



RootShield® Biological Fungicide



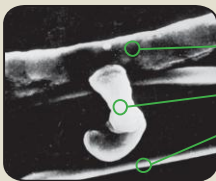
Healthy Roots, Healthy Plants

Before planting your next greenhouse crop, choose RootShield® Granules or RootShield® WP as a key strategy in your disease prevention program. The active ingredient is the beneficial fungus, *Trichoderma harzianum*, strain T-22 that protects roots from many pathogens.

RootShield is a preventative biofungicide and should be applied to “clean” plants. Diseased plants should first be treated to cure any existing root diseases since the aggressively growing RootShield only grows on the outside and does not enter the plant tissue. RootShield is compatible with fertilizers, algaecides, insecticides, disinfectants, miticides, growth regulators and nearly all fungicides.

RootShield provides long-term root protection for all types of greenhouse and outdoor plantings including vegetables, ornamentals and bedding plants.

- Grows on the roots “shielding” them against root damaging fungi such as *Fusarium*, *Pythium* and *Rhizoctonia*
- Releases enzymes that dissolve the cell wall of many fungal pathogens
- Promotes a healthier root system
- Reduces or eliminates chemical root fungicide applications
- Grows between pH 4-8 at soil temperatures between 9 and 34° C
- Reduces effects of environmental stresses that challenge the root system



RootShield strand
 Strand eating pathogen
Rhizoctonia

RootShield in action: This magnified photo shows RootShield (thinner top strand) coiled around and attacking the pathogen *Rhizoctonia* (lower strand).



RootShield strand has been removed to reveal the damage (holes) eaten into the cell wall of the *Rhizoctonia*.

(photo courtesy of Professor Ilan Chet, The Hebrew University of Jerusalem, Israel)

To find out more about the BioWorks family of products, please visit www.bioworksinc.com.



Sizes: 4.53 kg boxes, 18 kg bags or 453 kg bulk bags (Granules) and Sizes: 0.453, 1.36, or 13.6 kg packages (WP)



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How You Grow Matters™

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RootShield® Biological Fungicide

Application

Apply RootShield Granules or RootShield WP before roots have emerged or are fully developed. Within 24 hours, RootShield forms a “shield” by growing around the roots. Forming this “shield” early is key to preventing pathogens from damaging the roots. RootShield grows on the plant’s root system and is compatible with all bark, coir, peat based and soil-less mixes and will protect plugs, cuttings, liners, and all container plants.

RootShield Granules

The granules can be incorporated into the potting soil for root disease protection.

Packaging

RootShield Granules are available in 4.53 kg boxes, 18 kg bags and 453 kg bulk bags.

Root Application

The general application rate is 750 grams/m³ of growing media. For specific information concerning rates in various planting containers check with your Distributor Representative.

Custom Blend Rates

For small volumes blend 3 tbsps. per cubic foot of potting soil. If you prefer large volume custom blending with your media, contact your mix company. Large volume rates are 750 grams/m³ of mix or approximately 3 -18 kg bags per truckload (75 m³) of mix

RootShield WP

The wettable powder can be mixed with water and drenched into the soil for root disease protection.

Packaging

RootShield WP is packaged in 0.453 kg, 1.36 kg and 13.6 kg boxes.

Root Application

Drench application rates range from 30 – 45 grams/100 litres of water. For best results when applying RootShield WP, keep the stock tank or drench tank agitated and remove any screens smaller than 100 mesh. RootShield WP can be applied through low pressure nozzles or other watering systems. When applying through a drip emitter or drip tape system, use a filter mesh opening size no larger than 110 micron (155 mesh) to 135 micron (120 mesh), depending on the manufacturer’s specifications.

Seeding/Flats/Liners

Plant seeds into propagation mix containing RootShield Granules. Or, drench flats with RootShield WP.

Cuttings/Plugs, e.g. Poinsettia, Mums, Pansies

Place unrooted or rooted cuttings and plugs directly into propagation media containing RootShield Granules or apply RootShield WP within approximately 7 days after sticking.

Bulbs

Pre-blend RootShield Granules or apply RootShield WP immediately after planting. Bulbs may also be dusted with RootShield WP immediately before planting or may be dipped in a suspension of 50 grams/litre of water prior to planting. Treated bulbs can be case or pot cooled. Or, apply RootShield WP immediately after removing from cold storage, or replant into media containing RootShield Granules. Pre-cool bulb application protects the basal roots while post-cool application protects the stem roots. Specific rate information is available from your Distributor Representative.

Extended Root Protection

To ensure good root protection over extended periods, or at transplanting, re-apply either RootShield Granules or RootShield WP every 10 – 12 weeks after initial application. Second applications can be applied at half the initial rate.

Shelf Life

RootShield Granules: 6 months at 10°C to 25°C;
9 months at 0°C to 10°C and 12 months below 0°C.
RootShield WP: 4 months at 10°C to 25°C; 6 months at 0°C to 10°C and 8 months below 0°C.



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Please refer to product labels for complete application details. Additional technical information is available from either our website: www.bioworksinc.com, or your BioWorks sales representative. Always read and follow label directions.

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