



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® Granules and PlantShield® HC 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 are RootShield Granules and PlantShield HC:

Both RootShield Granules and PlantShield HC 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; PlantShield HC can be mixed with water and drenched on to the plant's roots. Using RootShield Granules and/or PlantShield HC 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 Granules and PlantShield HC are 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/PlantShield HC 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 and PlantShield HC are compatible with all forms of fertilizers; PlantShield HC can be tank-mixed with concentrated water soluble fertilizers for use through injectors. Note: constant agitation of PlantShield HC is required; if mixing and applying with concentrated water soluble fertilizers, drench PlantShield HC 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 Granules and PlantShield HC grow 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 Granules/PlantShield HC away from the crop root zone. RootShield Granules and PlantShield HC will continue to grow on the roots as they expand through the growing media.

Why should you use RootShield Granules and PlantShield HC 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 Granules and PlantShield HC Winter Maintenance for Perennials:

Prior to winter covering:

- Thoroughly drench plant's roots using a solution containing PlantShield HC 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 PlantShield HC 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. © 2008 BioWorks, Inc.

RESPONSIBLE :: ECONOMICAL :: PROVEN