Spring 2015

# GH Grower Advisor

Newsletter for the Greenhouse Industry

## In this Issue:



New at TerraLink

## ReduSystems® Removeable Greenhouse Coatings

ReduSystems® is the name of a group of removable coatings that gives the grower more control over their greenhouse climate. Coatings are sprayed onto greenhouse roofs and are weather-resistant for the entire season. Coatings can be removed at any time with ReduClean. One of the key features that makes the ReduSystems® products stand out is the ease with which they can be applied and removed. Application may be done manually, mechanically or by helicopter.

Mardenkro's ReduSystems® products are global leaders when it comes to regulating greenhouse climate. These coatings help optimize crop quality and quantity. Too much heat and direct light can cause overly high temperatures in the greenhouse making work uncomfortable, creating low relative humidity, blossom end rot and fruit burn on vegetables, color fading of flowers, sunburnt plants and overall lowered production.


Crops that have positive effect with ReduHeat for example are sweet pepper, tomato, roses, chrysanthemum and gerbera. Crops with positive effect with ReduSol include all shade loving plants such as Anthurium, any plants needing to have light and heat reflected and young plants that need protection. ReduFuse has shown great success in crops such as tomato, pepper, cucumber, chrysanthemum, hanging baskets, strawberry and flowering plants. Whatever your greenhouse crops, there is a product to aid in your production.

**Products available at TerraLink include:**

- ReduSol a shading agent for heat and light that can be adjusted 20-80%. Suitable for all commonly used greenhouse coverings.
- ReduHeat a shading agent against heat that reflects infrared light.
- ReduFuse converts sunlight into diffuse list while maintaining high light transmission.
- ReduFuse IR converts sunlight into diffuse light while also providing limited shading.
- ReduClean is used to easily remove the ReduSystems® coatings.
- AntiCondens is used inside plastic greenhouses to prevent condensation. This also aids in preventing disease pressure and loss of light.

Effective Solution for Tough Pests

## Ornamental Insecticide Update

A few products were introduced to the market over the past year. As we come into spring here is an update on a couple of products that might not be on your radar. These are great options to put into your spray rotation that will help with resistance management.

**Kontos:**

KONTOS™ INSECTICIDE

Kontos, a group 23 insecticide with the active ingredient spirotetramat, became available in 2014 for use in Greenhouse Ornamentals for drench or foliar treatments. It is registered to control all whitefly species including Q biotype, aphids, thrips and spider mites, mealy bug and scale. Kontos is the second registered group 23 insecticide for greenhouse following Forbid which has been on the market for several years. Although from the same family Kontos has some different strengths and a wider range of insect control.

- Most effective on juvenile forms (nymphs and pupae), it only has some impact on adults but is does greatly reduces fertility and reproduction.
- Systemic: it can be taken up through the leaves and roots then move through the xylem and phloem of the plant providing protection to new shoots and older leaves.
- It has some phyto-toxicity issues: It has been extensively tested on many plants, the labels gives a detailed description of what it can safely be applied to.
- Kontos is soft on many beneficials and therefore is well suited for IPM programs.
- It is also long lasting, providing up to 30 days residual.

**Pylon:**

Pylon®
miticide-insecticide

Pylon is a new class of chemistry with the active Chlorfenapyr which is new to the Canadian Market as of 2014. Pylon is registered to control Thrips, Spidermites and cabbage loopers in greenhouse ornamental and vegetable crops. There have been good reports from growers on the efficacy against Thrips which are becoming more difficult to control. Pylon is quickly absorbed into the leaf within 1 hour and will not wash off, however, coverage is very important as it is not systemic.

- Residual control: Once in the plant, Pylon provides 14 – 21 days of residual control.
- Contact and stomach activity. Good coverage is key.
- Compatible with most plant types but does have a small number of restriction because of phyto-toxicity.
- Active on adults and nymphs. Will not kill eggs.
- Pylon is considered hard on many beneficial insects.

Bio-Insecticide

## MET 52EC

Met52 EC is a contact bio-insecticide utilizing a pathogenic fungus for the effective control of thrips and whiteflies in greenhouse tomatoes, peppers and zucchini. Met52 EC fungal spores are suspended in an emulsifiable oil, which can be applied as a foliar spray or drenched into the soil. Once the product is sprayed, insects that come into contact with the fungus will become infected. The spores of *Metarhizium anisopliae* attach to the surface of the insect, germinate and begin to grow. It will penetrate the exoskeleton of the insect and grow inside, causing the insect to die. Under moderate temperatures it usually takes 3 to 7 days once the insect is exposed for death to occur. At very cold or hot temperatures death may occur more slowly. An infected grub or larvae may appear an off color from the normal coloration. It is not often that you will see actual fungal growth on the infected insects. Use as an effective crop safe control while strengthening your resistance management and beneficial insect programs. Safe to use with many beneficial insects and nematodes.

Water Soluble Fertilizers

## Precision Fertility with Plant-Prod

With Plant-Prod you are assured of premium high quality raw materials, purity and high solubility. All are formulated with chelated micronutrients that are at higher levels than typical agricultural grade blends and are fully available to the plant. All blends are tested for quality control and are production stamped for traceability. Due to the absence of contaminants and fillers, the EC levels are consistently low and uniform. The purity of Plant-Prod sets it apart from the competition.

Plant-Prod®

Solubility is a sign of the quality and purity of the materials used in creating fertilizer. If a fertilizer is not completely soluble, material may settle at the bottom of your tank and create an imbalance of nutrients for your plants. All Plant-Prod fertilizers stay completely dissolved as only technical grade raw materials are used. No fillers or chemical reagents are added. Strict attention to uniformity assures growers that each bag of Plant-Prod will be the same year after year.

Can't find a fertilizer that's right for you? Plant-Prod is dedicated to producing the most innovative, highest quality water soluble fertilizers on the market. If we do not have a blend in our inventory to suit your needs, a custom blend may be right for you.

**POPULAR BLENDS:**

- **High Nitrate 20-8-20** – Backbone of many greenhouse grower's nutritional programs.
- **Optimum Cal Mag 12-2-14** – Designed for plug production but can also be a Cal/Mag supplement for many crops. Contains all 5 macronutrients and a complete micronutrient package.
- **Starter 10-52-10** – For young plants to initiate rapid root development.
- **Finisher 12-0-44** – Ideal for uniform growth, better color and improved plant tone in winter months and when finishing crops.
- **Classic 20-20-20** – Use when a general formulation is required and rapid green up is needed.

Many more options available. For excellent results in greenhouse production, field fertigation or foliar feeding you can rely on Plant-Prod water soluble fertilizers.

Rootshield BioFungicide

# Root Disease - Prevention is Key

Every day plant roots are in the midst of a battle. The underground warriors being fungi and bacteria, compete with each other for food and space and ultimately determine the health of plants and their roots. The majority of soil-dwelling bacteria and fungi are harmless to plant growth. Some are beneficial species essential in breaking down large molecules into smaller ones that plant roots can take up. A few of the soil-dwelling microbes actually cause disease. These pathogens are known commonly by such scientific names as *Pythium spp., Fusarium spp, Rhizoctonia spp.*, and *Phytophthora spp.* to name a few. A small number of soil microbes have displayed unique characteristics with regard to controlling, eliminating and out-competing the pathogens in the root zone. Some soil microbes lightly suppress pathogens while others sustainably prevent and control the root rotting pathogens. A select few of these special microbes consistently show such excellent disease controlling properties that they become registered as biofungicides. ***Trichoderma harzianum* strain T-22** is an example of a very special warrior with the ability to control and eliminate disease pathogens in the root zone. T-22 can be found in the registered biofungicide **RootShield®**. Growers can defend their plant roots from disease with soil biofungicides — biological warfare at its finest!

BioWorks®
How You Grow Matters™

Curative chemistries exist to treat or suppress a root disease until a crop is harvested. These chemicals can be effective and have for years but they are not silver bullets. Their mode of action (MOA) can be conducive to pathogens developing resistance. Many growers proactively use registered biofungicides like RootShield to prevent resistance. It is the unique modes of action in RootShield that makes it so effective.

**SO HOW DOES ROOTSHIELD WORK?**

1. **Exclusion**. RootShield grows in the media near plant roots or directly on the roots shielding them from pathogens. The soil biofungicide grows in and dominates the same area a pathogen wants to occupy and physically blocks or excludes it.

2. **Competition.** RootShield can remove and feed upon simple organic and inorganic compounds released from roots as part of their waste removal system. These root exudates and soil organic matter also attract pathogens.

3. **Parasitism and predation.** As a biofungicide, RootShield can attack and eat root-rotting pathogens feeding directly upon them for their own nutrition. They physically attach to these pathogens and release enzymes that dissolve the cell walls eliminating them for extended periods of time.

4. **Nutrient availability.** Nutrients must be in a reduced form to make them available for absorption by a plant's root system. RootShield releases reducing agents and chelating agents that make nutrients more available and absorbable to a root allowing for more complete utilization of the fertilizer being applied.

5. **ISR (Induced Systemic Resistance)**. In some cases but not always seen, certain soil biofungicides can trigger ISR in plants. Very specific strains of *Trichoderma, Bacillus* and other microorganism species, have been shown to "turn on" specific mechanisms in a plant's root system that naturally cause the plant to defend itself from the inside. This MOA is still not well understood or predictable but is a hot topic for researchers around the world. ISR triggered by specific biopesticide strains certainly contributes to their overall efficacy.

Preventing damage from root rots begins with a good defense. Programs using conventional, IPM, sustainable and organic methods of growing should all use RootShield early as a preventative not as a curative when it is too late. Providing early protection against root diseases is a major component to producing a successful crop.

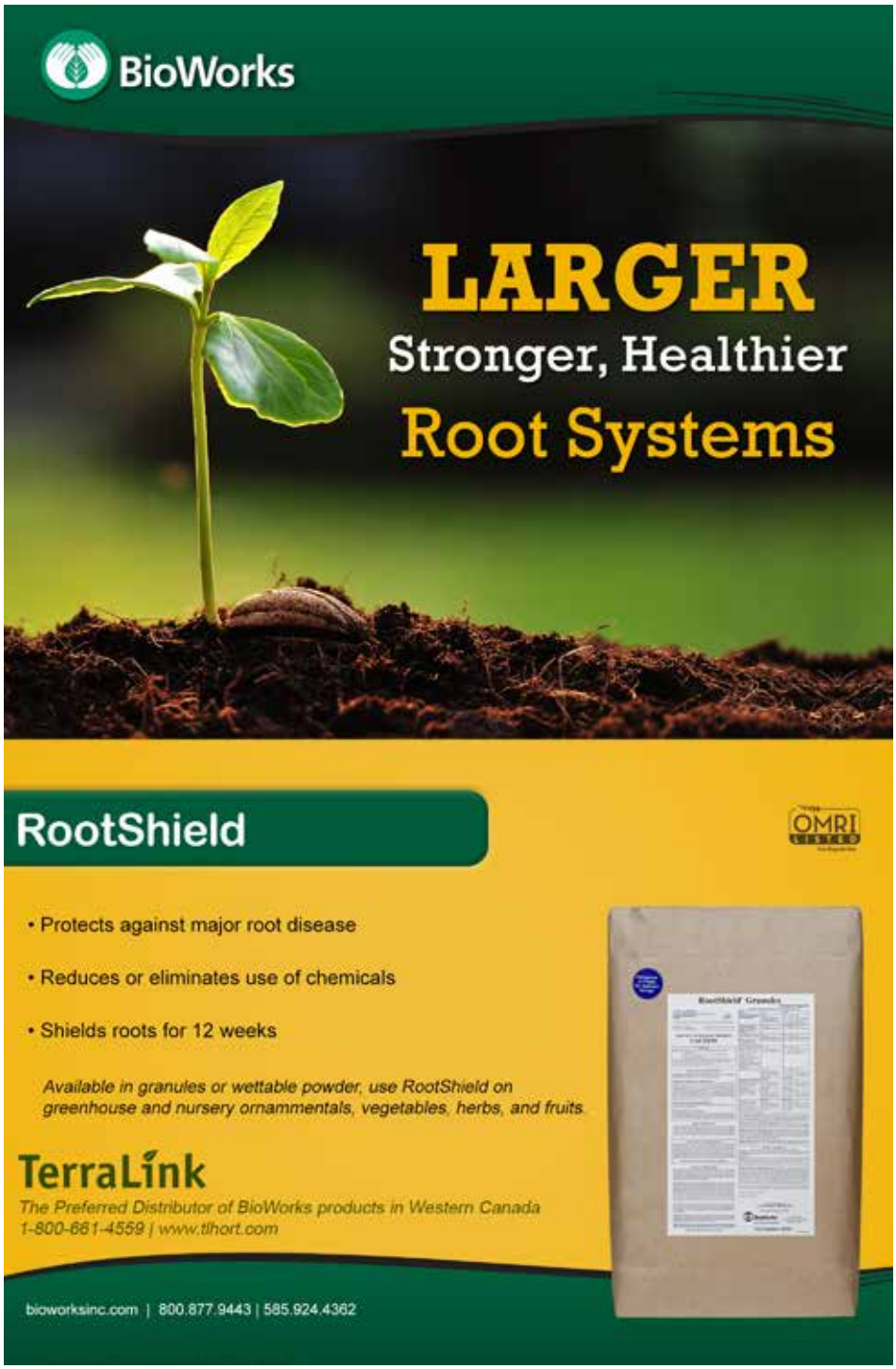
**ROOTSHIELD FACTS:**

- Effective at preventing diseases caused by *Pythium, Fusarium* and *Rhizoctonia spp.*
- Compatible with many chemical fungicides.
- Tolerant of wide temperature and pH ranges.
- Long shelf life when stored at room temperature or lower.
- Approved for use in organic programs.
- Three readily available formulations make application to seeds, plant material and media easy and economical.
- Zero-hour restricted-entry and pre-harvest interval.

**SUMMARY**

RootShield contains a living microbe that can successfully prevent many types of root diseases under diverse environmental conditions on a wide range of plants using multiple mechanisms of control. Applying the proper soil biofungicide for an identified root pathogen early before the pathogen gets a foot-hold in the plant can make the difference in performance and the need to use chemicals.

Safety for people, safety for plants and safety for the environment are becoming more of a concern in the edible and ornamental plant growing world. RootShield offers this level of safety. Identifying problems early and preventing further spread make-up the backbone of an effective biologically based program. Soil biofungicides can and do work.

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*For more information on the BioWorks line of products: http://www.bioworksinc.com*

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