

# RootShield® PLUS<sup>+</sup> Granules



Department of Agriculture  
STATE OF HAWAII

## Biological Fungicide

Department of Agriculture  
STATE OF HAWAII

LICENSED

9055.17

PERIOD 2012-2014 LIC. NO.

PERIOD 2015-2017 LIC. NO.

**ACTIVE INGREDIENTS:**

<i>Trichoderma harzianum</i> Rifai strain T-22*	1.15%
<i>Trichoderma virens</i> strain G-41**	0.61%
<b>OTHER INGREDIENTS:</b>	<b>98.24%</b>
<b>TOTAL:</b>	<b>100.00%</b>

\*Contains at least 1.0 x 10<sup>7</sup> colony forming units per gram dry weight.  
\*\*Contains at least 5.3 x 10<sup>6</sup> colony forming units per gram dry weight.

US Patent Pending

EPA Reg. No.: 68539-10

EPA Est. No.: 68539-NY-001

**KEEP OUT OF REACH OF CHILDREN  
CAUTION**

**FIRST AID**

<b>If in eyes</b>	<ul style="list-style-type: none"> <li>Hold eye open and rinse slowly and gently with water for 15 – 20 minutes.</li> <li>Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>Call a poison control center or doctor for treatment advice.</li> </ul>
<b>HOT LINE NUMBER:</b> Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-222-1222 for emergency medical treatment information.	

**PRECAUTIONARY STATEMENTS**

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

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Applicators and other handlers must wear protective eyewear, long-sleeved shirt and long pants, and shoes plus socks. Mixer/loaders and applicators must wear a dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95, or P-95. Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

**USER SAFETY RECOMMENDATIONS**

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

**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 wash water or rinsate.

**DIRECTIONS FOR USE**

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

**AGRICULTURAL USE REQUIREMENTS**

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

No REI is required as this product is soil incorporated, and 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.

**PRODUCT INFORMATION**

RootShield® Plus Granules Biological Fungicide is a preventative biological fungicide for control of soilborne plant pathogens and plant root diseases. The active ingredients are microbes, *Trichoderma harzianum* Rifai strain T-22 and *Trichoderma virens* strain G-41, which when applied as an inoculant to soil or to planting mixes, grow onto plant roots as they develop and provide protection against plant root pathogens such as *Pythium*, *Phytophthora*, *Rhizoctonia*, *Fusarium*, *Cylindrocladium* and *Thielaviopsis*.

RootShield® Plus Granules Biological Fungicide can be used in combination with or in rotation with other fungicides, insecticides, miticides, fertilizers or micronutrients in accordance with the most restrictive of label limitations and precautions. Do not exceed label dosage rates. This product cannot be used with any product containing a label prohibition against such mixing. This product is not compatible with chemicals that contain the following active ingredients: imazilil, propiconazole, tebuconazole, and triflumizole. Do not apply RootShield® Plus Granules Biological Fungicide immediately before these pesticides are used. Where early season seed rot and seedling diseases are expected, use chemically treated seed or other appropriate measures for stand establishment and RootShield® Plus Granules Biological Fungicide for root disease control.

Note: RootShield® Plus Granules Biological Fungicide contains live spores of microbes that must be used prior to disease onset. RootShield® Plus Granules Biological Fungicide becomes active in soil or on plants when temperatures are above 50°F and is not effective while temperatures remain cold. RootShield® Plus Granules Biological Fungicide can be applied to sterilized or fumigated soil but must be applied after sterilization or fumigation.

This biological fungicide is for use in soil applications (in soil furrow and potting soil) for all listed crops.

**ATTENTION: DO NOT APPLY to sugarcane, peachay, rice, mushrooms, kiwi, tobacco, barley, oats, lemon, apple, and chickpea. Not for use on aquatic crops.**

**APPLICATION INSTRUCTIONS**

**APPLY VIA GROUND APPLICATION ONLY.**

**CROPS ON WHICH ROOTSHIELD® PLUS GRANULES BIOLOGICAL FUNGICIDE MAY BE USED:**

CROPS	USE	APPLICATION RATE OF ROOTSHIELD® PLUS GRANULES BIOLOGICAL FUNGICIDE
<b>Berries and Small Fruits:</b> Blackberries, Blueberries, Currants, Elderberries, Gooseberries, Huckleberries, Loganberries, Raspberries, Strawberries, Grapes	In-furrow	2.5 – 6.0 lb / ½ acre
<b>Bulb Vegetables:</b> Garlic, Leeks, Onions, Shallots	In-furrow	2.5 – 6.0 lb / ½ acre
<b>Cereal Grains:</b> Buckwheat, Corn (grain, sweet corn, popcorn, high oil)	In-furrow	2.5 – 6.0 lb / ½ acre
<b>Citrus Fruits:</b> Citrus Hybrids, Grapefruit, Kumquat, Limes, Oranges, Pummelos	In-furrow	2.5 – 6.0 lb / ½ acre
<b>Cucurbit Vegetables:</b> Cucumbers, Melons, Gourds, Pumpkins, Squash	In-furrow	2.5 – 6.0 lb / ½ acre

CROPS	USE	APPLICATION RATE OF ROOTSHIELD® PLUS GRANULES BIOLOGICAL FUNGICIDE
<b>Flowers, Bedding Plants, and Ornamentals</b>	In-furrow	2.5 – 6.0 lb / ½ acre
	Greenhouse planting mix	1.0 – 3.0 lb / cubic yd soil mix
	Nursery planting mix	1.0 – 3.0 lb / cubic yd soil mix
	Nursery bed application	0.5 – 7.5 lb / 1000 sq ft bed, incorporate with rake or tiller
<b>Fruiting Vegetables:</b> Eggplant, Sweet and Hot Peppers, Tomatillos, Tomatoes	In-furrow	2.5 – 6.0 lb / ½ acre
	Greenhouse planting mix	1.0 – 3.0 lb / cubic yd soil mix
<b>Herbs and Spices</b>	In-furrow	2.5 – 6.0 lb / ½ acre
	Greenhouse planting mix	1.0 – 3.0 lb / cubic yd soil mix
<b>Mints</b>	In-furrow	2.5 – 6.0 lb / ½ acre
	Greenhouse planting mix	1.0 – 3.0 lb / cubic yd soil mix
<b>Leafy and Brassica (Cole) Leafy Vegetables:</b> Arugula, Celery, Chervil, Endive, Fennel, Lettuce (head and leaf), Parsley, Radicchio, Rhubarb, Spinach, Swiss Chard, Broccoli, Brussels Sprouts, Cabbage, Cauliflower, Collards, Kale, Kohlrabi, Mustard Greens	In-furrow	2.5 – 6.0 lb / ½ acre
	Greenhouse planting mix	1.0 – 3.0 lb / cubic yd soil mix
	Nursery bed application	0.5 – 7.5 lb / 1000 sq ft bed, incorporate with rake or tiller
<b>Asparagus</b>	In-furrow	2.5 – 6.0 lb / ½ acre
	Greenhouse planting mix	1.0 – 3.0 lb / cubic yd soil mix
	Nursery bed application	0.5 – 7.5 lb / 1000 sq ft bed, incorporate with rake or tiller
<b>Legume Vegetables (Succulent or Dried):</b> Snap Beans, Lentils, Succulent Peas, Peanuts, Soybeans	In-furrow	2.5 – 6.0 lb / ½ acre
<b>Oilseed Crops:</b> Cotton, Canola, Safflower, Sunflower	In-furrow	2.5 – 6.0 lb / ½ acre
<b>Pome Fruits:</b> Pears, Quince	In-furrow	2.5 – 6.0 lb / ½ acre
	Greenhouse planting mix	1.0 – 3.0 lb / cubic yd soil mix
	Nursery planting mix	1.0 – 3.0 lb / cubic yd soil mix
	Trees and shrubs	0.2 – 8.0 oz / transplant hole and incorporate
<b>Root Vegetables:</b> Beets, Sugar Beets, Carrots, Celeriac, Chicory, Horseradish, Parsnip, Radish, Rutabaga, Salsify, Turnips	In-furrow	2.5 – 6.0 lb / ½ acre
<b>Shadehouse and Outdoor Nursery Crops:</b> Deciduous Trees (i.e. Maple, Oak), Ornamentals, Pine	In-furrow	2.5 – 6.0 lb / ½ acre
	Nursery planting mix	1.0 – 3.0 lb / cubic yd soil mix
	Nursery bed application	0.5 – 7.5 lb/1000 sq ft bed, incorporate with rake or tiller
	Trees and shrubs	0.2 – 8.0 oz / transplant hole and incorporate
<b>Stone Fruits:</b> Apricots, Cherries, Nectarines, Peaches, Plums, Prunes	In-furrow	2.5 – 6.0 lb / ½ acre
	Greenhouse planting mix	1.0 – 3.0 lb / cubic yd soil mix
	Nursery planting mix	1.0 – 3.0 lb / cubic yd soil mix
	Trees and shrubs	0.2 – 8.0 oz / transplant hole and incorporate
<b>Tree Nuts:</b> Almonds, Beech Nuts, Brazil Nuts, Butternuts, Cashews, Chestnuts, Filberts, Hickory Nuts, Macadamia Nuts, Pecans, Pistachios, Walnuts	In-furrow	2.5 – 6.0 lb / ½ acre
	Greenhouse planting mix	1.0 – 3.0 lb / cubic yd soil mix
	Nursery planting mix	1.0 – 3.0 lb / cubic yd soil mix
	Trees	0.2 – 8.0 oz / transplant hole and incorporate

**IN-FURROW SOIL TREATMENT:** Apply RootShield® Plus Granules Biological Fungicide from a granular applicator at the rate of 2.5-6.0 pounds per half acre. Apply granules using a metering device, such as a Gandy applicator or equivalent, mounted to deliver granules into the furrow just behind the furrow opener. Apply in furrow at seeding or to established crops as a side dress and incorporate into soil.

**GREENHOUSE PLANTING MIX AMENDMENT:** Mix RootShield® Plus Granules Biological Fungicide with planting mixes at a rate of 1-3 pounds per cubic yard (loose) mix. Thoroughly incorporate RootShield® Plus Granules Biological Fungicide into planting mixes during mix preparation or at pot filling.

**NURSERY PLANTING MIX AMENDMENT:** For nursery planting mixes, apply RootShield® Plus Granules Biological Fungicide at the rate of 1-3 pounds per cubic yard (loose) mix. For nursery beds, incorporate at a rate of 0.5-7.5 pounds per 1000 square feet of bed by raking or tilling. Application of irrigation water will help move RootShield® Plus Granules Biological Fungicide into the soil. If soil is fumigated or steam sterilized, apply RootShield® Plus Granules Biological Fungicide after treatment.

**TREES AND SHRUBS:** Apply RootShield® Plus Granules Biological Fungicide to the planting hole at a rate of 0.2 - 8.0 ounces and incorporate into the planting soil or soil mix.

**STORAGE AND DISPOSAL**

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

**PESTICIDE STORAGE:** Store in a cool, dry place. Do not store at temperatures above 75°F for prolonged periods. Keep container tightly closed when not in use.

**PESTICIDE DISPOSAL:** Wastes resulting from the use of this product must be disposed of on site 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.

**NOTICE TO BUYER AND SELLER:** Seller warrants that this product conforms to the description on this label and is reasonably fit for the purposes stated on this label when used and stored in accordance with the directions for use. This warranty does not extend to use of this product contrary to label directions or under conditions not reasonably foreseeable by the Seller, and Buyer and User assume the risk of any such use. To the extent consistent with applicable law, Seller disclaims all other warranties, express or implied, including any warranty of fitness or merchantability. To the extent consistent with applicable law, Seller shall not be liable for consequential, special or indirect damages resulting from use or handling of this product, and Seller's sole liability and Buyer's and User's exclusive remedy shall be limited to refund of the purchase price.

This product is sold only for uses stated on its label. No express or implied license is granted to use or sell this product under any patent in any country except as specified.

**In Case of Emergency: Call CHEMTREC: (800) 424-9300**

Manufactured in the United States of America by:



**BioWorks®**

How You Grow Matters™

Lot No.: \_\_\_\_\_

Expires: \_\_\_\_\_

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**Net Weight: 40 lb (18 kg)**