

# SoilGard®

## MICROBIAL FUNGICIDE

For the Control of "Damping-Off" and Root Rot Pathogens of Ornamental and Food Crop Plants Grown in Greenhouses, Nurseries, Interiorscapes and Outdoors on Agricultural and Ornamental Crops.



FOR ORGANIC PRODUCTION



### ACTIVE INGREDIENT:

*Gliocladium virens* strain GL-21 .....12%\*

OTHER INGREDIENTS: .....88%

TOTAL .....100%

\*Contains 1 x 10<sup>6</sup> CFU/g

### Net Contents:

EPA Reg. No. 70051-3

EPA Est. No. 70051-CA-001

Lot Number:

Manufactured by  
Certis USA, L.L.C.  
9145 Guilford Road  
Suite 175  
Columbia, MD 21046



**KEEP OUT OF REACH OF CHILDREN  
CAUTION**

See side/back panel for First Aid Statement and Additional Precautionary Statements

### FIRST AID

**If in eyes:** Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice. Have the product container or label with you when calling a poison control center or doctor, or going for treatment. Hot Line Number: 1-800-255-3924.

### PRECAUTIONARY STATEMENTS

#### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

**CAUTION:** Causes moderate eye irritation. Avoid contact with eyes or clothing. Wear goggles and/or face shield. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco.

#### Personal Protective Equipment:

Applicators and handlers must wear:

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

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.

### 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

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 cleaning equipment or disposing of equipment washwater.

### 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 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. 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 without footwear until sprays have dried. A Restricted Entry Interval (REI) is not required.

### GENERAL INFORMATION

*Gliocladium virens*, the active component in SOILGARD, is a naturally occurring soil fungus which is antagonistic to plant pathogenic fungi such as *Pythium* and *Rhizoctonia*, thereby aiding in control of these "damping off" and root rot pathogens. SOILGARD is a granular formulation containing a high concentration of *G. virens* spores suitable for incorporation into soil or soilless media. SOILGARD acts as a preventative and will protect non-infected plants. It may not, however, cure already diseased plants. Where possible, allow the treated soil or media to incubate for 1 day prior to planting to achieve best results. Do not use other soil fungicides with SOILGARD at time of incorporation. Later, addition of fungicides are acceptable but usually unnecessary. Best results are achieved if the contents of an open package are used within three months. Be careful to seal out moisture from the unused material by closing the inner bag tightly.

SOILGARD can be mixed with water for application as a soil drench, as a root dip, or through irrigation systems. The dry granules can also be mixed directly into soil or growing media. Use lower rates in sandy soils, warm soils (60°F or higher temperature at 4-inch depth), and as a preventative against low to moderate disease pressure. Use higher rates in heavy soils (high clay and/or organic matter), low temperatures (less than 60°F at 4 inch depth), as a preventative against heavy disease pressure, or as a curative for low to moderate disease pressure early in the growing season. The soil or growing medium should be moist but not wet at the time of application; the application water may be of sufficient volume to provide the necessary moisture unless the soil is extremely dry or difficult to wet. Do not apply SOILGARD to very dry, compacted, frozen, or water-logged soils, and do not over-water or allow soil to become saturated for extended periods (>3 hours) after application.

#### **COMPATIBILITY WITH PESTICIDES, FERTILIZERS, AND ADJUVANTS**

Chemical fungicides should not be mixed with or applied to soil or plant media at the same time as SOILGARD. In most cases, additional soil-applied fungicides should not be required to control seedling diseases after proper application of SOILGARD. If additional fungicide applications are desired, wait a minimum of 2 weeks after applying SOILGARD. The effectiveness of SOILGARD may be decreased if soil fungicides are applied to the same area before it has become fully established in the root zone.

SOILGARD can be applied after soil fumigation, solarization, or steam sterilization to prevent or delay reinfestation by pathogenic fungi. Do not apply SOILGARD to fumigated soil until fumigants have dissipated to levels safe for planting the crop. Do not apply SOILGARD to steam-sterilized soil or other planting media until it has cooled to a temperature of 100°F or lower.

Do not combine SOILGARD with other pesticides, surfactants, or fertilizers unless prior experience has shown the combination to be physically compatible, effective, and non-injurious under the conditions of use. SOILGARD has not been fully evaluated for compatibility with all adjuvants or surfactants. If a mixture with adjuvants or surfactants is planned, a compatibility test ("jar test") should first be conducted by mixing proportional quantities of SOILGARD and these products in a small volume of water.

#### **FOR INCORPORATION INTO GROWING MEDIA (Ornamentals and Food Crop Plants Grown Indoors and Outdoors)**

##### **For incorporation into potting medium in greenhouse flats, plug trays, or pots:**

- Mix 1 to 1 1/2 pound of SOILGARD biological fungicide per cubic yard of potting soil or other plant-growing medium. Granules must be distributed uniformly throughout the medium.
- If the potting medium has been heat sterilized, allow it to cool to 110°F or lower before adding SOILGARD.
- Allow at least 24 hours after incorporation of SOILGARD before planting seeds, cuttings, or other non-rooted plant material into the treated medium. Plants with established roots can be transplanted into treated soil immediately after mixing with SOILGARD.
- Avoid using SOILGARD in media totally devoid of organic matter (such as sand). *G. virens* requires organic matter to grow and work. If the only available organic substrate is the seed, bulb, or other plant material, *G. virens* may cause injury to it.

#### **For incorporation into seedling and planting beds (indoors and outdoors):**

- Thoroughly till the soil in the planting bed prior to addition of SOILGARD.
- Incorporate SOILGARD granules uniformly within the plant root zone at the rate of 1 to 1 1/2 pounds per cubic yard of soil. The table below can be used to determine how much SOILGARD to use depending on planting or rooting depth and area to be treated.
- SOILGARD is unlikely to completely eliminate disease from soil already severely infested with pathogenic fungi. For best results, use SOILGARD in the greenhouse at the time of planting, so that it has already colonized the root ball of the transplant.

Planting depth (inches)	Pounds per 100 square feet	Square feet per pound
2	2/3 - 1	108 - 162
4	1 1/4 - 2	54 - 81
6	2 - 2 3/4	36 - 54
8	2 1/2 - 3 3/4	27 - 41
10	3 - 4 2/3	22 - 32
12	3 3/4 - 5 1/2	18 - 27

#### **FOR DRENCH OR SPRAY APPLICATION TO SOIL**

Mix SOILGARD in a minimum of 2 gallons of water per pound of product and apply as a drench or coarse spray to soil or other plant growth media. Stir or agitate thoroughly and maintain agitation during application to keep SOILGARD suspended uniformly. The total amount of water required will be determined by the area to be covered. Apply SOILGARD immediately after mixing with water; do not allow the mixture to stand overnight or for prolonged periods. The finished mix can be sprayed using low-pressure watering nozzles on a spray boom or spray wand, drenched with a watering can, injected into the soil with a water wheel or shank injector, or applied with other high-volume delivery devices. If applying with spray equipment, use flood jet or wide orifice flat fan nozzles with screens and swirl plates removed. If desired, SOILGARD can be mixed with water and passed through a 50 mesh screen for spraying through standard orifice tee jet or flat fan nozzles.

Refer to the table below for specific rates and use instructions for different applications.



**Application rates and additional instructions for drench or spray application of SOILGARD to soil or other plant media.**

<b>CROP or USE SITE</b>		<b>RATE</b>	<b>ADDITIONAL INSTRUCTIONS</b>
Transplanted crops (such as fruiting and leafy vegetables, melons, strawberries, field grown ornamental plants, and nonbearing fruit/nut trees and vines)	Before transplanting	1/2 – 2 pounds per 100 gallons of water	Apply 4 fl. oz. of finished drench per plant in flats (unit trays) or pots within 1 week before transplanting into the field (during the hardening-off phase). For densely seeded trays or flats, apply 100 gallons of finished drench per 800 square feet. SOILGARD can also be applied in furrow immediately before transplanting as described for seed furrows in the next section.
	At transplanting	1/2 – 2 pounds per 100 gallons of water	Apply 4 – 8 fl. oz. of finished drench (depending on the size of the root ball) in each transplant hole using a water wheel/shank injector, watering can, or low pressure sprayer with flood/drench nozzles.
	After transplanting	2 – 10 pounds per acre	Repeat (maintenance) applications can be made as needed through directed spray or drench at the base of each plant, or through the irrigation system (see "For Application Through Irrigation Systems" below).
Seed furrows or planting beds (such as potatoes and other tubers, bulbs, and direct-seeded crops)		2 – 10 pounds per acre	Apply in 50 – 100 gallons of water per acre as banded drench in-furrow at or immediately before planting, and before covering seed or seed pieces with soil. Apply a band of sufficient width to cover the seed furrow and initial rooting zone (usually 4-8 inches, centered on the furrow). Drench can also be applied as a seed line treatment using shank or other injection equipment in sufficient water to treat both the seed furrow and initial rooting zone.
Ornamental plant and flower beds (indoor and outdoor)		2 – 4 ounces per 100 gallons of water	Thoroughly till the soil in the bed prior to application. Before planting, apply the finished drench at 100 gallons per 800 square feet (if 4" deep or less) or 100 gallons per 400 square feet (more than 4" deep). Do not water the treated area for 12 hours after application. Allow at least 24 hours between drench application and planting of seeds or non-rooted cuttings. Plants with established roots can be transplanted immediately into treated pots.
Turfgrass		2 – 4 ounces per 1,000 square feet	Compacted soil in high-traffic areas should be aerated before applying SOILGARD. For best results, turf should be lightly pre-irrigated immediately before application to wet the foliage. Broadcast as a coarse spray in 1 – 2 gallons of water per 1,000 square feet. Irrigate the treated area with 1/4 – 1/2 inch of water via overhead sprinklers immediately after application to move the product into the soil profile and maintain moisture. Repeat application every 1 – 3 weeks as necessary to maintain disease control.
Greenhouse flats, plug trays, or pots (prior to planting)		2 - 4 ounces per 100 gallons of water	Apply the finished drench at 50 – 100 gallons per 800 square feet (if 4" deep or less) or 100 gallons per 400 square feet (more than 4" deep). Do not water the treated area for 12 hours after application. Allow at least 24 hours between drench application and planting of seeds or non-rooted cuttings, or transplanting seedlings without true leaves. Plants with true leaves and established roots can be transplanted immediately into treated pots.
Potted or container plants with established roots (greenhouse, nurseries, interiorscapes)		2 – 8 ounces per 100 gallons of water	Apply the finished drench at the base of the plant at a rate of 4 fl. oz. per pot for shallow pots (up to 4 inches deep) or plants up to 6 inches tall. For deeper pots and/or plants, apply 8 to 16 fl. oz. per pot. May be repeated every 1 – 4 weeks as needed.



## FOR APPLICATION THROUGH IRRIGATION SYSTEMS

Apply SOILGARD through irrigation systems up to 1 week before or immediately after planting or transplanting. Apply at 2 – 10 pounds per acre (0.75 – 3.67 ounces per 1,000 square feet). Refer to the Chemigation Bulletin below for additional use instructions for application through irrigation systems. Do not apply SOILGARD through any irrigation system unless allowed in the Chemigation Bulletin. Application can be repeated every 1 – 4 weeks if necessary due to disease pressure.

Mix SOILGARD into a large volume (50 gallons or more) of water under continuous agitation and inject through a filter or screen (50 mesh) into the irrigation lines. Alternatively, first suspend the product in a smaller volume of water (a minimum of 2 gallons per pound of SOILGARD) with thorough mixing, and then pour this suspension through a filter or screen (50 mesh) into the final volume of water for injection into the irrigation system. Apply SOILGARD immediately after mixing with water; do not allow the mixture to stand overnight or for prolonged periods. When using large pressurized systems, injection should occur after the system has been fully charged with water and over sufficient time (typically 30 – 60 minutes, depending on the system) to allow uniform distribution of the product. After application, flush the system with water for an additional 10 – 20 minutes to avoid fouling of irrigation lines due to fungal growth.

## FOR ROOT DIP APPLICATION OR ROOT COATING

SOILGARD can be applied as a dip or coating for bare-root plantings of crops such as horseradish, strawberries or caneberrries, ornamental shrubs, fruit trees, or to rooted cuttings of poinsettias and other ornamental plants. Dip or immerse roots in a suspension containing 1 – 2 pounds of SOILGARD per gallon of water immediately before planting. Roots or planting sets can also be coated with SOILGARD by shaking them in a sealed plastic bag containing the suspension of SOILGARD in water, or by moistening them with water and shaking in a sealed plastic bag containing dry granules. Do not apply SOILGARD directly to fresh (non-rooted) cuttings.

## STORAGE AND DISPOSAL

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

**Pesticide Storage:** SOILGARD is packaged in an airtight, foil-lined, resealable bag designed to protect the fungus from exposure to moisture and oxygen, which can impact storage life. For best results store in a cool, dry place (preferably refrigerated). In an unopened bag, SOILGARD will retain its biological activity for up to one year at room temperature (70°F). Long-term exposure to air and higher temperatures (75°F to 100°F) may accelerate loss of bioactivity. Exposure to temperatures above 100°F for extended periods can be detrimental to SOILGARD. An open bag of SOILGARD can be kept for up to 3 months if the bag is tightly resealed and refrigerated (40°F to 45°F). Squeeze excess air from the bag before resealing.

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

**Container Handling:** Nonrefillable container. Do not reuse or refill this container. Completely empty bag into application equipment. Then offer for recycling if available or dispose of empty bag in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

## WARRANTY

Certis USA, L.L.C. warrants that the material contained herein conforms to the description on the label and is reasonably fit for the purposes 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. 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.

## Chemigation Bulletin

### GENERAL INFORMATION:

Apply this product through pressurized irrigation systems such as drip (trickle) irrigation (including micro-irrigation through spaghetti tubes or individual tubes) or sprinkler irrigation (impact or microsprinklers, overhead boom, solid set, lateral move, end tow, side-roll, center pivot, or hand move, including mist-type systems); through gravity flow systems such as flood, furrow, or border irrigation; 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.

Crop injury or lack of effectiveness can result from non-uniform distribution of treated water.

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

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

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

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.

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.

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

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

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water



pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.

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

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

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.

#### **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.

#### **FLOOD, FURROW, OR BORDER CHEMIGATION:**

1. Systems using a gravity flow pesticide dispensing system must meter the pesticide into the water at the head of the field and downstream of a hydraulic discontinuity such as a drop structure or weir box to decrease potential of water source contamination from the backflow 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 backflow.
  - b. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
  - c. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
  - d. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
  - e. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
  - f. Systems must use a metering pump, such as a positive displacement injection pump (i.e., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
3. 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. Application should be continuous in sufficient water to apply the recommended rate evenly to the entire treated area.