



**BioWorks®**  
How You Grow Matters™



# Perennials and Overwintering

## Background:

Over-wintering perennials are vulnerable to many root diseases such as *Fusarium*, *Rhizoctonia*, and *Pythium*. Many times over-wintered plants are covered for weeks or months during this period, making routine monthly fungicide applications difficult, if not impossible. The resulting defenseless root system can be weak going into the spring. With RootShield® to guard these roots during this critical time, a natural defense system is in place for the roots and plants to get through this harsh growing period.

## What is RootShield:

Both RootShield® Granules and RootShield® WP are EPA-registered, preventative biological root fungicides containing the active ingredient *Trichoderma harzianum*, hybrid strain T-22 and are proven to control most fungal root diseases, e.g. *Pythium*, *Rhizoctonia*, *Fusarium*, *Cylindrocladium*, and *Thielaviopsis*. RootShield Granules can be incorporated into the potting soil or topdressed; RootShield WP can be mixed with water and drenched on to the plant's roots. Using RootShield will save you time and money on chemical fungicide applications. Both products are non-toxic and are very safe for workers to use (0-hr REI).

## Chemical compatibility:

RootShield is compatible with most chemical fungicides, insecticides, and plant growth regulators. A "Compatibility chart" is available from your distributor or from BioWorks (see web site below). RootShield Granules can be used as a stand-alone fungicide for root disease control or they may also be part of an existing disease management program.

## Fertilizer compatibility:

RootShield Granules is compatible with all forms of fertilizers; RootShield WP can be tank-mixed with concentrated water soluble fertilizers for use through injectors. Note: constant agitation of RootShield WP is required; if mixing and applying with concentrated water soluble fertilizers, drench RootShield WP within one hour of suspension.

## Soil pH:

Typically perennial plant root growth is optimal when soil pH is maintained between 5.8 to 6.2. RootShield grows between pH 4 to 8.5; thus product efficacy is not influenced by soil pH within the normal perennial plant soil pH range.

## Watering and leaching:

Heavy watering increases the risk of root disease problems and should be avoided. However, heavy watering will not leach RootShield away from the crop root zone. RootShield will continue to grow on the roots as they expand through the growing media.

## Why should you use RootShield if you don't have disease symptoms?

- "Prevention is the best medicine" - your crop is always at risk unless it is protected.
- Healthy plants begin with healthy roots.

## RootShield Winter Maintenance for Perennials:

Prior to winter covering (at least 2-4 weeks prior to covering):

- Thoroughly drench plant's roots using a solution containing RootShield WP at a rate of 4 oz per 100 gallons or pot your perennials into a mix containing RootShield Granules incorporated at a rate of 1.25 – 1.5 lb per cubic yard. Every 3 months, drench the plant's roots using RootShield WP at a rate of 2 oz. per 100 gallons.

To find out more about the BioWorks family of products, please contact us at 800-877-9443 or visit [www.bioworksinc.com](http://www.bioworksinc.com). © 2011 BioWorks, Inc.

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