

68539-7

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08/14/2008



U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Pesticide Programs
Biopesticides and Pollution Prevention Division (7511P)
1200 Pennsylvania Avenue NW
Washington, DC 20460

NOTICE OF PESTICIDE REGISTRATION

X Registration
Reregistration

(under FIFRA, as amended)

EPA Reg. Number: 68539-7

Date of Issuance: AUG 14 2008

Term of Issuance: Unconditional

Name of Pesticide Product: Rootshield® WP Biological Fungicide

Name and Address of Registrant (include ZIP Code):

BioWorks, Inc.
345 Woodcliff Drive, First Floor
Fairport, NY 14450

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Biopesticides and Pollution Prevention Division prior to use of the label in commerce. In any correspondence on this product, always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered/reregistered under the Federal Insecticide, Fungicide and Rodenticide Act.

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This registration does not eliminate the need for continual reassessment of the pesticide. If EPA determines at any time, that additional data are required to maintain in effect an existing registration, the Agency will require submission of such data under section 3(c)(2)(B) of FIFRA.

This product is registered in accordance with FIFRA section 3(c)(5) and is subject to the following terms and conditions:

- 1. Submit/cite all data required for registration of your product under FIFRA section 3(c)(5) when the Agency requires all registrants of similar products to submit such data.
2. Make the following label change before you release the product for shipment: Revise the EPA Registration Number to read, "EPA Reg. No. 68539-7."

Signature of Approving Official:

Date:

WMA

8-14-08

See signature on second page

CONCURRENCES

Table with 7 columns and 3 rows (SYMBOL, SURNAME, DATE) containing handwritten entries for 7511P, Gross, Tomimatsu, and Ruff.

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BioWorks, Inc.  
EPA Registration No. 68539-7

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- 3. Submit two (2) copies of the revised final printed labeling before you release the product for shipment. Refer to the A-79 enclosure for a further description of the final printed label.

A stamped copy of the label is enclosed for your record.

Sincerely,

*W. Michael McDavit 8-14-08*

W. Michael McDavit, Associate Director  
Biopesticides and Pollution Prevention Division

Enclosures

CONCURRENCES

SYMBOL								
SURNAME								
DATE								

# RootShield® WP Biological Fungicide

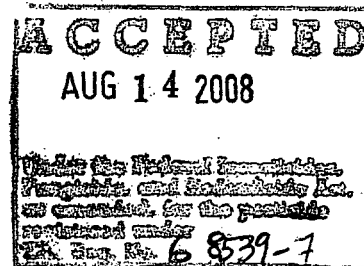
**ACTIVE INGREDIENT:**

*Trichoderma harzianum* Rifai strain KRL-AG2\* ..... 1.15%

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

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

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



**KEEP OUT OF REACH OF CHILDREN  
CAUTION**

<b>FIRST AID</b>	
If on skin or clothing	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<p><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.</p>	

### 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 the toilet. Remove and wash contaminated clothing before reuse.

**Personal Protective Equipment (PPE):** Applicators and other handlers must wear long-sleeved shirt and long pants, waterproof gloves, and shoes plus socks. When dumping or opening bags, or other operations where dusts may be created, 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:** 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: (Agricultural Use)** 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 washwaters or rinsate.

**(Residential Use)** Do not apply directly to water. Do not contaminate water when disposing of equipment washwaters or rinsate.

**EPA Reg. No.:** (Pending as File Symbol 68539-T)

**EPA Est. No.:** 068539-NY-001

**Manufactured by:** BioWorks, Inc., 100 Rawson Road, Ste. 205, Victor, NY 14564

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**Net Contents:** \_\_\_\_\_

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

**Use Before:** \_\_\_\_\_

(list date will be 180 days from date of manufacture)

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### 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. 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 application via soil drench, in-furrow spray, transplant starter solution, dip, soak, or chemigation when used in enclosed environments such as glasshouses and greenhouses.

For field applications:

Keep unprotected persons out of treated areas until sprays have dried or dusts have settled.

#### 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 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 *Thielaviopsis*. 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: benomyl, imazilil, 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 treated seed or other appropriate measures for stand establishment and RootShield® WP Biological Fungicide for root disease control.

Note: RootShield® WP Biological Fungicide contains live spores of a microbe that must be used prior to disease onset. RootShield® WP Biological Fungicide becomes active in soil or on plants when temperatures are above 50°F and is not effective while temperatures remain cold. RootShield® WP 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 (drench, in soil furrow, potting soil and broadcast), and seed treatments in or on all raw agricultural commodities, food and fiber crops. RootShield® WP Biological Fungicide is for use in soil applications (drench, in soil furrow, and potting soil), and seed treatments on ornamentals, landscape plants, turf, and ornamental trees, including tree seedlings for transplanting into the forest.

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

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

**APPLY VIA GROUND APPLICATION ONLY.**

<b>CROPS</b>	<b>USE</b>	<b>RATE</b>
<b>Agronomic Row or Other Field Crops:</b> Buckwheat, Beans (soybean, snap, dry), Corn (grain, seed, sweet corn, silage, popcorn, high oil), Cotton, Canola, Peas (dry, succulent), Peanuts, Safflower, Sunflower	Planter Box (on-site)	1.0 – 10.0 oz / cwt. seed
	Commercial seed treatment	0.00035 – 26.43 lbs. / cwt. seed
	*Field chemigation	1.0 – 32.0 oz / 100 gal
<b>Alfalfa Hay and Forage Crops:</b> Alfalfa, Clover, Vetch, Trefoil	Planter Box (on-site)	1.0 – 10.0 oz / cwt. seed
	Commercial seed treatment	0.00035 – 26.43 lbs. / cwt. seed
<b>Berries and Small Fruits:</b> Blackberries, Blueberries, Currants, Elderberries, Gooseberries, Huckleberries, Loganberries, Raspberries, Strawberries, Grapes	Cuttings/bare root	0.25– 5.0 lbs. / 5 gal or dip into dry powder.
	Greenhouse soil drench	1.0 – 32.0 oz / 100 gal
	Nursery soil drench	1.0 – 32.0 oz / 100 gal
	In-furrow spray or transplant starter solution	1.0 – 32.0 oz / acre
	Home & Garden soil drench	1.0 – 3.0 tbsp. / gal
	*Greenhouse chemigation	1.0 – 32.0 oz / 100 gal
	*Field chemigation	1.0 – 32.0 oz / 100 gal
<b>Bulb Crops:</b> Garlic, Leeks, Onions, Shallots, Ornamental Bulbs	Dust (pre-plant)	0.03 – 3.0 lbs. / cwt. seed
	Home & Garden soil drench	1.0 – 3.0 tbsp. / gal
<b>Citrus Fruits:</b> Citrus Hybrids, Grapefruit, Kumquat, Limes, Oranges, Pummelos	Cuttings or bare-roots	0.25 – 5.0 lbs. / 5 gal or dip into dry powder.
	Greenhouse soil drench	1.0 – 32.0 oz / 100 gal
	Nursery soil drench	1.0 – 32.0 oz / 100 gal

	In-furrow spray or transplant starter solution	1.0 – 32.0 oz / acre
	*Greenhouse chemigation	1.0 – 32.0 oz / 100 gal
	*Field chemigation	1.0 – 32.0 oz / 100 gal
<b>Cucurbit Vegetables:</b> Cucumbers, Melons, Gourds Pumpkins, Squash	Planter Box (on-site)	1.0 – 10.0 oz. / cwt. seed
	Commercial seed treatment	0.00035 – 26.43 lbs. / cwt. seed
	Greenhouse soil drench	1.0 – 32.0 oz. / 100 gal
	In-furrow spray or transplant starter solution	1.0 – 32.0 oz. / acre
	Home & Garden soil drench	1.0 – 3.0 tbsp. / gal
	*Greenhouse chemigation	1.0 – 32.0 oz / 100 gal
	*Field chemigation	1.0 – 32.0 oz / 100 gal
<b>Flowers, Bedding Plants, and Ornamentals</b>	Cuttings or bare-roots	0.25 – 5.0 lbs. / 5 gal or dip into dry powder.
	Commercial seed treatment	0.088 – 17.62 lbs. / cwt. seed
	Greenhouse soil drench	1.0 – 32.0 oz / 100 gal
	Nursery soil drench	1.0 – 32.0 oz / 100 gal
	Home & Garden soil drench	1.0 – 3.0 tbsp. / gal
	Greenhouse chemigation	1.0 – 32.0 oz / 100 gal
	*Field chemigation	1.0 – 32.0 oz / 100 gal
<b>Fruiting Vegetables:</b> Eggplant, Sweet and Hot Peppers, Tomatillos, Tomatoes	Commercial seed treatment	0.00035 – 26.43 lbs. / cwt. seed
	Greenhouse soil drench	1.0 – 32.0 oz / 100 gal
	In-furrow spray or transplant starter solution	1.0 – 32.0 oz / acre
	Home & Garden soil drench	1.0 – 3.0 tbsp. / gal
	Greenhouse chemigation	1.0 – 32.0 oz / 100 gal
	*Field chemigation	1.0 – 32.0 oz / 100 gal
<b>Herbs, Spices, and Mints</b>	Commercial seed treatment	0.00035 – 26.43 lbs. / cwt. seed
	Greenhouse soil drench	1.0 – 32.0 oz / 100 gal
	In-furrow spray or transplant starter solution	1.0 – 32.0 oz / acre
	Home & Garden soil drench	1.0 – 3.0 tbsp. / gal
	*Greenhouse chemigation	1.0 – 32.0 oz / 100 gal
	*Field chemigation	1.0 – 32.0 oz / 100 gal
<b>Hydroponic Crops:</b> Cucumbers, Tomatoes, Lettuce, Herbs and Spices	Greenhouse soil drench	1.0 – 32.0 oz / 100 gal
	In-furrow spray or transplant starter solution	1.0 – 32.0 oz / acre
	Home & Garden soil drench	1.0 – 3.0 tbsp. / gal
	*Greenhouse chemigation	1.0 – 32.0 oz / 100 gal
	*Field chemigation	1.0 – 32.0 oz / 100 gal

\* Should appear on Greenhouse Chem. Not here

missing asterisk on acc label. 17 Aug 2008

<p><b>Leafy Vegetables and Cole Crops:</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, Asparagus</p>	<p>Cuttings or bare-roots Commercial seed treatment Greenhouse soil drench In-furrow spray or transplant starter solution Home &amp; Garden soil drench *Field chemigation</p>	<p>0.25 – 5.0 lbs. / 5 gal or dip into dry powder. 0.00035 – 26.43 lbs. / cwt. seed 1.0 – 32.0 oz / 100 gal 1.0 – 32.0 oz / acre 1.0 – 3.0 tbsp. / gal 1.0 – 32.0 oz / 100 gal</p>
<p><b>Legume Vegetable and Field Crops:</b> Snap and Dry Beans, Lentils, Succulent and Dry Peas, Peanuts, Soybeans</p>	<p>Planter Box (Onsite) Commercial seed treatment Home &amp; Garden soil drench</p>	<p>1.0 – 10.0 oz / cwt. seed 0.00035 – 26.43 lbs. / cwt. seed 1.0 – 3.0 tbsp. / gal</p>
<p><b>Pome Fruit:</b> Pears, Quince</p>	<p>Greenhouse soil drench Nursery soil drench In-furrow spray or transplant starter solution Home &amp; Garden soil drench *Greenhouse chemigation *Field chemigation</p>	<p>1.0 – 32.0 oz / 100 gal 1.0 – 32.0 oz / 100 gal 1.0 – 32.0 oz / acre 1.0 – 3.0 tbsp. / gal 1.0 – 32.0 oz / 100 gal 1.0 – 32.0 oz / 100 gal</p>
<p><b>Root Crops:</b> Beets, Sugarbeets, Red Beets, Carrots, Celeriac, Chicory, Horseradish, Parsnip, Radish, Rutabaga, Salsify, Turnips</p>	<p>Planter Box (Onsite) Commercial seed treatment</p>	<p>1.0 – 10.0 oz / cwt. seed 0.00035 – 26.43 lbs. / cwt. seed</p>
<p><b>Shadehouse and Outdoor Nursery Crops:</b> Deciduous trees (Maple, Oak, etc.), Ornamentals, Grapes, Citrus, Pine</p>	<p>Cuttings or bare-roots Greenhouse soil drench Nursery soil drench In-furrow spray or transplant starter solution Home &amp; Garden soil drench *Greenhouse chemigation *Field chemigation</p>	<p>0.25 – 5.0 lbs. / 5 gal or dip into dry powder. 1.0 – 32.0 oz / 100 gal 1.0 – 32.0 oz / 100 gal 1.0 – 32.0 oz / acre 1.0 – 3.0 tbsp. / gal 1.0 – 32.0 oz / 100 gal 1.0 – 32.0 oz / 100 gal</p>
<p><b>Small Grains:</b> Rye, Wheat, Sorghum, Millet</p>	<p>Planter Box (Onsite) Commercial seed treatment</p>	<p>1.0 - 10.0 oz / cwt. seed 0.00035 – 26.43 lbs. / cwt. seed</p>
<p><b>Stone Fruit:</b> Apricots, Cherries, Nectarines, Peaches, Plums, Prunes</p>	<p>Cuttings or bare-roots Greenhouse soil drench</p>	<p>0.25 – 5.0 lbs. / 5 gal or dip into dry powder.</p>



	Nursery soil drench	1.0 – 32.0 oz / 100 gal
	In-furrow spray or transplant starter solution	1.0 – 32.0 oz / 100 gal 1.0 – 32.0 oz / acre
	Home & Garden soil drench	
	*Greenhouse chemigation	1.0 – 3.0 tbsp. / gal
	*Field chemigation	1.0 – 32.0 oz / 100 gal 1.0 – 32.0 oz / 100 gal
<b>Tree Nuts:</b> Almonds, Beech Nuts, Brazil Nuts, Butternuts, Cashews, Chestnuts, Filberts, Hickory Nuts, Macadamia Nuts, Pecans, Pistachios, Walnuts	Cuttings or bare-roots	0.25 - 5.0 lbs. / 5 gal or dip into dry powder.
	Greenhouse soil drench	1.0 – 32.0 oz / 100 gal
	Nursery soil drench	1.0 – 32.0 oz / 100 gal
	In-furrow spray or transplant starter solution	1.0 – 32.0 oz / acre
	Home & Garden soil drench	1.0 – 3.0 tbsp. / gal
	*Greenhouse chemigation	1.0 – 32.0 oz / 100 gal
	*Field chemigation	1.0 – 32.0 oz / 100 gal
<b>Tuber Crops:</b> Potatoes, Sweet Potatoes, Yams, Jerusalem Artichoke, Cassava, Ginger	Planter Box (Onsite)	0.03 – 3.0 oz. / cwt. seed
<b>Turfgrass:</b> Turf, sports fields, parks, established and new preparation of golf course tees, greens, fairways and roughs, seed production, sod production	Planter Box (Onsite)	
	Commercial seed treatment	1.0 – 10.0 oz / cwt. seed 0.088 – 17.62 lbs. / cwt. 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.

**1) SEED TREATMENT FOR TRUE SEED CROPS**

**ONSITE APPLICATION TO SEED:** RootShield® WP Biological Fungicide is applied to seeds at the rate of 1.0 – 10.0 ounces per hundredweight (oz/cwt) for protection against root diseases. For example, for large, smooth seeds such as soybean or dry bean, apply 1.0 – 10.0 oz/cwt of seed. For smaller or rougher seed such as peas, or corn, apply 1.0 – 10.0 oz/cwt. For sweet corn, apply 1.0 – 10.0 oz/cwt. To assure uniform application, add half the required amount of RootShield® WP Biological Fungicide to half the seed in the hopper, mix with a wooden paddle, and then add the remaining seed and RootShield® WP Biological Fungicide. RootShield® WP Biological Fungicide can be applied in sufficient water to coat seeds. For maximum seed protection, especially in cold soils, apply RootShield® WP Biological Fungicide to commercially treated seed such as seed treated with Captan, Apron and or Demosan for stand establishment.

Do not use treated seed for food or feed purposes or process for oil. Treat only those seeds needed for immediate use, minimizing the interval between treatment and planting. Do not store excess treated seeds beyond planting time.

**COMMERCIAL SEED TREATMENT:** Apply RootShield® WP Biological Fungicide as a slurry, a coating, in a pellet, or during seed priming. User must add an EPA-approved dye, imparting an unnatural color to the seed, to RootShield® WP Biological Fungicide during the seed treatment process. Product is formulated at  $1.0 \times 10^9$  CFU/gm and should be applied to deliver the recommended CFU/seed. See table below.

The Federal Seed Act requires that bags containing treated seed shall be labeled with the following information: "This seed has been treated with *Trichoderma harzianum* Rifai strain KRL-AG2. Do not use for food, feed or oil purposes."

**AGRICULTURAL CROPS**

Seed Size (#seeds/oz.)	CFU/seed	Gm/lb. of seed
Large (1-100) e.g. peanuts, beans, green & dry, field corn	100,000 - 200,000	.0016 - .32 g
Medium (100-1000) e.g. sweet corn, soybeans, sorghum	50,000 - 150,000	.08 - 2.4 g
Small (1000-10,000) e.g. cabbage, cucumbers, sugar beets	25,000 - 100,000	0.4 - 16 g
Fine (10,000-100,000) e.g. tomatoes	10,000 - 75,000	1.6 - 120 g

**ORNAMENTAL CROPS**

Seed Size (#seeds/oz.)	CFU/seed	Gm/lb. of seed
Small (1,000 - 10,000) e.g. Echinacea, Cosmos	25,000 - 100,000	0.4 - 16 g
Fine (10,000 - 100,000) e.g. Texas bluegrass, ryegrass	10,000 - 75,000	1.6 - 120 g
Very fine (100,000 - 500,000) e.g. bentgrass	5,000 - 10,000	8.0 - 120 g

**2) VEGETATIVELY PROPAGATED CROPS, INCLUDING POTATOES, OTHER TUBERS AND BULBS:** For planting or storage, treat at 0.03 - 3.0 ounces RootShield® WP Biological Fungicide to 100 lbs (1 cwt) of bulbs or cut potato seed pieces. Apply to seed pieces or bulbs so surfaces are thoroughly covered with dust. Dip bulbs, tubers or cut potato seed pieces in a suspension of 0.25 - 5.0 lbs. of RootShield WP Fungicide in 5 gallons of water.

For potatoes, apply RootShield® WP Biological Fungicide with compatible chemical seed dusts. Consult your BioWorks 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

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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.

**3) CUTTINGS, BULBS OR BARE ROOTED TRANSPLANTS:** Dip cuttings, bulbs or transplants in RootShield® WP Biological Fungicide dry powder or in a suspension of 0.25 - 5.0 pounds RootShield® WP Biological Fungicide in 5 gallons of water. Plant treated cuttings, bulbs or transplants in potting mix or soil in the usual manner.

**4) GREENHOUSE SOIL DRENCH:** Suspend 1.0 - 32.0 ounces RootShield® WP Biological Fungicide in 100 gallons of water with agitation and apply as a soil drench to greenhouse planting mixes. For seeding flats or shallow (up to 4-inch depth) beds or pots, apply at a rate of 50 - 100 gallons per 800 square feet. For deeper beds or pots, apply at a rate of 100 gallons per 400 square feet, or at the rate of 1/2 - 1 cup (4 - 8 fl. ounces) per 3" - 6" pots respectively. Apply RootShield® WP Biological Fungicide through low pressure watering nozzles such as fan nozzles or other drench watering systems applied directly to the soil. Constant 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, liquid fertilizers, herbicides, insecticides 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.

**5) NURSERY SOIL DRENCH:** Suspend 1.0 - 32.0 ounces 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. ounces) per pot.

**6) IN-FURROW SPRAY OR TRANSPLANT STARTER SOLUTION:** Apply as an in-furrow spray or transplant starter solution at a rate of 1.0 - 32.0 ounces/acre in sufficient water to achieve uniform application. Maintain constant agitation. RootShield® WP Biological Fungicide can be tank mixed with certain fertilizers and pesticides; consult tank mix compatibility chart below for detailed information.

**7) TANK MIXING:** RootShield® WP Biological Fungicide can be tank mixed and is compatible with many commonly used fungicides, liquid fertilizers, herbicides, insecticides and biological control products registered for use on greenhouse/ornamental plants. If tank mixes are desired, observe the most restrictive of labeling limitations and precautions of all products used in mixtures. Consult the tank mix compatibility chart below or the company for more information. **This product should not be tank mixed with chemicals that contain the following active ingredients: benomyl, imazilil, propiconazole, tebuconazole, and triflumizole.** Do not apply RootShield® WP Biological Fungicide immediately before these pesticides are used.

This product can be mixed with the specific products, their percentages and rates for use in nursery drench, in-furrow spray or transplant starter solution, as listed in the table below in accordance with the most restrictive of label limitations and precautions. No label dosage rates should be exceeded. This product cannot be mixed with any product containing a label prohibition against such mixing.

**COMPATIBILITY FOR DRENCH, IN-FURROW SPRAY OR TRANSPLANT STARTER SOLUTION TANK MIX:**

Chemical Name	% A.I. Formulation	Product Name	Product Rate	Dilution
Captan	85%, Wettable Powder	Captan 85WP	1.88lb./Acre	0.1 oz./gal.
Chlorothalonil	82.5% Water Dispersible Granules	Daconil Ultrex	3.7 ounces per 1000 ft <sup>2</sup>	0.56 oz./gal.
Iprodione	23.3%, Flowable	Chipco 26019 Flo	4 ounces per 1000 ft <sup>2</sup>	0.6 oz./gal.
Thiophanate methyl	50%, Wettable Powder	Cleary's 3336 in water soluble bags	8 ounces per 1000 ft <sup>2</sup>	1.2 oz./gal.
Iprodione	50%, Soluble Granules	Rovral	0.75 lb./Acre	0.04 oz./gal.
Metalaxyl	21.3%, Liquid	Subdue Maxx	0.25 ounces per 800 ft <sup>2</sup>	0.05 oz./gal.
Chlorpyrifos	50%, Emulsifiable Liquid	Lorsban 4E	3.2 ounces per gallon	3.2 oz./gal.

**8) HOME & GARDEN SOIL DRENCH:** For preventative control of root diseases of vegetable, flower, and ornamental plants. For drench application to seeds, mix 1 to 3 tablespoons of RootShield® WP Biological Fungicide per gallon of water and apply with a watering can or other device to 25 feet of planting furrow before covering the seeds with soil.

For transplants, mix 1 to 3 tablespoons of RootShield® WP Biological Fungicide per gallon of water and apply 1/2 - 1 cup (4 - 8 fl. ounces) per plant at transplanting. For new plant beds, mix 1 - 3 tablespoons of RootShield® WP Biological Fungicide per gallon of water and apply at a rate of one gallon per 25 square feet. For established beds or potted plants, mix 1 - 3 tablespoons RootShield® WP Biological Fungicide per gallon of water and apply at a rate of one gallon per 25 square feet of plant bed or 1/2 - 1 cup (4 - 8 fl. ounces) per 4 - 8 inch pot. RootShield® WP Biological Fungicide is designed for application to seeds, plant roots and soil for control of plant root diseases and not for spray application to foliage or fruit.

**GREENHOUSE AND FIELD CHEMIGATION**

Suspend 1.0 - 32.0 ounces RootShield® WP Biological Fungicide in 100 gallons of water with agitation and apply through the following systems: 1) pressurized drench (flood) or drip (trickle) systems, 2) furrow, 3) micro-irrigation such as spaghetti-tube or individual tube irrigation, 4) hand-held calibrated irrigation equipment such as the hand-held wand with injector, and 5) ebb and flow systems. Do not apply this product through any other type of irrigation system.

Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water.

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

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

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

**Requirements for Chemigation Systems Connected to Public Water Systems:**

- 1) Public water 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 serves an average of at least 25 individuals daily at least 60 days out of the year.
- 2) Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, back flow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the flow outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.
- 3) The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- 4) The pesticide injection pipeline must 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.
- 5) The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.
- 6) Systems must use a metering pump, such as a positive displacement injection pump (e.g. diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- 7) Do not apply when wind speed favors drift beyond the area intended for treatment.
- 8) 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.
- 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 system must contain a functional check valve, vacuum relief valve and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from back flow.
- 2) The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- 3) The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- 4) The system must contain functional 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.

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- 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. Mix Rootshield® WP Biological Fungicide in enough water to be able to draw through the system for the last half of the water application.
  - 8) 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 head of the field and downstream of a hydraulic discontinuity such as a drop structure or weir box to decrease potential for water source contamination from back flow if water flow stops.
- 2) Systems utilizing a pressurized water and pesticide injection system must meet the following requirements:
  - a. The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from back flow.
  - b. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
  - c. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
  - d. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
  - e. The irrigation line or water pump must include a functional pressure switch 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.

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**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.

**STORAGE AND DISPOSAL (Agricultural Use)**

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

**PESTICIDE 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 the 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.

**STORAGE AND DISPOSAL (Residential; Home and Garden Use)**

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

**PESTICIDE STORAGE:** Store original container in a cool dry and locked place inaccessible to children and pets. Do not contaminate food or feed during storage. Do not store at temperatures above 75°F for prolonged periods. Keep container tightly closed when not in use.

**PESTICIDE DISPOSAL AND CONTAINER HANDLING:** **If empty** – Nonrefillable container. Do not reuse or refill this container. Place in trash or offer for recycling if available. **If partly filled** – Call your local solid waste agency or 1-800-CLEANUP for disposal instructions. Never place unused product down indoor or outdoor drain.

**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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