

# GRIFFIN GAZETTE

*Special Edition*

Vol. 43 | Issue 2 | 2025



The Secret to Your Next  
**RETAIL BUSINESS WIN**

**THE SUMMER DOLDRUMS**  
A Good Time to Assess your  
Water and Irrigation Infrastructure

**BEAT THE HEAT**  
Challenges of CEA Production  
During the Summer Months

Tiny Threat, **BIG IMPACT**  
Battling Pepper Thrips in  
Greenhouse Production



A FAMILY OWNED SINGLE SOURCE SUPPLIER FOR ALL YOUR HORTICULTURAL NEEDS



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VOL. 43 • ISSUE 2 | 2025

Welcome to the Griffin Gazette, delivering industry tips and insights from notable partners and experts.

In each issue, we bring you valuable knowledge, innovative strategies, and expert advice to help you stay ahead in your business. As a third generation family-owned nationwide leader and distributor, Griffin Greenhouse Supplies offers you products, resources, workshops, and training to help you build a thriving growing business with knowledge-sharing and caring.

As a family owned single source supplier for all your horticultural needs, we invite you to join us as we explore and serve industry expertise and empower your journey of growth and success.

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# KEYSTONE™ POTS

## *The Smarter Solution for Growers and Retailers*

By: Growscape (formerly HC + CHG Companies)

In today's fast-paced horticultural market, efficiency, cost savings, and strong branding are no longer just benefits—they're necessities. That's why growers and retailers are turning to Growscape's innovative Keystone™ Pot + Tray System. Designed with superior functionality and customer appeal in mind, Keystone pots stand out by delivering real operational savings, compatibility with automation systems, and dynamic merchandising opportunities that drive profits.



## Cost-Effective Solutions Built for Today's Growers

What truly separates Keystone pots from the competition is their ability to provide substantial operational cost savings without compromising on quality or performance. From reduced handling costs to improved transportation efficiencies, every feature of the Keystone Pot-Tray system is designed to help growers and retailers maximize profitability. With competitive pricing and smart engineering that leads to fewer shipments, faster turnaround times, and lower labor costs, Keystone offers a value-added solution that's hard to match in today's market.

### Three Reasons Growers & Retailers Prefer Keystone™

#### 1. Enhanced Space Utilization and Cost-Effectiveness

At the heart of Keystone's design is an intense focus on space optimization. The pots' calculated size and unique shape allow more units to fit into a smaller footprint compared to traditional containers. This not only increases the number of plants that can be shipped per load but also maximizes shelf space at retail locations. By fitting rim-to-rim on trays and aligning perfectly on grower carts and shelves, Keystone pots reduce wasted space and freight costs. Larger product quantities per shipment mean fewer trips, lower transportation expenses, and improved profitability at every stage of the supply chain. Whether you're looking to streamline greenhouse operations or enhance your retail footprint, Keystone's thoughtful design ensures that every inch works harder for you.

#### 2. Efficiency & Compatibility with Automated Systems

As automation becomes increasingly vital for operational success, Keystone pots lead the way. Specifically engineered to work seamlessly with automated planting and handling systems, Keystone reduces labor demands and speeds up production. The rim-to-rim fit of Keystone pots on trays enhances stability during automated movement and on grower carts, allowing for smoother operations with fewer errors. This compatibility helps growers and retailers save on labor costs, eliminate bottlenecks, and meet customer demand faster and more efficiently than ever before. By offering a solution that integrates easily into existing automated systems, Keystone empowers growers to stay competitive in an evolving marketplace.

#### 3. Merchandising Appeal & Branding Visibility

In today's retail environment, visual impact matters. Keystone pots are designed not just for operational excellence, but also to create a strong, consistent brand presence on store shelves.

All four sides of the pot can be customized with high-quality printing, ensuring your brand is visible from every angle. The sleek, elevated look of the pot—featuring rounded corners for more soil volume and a soft, premium appearance—grabs attention while maintaining a space-efficient square footprint.

Keystone's flexible tag slot system also supports easy and visible tag placement, whether on the long or short end of the tray. Options for additional tag slots on both 1- and 2-quart containers allow growers to tailor their merchandising strategy to their specific needs.

In a crowded retail space, this dynamic branding opportunity translates into stronger consumer recognition, increased sales, and enhanced brand loyalty.

### The Bottom Line: Keystone™ Is the Smarter Investment

The Growscape Keystone Pot and Tray System is more than just another container option—it's a strategic solution for modern growers and retailers who demand smarter ways to work, sell, and succeed. From maximized transportation efficiencies and automation optimization to superior merchandising and branding visibility, Keystone delivers real, measurable benefits that go beyond traditional pot systems. For growers seeking a better bottom line and retailers striving for stronger brand impact, Keystone pots are the future of horticultural success.

**Experience the smarter way to grow with Keystone™—where efficiency meets opportunity.**



**SHOP  
HERE!**



# ***SUSTAINABILITY & STEWARDSHIP: A Balanced Approach for a Better Future***

By: Premier Tech LTD



Sustainability is more than a buzzword; it's a shared responsibility that transcends industries and communities. For Premier Tech Growers and Consumers, the manufacturer of PRO-MIX® growing media and AGTIV® biological technologies, sustainability represents a dynamic balancing act—preserving natural ecosystems, promoting well-being, and fostering shared prosperity. Through thoughtful practices and innovative solutions, the company strives to reduce its environmental footprint, support its team members' well-being, and positively impact their communities.

## **Peatlands: A Foundation for Sustainability**

Peatlands are among the planet's most vital ecosystems and play a crucial role in carbon storage, biodiversity, and water regulation. These ecosystems have been central to Premier Tech's operations since the company's beginning. Recognizing their fragility and importance, the company has made Peatland preservation and responsible management a cornerstone of its sustainability strategy.

In 1992, Premier Tech initiated discussions that led to the creation of the Peatland Ecology Research Group (PERG). This pioneering partnership brought together the Canadian horticultural peat industry, the academic scientific community, and governmental agencies to advance peatland research and restoration. Over the years, the company's collaborations have expanded to include universities and research groups worldwide, leveraging expertise in fields such as ecology, peatland restoration, and valorization of greenhouse crop residues.

These efforts are complemented by Premier Tech's peatland restoration work. Harvested peatlands are returned to their natural state through a process that reestablishes their ability to self-regulate. This enables them to sequester carbon, support biodiversity, regulate water, and thrive once again. Such initiatives demonstrate the company's commitment to reducing its greenhouse gas (GHG) footprint and fostering long-term ecological recovery.

As part of its dedication to transparency and accountability, Premier Tech's peatlands are certified under the Veriflora - Responsibly Managed Peatlands® program. This certification ensures adherence to the highest sustainable development standards, including annual GHG emissions inventories. These measures set a benchmark for responsible environmental stewardship, reflecting the company's commitment to protecting biodiversity and maintaining best practices.



## Innovation and Waste Reduction

Sustainability is intricately woven into Premier Tech's innovation process. The company is committed to integrating eco-design practices into its innovation process and considering the environmental impacts of its products throughout their lifecycle. In parallel, more than 40 years of research into biological solutions have fueled the development of products that positively impact horticulture by strengthening plants and increasing yield in an environmentally friendly way.

The company is also committed to reducing waste and unlocking the potential of residual materials. Through collaborations with partners, Premier Tech explores innovative methods such as material recovery and upcycling, reinforcing its dedication to minimizing its ecological footprint across all operations.

## Community Impact

Beyond environmental efforts, Premier Tech's sustainability strategy deeply integrates community well-being. The company ensures its actions resonate at both regional and global levels by supporting local suppliers, promoting biodiversity, and participating in community initiatives. Prioritizing local suppliers helps strengthen regional economies and deepen connections with the communities in which it operates, while efforts to protect local species and ecosystems highlight a dual focus on economic resilience and ecological balance.

Premier Tech's dedication to community well-being is further demonstrated through its volunteer programs, donations, and active involvement in local projects. These community-driven initiatives are carefully aligned with local needs, creating meaningful connections between global sustainability goals and local values.



*Over 50 students from Rivière-du-Loup High School rallied themselves to revitalize their environment. Guided by Premier Tech team members, they planted 600 trees along the Petit-Témis bike trail using horticultural products provided by the company. Source : Premier Tech*

Sustainability is not an endpoint but a continuous journey of collaboration, innovation, and shared responsibility. For Premier Tech Growers and Consumers, it is a commitment to being a part of the solution. Restoring peatlands, reducing ecological footprints, and actively engaging with communities are all part of a larger vision to inspire positive change and redefine responsible practices.

By working alongside partners and communities, Premier Tech aims to build a future where environmental health, social well-being, and prosperity are in perfect balance.



*Premier Tech Growers and Consumers is dedicated to creating sustainable solutions to help feed the growing global population and beautify the world we live in. Its products improve crop performance, quality, and yields by bringing life into growing media. Premier Tech's distinctive PRO-MIX® growing media, combined with its AGTIV® biological technologies, harness the power of biostimulants and biocontrols to enrich soils and fortify plants, all with a focus on environmental responsibility.*

# IT'S IN THE BAG



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Striving for thriving crops? With PRO-MIX® premium growing media and AGTIV® biological active ingredients, it's in the bag.

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EXPERIENCE THE SMARTER  
WAY TO GROW WITH

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WHERE EFFICIENCY MEETS  
OPPORTUNITY



**GROWSCAPE**



# Optimizing Iron Availability in Greenhouses: The Role of Plantex<sup>®</sup> Iron DTPA & EDDHA

By: Plantex

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Iron is an essential micronutrient that plays a critical role in plant health, supporting processes such as photosynthesis and respiration, enzyme formation and function, and nitrogen fixation. Iron deficiencies are common in greenhouse environments where growing conditions and media properties can greatly limit the availability of this vital element. Iron products chelated with DTPA (Diethylene triamine pentaacetate) or EDDHA (Ethylene diamine dihydroxyphenylacetic acid) are highly effective solutions for maintaining optimal iron levels in plants when media conditions are not ideal.

## Iron Deficiency in Greenhouses: A Common Challenge

Iron deficiency generally occurs when plants struggle to absorb enough iron from the media. This condition is often the result of poorly managed growing media that has high pH, high content of lime, or low initial nutrient levels that are not replenished with supplemental sources. With limited root systems and environmental stresses, plants may exhibit symptoms like interveinal chlorosis – where the veins remain green but the rest of the leaf turns yellow to light green. If untreated, the plant's leaves will become necrotic, and the plant may ultimately die.

## Plantex® Iron Chelates: A Solution for Greenhouse Growers

For greenhouse growers, incorporating Plantex® Iron DTPA or EDDHA into their nutrient program ensures the availability of iron even in challenging soil conditions.

- Plantex® Iron DTPA is ideal for slightly acidic to slightly alkaline conditions, with a pH range of up to 7. This fully DTPA chelated iron of 11% ensures that iron remains in a soluble, plant-available form, preventing it from binding with other soil compounds. This allows plants to take up iron more efficiently and reduces the risk of deficiency.
- Plantex® Iron EDDHA is specifically designed for more challenging greenhouse conditions, such as alkaline or lime-rich media. With 6% iron, fully chelated by EDDHA at a 4.0% ortho-ortho content, this product provides an extended release of plant-available iron. EDDHA's ortho-ortho isomer is particularly effective in overcoming soil pH imbalances and delivering iron where it's most needed.

## Application Recommendations for Greenhouses

When applying Plantex Iron Chelates in greenhouse systems, it is essential to follow proper application methods to achieve the best results.

1. **Soil Applications:** Mix Plantex Iron Chelate with water and apply to the root zone with the use of a greenhouse irrigation systems. For instance, to achieve the desired rate of 4 ounces of Plantex Iron per 100 gallons of water, create a stock solution by mixing 4 ounces of your desired Plantex Iron per gallon of water. Set the injector ratio to 1:100 to achieve optimal distribution.
2. **Foliar Applications:** A thorough foliar spray can also be effective in providing iron directly to the plant's leaves. For best results, apply a fine mist to cover the foliage evenly.



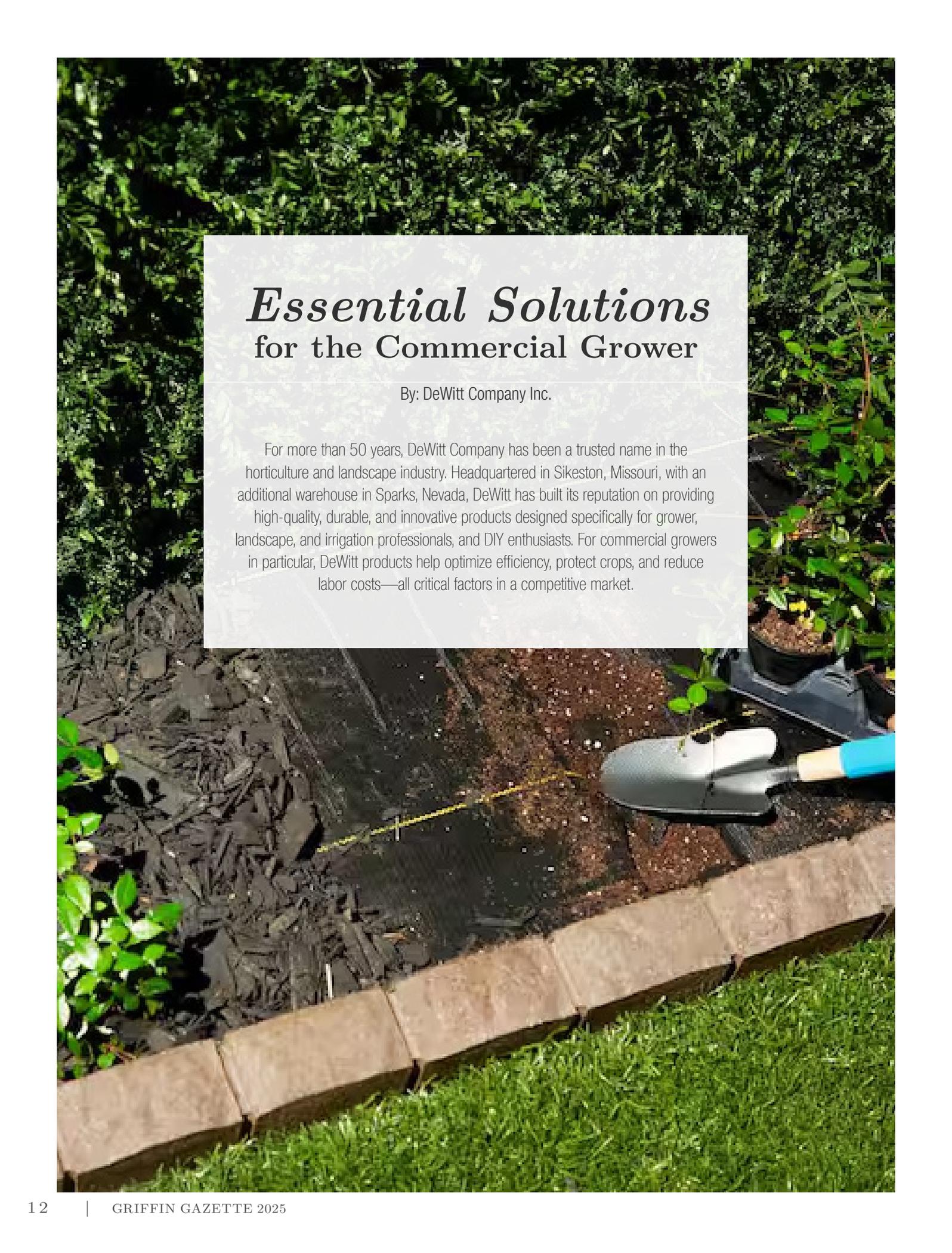
3. **Mixing and Compatibility:** Plantex Iron Chelates are provided as crystalline powder and should be thoroughly mixed with water until completely dissolved. If spray tank agitation is limited, pre-dissolve the product in a pail before adding it to the tank. These chelates can be used alongside other plant nutrition products. It is best practice to perform a small jar test to determine compatibility of your desired tank mix prior to mixing.

## Flexibility and Long-Term Effectiveness

Plantex® Iron products offer greenhouse growers long-lasting benefits by providing iron in a form that plants can use over an extended period. The ortho-ortho isomer in Plantex® Iron EDDHA is particularly valuable in maintaining consistent iron availability, ensuring healthy plant growth despite adverse soil conditions.

## Conclusion

Plantex® Iron DTPA and EDDHA are indispensable tools for greenhouse growers looking to prevent and manage iron deficiency in their crops. By incorporating these highly effective products into their nutrient program, growers can ensure their plants have access to one of the most necessary nutrients for healthy growth and optimal yields. Always refer to product labels for proper handling and application instructions. Available at [Griffins.com](http://Griffins.com)

A photograph of a garden bed with a brick border, a shovel, and a measuring tape. The garden bed is filled with dark mulch and a young plant. A shovel with a blue handle is lying on the mulch. A yellow measuring tape is stretched across the garden bed. The background shows a dense green hedge.

# *Essential Solutions* for the Commercial Grower

By: DeWitt Company Inc.

For more than 50 years, DeWitt Company has been a trusted name in the horticulture and landscape industry. Headquartered in Sikeston, Missouri, with an additional warehouse in Sparks, Nevada, DeWitt has built its reputation on providing high-quality, durable, and innovative products designed specifically for grower, landscape, and irrigation professionals, and DIY enthusiasts. For commercial growers in particular, DeWitt products help optimize efficiency, protect crops, and reduce labor costs—all critical factors in a competitive market.

## **A Legacy of Innovation**

DeWitt Company was founded in 1974 with the concept of stopping weeds, while still allowing water, air and nutrients to pass through to the soil, allowing for healthier plants. The company started with a single product—DeWitt Weed Barrier™—and quickly expanded its line to include a wide range of woven and nonwoven landscape fabrics, woven groundcover, frost protection fabrics, shade cloth, geotextiles, erosion control products, and tree care products. Today, DeWitt continues to serve these same professionals across the United States and internationally, offering more than 600 products across 14 product categories.

## **Woven Ground Cover Fabric**

One of DeWitt's flagship product categories—and arguably the most essential for commercial growers—is its selection of ground cover fabrics. These products serve as a barrier to weeds while allowing air, water, and nutrients to reach the soil.

DeWitt's woven groundcovers, such as the industry leading Sunbelt Woven Groundcover™, are particularly popular in large-scale nurseries and greenhouse operations. Made from UV-stabilized polypropylene, these fabrics are durable and designed to last multiple growing seasons, even in fully exposed environments. They help reduce the need for chemical herbicides, saving costs and minimizing environmental impact. The fabric's striped pattern also aids in plant spacing and layout, improving consistency and labor efficiency.

In recent years, DeWitt has added White Woven Groundcover for light reflection to the lower canopy of fruit and flowering plants, and also Green and Brown Woven Groundcover alternatives for blending into the surrounding area.

## **Frost and Plant Protection**

For growers contending with sudden temperature swings and damaging cold or frost, DeWitt's Frost Protection Blankets and Plant Protection Fabrics are vital tools. These covers are designed to shield crops from sudden drops in temperature, wind, and desiccation without the need for heaters or complex climate control systems.

Products like DeWitt N-Sulate offer thermal protection while allowing light and moisture to reach the plants. Used in the early spring and late fall, these fabrics can extend growing seasons and reduce losses from unexpected frosts.

Lighter weight products like Seed & Plant Guard offer excellent insect protection for plants, and are also a great upgrade over traditional straw covering on newly seeded lawns. The micro environment under the fabric offers much higher seed germination rates, lessens erosion from rain or overhead sprinklers, and is reusable.

## **Shade Cloth**

Controlling light exposure is another crucial aspect of commercial growing, especially for light-sensitive crops. DeWitt offers a wide variety of knitted and woven shade cloths that provide from 30% to 90% shade, allowing growers to fine-tune conditions for different plants.

The shade fabrics are made from polypropylene (Woven Shade) and high-density polyethylene (Knitted Shade) and are UV-treated to withstand direct uv exposure over several years. Customizable in size, DeWitt shade cloth is widely used in nurseries, greenhouses, and outdoor growing operations.

## **Tree Care**

Tree farms and orchards also benefit from DeWitt's product offerings. Tree Wrap protects young saplings from wind, sunscald, rodents, and equipment damage. DeWitt's Tree Squares and Tree Circles are made from Woven Polypropylene fabric and fit around the base of trees to suppress weeds and conserve water, giving young trees a much better chance of survival.

## **Conclusion**

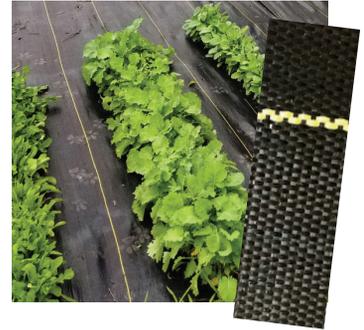
For commercial growers, the right tools can make the difference between a successful season and a costly one. DeWitt Company's range of landscape and horticultural products and accessories are designed with professionals in mind—delivering quality, durability, and efficiency. Whether you're a 500-acre nursery or a small hobby greenhouse, DeWitt's solutions offer proven value, season after season.



**DeWitt Sunbelt® 3.2 oz**



*Our Best —  
Sunbelt® Woven  
Ground Cover  
resists tearing,  
puncturing and  
weed penetration*



**DeWitt N-Sulate 1.5 oz**



*Protects Flowering  
Annuals, Bedding  
Plants and  
Vegetables from  
Severe Cold and  
Freezing Temps*



**DeWitt Shade Cloth**



*Shade Products that  
Allows You to Create  
Your Own Unique  
Shade Design*



\*Additional colors and sizes available





# FABRICATION SHOP

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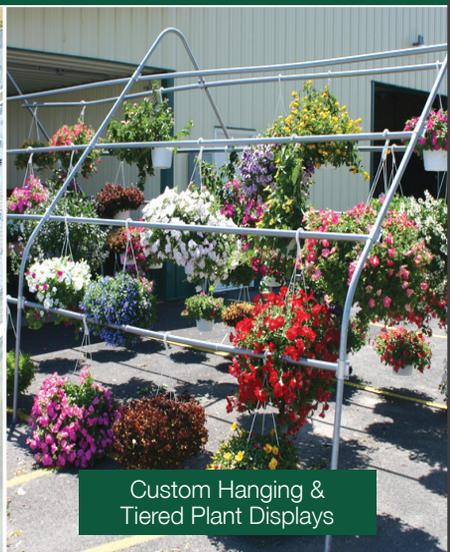
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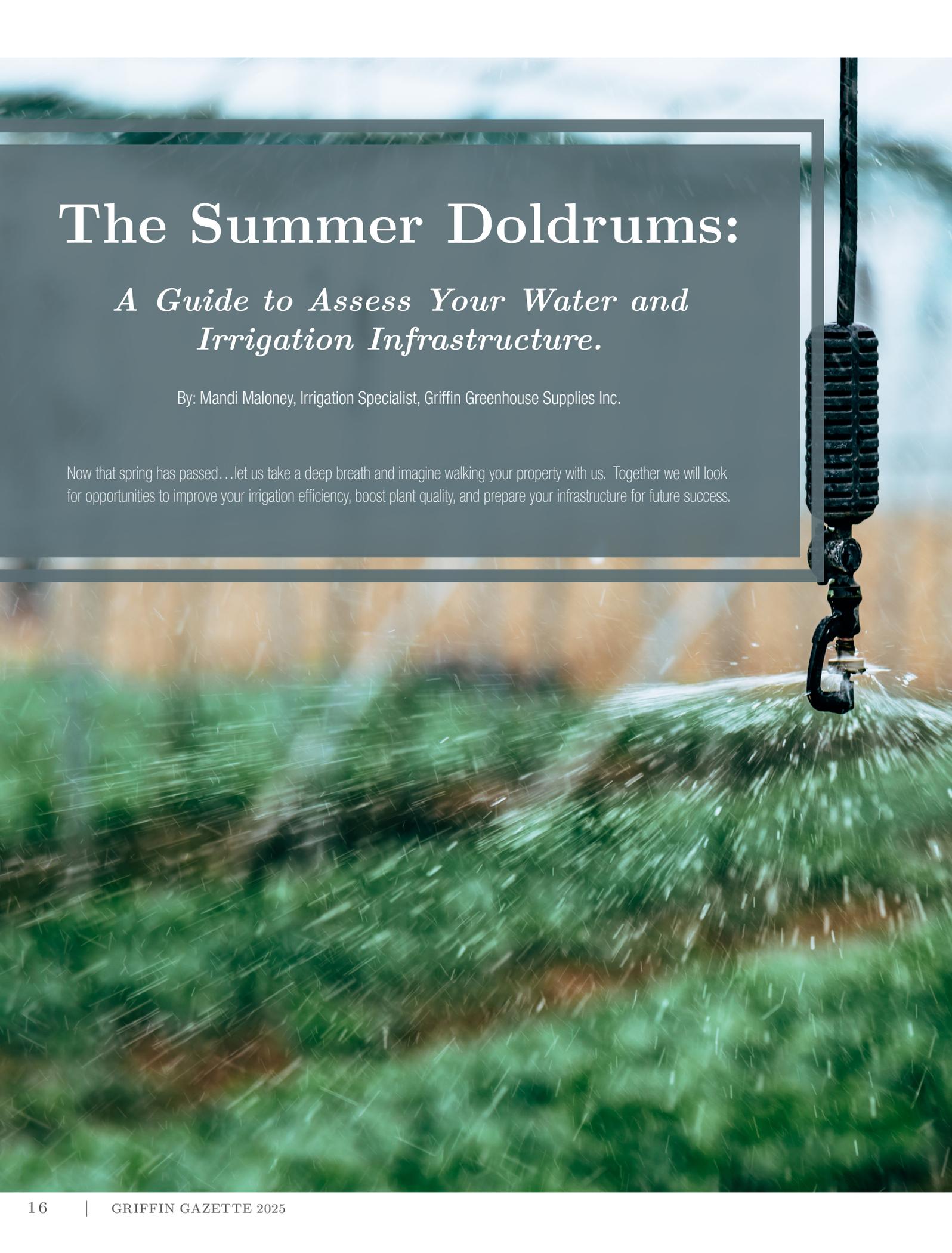
Greenhouse Kits  
Sliding Door Kits



Custom Size  
Metal Benching



Custom Hanging &  
Tiered Plant Displays



# The Summer Doldrums:

## *A Guide to Assess Your Water and Irrigation Infrastructure.*

By: Mandi Maloney, Irrigation Specialist, Griffin Greenhouse Supplies Inc.

Now that spring has passed...let us take a deep breath and imagine walking your property with us. Together we will look for opportunities to improve your irrigation efficiency, boost plant quality, and prepare your infrastructure for future success.



## Let's take a walk...

We start our walkthrough and immediately trip over a hose — right next to your best employee, who is spending the summer hand-watering and manually opening valves. Could adding additional irrigation and a controller benefit your business by allowing this valuable team member to work on other projects? Let's talk about what you need. Email [irrigationdept@griffinmail.com](mailto:irrigationdept@griffinmail.com) to schedule a consult to find the best options for your operation and put together a budget.

Next up we pass the fertilizer injector and there is a puddle of water underneath it. Is it your injector leaking? A leaky injector needs attention. Snap a couple of photos and send them to Griffin's Irrigation Specialists, to quote the parts you need for maintenance or quote a new one.

Checking your equipment now gives us time to have you up and running before next spring.

## Are you injecting acid to manage pH?

- If you are using an H.E. Anderson or Dosatron, take photos of this injector so we can ensure you have the right maintenance parts on hand to continue running smoothly.
- Do you have an inline pH probe? If it is older than two years, it is time to ask for a quote for a new one.
- Not injecting acid? Take a sample of your water to determine if your alkalinity is too high and an acid injector would benefit you and make your fertilizer more effective.

## Checking Your Water Quality?

Are you seeing red staining on the crop? Red water indicates an iron problem. Is sediment clogging emitters? The sediment may be coming from the well. Maybe it's time for a larger or more efficient. We inspect your filters and take pictures.

Sometimes with clogged emitters biofilm is the culprit. Adding injectors for sanitation and more filtration could be the answer. If your water quality negatively affects your infrastructure or crop quality, Griffin is here to help you solve these issues to improve your bottom line.

## Got a pond?

While on the topic of water quality, we start talking about ponds and other surface water sources. Many growers use ponds to supplement water needs. As we walk towards the pond, we ask, are the basics in place? Ask yourself:

- Is your aerator the right size for the pond?
- What kind of filter are you using?

Ponds are living ecosystems that need our partnership to stay healthy. We agree to quote a bigger aerator sized for your pond by Dramm Water to help break down the muck layer.

## Planning for the future?

As we finish our walk through our conversation turns to the future. Last season you ran out of space and are collaborating with Griffin's Construction Team to quote a new greenhouse range.

- Do you need to expand your water capacity as part of this project?
- Are you adding a new field next year and need more Netafim irrigation drip line?

Griffin is your single source supplier for all your horticultural needs. This includes helping you with your irrigation and water quality infrastructure.

## Ready to Get Started?

If this guided walkthrough peaked your interest; email Griffin's Irrigation Specialists to begin the conversation at [irrigationdept@griffinmail.com](mailto:irrigationdept@griffinmail.com). We will call you to solve your facility's specific needs and determine next steps.

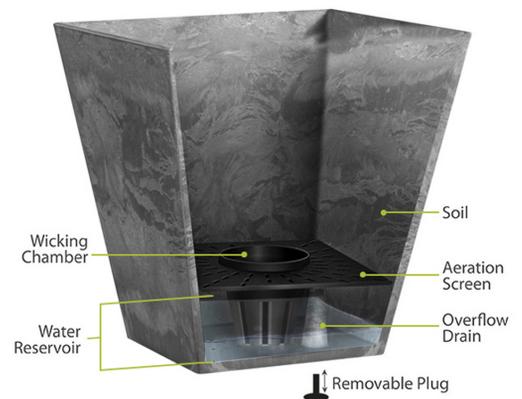
# THE SECRET TO YOUR NEXT *Retail Business Win*

By: Hannah Sadosky Retail Education Manager Griffin Greenhouse Supplies Inc



## ***Retail consumer trends present sales opportunities right at your fingertips, but are you taking advantage of them?***

Garden consumers want to be successful but oftentimes forget to water their plants. Self-watering planters are a consistently trending topic. They are a perfect solution for keeping plants hydrated longer. Novelty planters are **made in the USA** and feature their patented Water-Minder™ Self-Watering System. Let's look at three Novelty Styles that are on trend and priced for profits.



## **Ella Tall**

The Ella tall planters are an instant upgrade to any indoor or outdoor space. Ella planters are frost resistant and have the Water-Minder™ Self-Watering System, keeping bigger plants like shrubs or houseplants hydrated longer. Ella planters have the same StoneArt finish that gives these planters the unique marbled look. Modern tall planters can effectively define your space and boost the visual appeal of your home or business. Retail consumers frequently select the 19.5" and 27.5" sizes for entranceways or indoor spaces.

Photo: Ella Tall Planters

Phot credit: NOVELTY MFTG CO.



## EarthBox®

Raised bed planters continue to be a popular trend. Homegrown food is a growing desire, but a yard isn't always an option for many retail consumers. While many consumers can grow in wooden raised beds; this is not always achievable for all. That's where Novelty's EarthBox® planters make a perfect option for consumers. These planters are durable and lightweight and they make gardening accessible anywhere: porch, patio, backyard, or even inside. Consumers can still grow a variety of plants in small spaces.

Novelty EarthBox® original is an all-in-one garden kit that includes an EarthBox® container, aeration screen, water fill tube, and two black/white reversible mulch covers. It also includes 1 lb. of fertilizer, 1 lb. of natural dolomite, and optional four casters for easy mobility. Earthbox® components are all BPA-free and food-safe, so consumers can feel good about growing. These containers are UV protected to prevent fading and are designed for durability.



## Napa Hanging Bowl

The stylish ten inch Napa hanging bowls are great for indoor or outdoor use. With a sleek, durable knotted rope hanger and the Water-Minder™ Self-Watering System, they make caring for plants easier for the consumer. The StoneArt finish is a collaboration of high-grade resin and natural stone that gives these planters a unique marbled look. Enhance your retail sales strategy by providing customers with instant gratification and showcasing planted Napa hanging bowls in your houseplant section. You can also turn this solution-based product into an educational workshop to boost engagement and sales.

## Connecting to Your Consumer Socially

Having a trending product in stock is just the beginning of the journey. The next crucial step is to let your customers know it's available! While you might see these products every day, your customers don't have that same familiarity. It's key to showcase your trending items, especially those paired with plants you're selling—through engaging posts and displays. Remember, retail consumers are constantly on their phones, scrolling through social media. That's why it's extremely important to hype up your products on social media. By highlighting these popular items, you're not just informing your audience—you're creating a buzz that can turn social media engagement into foot traffic and sales. Watch how your posts translate into profits as customers are inspired to visit your store and make purchases. Stay active, stay creative, and show off your trending products to boost your sales!

# RETAIL SAVINGS



## Novelty Earthbox Garden Kit Color Splash Assortment

	Item #	Description	UPC	Vendor	CS/UOS	Retail
EAST	NOW \$46.60	80250586-5295 Novelty Earthbox Garden Kit Color Splash Assortment (Cp12)	026978801074	80107.12	12/12	\$99.99
WEST	NOW \$53.93	80250586-6128 Novelty Earthbox Garden Kit Color Splash Assortment (Cp12)	026978801074	80107.12	12/12	\$105.99

Promo Code: **GZ25** | Savings through 7/30/25



This set of 12 EarthBoxes is sold as a unit. There is no display rack but the set includes 4 each of colors Sage, Dark Green, and Terracotta for a total of 12 Earthbox kits (planting box, wheels, fertilizers, covers).

# Stop mites at every stage. Protect beauty at every turn.

When mites stand in your way, stop them with Shuttle® and Floramite® miticides.

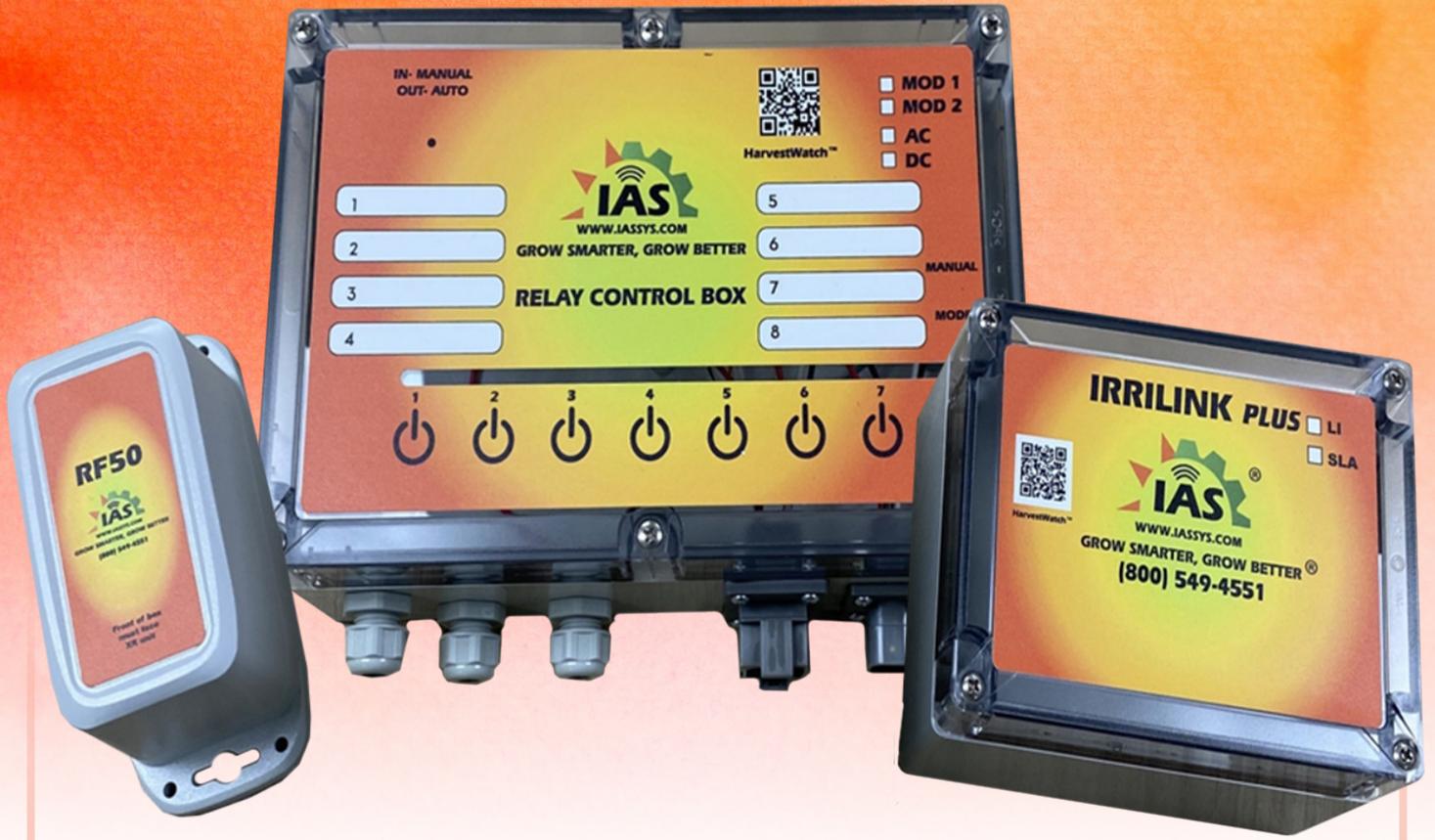
With unique modes of action that deliver rapid knockdown and long-lasting protection, these solutions control mites at every life stage – from egg to adult – breaking the cycle before it can restart, so you can keep moving forward.

See how these new products — along with Savate® and Kontos® mite solutions — give you options for every stage at [us.envu.com/mites](https://us.envu.com/mites).



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ALWAYS READ AND FOLLOW LABEL INSTRUCTIONS. Environmental Science U.S. LLC, 5000 CentreGreen Way, Suite 400, Cary, NC 27513. For additional product information, call toll-free 1-800-331-2867. [www.envu.com](https://www.envu.com). Not all products are registered in all states. Envu, the Envu logo, Floramite®, Kontos®, Savate® and Shuttle® are trademarks owned by Environmental Science U.S. LLC or one of its affiliates. ©2025 Environmental Science U.S. LLC.



# Automate your Irrigation with IAS!

STOP OVERWATERING YOUR PLANTS

REDUCE DEPENDENCY ON CHEMICAL MITIGATION

PRECISION IRRIGATION WILL IMPROVE YOUR YIELDS

# AUTOMATE TO ELEVATE:

## HOW IRRILINK+ CUTS LABOR COSTS AND BOOSTS PLANT HEALTH

For the ultimate in nursery irrigation control, Irrilink Plus will meet your needs. Very easy to install and very easy to operate. Each valve will have its own schedule so a plant type needing only 5 minutes of water vs another needing an 1 hour is easily accomplished in the same system with a remote internet connection for simple easy access.

Why this is so important is it's more than just saving labor with Automation, it's about improving yields with precision control. When you prevent overwatering, you won't need to apply chemicals to mitigate wet roots! We hear from our customers that they have been able to reduce the use of these chemicals and produce better plants once they have installed Irrilink!

Run as many valves as your infrastructure can handle at the same time. Many low-cost controllers out there can only do 1 valve at a time, that's not industrial scale.

The + in this system allows measuring 1 or more potted plants soil moisture content to be measured and if it exceeds a settable threshold, will block a schedule from executing. Schedules will be unblocked once the level drops below this threshold.

Is your location remotely located with no electricity or costly to setup a Wi-Fi network? All IAS systems are designed with Cellular technology for internet communication as we like to say, Cellular is the WiFi of the outdoors. All IAS systems come either with 110VAC capability or Solar Power/Battery capability so no need to add expensive electricity infrastructure.

IAS understands farmers' needs for simplicity in both function and setup. With Harvestwatch™ our system management software, we make the user interface simple and easy to use. When it comes to installation, we've made that as easy as possible to install, wire and bring online. After wiring is complete, simply plug in the controller and your online, there are no communication setups to have to manage, it's all automated.

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you can have up to 4 remote sensors if you need monitor temperature for frost protection or maybe a water level monitor to engage a pump to automatically manage it.

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If you don't need full automation, the XR1000 may be your solution with remote starting of your pumps. Simple low cost solution when you have remote fields that take time to travel to in order to perform irrigation routines.

Nurseries are now starting to use Autonomous Tractors to move plants around from planting to the greenhouses. This system can also be used to provide automated watering of the trailer loaded with new plantings as it moves out of the planting shed. Have a unique problem to solve, ask IAS to help you solve it cost effectively.

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Perennials
Herbs

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<b>Garden Accessories:</b> Outdoor Décor
<b>Chemicals:</b> Herbicides, Fungicides & Insecticides
<b>Planters:</b> Pumpkin pots, Whiskey barrels, Wooden planters, Holiday drop pots
<b>Plant Support</b>
<b>Plant Food:</b> Water soluble fertilizer
<b>Soil:</b> Outdoor Soils, Planting Mixes, Potting Mixes
<b>Tools:</b> Fall clean-up, Pruners, Rakes, Tarps

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<b>Fertilizers:</b> Early Order Programs for water soluble and controlled release fertilizers
<b>Film &amp; Accessories:</b> 4-year poly, Overwintering film, Blowers, spring lock, double spline, tap
<b>Irrigation:</b> Injectors, Drip irrigation, Irrigation booms, Watering mats
<b>General Supplies:</b> Bamboo

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(MORE INFORMATION ON PAGE 3)

## AUGUST

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Proven Winners
Houseplants & Succulents
Herbs & Ferns
Spring Bulbs

### SEED:

Fall Annual Crops
Perennials
Herbs

### RETAIL:

<b>Lawn Care:</b> Grass seed, New Lawn Starter, Winterizer
<b>Watering:</b> Indoor watering cans, Hand misters, Sprayers
<b>Plant Food:</b> Bulb food, Indoor plant food
<b>Tools:</b> Fall clean-up, Pruners, Rakes, Tarps
<b>Soil:</b> Indoor potting soil
<b>Birding:</b> Bird Food & Suet, Feeders
<b>Planters:</b> Indoor planters, Pumpkin pots, Whiskey barrels, Wooden planters, Holiday drop pots, Saucers, Caddies

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<b>Containers:</b> Early Order Programs for grower, nursery, and branded containers, Coco and decorative containers
<b>Soils:</b> Early Order Programs for grower and retail soils
<b>Fertilizers:</b> Early Order Programs for water soluble and controlled release fertilizers
<b>Film &amp; Accessories:</b> 4-year poly, Overwintering film, Blowers, spring lock, double spline, tap
<b>Irrigation:</b> Injectors, Drip irrigation, Irrigation booms, Watering mats
<b>General Supplies:</b> Bamboo

GRIFFIN EXPO SPECIALS!

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### PLANT:

Annuals
Perennials
Proven Winners
Houseplants & Succulents
Herbs & Ferns
Spring Bulbs
Finished Holiday Crops

### SEED:

Spring/Summer Annuals
Perennials
Herbs

### RETAIL:

<b>Birding:</b> Bird Food & Suet, Feeders
<b>Lawn Care:</b> Grass seed, New Lawn Starter, Winterizer, Straw
<b>Plant Food:</b> Bulb food, Indoor plant food
<b>Planters:</b> Indoor planters, Wooden planters, Holiday drop pots, Saucers, Caddies
<b>Soil:</b> Indoor potting soil

### GROWER SUPPLIES:

<b>Containers:</b> Early Order Programs for grower, nursery, and branded containers, Coco and decorative containers
<b>Soils:</b> Early Order Programs for grower and retail soils
<b>Fertilizers:</b> Early Order Programs for water soluble and controlled release fertilizers
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Perennials
Herbs
Cut Flowers

### RETAIL:

<b>Birding:</b> Bird Food & Suet, Feeders
<b>Lawn Care:</b> Grass seed, New Lawn Starter, Winterizer, Straw
<b>Planters:</b> Indoor planters, Holiday drop pots, Saucers, Caddies
<b>Plant Food:</b> Indoor plant food
<b>Soil:</b> Indoor potting soil

### GROWER SUPPLIES:

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Perennials
Proven Winners
Houseplants & Succulents
Herbs & Ferns
Bulbs
Finished Holiday Crops
Speciality Potted Plants & Tropicals

### SEED:

Spring/Summer Annuals
Perennials
Herbs
Cut Flowers

### RETAIL:

<b>Birding:</b> Bird Food & Suet, Feeders
<b>Lawn Care:</b> Grass Seed, New Lawn Starter, Straw
<b>Planters:</b> Indoor planters, Holiday/Valentine's Day drop pots, Saucers, Caddies
<b>Soil:</b> Indoor potting soil

### GROWER SUPPLIES:

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<b>Soils:</b> Propagation media – loose and formed
<b>Chemistry:</b> Early Order Programs for insecticides, fungicides, herbicides, and PGRs
<b>Irrigation:</b> Injectors, Irrigation booms, Drip irrigation, Watering mats

Virtual Expo Closes November 14<sup>th</sup>!  
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## DECEMBER

### PLANT:

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Perennials
Proven Winners
Houseplants & Succulents
Herbs & Ferns
Bulbs
Finished Holiday Crops
Speciality Potted Plants & Tropicals
Mums & Poinsettias

### SEED:

Spring/Summer Annuals
Perennials
Herbs
Cut Flowers

### RETAIL:

<b>Birding:</b> Bird Food & Suet, Feeders
<b>Lawn Care:</b> Grass Seed, New Lawn Starter, Straw
<b>Planters:</b> Indoor planters, Holiday/Valentine's Day drop pots, Saucers, Caddies
<b>Soil:</b> Indoor potting soil
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### GROWER SUPPLIES:

<b>Containers:</b> Sleeves and pot covers, Plug and liner trays
<b>Soils:</b> Propagation media - loose and formed
<b>Chemistry:</b> Early Order Programs for insecticides, fungicides, herbicides, and PGRs
<b>Irrigation:</b> Injectors, Irrigation booms, Drip irrigation, Watering mats

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# TINY THREAT, *BIG IMPACT:* Battling Pepper Thrips in Greenhouse Production

By: Tanner Bailey, GGSPRO Technical Specialist & George Grant, Ph.D.,  
GGSPRO Technical Services Manager, Griffin Greenhouse Supplies Inc.

An invasive thrips species, *Thrips parvispinus*, commonly known as the Pepper Thrips, is quickly emerging as the new kid on the block for greenhouse and nursery pests in North America. Over the past two years, the number of reported cases has been sky rocketing – this is the time to review what we currently know about this challenging pest and provide proactive strategies growers can implement immediately. First intercepted in the U.S. in Hawaii, it is now widespread within Florida, a hub for growing and shipping susceptible ornamental material across the country. This article will outline valuable information available on the known host range of plant material Pepper Thrips prioritize, scouting tips for early identification, and what chemical strategies have been evaluated for combatting this challenging pest.

## Scouting & Identification

Because *T. parvispinus* is new to North America, the list of host plant species is changing rapidly with some key ornamental and vegetable crops have been documented as shown in the table below. University of Florida, who is leading the charge in Pepper Thrips research, now lists over 40 susceptible crops.

TROPICALS	FRUITS & VEGETABLES	SPRING BEDDING
Gardenia	Pepper	Gerbera Daisy
Dipladenia	Bean	Chrysanthemum
Hibiscus	Cucumber	Marigold
Mandevilla	Squash	Dahlia
Anthurium	Zucchini	Sunflower
Schefflera	Strawberry	Flowering Vinca

*T. parvispinus* are the smallest dark thrips (smaller than Chili Thrips) that growers are likely to encounter during production but may be confused with Echinothrips. Females and males differ in size and color. Females are approximately 1 mm long (i.e., a little over 1/32 in), and males are almost half the size at 0.6 mm long. Males are yellow, while the females have a brown head, black abdomen, and a distinctive yellow thorax (Figure 1). The wings are dark, with a light-colored base where they overlap the thorax. The third antennal segment and the base of the fourth and fifth segments are light-colored, giving them a broken or “striped” pattern. All leg segments are light-colored.



**Figure 1: Female (top and bottom left) and male (bottom right) Pepper Thrips, Photo Credit: UF, IFAS; <https://mrec.ifas.ufl.edu/isolab/thrips/thrips-parvispinus/>**



**Figure 2: Pepper Thrips scarring on petunia bloom (left) and female adult feeding on dahlia blooms (right).**

*T. parvispinus* prefers tender young growth but will also feed on flowers and fruit (Figure 2). Similar to Western Flower Thrips, feeding damage to leaves, buds, and flowers causes abnormal growth. Additionally, Pepper Thrips can cause dwarfed growing tips that can mimic broad mite damage in some cases, depending on the plant species. They are difficult to find on foliage due to their size and ability to hide in the deformed growth, but are easily spotted on the flowers of tropical ornamentals, where they can be found inside the flower or hiding between overlapping petals. Scouting tools should include a good hand lens and a white sheet of paper on a clipboard to conduct a beat test. As with other thrips species, yellow or blue sticky cards are also effective at detecting their presence (Figure 3). Inspecting, isolating, and treating incoming material appropriately either through dipping or spraying is imperative to limiting the spread of this pest within the production area.



**Figure 3: Yellow and blue sticky tape (left) and yellow sticky cards (right) can be used to mass trap and scout for thrips and other flying insects, respectively.**

### Crop Protection Strategies

Recent research conducted by the University of Florida, US Dept of Ag, and Cornell University tested a wide range of pesticides for efficacy against Pepper Thrips (Ataide et al., 2024, <https://doi.org/10.3390/insects15010048>). In the study, mortality and leaf feeding damage were quantitatively assessed separately for adult thrips and their two larval stages (L1 & L2). This detail provides strong insight into the action of the insecticides tested. The relative tiers of chemical efficacy below are based on the mortality ratings within this academic study, which is the best information currently available. The pool of grower case studies is quickly increasing and will help us in adding information toward effective spray and drench strategies over the coming seasons.

The three pesticides found to be most effective include Pylon (MOA 13), Conserve (MOA 5), or XXpire (MOA 4C+5). These three products caused mortality in all life stages and are designated as Tier 1 in the tables below. Tier 2 products showed reduced activity compared to Tier 1 products but were still efficacious against all life stages. These products should be used as secondary controls in rotation once the pest population is diminished. Tier 3 products caused some mortality, primarily to the L1 larval stage with reduced or little activity on L2 larvae and adults typically. M52 OD is grouped with Tier 2 due to its overall activity in a separate trial.

### Tier 1 – Most Effective Controls for Pepper Thrips, Efficacy Against All Life Stages

PRODUCT NAME	MOA	ITEM NUMBER	COMMENTS
Conserve SC	5	70-1365	Do not rotate with XXpire; allows 4 applications per year maximum inside greenhouse
Pylon	13	70-2675	3 apps per crop maximum, indoor applications only
XXpire	4C+5	70-9700	Do not rotate with Conserve

### Tier 2 – Lower Mortality for Pepper Thrips, Efficacy Against All Life Stages

PRODUCT NAME	MOA	ITEM NUMBER	COMMENTS
Hachi-Hachi	21A	70-1795	Mostly effective against immature stages, see label for phyto cautions
TriStar	4A	70-85221	Use max label rate only for all thrips species
M52 OD*	UNF	70-2291	Foliar - apply 3 times, 7 days apart. Drench has long lasting soil pupae activity

\*LalGuard M52 OD – Label states applicator must use entire container once opened; M52 trialed in a separate study from the conventional chemicals.

### Tier 3 – Primarily Effective on First Stage Larvae (L1) of Pepper Thrips

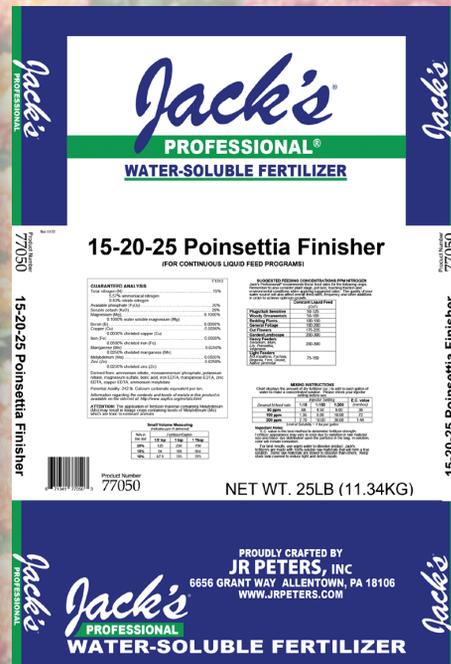
PRODUCT NAME	MOA	ITEM NUMBER	COMMENTS
Acephate	1B	70-1105	High bee hazard, do not rotate with Carbaryl
Aria WDG	29	70-3399	Direct spray has moderate efficacy on larval stages
Altus	4D	70-1161	Direct spray showed good efficacy on L1 larva, some L2
BioCeres WP	UNF	70-1245	Outperformed BotaniGard in 1 FL trial
Marathon II	4A	70-23712	Moderate impact on L1 larva only; TriStar provided higher efficacy (Tier 2)
Carbaryl	1A	N/A	High bee hazard, do not rotate with Acephate
Kontos	23	70-19601	Trial as a drench, residue gave moderate mortality of larvae
Overture	UN	70-2590	Single use water soluble packets
Pedestal SC	15	70-29501	Insect growth regulator activity, immatures only. Tank mixable
Sarisa	28	70-2975	Good residual activity for L1 larval stage

Control strategies against Pepper Thrips start with experience for controlling Western Flower Thrips. Using the limited chemical data available at this time and our understanding of the thrips life cycle, GGSPRO recommends using foliar sprays twice in a row, 5-7 days apart within a short-term crop schedule (under 12 weeks), before rotating to a new mode of action (MOA). This method improves control in many cases and treats each generation of thrips with a specific mode of action, ultimately slowing the carryover of genetic traits for resistance. For longer crop protection strategies (13 weeks or longer), single sprays should be used, alternating the available MOAs to allow the number of uses to span across the longer crop cycle. Research is ongoing to determine appropriate rates, frequency, and economic viability for biological control agents (BCAs). This includes *Amblyseius cucumeris* and *swirskii*, *Orius insidiosus*, *Chrysoperla*, and *Atheta coriaria* which are well researched for Western Flower Thrips, but not yet for *Thrips parvispinus*. Do not wait to react when this new pest rears its head – be proactive informing your production teams on how to scout incoming material, isolate affected material, and act immediately when needed.

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# DIGGING DEEPER

## Connecting Media & Tissue Testing for Long-Term Success

By: Kaitlyn Sterner, Director of Technical Support  
Jack's Fertilizers

At Jack's Fertilizers, we believe that healthy plants start with solid science—and that means looking below the surface. Our in-house JR Peters Laboratory is a trusted tool for growers who want real-time insight into the health of their crops, especially when it comes to long-term seasonal crops like mums and poinsettias. Whether you're producing for wholesale or finishing crops in a retail setting, pairing plant tissue testing with growing media analysis gives you a complete picture of what's really going on in your crop's root zone and in its tissues. Why run both? Because relying on just one piece of the puzzle can lead to missed signals. Your media analysis tells you what's available in the root zone—like nutrients, pH, EC, and other soluble factors. Tissue testing, on the other hand, reveals what the plant is actually taking up. When these two data points are evaluated together, they offer a clear, actionable path to fine-tune your fertility program and prevent nutrition-related problems before they compromise quality or market timing.

This is especially critical in crops with long production timelines. Take garden mums—their rapid vegetative growth early on demands a different nutrition strategy than the tight, colorful finish retail customers expect. Without routine testing, it's easy to overfeed, underfeed, or misread a deficiency. The same goes for poinsettias—monitoring the media in early vegetative stages helps establish strong, balanced roots. But as the crop grows and matures, nutrient uptake shifts dramatically. Regular tissue testing can confirm that your fertility program is evolving to meet those changing demands.

At Jack's, we're proud to say we're more than just a bag of fertilizer. Behind every blue scoop is a dedicated team of scientists, laboratory technicians and technical specialists who are passionate about helping you grow smarter. Our lab services are a perfect example of that commitment—giving you data-driven support to guide your decisions and maximize every crop cycle.

Whether you're a commercial greenhouse producer, a grower-retailer, or a garden center operation maintaining finished color, tissue and media testing will support your crop goals—big or small. Think of routine sampling as a wellness check-up for your plants: sampling throughout the season helps you stay ahead of subtle nutrition issues before they impact performance.





## See You at the Expo!!

And don't forget—the Jack's Blue Crew can't wait to see you at this year's expos! Be sure to stop by our booth and say hello. We'd love to chat about your crop plans, nutrition strategies, or just share what's new in the world of plant nutrition.

Plus, attending the expo is the best way to lock in the most competitive pricing on Jack's Blue Juice for your 2026 crops. Our show specials are only available during these events, giving you first access to savings, new product info, and personalized support straight from our team.

At Jack's, we're proud to offer science, service, and solutions—not just fertilizer. From lab analysis to technical support to that iconic blue bag, we're in it with you, every step of the way.

Many of our Griffin customers rely on regular testing to keep crops on track, and at Jack's, we go beyond the report. Our team partners with you to interpret results, offer personalized guidance, and fine-tune your program for the best possible outcome—because your success, season after season, is what drives us.

If you'd like to dive deeper into our lab services, including tissue and media testing, head over to our Lab Services page on the JR Peters website: <https://www.jrpeters.com/lab-testing-services>. Our technical specialists are more than happy to help you understand your results and guide you in fine-tuning your crop nutrition. Reach out to them directly at [jackstech@jrpeters.com](mailto:jackstech@jrpeters.com) or give them a call at 866-522-5752 ext. 22—they'll make sure you have all the information and support your crops need.

### New Retail Innovations Coming Your Way

We're also excited to announce two additions to our Jack's Classic retail line:

**Jack's Classic Petunia FeED (8 oz)** – same high-quality, iron-fortified formula you know and love, now available in a convenient smaller size for retail customers and small-batch growers.

**Jack's Classic Root Boost** – a new formulation that is not a water-soluble fertilizer—it's a granular nutrient boost designed to be incorporated directly into your garden soil or planting media. Mix it in at transplant or when preparing beds to support strong root initiation and healthy early growth. It's ideal for reducing transplant stress and giving young plants a strong start, but it must be blended into the soil, not dissolved in water like our traditional Jack's Classic fertilizers.





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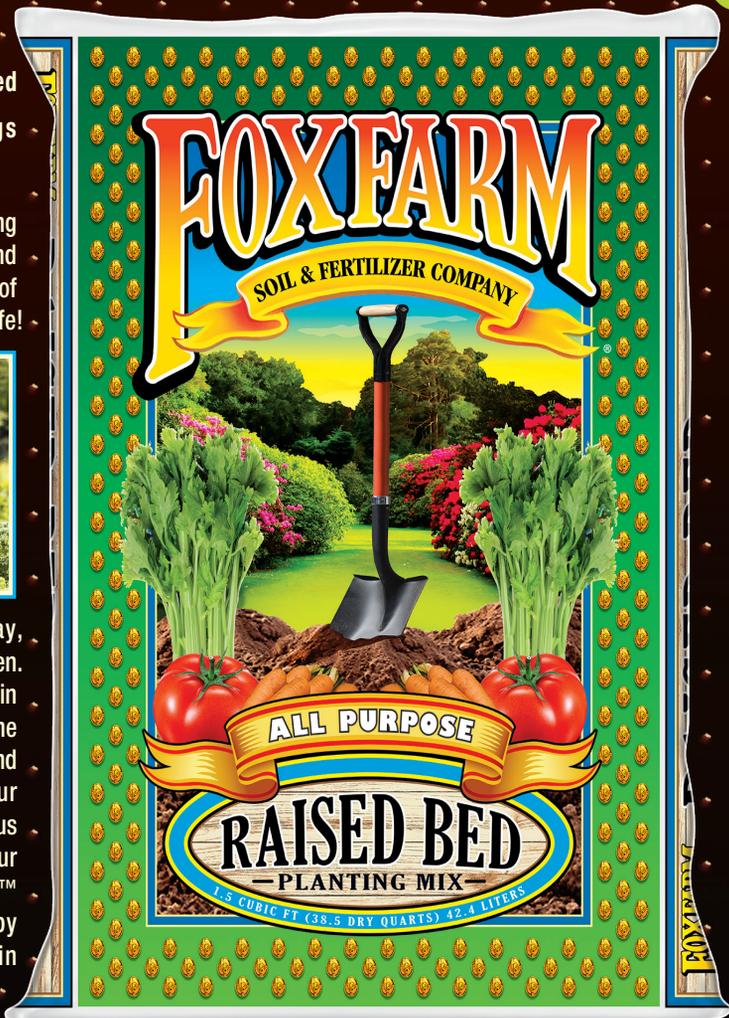
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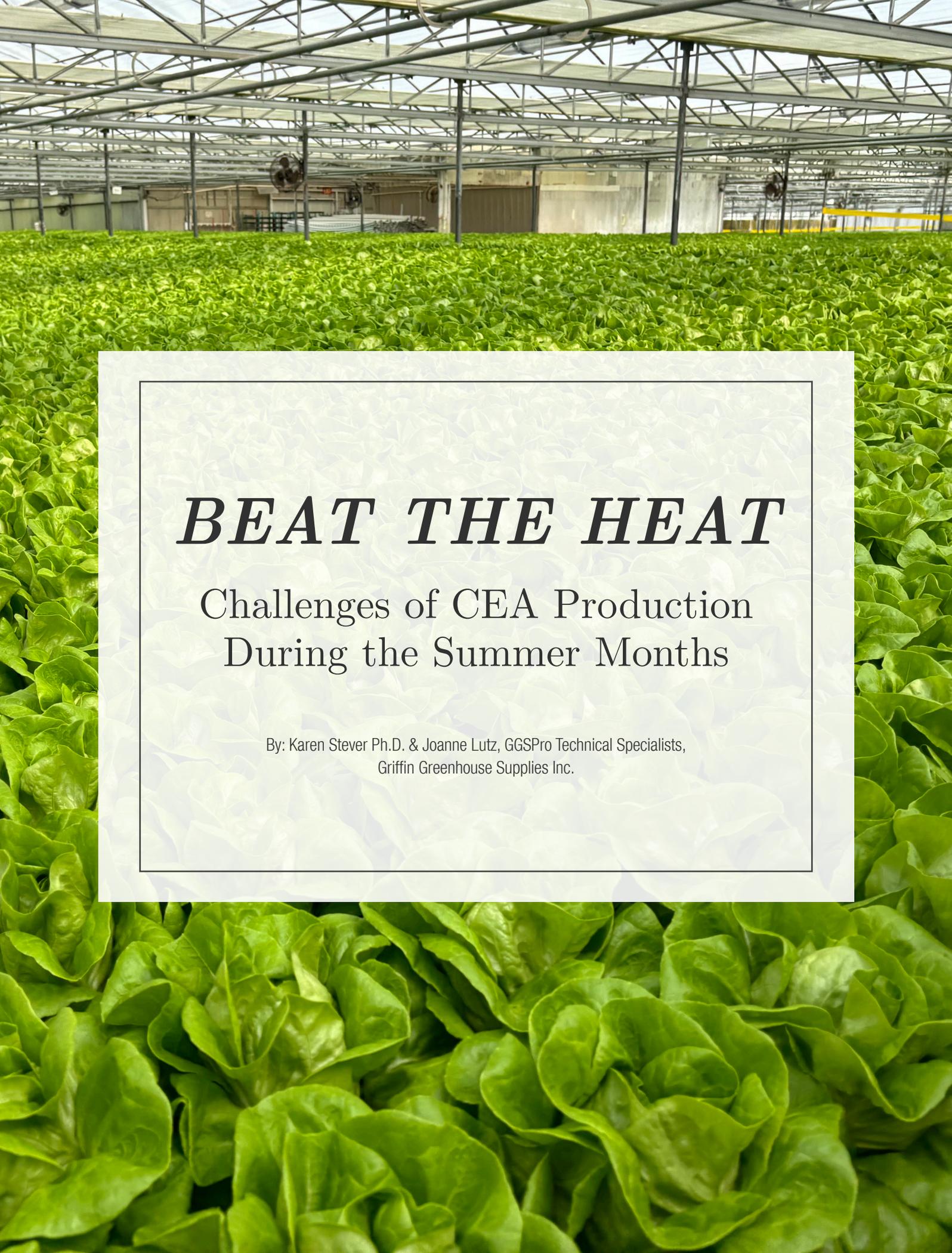
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# ***BEAT THE HEAT***

## Challenges of CEA Production During the Summer Months

By: Karen Stever Ph.D. & Joanne Lutz, GGSPRO Technical Specialists,  
Griffin Greenhouse Supplies Inc.

Controlled Environment Agriculture (CEA) production becomes increasingly challenging during the summer months. High heat, elevated relative humidity, and intense light levels contribute to stress in plants. This stress alters metabolic pathways, affecting growth and development. At the molecular level, the cause can be simple, for example, an enzyme that becomes unstable and unfolds at elevated temperatures. In production, this heat stress response can result in abiotic disorders that visibly impact fruit and produce quality. Heat-related stress can affect all stages of fruit development, from flowering and pollination to fruit set, maturity, and ripening. Daytime temperatures above 90°F, especially when paired with nighttime temperatures in the mid-70's, can significantly reduce yields in fruiting crops. Lettuce is particularly sensitive to heat stress. Where high temperatures are a concern, growers should consult their Griffin Green Goods representative for heat-tolerant cultivars and take steps to reduce greenhouse temperatures as much as possible.

### Heat Mitigation

Shading systems and cooling pads can lower greenhouse temperatures by 0 to 15°F, depending on environmental conditions. Shade cloth and shade paint such as ReduSol and ReduHeat are both effective methods of temperature reduction. Woven aluminum and white shade cloth typically provide the most cooling, outperforming black or colored alternatives. Shade paints are usually white. Some formulation also include additives to reflect infrared light for better cooling.

Cooling pads or cooling walls are especially effective when ambient relative humidity is low. At 70% RH, pads may lower greenhouse temperatures by around 5°F. When RH drops to 50%, a cooling pad system can reduce the temperature by 13 to 14°F when the outside air is 90°F. Consult Griffin's Construction Department to help identify the proper solution for your specific operational needs. Unmanaged heat stress can lead to several common physiological disorders in CEA production.

### Heat Stress & Calcium

Calcium uptake can be significantly reduced under high heat, even though calcium deficiency is more commonly associated with cool, humid conditions. Calcium moves passively through the plant via water uptake. It only reaches new tissue at the growing tips when water exits through open stomates during evapotranspiration. When plants are overwhelmed by heat, they close their stomates to conserve moisture and prevent drought stress, which also halts transpiration and calcium transport. This mechanism is responsible for a variety of disorders in greenhouse or field grown leafy and fruiting vegetables such as lettuce, tomato, and strawberry.

Here are some common heat-related disorders related to heat stress growers may face:

**Tip burn in lettuce** is one of the most recognized calcium deficiency symptoms. It occurs under conditions of high humidity and low air circulation and is worsened by poor root health. In head lettuce, tip burn often increases once the head closes, as inner leaves transpire less.

**Pillow disease in cucumbers** presents as scab-like spotting on the rind and pithy flesh with large internal voids, also due to calcium deficiency.

**Blossom-end rot** is another common disorder seen in tomatoes, peppers, and cucurbits, caused by localized calcium deficiency during fruit development (Figure 1).

**Calyx tip burn in strawberries** results from low nighttime humidity. Unlike other crops, strawberries rely on root pressure, rather than transpiration, to move calcium into young, unexpanded tissues. High humidity at night helps prevent water loss through the leaf cuticle, allowing root pressure to build. While increasing daytime transpiration helps manage tip burn in crops like lettuce, in strawberries, the more effective approach is to suppress non-stomatal transpiration at night. Calyx tip burn appears as browning along leaf edges, calyces, and flower petals. Overhead fogging is recommended during the day to cool the growing space, while low-pressure misting below the bench at night helps reduce leaf and calyx burn. Weekly foliar sprays of calcium chloride dihydrate applied with a surfactant like CapSil (OMRI) are recommended to enhance calcium tissue uptake during periods of stress.



Figure 1. Blossom-end rot on tomato. Photo Credit:David Grist



*Figure 2. Cluster of tomatoes exhibiting yellow shoulder. Photo Credit: Steve Bogash*



*Figure 3. Yellow Shoulder Tomato. Bottom showing interior of Tomato. Photo Credit: Steve Bogash*

### Other Heat-Related Disorders

Not all heat-related disorders stem from calcium deficiency. Heat alone, or in combination with nutrient imbalances and cultural practices, can result in a wide range of physiological issues. High temperatures can disrupt pollen formation and pollination, ultimately reducing fruit set. Partially pollinated fruits often become misshapen or fail to mature properly. Heat, especially when combined with high light exposure from de-leafing, can accelerate fruit growth and cause cracking—particularly in tomatoes and peppers.

**Brown rib in lettuce** is triggered by high temperatures or other stressors. It causes the midrib beneath the outer leaves to break down and turn brown or black. In severe cases, the tissue becomes slimy due to internal decay.

**Bitter fruit in cucumbers** can occur under hot or dry field conditions. It is caused by the migration of cucurbitacin compounds, typically confined to the leaves and stems, into the fruit.

**Ripening disorders in tomatoes** occur when potassium deficiency compounds the effects of heat stress.

- **White internal tissue** appears as firm, underdeveloped areas within the fruit, usually along the outer wall. It can vary widely across fruits in the same cluster.

- **Yellow shoulder** occurs when the upper part of the fruit remains green or yellow and fails to ripen. This disorder can be avoided by selecting cultivars bred for uniform ripening or by harvesting green fruit for off-vine ripening in the dark (Figure 2 & 3).

### Conclusion

Heat-related physiological disorders are common during the summer in CEA production systems, but they are manageable with proactive cultural strategies. By combining environmental controls such as shade cloth, whitewash, and evaporative cooling with a sound nutrition program, growers can reduce crop stress and prevent many of the disorders described above. Regular foliar calcium applications, potassium monitoring, and the use of heat-tolerant cultivars further strengthen the crop's resilience. Staying ahead of heat stress is key to maintaining quality and maximizing yield during the most demanding time of the season.



***lambert***

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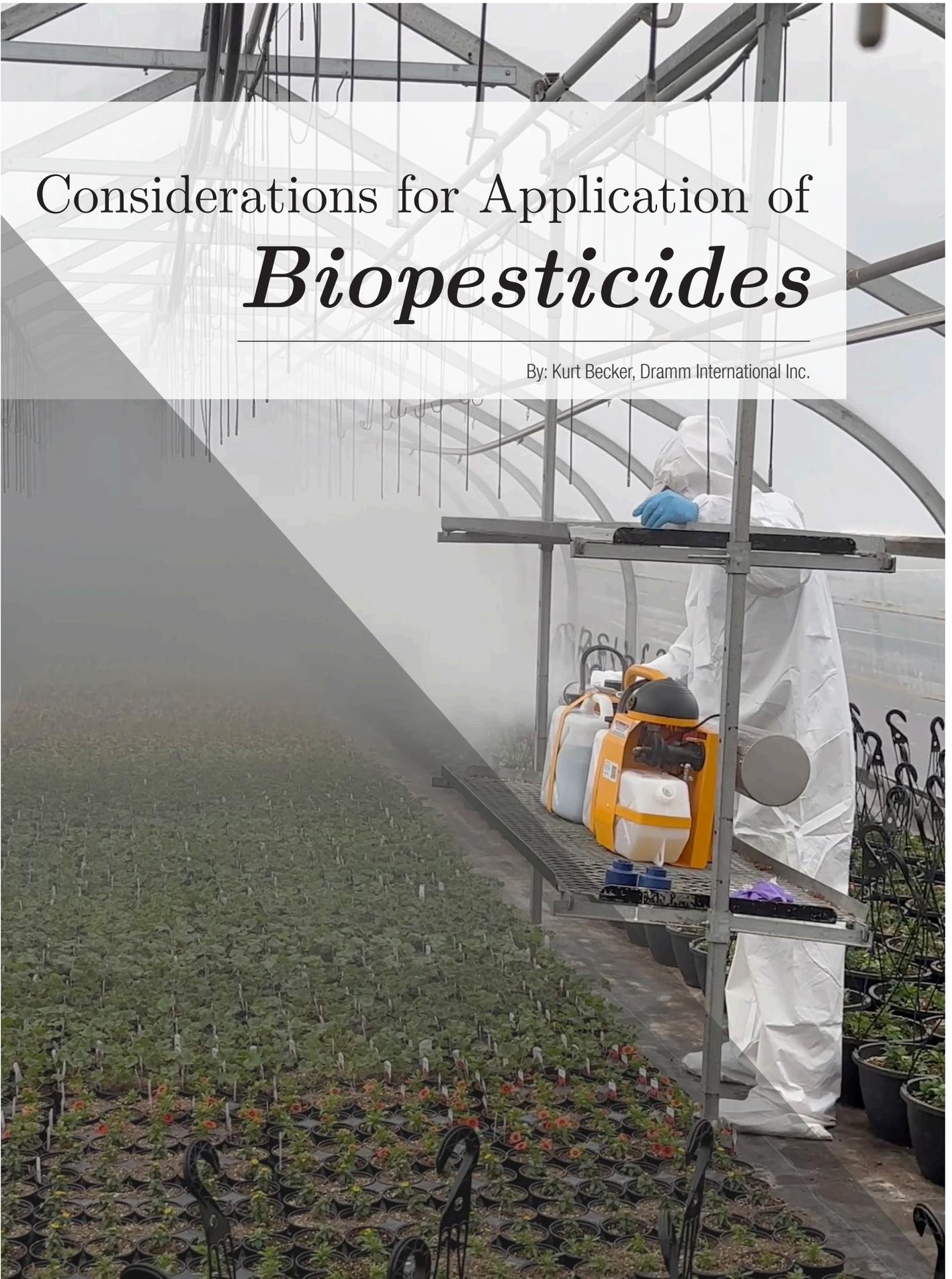
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# Considerations for Application of *Biopesticides*

By: Kurt Becker, Dramm International Inc.



Biopesticides are no longer tools only for organic growers. Most biorational pesticides are great additions to a traditional IPM program. Because they are effective and employ different modes of action, biopesticides can be effective tools for any grower. However, most have special considerations for application. Understanding these issues and how they apply to different application methods can improve the efficacy of these products and prevent some messes along the way.

Dramm offers over 50 different pieces of equipment to apply pesticides. Each method has strengths and weaknesses. Choosing the right sprayer for any job depends greatly on minimizing the impacts of those weaknesses, while playing to the strengths. The Griffin and Dramm teams are great at helping growers align their needs with different equipment. For any pesticide application, coverage is extremely important. This is no different when applying biocontrol products, however, there are some special considerations that might apply less with standard pesticides.

When applying biorational pesticides, there are four main areas of concern that may affect the product. Pressure, filtration, solution-volume/concentration, and the temperature of the equipment may all impact the application and efficacy. For instance, hydraulic sprayers may build pressure to a level that damages some biocontrol agents. Most spray equipment utilizes filtration to protect nozzles and pumps that might filter out larger biopesticide components. Solution volumes may present an issue when the equipment requires more concentrated solutions, as many bio-products have solubility limits that might exceed the ability of the water to dissolve the products at concentrated rates. Finally, the temperature of the equipment may damage some products, reducing their viability and efficacy.

The chart below compares the different factors to consider with the different types of equipment being used to apply pest control products. Green signifies there is little to no concern. Yellow means that there may be issues, and red means there are often significant issues with these factors.

	HYDRAULIC	COLDFOGGER	THERMAL FOG	AEROSOL FOG	INJECTION
PRESSURE	Yellow	Red	Green	Green	Green
FILTRATION	Yellow	Red	Green	Red	Yellow
VOLUME/CONCENTRATION	Green	Yellow	Yellow	Yellow	Yellow
TEMPERATURE	Green	Green	Yellow	Green	Green

As there are a variety of different biopesticides, this chart does not suggest that all products will have problems. It is important to understand the various chemistries and the effects of the factors listed above on the specific products. For instance, some living bio-control products are very heat-sensitive. However, others have no heat-sensitivity. Some bios are very soluble, while others are not. Some products include carriers that need to be separated from the solution after mixing. Work with your chemical manufacturer, the GGS Pro team, or Dramm to help determine if your products need special consideration.

The chart is broken down by sprayer type. **Hydraulic sprayers** are the most common. These employ higher pressures and a spray gun at the end of a hose. Filtration and pressure are the major concerns with hydraulic equipment. However, in most instances, this can be mitigated by reducing the spray pressure and temporarily removing filters during a specific application. Just be sure to flush the system well immediately after application.



**Coldfoggers** refer to directed fog applications where the droplets are typically between 40-60 $\mu$  in diameter. These smaller droplets can be directed towards the plants to provide excellent coverage without runoff. Some of these machines use very high pressure, exceeding 3,000 psi. Unfortunately, this is required to achieve the smaller droplets. These also employ small nozzles. Clogging can also be an issue if the filters are removed. Other Coldfoggers use air atomization to create finer droplets. These use lower pressure and are less reliant on filtration, as the nozzles are normally larger and more forgiving. Both types may encounter solubility issues, as the spray solution is normally more concentrated than with other directed sprays. However, these are not normally as concentrated as Ultra Low Volume sprays, and more water can always be used without impacting efficacy.

**Thermal foggers**, such as the Dramm PulsFOG, use jet-propulsion to atomize and propel the fog into the greenhouse. With these, pressure and filtration are minimal issues, while concentration can be an important factor. Many less soluble products require more water to dissolve properly. When a biopesticide experiences solubility issues, doubling the water and carrier will usually improve the result. This will also double the output time. Luckily, these machines are extremely fast and increasing the application time generally has minimal impact.

**Aerosol generators**, like the Dramm Autofog, use very fine nozzles and precise air pressure to atomize the spray into very small droplets. Typically, these automatically fog entire growing spaces from one location. Filtration is necessary to keep these systems from clogging. Removal of filters can cause nozzle clogging and lead to potential complications. Solution concentration is another issue as these often have limited tank sizes. If solubility is an issue, it is normally resolved by using more water. However, with limited tank size, this will possibly reduce the total coverage area available for the machine. This should always be considered when sizing an Autofog.

**Injection** is used primarily when drenching biorational products. With injection, both filtration and concentration can cause problems with the application. With an injector, the stock solution is normally concentrated, often 100 times stronger than the finished solution. With less soluble products, this can cause both filtration and solution issues. Agitation is a possible solution. Keeping the stock tank well agitated can help prevent clogs and ensure that the product is well dissolved into the final solution. Additionally, many injectors allow for the ratio to be changed. Switching from 1:100 to 1:50 and making the stock solution weaker can help solubility dramatically.

In general, the Dramm and GGS Pro teams are well equipped to help you make the most of your biopesticide applications. Dramm works with the various industry chemical providers to understand their products, test them for efficacy with different application methods, and develop strategies to ensure the best result. Consult with us to ensure that your biorational pesticide applications are easy and effective.

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# Your Cutting-Edge Solution for *Pest Management*

By: Bioworks

BioWorks' PRINCIPLE™ WP was developed because controlling thrips, aphids, whiteflies, and other damaging insects can be difficult. This new, easy-to-use insecticide and miticide puts all fears to rest. Based on decades of implementing *Beauveria bassiana* into grower integrated pest management (IPM) programs, this new formulation makes broad-spectrum insect control in ornamental, edible, and cannabis crop production much easier.

## What Sets PRINCIPLE™ WP Apart from Other Insecticides

PRINCIPLE™ WP is a wettable powder (WP) formulated with the fungal strain, *Beauveria bassiana* BW 149, as the base for the active ingredient. This strain is brand-new to the industry and offers an optimized formulation for grower ease of use.

The unique formulation allows growers to apply it to various crops without issues of residue, phytotoxicity and insect resistance.

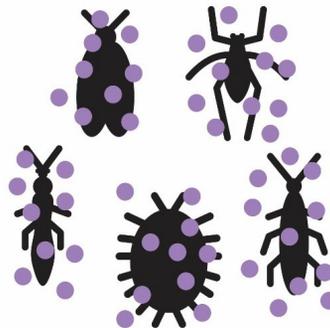
PRINCIPLE™ WP has been formulated to have fewer insoluble inerts, so it goes into solution very easily and has little to no residue, even at higher application rates. This is significant as many other wettable powders leave white powdery residue deposits behind.

PRINCIPLE™ WP can be applied to a variety of food and non-food crops, including ornamental plants, shrubs, hemp, and turf. It can also be used for indoor, greenhouse, and nursery operations. It can be applied as high, low, and ultra-low volume sprays or dips. PRINCIPLE™ WP works well on various insects with the main targets being whiteflies, thrips, and aphids.

## Integrated Pest Management (IPM) Role

While PRINCIPLE™ WP is highly effective on its own to target pests; biopesticides can always be used as rotational tools in IPM programs. Depending on the grower's program, PRINCIPLE™ WP can be used in rotation or tank mixes and paired with insect growth regulators—an important strategy for controlling fast-reproducing pests like aphids. This helps slow the life of these pests so that the fungus has time to go through its lifecycle.

For example, if an aphid sheds its skin – which can happen daily under ideal conditions – and a grower applies PRINCIPLE™ WP in that timeframe, it can shed those fungal spores. By combining PRINCIPLE™ WP with insect growth regulators, a pest's lifecycle is slowed so that the product's fungus can go through its process of adhesion, germination, and penetration. If it is slowed down for a few days, efficacy greatly increases.



*Beauveria bassiana* BW 149 spores in PRINCIPLE™ WP adhere to the host, germinate and produce enzymes that attack and dissolve the insect's cuticle, allowing the mycelia to penetrate and kill the insect.

## How the BW 149 Strain in PRINCIPLE™ WP Works

The fungus used in PRINCIPLE™ WP, BW 149, is a naturally occurring organism. In nature, it infects insects on its own but with PRINCIPLE™ WP, it's applied in much higher concentrations to boost the infection of pests.

When a grower sprays PRINCIPLE™ WP on leaves or soil, the fungal spores come into contact with target insects. The spores stick to the insect's body, especially in flexible areas like joints. Once attached, the spores start to grow and form a structure that helps the fungus break through the insect's outer layer and breaks down their protective surface. Once inside, the fungus reaches the insect's bloodstream and begins to take over, effectively managing the pest.

## Mix Compatibility and Application Tips

PRINCIPLE™ WP is compatible with many other tank mix and rotational partners. The BioWorks website (link below) has compatibility information with other BioWorks and industry products. BioWorks gives growers all the information they need to be successful and get the most out of any application.

BioWorks also has a new PRINCIPLE™ WP white paper and complete product information available. Visit: <https://bioworksinc.com/products/principle>



**B**

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# GROWER SAVINGS

Item #	Description	Size	List Price	Sale Price
<b>ICL</b>				
67-1042	ICL 19-6-9 Fusion Osmo Blend 5-6 Mo	50lb	\$122.87	<b>\$98.33</b>
67-1043	ICL 20-4-7 Fusion Osmo Blend 5-6 Mo	50lb	\$124.90	<b>\$98.33</b>
74-1418	H2Pro Granule ICL	50lb	\$208.75	<b>\$156.57</b>
74-1424	H2Pro Liquid ICL	2.5 gal	\$269.41	<b>\$202.05</b>
74-1422	H2Pro Liquid ICL	1 LTR	\$43.86	<b>\$32.89</b>
<b>Jacks Professional Water Soluble Fertilizer</b>				
33605	Jacks WSF 22-5-16 Mum FeED	25lb	\$57.43	<b>\$43.87</b>
3317519	Jacks WSF 17-5-19 Poinsettia FeED	25lb	\$62.73	<b>\$47.83</b>
<b>Plantex Iron</b>				
67-12905	Plantex Iron 6 EDDHA	5lb	\$87.87	<b>\$69.62</b>
67-12906	Plantex Iron 11 DTPA	5lb	\$95.85	<b>\$75.94</b>
<b>Shading Solutions from ReduSystems</b>				
16-3230	ReduSol Shading Compound	15 LTR	\$204.34	<b>\$119.74</b>
16-3286	ReduClean Shade Remover	20 LTR	\$307.07	<b>\$179.94</b>
<b>Dramm</b>				
62-70056	*Dramm Backpack Sprayer BP-4LI Battery		\$780.78	<b>\$633.33</b>
41-1205	*Dramm Mini AutoFogger Stainless MLVH-10A-SS		\$5,538.23	<b>\$4,858.93</b>

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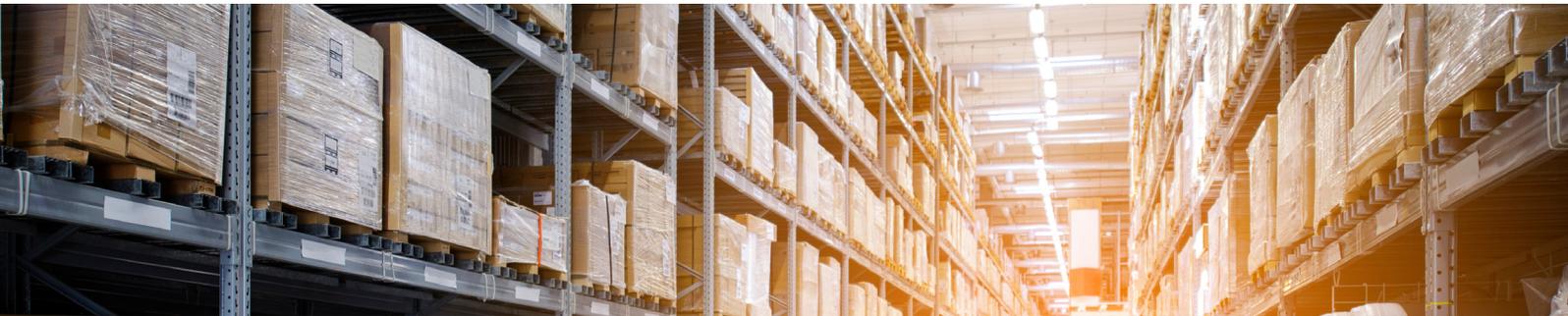
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# GROWING CALENDAR

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## 2025

## 2026

### JULY

WEEK	S	M	T	W	T	F	S
27			1	2	3	4	5
28	6	7	8	9	10	11	12
29	13	14	15	16	17	18	19
30	20	21	22	23	24	25	26
31	27	28	29	30	31		

### JANUARY

WEEK	S	M	T	W	T	F	S
1					1	2	3
2	4	5	6	7	8	9	10
3	11	12	13	14	15	16	17
4	18	19	20	21	22	23	24
5	25	26	27	28	29	30	31

### JULY

WEEK	S	M	T	W	T	F	S
27				1	2	3	4
28	5	6	7	8	9	10	11
29	12	13	14	15	16	17	18
30	19	20	21	22	23	24	25
31	26	27	28	29	30	31	

### AUGUST

WEEK	S	M	T	W	T	F	S
31						1	2
32	3	4	5	6	7	8	9
33	10	11	12	13	14	15	16
34	17	18	19	20	21	22	23
35	31	24	25	26	27	28	29

### FEBRUARY

WEEK	S	M	T	W	T	F	S
6	1	2	3	4	5	6	7
7	8	9	10	11	12	13	14
8	15	16	17	18	19	20	21
9	22	23	24	25	26	27	28
10							

### AUGUST

WEEK	S	M	T	W	T	F	S
31							1
32	2	3	4	5	6	7	8
33	9	10	11	12	13	14	15
34	16	17	18	19	20	21	22
35	30	23	31	24	25	26	27

### SEPTEMBER

WEEK	S	M	T	W	T	F	S
36		1	2	3	4	5	6
37	7	8	9	10	11	12	13
38	14	15	16	17	18	19	20
39	21	22	23	24	25	26	27
40	28	29	30				

### MARCH

WEEK	S	M	T	W	T	F	S
10	1	2	3	4	5	6	7
11	8	9	10	11	12	13	14
12	15	16	17	18	19	20	21
13	22	23	24	25	26	27	28
14	29	30	31				

### SEPTEMBER

WEEK	S	M	T	W	T	F	S
36			1	2	3	4	5
37	6	7	8	9	10	11	12
38	13	14	15	16	17	18	19
39	20	21	22	23	24	25	26
40	27	28	29	30			

### OCTOBER

WEEK	S	M	T	W	T	F	S
40				1	2	3	4
41	5	6	7	8	9	10	11
42	12	13	14	15	16	17	18
43	19	20	21	22	23	24	25
44	26	27	28	29	30	31	

### APRIL

WEEK	S	M	T	W	T	F	S
14				1	2	3	4
15	5	6	7	8	9	10	11
16	12	13	14	15	16	17	18
17	19	20	21	22	23	24	25
18	26	27	28	29	30		

### OCTOBER

WEEK	S	M	T	W	T	F	S
40					1	2	3
41	4	5	6	7	8	9	10
42	11	12	13	14	15	16	17
43	18	19	20	21	22	23	24
44	25	26	27	28	29	30	31

### NOVEMBER

WEEK	S	M	T	W	T	F	S
44							1
45	2	3	4	5	6	7	8
46	9	10	11	12	13	14	15
47	16	17	18	19	20	21	22
48	30	23	24	25	26	27	28

### MAY

WEEK	S	M	T	W	T	F	S
18						1	2
19	3	4	5	6	7	8	9
20	10	11	12	13	14	15	16
21	17	18	19	20	21	22	23
22	31	24	25	26	27	28	29

### NOVEMBER

WEEK	S	M	T	W	T	F	S
45	1	2	3	4	5	6	7
46	8	9	10	11	12	13	14
47	15	16	17	18	19	20	21
48	22	23	24	25	26	27	28
49	29	30					

### DECEMBER

WEEK	S	M	T	W	T	F	S
49		1	2	3	4	5	6
50	7	8	9	10	11	12	13
51	14	15	16	17	18	19	20
52	21	22	23	24	25	26	27
1	28	29	30	31			

### JUNE

WEEK	S	M	T	W	T	F	S
23		1	2	3	4	5	6
24	7	8	9	10	11	12	13
25	14	15	16	17	18	19	20
26	21	22	23	24	25	26	27
27	28	29	30				

### DECEMBER

WEEK	S	M	T	W	T	F	S
49			1	2	3	4	5
50	6	7	8	9	10	11	12
51	13	14	15	16	17	18	19
52	20	21	22	23	24	25	26
1	27	28	29	30	31		

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