieties, and hybrids of these commodities.

Target disease/pathogen (bacteria & fungi)	Additional information
White mold ( <i>Sclerotinia sclerotiorum</i> )	Apply at or immediately following planting (but before plant emergence) as a banded seedline treatment 4 to 6 inches wide. Make second application at thinning or cultivation in sufficient water and multiple nozzles to ensure thorough coverage of lower leaves and surrounding soil surface. Incorporation with light irrigation after application may improve disease control. Repeat at 10-14 day intervals if conditions promoting disease persist. Alternatively, apply at early flowering and again at petal fall.



<b>Stalk and Stem Vegetables (Crop Subgroup 22A):</b>	
Agave; aloe vera; asparagus; bamboo, shoots; celtuce; fennel, Florence, fresh leaves, and stalk; fern, edible, fiddlehead; kale, sea; kohlrabi; palm hearts; prickly pear, pads; prickly pear, Texas, pads; cultivars, varieties, and hybrids of these commodities.	
Target disease/pathogen (bacteria & fungi)	Additional information
<i>Botrytis</i> spp. Rusts ( <i>Puccinia</i> spp.) Leaf spots ( <i>Cercospora</i> and <i>Cercosporidium</i> spp.)†	† Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.
"Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> † spp.	See instructions for "Soil application." † Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.

<b>Stone Fruit (Crop Group 12-12):</b>	
Apricot; apricot, Japanese; capulin; cherry, black; cherry, Nanking; cherry, sweet; cherry, tart; Jujube, Chinese; nectarine; peach; plum; plum, American; plum, beach; plum, Canada; plum, cherry; plum, Chickasaw; plum, Damson; plum, Japanese; plum, Klamath; plum, prune; plumcot; sloe; cultivars, varieties, and/or hybrids of these.	
Target disease/pathogen (bacteria & fungi)	Additional information
Powdery mildew ( <i>Sphaerotheca</i> and <i>Podosphaera</i> spp.)†	Make first application at popcorn stage and repeat every 7 days. † Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.
Bacterial canker ( <i>Pseudomonas</i> spp.) Peach leaf curl ( <i>Taphrina deformans</i> )	
Brown rot blossom blight ( <i>Monilinia laxa</i> )	Start applying at early bloom stage and repeat every 7 days through petal fall.
Brown rot ( <i>Monilinia fructicola</i> )†	Pre-harvest applications in sufficient water to cover fruit or other harvested plant parts may improve control of postharvest infections. † Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.
Gray mold ( <i>Botrytis cinerea</i> )	Pre-harvest applications in sufficient water to cover fruit or other harvested plant parts may improve control of postharvest infections.
Bacterial leaf spot ( <i>Xanthomonas arbuticola</i> pv. <i>pruni</i> )‡ Rusty spot ( <i>Podosphaera leucotricha</i> )‡	‡Tank mix or rotate with copper-based fungicides at label rates for improved control.
Root and collar rots† caused by <i>Phytophthora</i> , <i>Pythium</i> , <i>Fusarium</i> , <i>Rhizoctonia</i> , <i>Armillaria</i>	See instructions for "Root diseases" and "Collar rots." † Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.

<b>Tobacco</b>	
Target disease/pathogen (bacteria & fungi)	Additional information
Angular leaf spot ( <i>Pseudomonas</i> spp.) Anthracnose ( <i>Colletotrichum</i> and <i>Glomerella</i> spp.) Blue mold or downy mildew ( <i>Peronospora</i> spp.)† Brown spot ( <i>Alternaria</i> ) Gray mold ( <i>Botrytis cinerea</i> ) Powdery mildew ( <i>Erysiphe cichoracearum</i> ) Target spot ( <i>Rhizoctonia solani</i> )	† Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.
Barn spot/ frog-eye leaf spot ( <i>Cercospora nicotianae</i> )	Pre-harvest applications in sufficient water to cover fruit or other harvested plant parts may improve control of postharvest infections.

<b>Tobacco</b>	
Target disease/pathogen (bacteria & fungi)	Additional information
Collar rot ( <i>Sclerotinia sclerotiorum</i> )	Apply at or immediately following planting (but before plant emergence) as a banded seedline treatment 4 to 6 inches wide. Make second application at thinning or cultivation in sufficient water and multiple nozzles to ensure thorough coverage of lower leaves and surrounding soil surface. Incorporation with light irrigation after application may improve disease control. Repeat at 10-14 day intervals if conditions promoting disease persist.
"Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Oplidium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> † spp. Charcoal rot ( <i>Macrophomina phaseolina</i> ) Black root rot ( <i>Thielaviopsis basicola</i> ) Black shank ( <i>Phytophthora</i> spp.)† Southern blight/southern stem rot ( <i>Sclerotium rolfsii</i> )†	See instructions for "Soil application." † Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.

<b>Tree Nuts (Crop Group 14-12):</b>	
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; walnut, black; walnut, English; yellowhorn; cultivars, varieties, and/or hybrids of these.	
Target disease/pathogen (bacteria & fungi)	Additional information
Walnut blight ( <i>Xanthomonas campestris</i> )	Begin applications at or before pistillate bloom, repeating every 7-10 days. Apply before rainfall if possible, and tank mix or rotate with a copper-based bactericide registered for such use for improved control.
Anthracnose ( <i>Colletotrichum acutatum</i> )† Shot hole ( <i>Wilsonomyces carpophilus</i> ) † Brown rot ( <i>Monilinia</i> spp.)†	† Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.
Bacterial canker ( <i>Pseudomonas syringae</i> )	† Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.
Pecan scab ( <i>Cladosporium caryigenum</i> )†‡**	‡Tank mix or rotate with copper-based fungicides at label rates for improved control. ** Not for use in California.
Root and collar rots† caused by <i>Phytophthora</i> , <i>Pythium</i> , <i>Fusarium</i> , <i>Rhizoctonia</i> , <i>Armillaria</i>	See instructions for "Root diseases" and "Collar rots." † Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.

<b>Tropical and Subtropical, Small Fruits, Edible Peel (Crop Subgroup 23A):</b>	
<p>Acerola; african plum; agritos; almondette; appleberry; arbutus berry; bayberry, red; bignay; breadnut; cabeluda; carandas-plum; ceylon iron wood; ceylon olive; cherry-of-the-rio-grande; chinese olive, black; chinese olive, white; chirauli-nut; cocoplum; desert-date; false sandalwood; fragrant manjack; gooseberry, abyssinian; gooseberry, ceylon; gooseberry, otaheite; governor's plum; grumichama; guabiroba; guava berry; guava, brazilian; guava, costa rican; guayabillo; illawarra plum; indian-plum; jamaica-cherry; jambolan; kaffir-plum; kakadu plum; kapundung; karanda; lemon aspen; mombin, yellow; monos plum; mountain cherry; olive; persimmon, black; pitomba; plum-of-martinique; rukam; rumberry; sea grape; sete-capotes; silver aspen; water apple; water pear; water berry; wax jambu; cultivars, varieties, and hybrids of these commodities.</p>	
<b>Target disease/pathogen (bacteria &amp; fungi)</b>	<b>Additional information</b>
<p>White mold/Stem rot (<i>Sclerotinia sclerotiorum</i>)  Rusts†, including <i>Uromyces appendiculatus</i>,  <i>Puccinia</i> spp., and Asian soybean rust  (<i>Phayospora pachyrhizi</i>)  Bacterial Speck (<i>Pseudomonas syringae</i>  pv.<i>glycinea</i>)  Bacterial Pustule (<i>Xanthomonas</i> spp.)  Brown Spot (<i>Septoria glycines</i>)  <i>Cercospora</i> Leaf Spot  Pod and Stem Blights (<i>Diaporthe</i> and <i>Phomopsis</i>  spp.)  Downy Mildew (<i>Peronospora mansherica</i>)</p>	<p>† Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.</p>

<b>Tropical and Subtropical Fruits – Medium to Large Fruit, Smooth, Inedible Peel (Crop Subgroup 24B):</b>	
<p>Abiu; akee apple; avocado; avocado, Guatemalan; avocado, Mexican; avocado, West Indian; bacury; banana; banana, dwarf; binjai; canistel; cupuacu; etambe; jatoba; kei apple; langsai; lanjut; lucuma; mabolo; mango; mango, horse; mango, Saipan; mangosteen; paho; papaya; pawpaw, common; pelipisan; pequi; pequia; persimmon, American; plantain; pomegranate; poshte; quandong; sapote, black; sapote, green; sapote, white; sataw; screw-pine; star apple; tamarind-of-the-Indies; wild loquat; cultivars, varieties, and hybrids of these commodities.</p>	
<b>Target disease/pathogen (bacteria &amp; fungi)</b>	<b>Additional information</b>
<b>Except Pomegranate</b>	
<p>Anthraxnose (<i>Colletotrichum</i> spp.)  Scab (<i>Sphaceloma perseae</i>)  Bacterial canker (<i>Xanthomonas campestris</i>)</p>	<p>For avocado and mango: Apply at budbreak and repeat on 14-21 day interval as needed through harvest.  For papaya: Apply at flowering and repeat on 14-21 day interval as needed through harvest.</p>
<p>Sigatoka (<i>Mycosphaerella fijiensis</i>)</p>	<p>Apply at first appearance of leaves and repeat at 7-21 day intervals as needed, in sufficient water to obtain thorough coverage of foliage. Tank mix with spray oil or other registered fungicides for improved control.</p>
<p>Root and collar rot† caused by <i>Phytophthora</i>,  <i>Pythium</i>, <i>Fusarium</i>, <i>Rhizoctonia</i>, <i>Armillaria</i></p>	<p>See instructions for "Root diseases" and "Collar rots."  † Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.</p>
<b>Pomegranate</b>	
<p>Leaf and fruit spots (<i>Cercospora</i>, <i>Gloeosporium</i> and  <i>Pestalotia</i> spp.)‡</p>	<p>‡Tank mix or rotate with copper-based fungicides at label rates for improved control.</p>
<p>Fruit rots (<i>Alternaria</i>, <i>Botrytis</i>, and other spp.)</p>	<p>Pre-harvest applications in sufficient water to cover fruit or other harvested plant parts may improve control of postharvest infections.</p>
<p>Powdery mildew (<i>Sphaerotheca pannosa</i>)</p>	

**Tropical and Subtropical Fruits – Medium to Large Fruit, Rough or Hairy, Inedible Peel (Crop Subgroup 24C):**

Atemoya; biriba; breadfruit; champedak; cherimoya; custard apple; durian; elephant-apple; ilama; jackfruit; karuka; mammy-apple; marang; marmaladebox; monkey-bread tree; nicobar-breadfruit; pandanus; pineapple; pulasan; rambutan; sapodilla; sapote, mamey; soncoya; soursop; sugar apple; sun sapote; cultivars, varieties, and hybrids of these commodities.

Target disease/pathogen (bacteria & fungi)	Additional information
Anthracnose ( <i>Colletotrichum</i> spp.) Scab ( <i>Sphaceloma perseae</i> ) Bacterial canker ( <i>Xanthomonas campestris</i> )	For pineapple: Apply at flowering and repeat on 14-21 day interval as needed through harvest.
Sigatoka ( <i>Mycosphaerella fijiensis</i> )	Apply at first appearance of leaves and repeat at 7-21 day intervals as needed, in sufficient water to obtain thorough coverage of foliage. Tank mix with spray oil or other registered fungicides for improved control.
Root and collar rots† caused by <i>Phytophthora</i> , <i>Pythium</i> , <i>Fusarium</i> , <i>Rhizoctonia</i> , <i>Armillaria</i>	See instructions for “Root diseases” and “Collar rots.” † Suppression only. For improved control, mix or rotate with chemical fungicide approved for such use.

Specimen Label

## **APPLICATION INSTRUCTIONS:**

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### *Field-grown (outdoor) crops:*

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***For root diseases:*** Apply **1 to 2 quarts** of product per acre as a banded soil spray or drench, or as chemigated injection via microsprinkler, drip (elevated, buried or ground-lay) or other irrigation systems. Apply in sufficient water or irrigate immediately after application to move the product to the root zone. Begin applications in early spring, timed for root flush and early shoot growth. Continue applications at 4-6 week intervals through fall root flush.

***For collar rots:*** Apply as drench or spray at the base of the trunk, covering the soil contact zone.

***Foliar application:*** *For control of diseases on foliage, flowers, fruit, or other above-ground parts of plants:* Mix product in water and apply as a spray at a rate of **1 to 6 quarts** of product per acre in sufficient water to achieve thorough coverage of the crop canopy with minimal runoff. Begin applications at crop emergence, transplanting, or when conditions are conducive to development of disease. Repeat application every 3 to 10 days as needed, for as long as conditions favor disease development. Lower rates (1 to 3 quarts per acre) may be applied under light to moderate disease pressure, to smaller (e.g. newly-emerged) plants, or when this product is used in a tank mix with other fungicides whose labels allow such use. Under severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, use higher label rates (6 quarts/acre), apply more frequently (every 3-7 days), and mix or rotate this product with other fungicides for improved performance.

***Soil application:***

***For control of soil-borne diseases infecting seeds, seedlings, roots, crown, stems, or other plant parts below ground or in contact with soil:*** Apply product at **0.5 to 4.5 pints or 8 to 72 ounces per acre**.

Mix the required amount in sufficient water to apply by one of the following methods:

- Soil drench at transplanting, using a “water wheel” injector, spray nozzles/hoses, or other method to drench each root ball and/or planting hole.
- Soil or seedline drench, or banded spray (in-furrow) at planting. See the section on “Banded (in-furrow) application” below for additional instructions.

Follow-up (post-planting) preventative applications can be made every 2-4 weeks by one or more of the following methods, if needed:

- Drip (trickle) or any type of sprinkler irrigation, any time after planting or transplanting. See Chemigation Instructions for additional information.
- Spray directly onto the soil surface and/or lower plant parts. If targeting root disease, follow immediately with sufficient overhead sprinkler irrigation to move product to the root zone.
- Injection directly into the rooting zone using shanks or similar equipment.

Lower rates (0.5 to 2 pints or 8 to 32 ounces) of product per acre may be applied under light disease pressure, to smaller plants, or when this product is used in a tank mix with other fungicides whose labels allow such use. Under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, use higher label rates (2 - 4.5 pints per acre or 32 to 72 ounces), apply more frequently (every 2 weeks), and mix or rotate this product with other fungicides for improved performance.

***For control of soil-borne nematodes\*\*:*** Apply at a rate of **1 to 2 quarts per acre** as a part of a soil disease management program for nematode suppression.

Mix the required amount in sufficient water to apply by one of the following methods:

- Soil drench at transplanting, using a “water wheel” injector, spray nozzles/hoses, or other method to drench each root ball and/or planting hole.
- Soil or seedline drench, or banded spray (in-furrow) at planting. See the section on “Banded (in-furrow) application” below for additional instructions.

Follow-up (post-planting) preventative applications can be made every 2-4 weeks by one or more of the following methods, if needed:

- Drip (trickle) or any type of sprinkler irrigation, any time after planting or transplanting. See Chemigation Instructions for additional information.
- Spray directly onto the soil surface and/or lower plant parts. If targeting root disease, follow immediately with sufficient overhead sprinkler irrigation to move product to the root zone.
- Injection directly into the rooting zone using shanks or similar equipment.

\*\* Not for use in California.

***Banded (in-furrow) application:*** Use the table below (rate of product per acre) to determine the correct application rate in fluid ounces per 1,000 row feet based on row spacing and desired rate per acre. Mix the required amount of product in water and apply as banded spray (4” to 6” wide) or seedline drench centered over the planting furrow. Apply directly over seeds in the furrow just before they are covered with soil. The volume of water required per acre or per 1,000 row feet will depend on the application equipment used. Consult your local cooperative extension service if you need assistance calibrating band spraying equipment.

**Rates for banded (in-furrow) application:** Find desired application rate of product per acre in the left column. Read across that line to the correct row spacing indicated at the top to find the number of fluid ounces per 1,000 row feet that will provide the desired application rate per acre.

Product rate/acre		Space between rows (inches)														
Pt	fl oz	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
0.5	8	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6
0.75	12	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.9	0.9
1.0	16	0.4	0.4	0.5	0.6	0.6	0.7	0.7	0.8	0.9	0.9	1.0	1.0	1.1	1.2	1.2
1.25	20	0.5	0.5	0.6	0.7	0.8	0.8	0.9	1.0	1.1	1.1	1.2	1.3	1.4	1.5	1.5
1.5	24	0.6	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.7	1.8
1.75	28	0.6	0.7	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1
2.0	32	0.7	0.9	1.0	1.1	1.2	1.3	1.5	1.6	1.7	1.8	2.0	2.1	2.2	2.3	2.4
2.25	36	0.8	1.0	1.1	1.2	1.4	1.5	1.7	1.8	1.9	2.1	2.2	2.3	2.5	2.6	2.8
2.5	40	0.9	1.1	1.2	1.4	1.5	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.8	2.9	3.1
2.75	44	1.0	1.2	1.3	1.5	1.7	1.9	2.0	2.2	2.4	2.5	2.7	2.9	3.0	3.2	3.4
3.0	48	1.1	1.3	1.5	1.7	1.8	2.0	2.2	2.4	2.6	2.8	2.9	3.1	3.3	3.5	3.7
3.25	52	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.0
3.5	56	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.9	4.1	4.3
3.75	60	1.4	1.6	1.8	2.1	2.3	2.5	2.8	3.0	3.2	3.4	3.7	3.9	4.1	4.4	4.6
4.0	64	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
4.25	68	1.6	1.8	2.1	2.3	2.6	2.9	3.1	3.4	3.6	3.9	4.2	4.4	4.7	4.9	5.2
4.5	72	1.7	1.9	2.2	2.5	2.8	3.0	3.3	3.6	3.9	4.1	4.4	4.7	5.0	5.2	5.5

**Hopper Box application\*\*:** Apply at a rate of 1 quart per acre of seed in the planter or auger hopper-box. To mix, fill hopper-box to 1/2 full of seed. Spread 1/3 of the total amount of product evenly over the surface of the seed. Next, fill the hopper-box to 2/3 full of seed and spread 1/3 of the total amount of product evenly over the surface of the seed. Next, fill the hopper-box with the remaining seed and apply the remaining 1/3 of the total amount of product evenly over the surface of the seed. Thoroughly mix seed, being cautious that you do not damage the seed. Alternatively, apply at a rate of 1 quart per acre of seed as seed is augured from auger hopper box to planter hopper box. Use higher rates when there is a history of heavy *Rhizoctonia* pressure in the field or for higher levels of protection.

\*\* Not for Use in California.



### **STORAGE AND DISPOSAL**

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

*Pesticide Storage:* Store in a dry area inaccessible to children. Store in original containers only. Keep container closed when not in use.

*Pesticide Disposal:* Wastes resulting from the use of this product must be disposed of onsite or at an approved waste disposal facility.

*Container Handling:*

Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container  $\frac{1}{4}$  full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling, if available, or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Specimen Label

## **CHEMIGATION INSTRUCTIONS**

### **General information:**

1. Apply product only through drip (trickle) irrigation (including micro-irrigation through spaghetti tubes or individual tubes) or sprinkler irrigation (including impact or microsprinklers, microjet, overhead boom, water gun, solid set, lateral move, end tow, side-roll, center pivot, or hand move, including mist-type systems); or with hand-held calibrated irrigation equipment (such as a hand-held wand with injector). Do not apply this product through any other type of irrigation system.
2. Crop injury or lack of effectiveness can result from non-uniform distribution of treated water.
3. If you have questions about calibration, 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.

### **Public water system chemigation**

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.

1. 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.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection.
3. 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.
4. 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.
5. 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.
6. Do not apply when wind speed favors drift beyond the area intended for treatment.
7. Remove scale, pesticide residues, and other foreign matter from the chemical supply tank and injector system and flush with clean water before use. Failure to provide a clean tank, free of scale or residues may reduce effectiveness of this product.
8. Dilute the product in water following the label mixing directions. It may be premixed in a supply tank with water, fertilizer, or other appropriate tank-mixed agricultural chemicals. Agitation is necessary. Application should be continuous in sufficient water to apply the specified rate evenly to the entire treated area.

### **Drip (trickle) and micro-irrigation 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 (i.e., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Dilute the product in water following the label mixing directions. It may be premixed in a supply tank with water, fertilizer, or other appropriate tank-mixed agricultural chemicals. Agitation is necessary. Apply to moderately moist soils. Use volumes that thoroughly wet the soil but that do not cause significant runoff or excessive drip from pots. Application should be continuous in sufficient water to apply the recommended rate evenly to the entire treated area.

### **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 (i.e., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Dilute the product in water following the label mixing directions. It may be premixed in a supply tank with water, fertilizer, or other appropriate tank-mixed agricultural chemicals. Agitation is

necessary. Apply to moderately moist soils. Use volumes that thoroughly wet the soil but that do not cause significant runoff or excessive drip from pots. Application should be continuous in sufficient water to apply the recommended rate evenly to the entire treated area.

8. Do not apply when wind speed favors drift beyond the area intended for treatment.

#### **WARRANTY**

Certis USA LLC warrants that the material contained herein conforms to the description on the label and is reasonably fit for the purpose referred to in the directions for use. Timing and method of application, weather, watering practices, nature of soil, the disease problem, condition of the crop, incompatibility with other influencing factors in the use of this product are beyond the control of the seller. To the extent consistent with applicable law, buyer assumes all risks of use, storage, or handling of this material not in strict accordance with directions given herein. NO OTHER EXPRESS OR IMPLIED WARRANTY OF THE FITNESS OR MERCHANTABILITY IS MADE.

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Specimen Label