RootShield® WP Biological Fungicide

ACTIVE INGREDIENT:
Trichoderma harzianum Rifai strain KRL-AG2* ................................................... 1.15%

OTHER INGREDIENTS: .......................................................................................... 98.85%

TOTAL: .................................................................................................................... 100.00%

*Contains at least 1.0 x 10^7 colony forming units per gram dry weight.

EPA Reg No. 68530-7 Net Contents: 1 lb, 3 lb, or 30 lb
EPA Est. No. 008599-NY-001

KEEP OUT OF REACH OF CHILDREN

CAUTION

First Aid
If on skin or clothing:
• Take off contaminated clothing.
• Rinse skin immediately with plenty of water for 15-20 minutes.
• Call a poison control center or doctor for treatment advice.

HOT LINE NUMBER: 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. Harmful if absorbed through skin. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using toilet. Remove and wash contaminated clothing before reuse.

Personal Protective Equipment (PPE): Applicators and other handlers must wear long-sleeved shirt and long pants, waterproof gloves, and shoes plus socks. When pumping or opening bags, or other operations where dusts may be created, mixers/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: 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. User should remove clothing and PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothes.

Environmental Hazards: Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean highwater mark. Do not contaminate water when disposing of equipment wash water or rinse water.

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 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.

For enclosed environments:
There is a restricted entry of zero (0) hours for this product when applied as a soil drench, in-furrow spray, transplant starter solution, dip, soil, or chemigation when used in enclosed environments such as greenhouses and greenhouses.

For field applications:
Keep unprotected persons out of treated areas until sprays have dried or dusts have settled.

GENERAL INFORMATION
RootShield® WP Biological Fungicide is a preventative biological fungicide for control of plant diseases. The active ingredient is a microbe, Trichoderma harzianum strain T-22 (KRL-AG2) which when applied to seeds, transplants, or other propagative material, or to soil or planting mixes, grows onto plant roots as they develop and provides protection against plant root pathogens such as Pythium, Rhizoctonia, Fusarium, Cylindrocladium and Thielavia. RootShield® WP Biological Fungicide can be used alone or in conjunction with certain chemical fungicides; consult RootShield® WP Biological Fungicide compatibility chart, tank mix compatibility charts below or the company for more information. This product should not be tank mixed with chemicals that contain the following active ingredients: benzamid, imidazol, propiconazole, tebuconazole, and triflumizole. Do not apply RootShield® WP Biological Fungicide immediately before these pesticides are used. See specific instructions for tank mixing. Where early season seed rot and seedling diseases are expected, use chemically contain the following active ingredients: benomyl, imazilil, propiconazole, tebuconazole, and triflumizole. Do not apply this chemical fungicide; consult RootShield® WP Biological Fungicide compatibility chart, tank mix compatibility chart, biological fungicide compatibility chart, or tank mix compatibility charts below the company for more information. This product should not be tank mixed with chemicals that contain the following active ingredients: benzamid, imidazol, propiconazole, tebuconazole, and triflumizole.

For food commodities: Use in Chemigation and irrigation systems is limited to flood, drip, furrow, microirrigation, and ebb and flow applications with NO OVERHEAD SPRAY. See footnotes for specific directions concerning each use pattern.

NOTE: DO NOT APPLY to sugarcane, pechay, rice, mushrooms, kiwi, tobacco, barley, oats, lemon, apple and chickpeas. Not for use on aquatic crops.

For food commodities: Use in Chemigation and irrigation systems is limited to flood, drip, furrow, microirrigation, and ebb and flow applications with NO OVERHEAD SPRAY. See footnotes for specific directions concerning each use pattern.

This biological fungicide is for use in soil applications (drench, in soil furrow, potting soil, broadcast) on ornamentals, landscape plants, and ornamental trees, including tree seedlings for transplanting into the forest.
**CROPS** | **USE** | **RATE**
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Stone Fruit: Apricots, Cherries, Pears, Peaches, Plums, Prunes., | Cuttings or Bare roots | 0.5 - 2.5 lbs/gal or dip into dry powder
Greenhouse Soil Drench | 3.0 - 5.0 oz/100 gal
Nursery Soil Drench | 3.0 - 5.0 oz/100 gal
In Furrow Spray or Transplant Starter Solution | *Greenhouse Chemigation* 3.0 - 5.0 oz/100 gal
*Field Chemigation* 3.0 - 5.0 oz/100 gal
Tree Nuts: Almonds, Beech Nuts, Brazil Nuts, Butternuts, Cashews, Chestnuts, Filberts, Hickory Nuts, Macadamia Nuts, Pecans, Pistachios, Walnuts. | Cuttings or Bare roots | 0.5 - 2.5 lbs/gal or dip into dry powder
Greenhouse Soil Drench | 3.0 - 5.0 oz/100 gal
Nursery Soil drench | 3.0 - 5.0 oz/100 gal
In furrow spray or transplant starter solution | *Greenhouse Chemigation* 3.0 - 5.0 oz/100 gal
*Field Chemigation* 3.0 - 5.0 oz/100 gal
Tuber Crops: Potato, Sweet Potatoes, Yams, Jerusalem Artichokes, Cassava, Ginger | Planter Box (Onsite) | 0.3 - 0.5 oz/ctw seed

**Application via greenhouse or field. Chemigation is limited to flood, drip, furrow, micro-irrigation, and ebb and flow systems. Do not apply product when above-ground harvestable food commodities are present. Refer to Chemigation section for specific directions.**

**VEGETATIVELY PROPAGATED CROPS, INCLUDING POTATOES, OTHER TUBERS AND BULBS:**

- For planting or storage, treat at 0.03 – 0.30 oz RootShield® WP Biological Fungicide as a dust or cut cottonseed pieces. Apply to seed pieces or bulbs so surfaces are thoroughly covered with dust. Dip bulbs, tubers or cut cottonseed pieces in a suspension of 0.25 – 5.0 lbs of RootShield® WP Biological Fungicide in 5 gallons of water.

- For potatoes, apply RootShield® WP Biological Fungicide with compatible chemical seed dust. Consult your Bitwirks Representative for more information. All surfaces, knives, and other equipment used to cut and plant potatoes should be thoroughly sterilized before cutting and planting and at regular intervals. The cut and treated seed pieces may be held for a week or more at cool temperatures, 45-50°F, and high relative humidity to promote suberization, however, they may be planted immediately.

**CUTTINGS, BULBS OR BARE ROOTED TRANSPLANTS:**

- Dip cuttings, bulbs or transplants in RootShield® WP Biological Fungicide dry powder or in a suspension of 0.5 – 2.5 lbs RootShield® WP Biological Fungicide in 5 gallons of water. For potatoes, apply RootShield® WP Biological Fungicide in suspension. RootShield® WP Biological Fungicide in 100 gallons of water with agitation and apply as a soil drench to greenhouse planting mixes. For seedling flats or shallow cups (up to 4-inch depth) beds or pots, apply at a rate of 50 - 100 gallons per 800 square feet. For deeper pots or beds, apply at a rate of 100 gallons per 400 square feet, or at the rate of 1/2 - 1 cup (4 – 8 fl. oz) per 3” - 6” pots respectively. Apply RootShield® WP Biological Fungicide through high pressure sprayers with nozzles such as fan nozzles or other drench watering systems applied directly to the soil. Consider agitation is required to maintain RootShield® WP Biological Fungicide in suspension. RootShield® WP Biological Fungicide can be tank-mixed and is compatible with many commonly used fungicides, herbicides, bactericides and biological control products registered for use on greenhouse/ornamental plants. If tank mixes are desired, observe all directions, precautions and limitations on labeling of all products used. Consult the tank mix compatibility chart below or the company for more information.

**GREENHOUSE SOIL DRENCH:**

- Suspend 3.0 – 5.0 oz RootShield® WP Biological Fungicide in 100 gallons of water with agitation and apply as a soil drench to greenhouse planting mixes. For seedling flats or shallow cups (up to 4-inch depth) beds or pots, apply at a rate of 50-100 gallons per 800 square feet. For deeper pots or beds, apply at a rate of 100 gallons per 400 square feet, or at the rate of 1/2 – 1 cup (4 – 8 fl. oz) per pot.

**IN-FURROW SPRAY OR TRANSPLANT STARTER SOLUTION:**

- Apply as an in-furrow spray or transplant starter solution at a rate of 15.0 – 32.0 oz/acre in sufficient water to achieve uniform application.

**NURSERY SOIL DRENCH:**

- Suspend 3.0 – 5.0 oz RootShield® WP Biological Fungicide in 100 gallons water with agitation and apply as a soil drench to container nursery crops. Apply RootShield® WP Biological Fungicide through handheld or backpack sprayers. Maintain constant agitation. For shallow pots (up to 4-inch depth), apply at a rate of 50-100 gallons per 800 square feet. For deeper pots, apply at a rate of 100 gallons per 400 square feet, or at the rate of 1/2 – 1 cup (4 – 8 fl. oz) per pot.

**GREENHOUSE AND FIELD CHEMIGATION**

- Use RootShield® WP Biological Fungicide in suspension. RootShield® WP Biological Fungicide in enough water to be able to draw through the system for the last half of the water application.

**TUBERS AND BULBS**

- **Planting:** RootShield® WP Biological Fungicide is applied to the tubers or bulbs 4 days before planting. Used as a soil drench at the rate of 0.05 oz/gal (1 cup/100 ft) for the last half of the water application.

- **Chemigation:** RootShield® WP Biological Fungicide is applied immediately before these pesticides are used. The following active ingredients: benomyl, imazalil, propiconazole, tebuconazole, and triflumizole. Consult the tank mix compatibility chart below or the company for more information.

**PUBLIC WATER SYSTEMS**

- 1) Public water systems means a system for the provision to the public of piped water for human consumption if such a system has at least 15 service connections or regular served an average of at least 25 individuals daily at least 60 days out of the year.

- 2) Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, back flow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the flow outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.

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

- 4) The pesticide injection pipeline must 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 flow from the pump without the presence of fluid in the injection pump.

- 5) The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.

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

- 7) Do not apply when wind speeds exceed 30 mph or within the area intended for treatment.

- 8) Apply RootShield® WP Biological Fungicide during the last half of the water application period.

- 9) Apply enough water to move RootShield® WP Biological Fungicide into the root zone. Amounts will vary depending on soil type and existing moisture level. Avoid applying water volumes that would cause runoff or excessive leaching.

**Drip (Trickle) Chemigation and Micro-irrigation Requirements:**

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

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

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

- 4) The system must contain functional inter-locking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

- 5) The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

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

- 7) Apply RootShield® WP Biological Fungicide during the last half of the water application period.

- 8) Mix RootShield® WP Biological Fungicide in enough water to be able to draw through the system for the last half of the water application.

- 9) Apply enough water to move RootShield® WP Biological Fungicide into the root zone. Amounts will vary depending on soil type and existing moisture level. Avoid applying water volumes that would cause runoff or excessive leaching.

**Flood Chemigation Requirements:**

1) Systems using a gravity flow pesticide dispensing system must meter the pesticide into the water at the rate of flow field and a flow rate of a hydraulic discontinuity such as a drop structure or a box to decrease potential for water source contamination from back flow if water flow stops.

2) Systems utilizing a pressurized water and pesticide injection system must meet the following requirements:

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

3) Apply RootShield® WP Biological Fungicide during the last half of the water application period. Mix RootShield® WP Biological Fungicide in enough water to be able to draw through the system for the last half of the water application.

4) Apply enough water to move RootShield® WP Biological Fungicide into the root zone. Amounts will vary depending on soil type and existing moisture level. Avoid applying water volumes that would cause runoff or excessive leaching.

**PLANT SAFETY:** RootShield® WP Biological Fungicide has been tested on numerous plant varieties with no phytotoxic effects. However, since RootShield® WP Biological Fungicide has not been tested on all plant varieties or in combination with all available tank mixes the manufacturer recommends testing RootShield® WP Biological Fungicide on a small number of plants to check for adverse plant effects before applying to a larger number of plants.

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### STORAGE AND DISPOSAL

**STORAGE:** Store in original container under refrigerated conditions. Short periods at room temperatures below 75°F will not affect performance. Do not store near food or feed commodities. Keep container tightly closed when not in use.

**PESTICIDE DISPOSAL:** Do not contaminate food or feed by disposal. Wastes resulting from use of this product may be disposed of on site or at an approved waste disposal facility.

**CONTAINER DISPOSAL:** Nonrefillable container. Do not reuse or refill this container. Completely empty bag into the application equipment by shaking and tapping sides and bottom to loosen clinging particles. Then offer for recycling if available, or dispose of empty bag in sanitary landfill or by incineration. Do not burn, unless allowed by state and local ordinances. If outer box is contaminated, dispose of in same manner as bag.

**NOTICE TO BUYER AND SELLER:** Seller warrants that this product conforms to the description on the label and is reasonably fit for the purposes stated on the label when used and stored in accordance with directions under normal conditions of 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. Seller disclaims all other warranties express or implied, including any warranty of fitness or merchantability. To the extent permitted by state 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.

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

**Manufactured in the USA by:**

BioWorks, Inc.
100 Rawson Rd, Suite 205
Victor, New York 14564
(800) 877-9443

Country: United States of America
US Patent No. 5,260,213

Lot No. _________________________
Use Before: ______________________