



BioWorks[®]
How You Grow Matters™

RootShield Plus⁺:
Potential expanded uses

Botanigaro/Mycotrol.
New organic formulations



Daniel Peck, Ph.D.
BioWorks, Inc.

IR-4 Ornamental Horticulture Workshop
7 October 2015

2



RootShield[®] Plus⁺

RootShield Plus⁺ WP and Granules

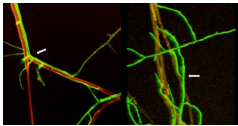
- *Trichoderma harzianum* T-22 + *T. virens* G-41
- EPA Registered, OMRI listed
- **Preventive** control of *Pythium*, *Rhizoctonia*, *Fusarium*, *Thielaviopsis* and *Cylindrocladium* diseases
- Added control of soilborne *Phytophthora*
- Enhanced control of hot-season *Pythium*
- Zero-Hour REI*



Responsible | Economical | Proven

RootShield Plus+ Modes of Action (NOT UNIVERSAL AMONG TRICHODERMAS)

- Rhizosphere Competence and Competitive Exclusion
- Antagonism and Microbiostasis
- Predation and Mycoparasitism
- Induced Host Resistance



Responsible | Economical | Proven 4

RootShield Plus+ Fungi

- Grow between pH 4–8.5, between 48–97 °F
- Grow in all types of soils, growing media, hydroponics
- Grow on the roots of all types of plants
- Provide 10–12 weeks of root protection
- Quickly respond to fast-growing pathogens
- Competitive and persistent in highly competitive niches
- Able to utilize soil organic matter at different decomposition levels

Responsible | Economical | Proven 5

RootShield Plus+ compatible with

- Many Conventional and Biological fungicides and insecticides
- Mycorrhizae
- Fertilizers



Responsible | Economical | Proven 6



RootShield® Plus⁺

Potential expanded uses (prevention, suppression):

- **Verticillium** diseases
- **Macrophomina** diseases
- **Sclerotinia** diseases (soilborne stages)
- **Sclerotium** diseases



RootShield® Plus⁺

Recommended Rates & Application Intervals

- **RootShield Plus⁺ WP:**
 - **Pot, flat and tray drenches** – 3–8 oz / 100 gal
 - **Planting beds** –
 - 50-100 gal / 800 ft² – up to 4” depth
 - 100 gal / 400 ft² – >4” depth
 - **In-furrow treatment** – 1–2 lbs / Acre
 - **Root, bulb dip** – 0.5–2.5 lbs / 20 gal
 - 4-hour REI
 - **Reapplication of RS+WP at 8–10 wks**




RootShield® Plus⁺

Recommended Rates & Application Intervals

- **RootShield Plus⁺ Granules:**
 - **Growing media or soils** – 1–3 lbs / yd³
 - **Soils** –
 - 2.5–6.0 lbs / ½ Acre in furrow
 - 1.5–3 lbs / 1000 ft² incorporated (beds)
 - **Reapplication of RS+G at 8–10 wks**

BioWorks
How You Grow Matters™

BotaniGard®



Product Type: Biopesticide
Active Ingredient: *Beauveria bassiana* GHA 1991 strain
Concentration: 2 x 10¹⁰ viable spores per ml
Formulation:
 ES: Nano Technology, Mineral Oil
 22WP: Typical wettable powder
Size: ES: 1 qt, gal, WP: 1 lb
Toxicity Category: IV

Responsible | Economical | Proven


10

BioWorks
How You Grow Matters™

BotaniGard®

***Beauveria bassiana* strain GHA**
Wide spectrum of activity:

- Whiteflies (including Q-Biotype)
- Thrips
- Aphids
- Psyllids
- Mealybugs
- Weevils
- Leaf hoppers and plant hoppers
- Scarab beetles
- Leaf-feeding beetles




Responsible | Economical | Proven

11

BioWorks
How You Grow Matters™

BotaniGard®

Formulations



Emulsifiable Suspension **Wettable Powder** **Organic ES**

Responsible | Economical | Proven



12







Responsible | Economical | Proven 13

Added value of formulations

- Approved for organic use
- Wide spectrum of control
- No refrigeration required
- 18 – 24 month shelf life stability
- Emulsifiable formulations
- No additional adjuvants required
- Stand alone consistent performance
- In-tank mix compatible with insecticides, herbicides, fertilizers & some fungicides

Responsible | Economical | Proven 14

Thank you



Daniel Peck, Ph.D.
 Product Development Manager
 dpeck@bioworksinc.com
 585-924-4362

Mathew Krause, Ph.D.
 mkrause@bioworksinc.com
