

GRIFFIN GAZETTE SUMMER 2015

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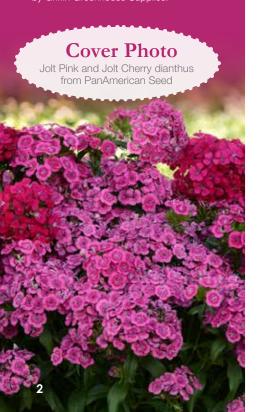
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When Problems Sneak Into Your Retail Display,

Be Ready With Effective Solutions



By Tami Van Gaal, GGSPro Technical Specialist



With the spring season still fresh on our minds, now is the time to reflect on some common disease and pest problems that occur in the garden center, recognize which problems touched your store, and identify solutions to quickly treat and control these problems in the future.

Ideal solutions for the retail environment will be fast and effective with a short REI, have labels including edibles and ornamentals,

present no/minimal odor and residue, bring no risk of burn or other phyto, and will not present a residual bee hazard. It's a tall order, but we have solutions that fit the bill for some of the most common diseases and pests.

The main foliar disease encountered in garden centers is *Botrytis*. This ubiquitous disease requires humid/moist conditions and can attack both dying and healthy foliage and floral tissue, producing characteristic gray, fluffy sporulation. *Botrytis* attacks healthy tissue with as little as four hours of free moisture. Therefore, to greatly reduce this risk, avoid wet foliage and flowers going into night. Bloom-safe options for control on certain edibles and ornamentals include Affirm (no herbs or leafy greens) and ZeroTol 2.0. Cease has a strong track record for prevention. Pageant Intrinsic is effective and includes tomatoes on the label, but also presents a 12-hour REI.

Powdery mildew also occurs in the garden center, especially on sensitive crops like gerbera, dahlia and calibrachoa. Look for white film-like sporulation on the upper leaf surfaces. Powdery mildew develops best under high humidity with dry tissue. Decrease humidity to avoid the disease. Affirm provides good curative control (no herbs or leafy greens), while Regalia PTO does a spectacular job for prevention. Regalia PTO is not labeled for edibles in NY (substitute Cease).

Downy mildew remains a serious problem for impatiens in many areas of the country. If you continue to offer *Impatiens walleriana*, purchase products from growers practicing very strong prevention, which should include a drench of Subdue MAXX just before the plants ship to your garden center. Immediately remove and dump (off-site) any impatiens infected with the disease. Contact GGSPro for advice on follow up sanitation. Remember that a few other crops are also sensitive to downy mildew, including basil and

coleus. Alude and Fosphite are effective and include many edibles on their labels. Segway (ornamentals only) and Ranman (some edibles) are also extremely effective curative options, but both have a 12-hour REI.

Several insect pests can quickly decrease salability. With some planning, biological control agents (BCAs) can be effective, generally when pest pressure is low. See Rick Yates' BCA article in this issue of the Gazette to see if BCAs might be right for you.

When pest pressure is too high for control with BCAs, we must achieve control with sprays. Highly visible aphids are quickly treated with TriStar (which includes many edibles on the label). A tank mix of Botanigard and Azatin O (substitute Azaguard or Molt-X) will also provide control and can be used on nearly all crops.

Watch for spider mites on roses, mandevillas, ipomea, geraniums and New Guinea impatiens. Spider mites are a perfect candidate for BCAs. *Phytoseiulus persimilis*, a predatory mite, ships overnight and will swiftly control spider mite hot spots. Chemical control is more challenging due to concerns about bloom safety and REI. Suffoil-X can be used on all edibles, but is not safe for open blooms. Shuttle O has some edibles on the label, but has a 12 hour REI.

Open flowers provide thrips a good source of food and great hiding spots against sprays. Predatory mites, *Amblyseius cucumeris*, can be used for control when applied weekly. If chemical control is needed, turn to a tank mix of Botanigard and Azatin O (substitute Azaguard or Molt-X) for labels including most edibles and short REIs.

Always remember to read and follow the entire label, especially when treating edible crops. Chemical treatment options expand a bit when edibles are not part of the picture. Contact GGSPro for more information and personalized solutions.

Photo Listings:

- 1. Powdery mildew on calibrachoa
- 2. Botrytis on geranium
- 3. Spider mite damage on dahlia
- 4. Botrytis stem canker on zinnia



Solving Problems in the Garden



Vinca, *Botrytis* Stem Canker – Sporulation, Disease



Petunia, *Botrytis* Blight and Iron Deficiency, Disease

Botrytis

Vinca, Botrytis Stem Canker – Sporulation, Disease Botrytis can attack stem tissue and is often part of a complex with Rhizoctonia. Reduce incidence of Botrytis/Rhizoctonia stem canker by limiting overhead watering and avoiding extended periods of wet foliage. Above all else, foliage should be dry going into nighttime.

Petunia, *Botrytis* Blight and Iron Deficiency, Disease *Botrytis* can cause unsightly damage to otherwise healthy petunia blooms. When conditions favor high humidity and likely petal wetness, apply a preventative bloom-safe spray, such as Affirm or Palladium (use Capsil with both).



Nemesia, Powdery Mildew, Back of Leaf, Disease



Sedum, Powdery Mildew, Disease

Powdery Mildew

Nemesia, Powdery Mildew, Back of Leaf, Disease

Powdery mildew is most often found on the upper leaf surface, but can also occur on the lower leaf surface. Be careful about assuming sporulation on the lower leaf surface indicates downy mildew, as products used to control downy mildew generally do not control powdery mildew and vice versa.

Sedum, Powdery Mildew, Disease

Symptoms of powdery mildew infection in succulents may include brown, necrotic tissue.



Impatiens (double), Downy Mildew Close Up, Disease



Basil, Downy Mildew, Disease

Downy Mildew

Impatiens (double), Downy Mildew Close Up, Disease

Downy mildew remains a problem in *Impatiens walleriana*. Apparent reductions in disease incidence are likely tied to reduced impatiens production. Continue to limit sales of *Impatiens walleriana* in areas with a history of downy mildew and offer alternatives. If offering bedding impatiens, verify that your supplier uses a strong preventative program.

Basil, Downy Mildew, Disease

Be aware that downy mildew is a significant problem in basil. All basil growers should be using an aggressive, preventative program. Ask your supplier about the program in place for basil.

Center



Aphids, Spirea, - Under Microscope, Insect



Aphids, Roots - Rudbeckia, Insect

Aphids

Aphids, Spirea, - Under Microscope, Insect

Aphid populations explode quickly, tend to develop at growing tips, and can damage young tissue. Select a bloom friendly option with low bee exposure risk when treating blooming plants destined for the landscape. TriStar, Rycar and XXPire are examples of safe and effective products for use against exploding aphid populations.

Aphids, Roots - Rudbeckia, Insect

Root aphids can be difficult to control, in part because detection is often delayed. Always check the roots of plants showing poor growth, especially if the pattern is spotty or patchy in a crop. In retail, if the problem is limited to a handful of plants, dumping the infected plants is the most effective means of quick control.



Mandevilla, Spider Mite Damage



Mandevilla, Spider Mite Damage

Spider Mites

Mandevilla, Spider Mite Damage

Tropical plants, such as mandevilla, are known spider mite havens. Scout susceptible crops regularly, especially upon arrival to your store.



Calibrachoa, Immature Thrips Feeding, Insect



Gerbera Daisy, Broad Mite and Thrips Flower Damage

Thrips

Calibrachoa, Immature Thrips Feeding, Insect

When thrips feeding scars are present on a crop, be sure to scout for both adults (check flowers) and larvae (check foliage). Pylon TR and TriStar are effective. Mainspring and XXPire are also bloom-safe options.

Gerbera Daisy, Broad Mite and Thrips Flower Damage

Thrips can be destructive pests, greatly reducing salability due to flower damage. White streaking on blooms indicates thrips presence. Scout affected plants using a beat test: tap flowers over a piece of white paper to dislodge thrips, which will be visible on the paper.

Your Best Season Ever Begins Here



August **26-27**

Eastern States Expo Center West Springfield, MA

Sept. 30 - Oct. 1

Lancaster County Convention Center Lancaster, PA

Start the season right at the 2015 Griffin Grower & Retailer Expos! Griffin will host two Expos again this year: The Massachusetts Expo is set for August 26th and 27th at the Eastern States Exposition Center ("The Big E" to locals) in West Springfield, Mass. The Pennsylvania Expo takes place September 30th and October 1st at the Lancaster County Convention Center in Lancaster, Penn.

The Griffin Expos are the Northeast's premier distributor shows—and for good reason. The Expos are your ticket to big savings, big ideas and big new products to drive your profitability!

Big Savings

The Expos are your destination for discounts on must-have inputs for wholesale and retail. Improve your margins and better your bottom line with booking specials from the industry's leading manufacturers! New for 2015, Expo attendees can take advantage of additional day-of-show specials with select vendors and products for even greater savings.

The deals aren't limited to hard goods and retail supplies; the Expos provide a prime opportunity to book your green inputs, too. Save with early-order discounts on plugs, liners and more. Booking at the Expos also means securing availability and the most desirable ship weeks for the most in-demand varieties and programs. Win-win!

Big Ideas

Come for the savings, but stay for the big ideas to help your business thrive! Education is big at the Expos; stock up on product knowledge, technical advice and winning strategies to support your operation all season long.

GGSPro Manager Rick Yates will lead "Hot Topics in Pest Control," a seminar that qualifies attendees to receive pesticide credits. Rick will lead you through the latest in new products and strategies for pest and disease management. He'll also share evaluations on recent introductions—hear how these products have performed for growers like you in real-world applications.





The SHS Griffin team will put you on the inside track with the best plant introductions. Which of today's new varieties are set to become tomorrow's top sellers? In our "New Varieties and New Ideas for 2015-16" session, we'll review the cream of the crop in seed and vegetative annuals, perennials, veggies and more.

Who is today's lawn & garden consumer? How does she – or he! – operate? What excites them? Do you have what it takes to serve this broad and varied customer base? Join us for a panel discussion, "Success in the Modern Marketplace," about the challenges and opportunities that come with doing business in today's fast-paced retail environment. Our panel of industry experts will dig into a range of trending topics including small-space gardening, foodies and farm-to-table, digital marketing and more. Moderated by Tim Hodson, editorial director for *GPN* and *Lawn* & *Garden Retailer* magazines, this session is sure to get the ideas flowing!

Connect face-to-face with industry experts at the Expos! In addition to our GGSPro team, representatives will be on hand from more than 150 leading manufacturers, breeders and young-plant producers. Ask questions and get personalized answers catered to you and your business needs.

Big New Products

Be among the first to experience all that's new for 2016 at the Expos! New products, new varieties and new vendors—we've got them all!

Gain first-hand knowledge of new products from the brands you already know and trust. The HC Companies and Dosatron are just two exhibitors with new products you won't want to miss. Stop by the SHS Griffin booth, and the booths of our vendor partners, to see some of the terrific new varieties you heard about in media coverage of California Spring Trials and Cultivate.

The Expos are also a great place to discover new vendors and expanded product categories. Our Garden Market retail division, for example, will debut several exciting category extensions for gift and holiday.

Mark your calendar and join us at the Expo nearest to you! To register, log on to www.griffins.com and click on "Events" or call us today at 866.307.8142.







A Look Inside the Griffin Expos

Big Savings, Big Ideas, Big New Products. Check out the video below to preview just some of the great things the Griffin Expos have to offer!



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Begonia boliviensis introductions

Begonia boliviensis is a relatively new category for seed. A cascading habit and loads of flowers make this plant ideal for baskets and combos, providing an interesting shade option for your assortment. San Francisco is a bright salmon companion to Santa Cruz, with a vigorous habit. The Bossa Nova series has a slightly more controlled habit and now includes three new colors for 2016: Pink Glow, Pure White and Salmon Shades join the six-color series.

Dianthus Jolt series

Jolt is touted to be the most heat-tolerant interspecific dianthus with season-long color due to delayed seed set. Perfect for 6" production, Jolt has a finished height of 16-20". It's a stunner in the garden! Offered in two colors, Cherry and Pink; Pink won an All-America Selections (AAS) award for outstanding garden performance.

Celosia Dragon's Breath

Dragon's Breath celosia got tons of attention from growers and retailers in early trials! Red plumes and red foliage put on a fiery show in containers and landscapes. A late-flowering seed variety, Dragon's Breath should be sown in early April for late summer flowering. A blooming 10" container will evoke impulse purchases in mid-August, or sell in 3" to 5" pots in early to mid-June on the merits of its gorgeous foliage with the promise of to-die-for flowers in late summer. Humidity-tolerant plants perform well in the south.

Celosia Kelos Fire colors

Kelos Fire is known for its large plumes and vibrant color show. Seven new colors join this striking vegetative series from Beekenkamp: Orange, Magenta, Pink, Purple, Lime, Red and Yellow. Kelos Fire can be produced without short days.

Euphorbia Glamour

Following last year's launch of Glitz euphorbia, big sister Glamour is here! Glamour makes a soft hedge 15-24" tall and 15-20" wide in the landscape, adding color and texture to flower beds. Recommended to finish in 1801 packs, quarts and gallons.





Petunia Wave colors

What would a new season be without new Wave colors? In the Easy Wave series, Pink Passion is a bright bubblegum pink; Silver, a soft white with blue-purple veins and Yellow is a true yellow color. Shock Wave also has a new Yellow. And adding to the velour color category is Tidal Wave Red Velour, an AAS winner for 8" or larger containers and wide-open spaces!

Bidens Beedance series

This all-new vegetative series from Suntory generated serious buzz at the California Spring Trials! Beedance starts with two striking bicolors, Painted Red and Red Stripe. Beedance offers high flower counts, dense branching and vigorous growth.

Calibrachoa Superbells Holy Moly

Superbells has been a top-selling series for Proven Winners for years. Holy Moly, a novel two-toned variety with rich pink and yellow petals, is new for 2016. Like all Superbells colors, Holy Moly has been specifically screened for resistance to *Thielaviopsis* and trialed to confirm strong garden performance.



Image: Superbells Holy Moly calibrachoa

New Guinea Impatiens Sunstanding series

Yes, you read that right: a new collection of sun-tolerant New Guineas. This vegetative series from Dümmen Orange spans a dozen colors, all compact in habit and suited to full-sun applications.

The combo craze continues

We've got another banner year for vegetative mix programs, with 48 new combinations released across three of the major breeders. Dümmen Orange leads the pack with 25 new Confetti Gardens mixes. Syngenta Flowers adds 12 mixes to their Kwik Kombos program. Selecta is close behind with 11 new Trixi mixes.

There's much more where this came from! For more details on many of these introductions – and more! – check out the new 2016 SHS Griffin catalog, available this month in print and online at www. shsgriffin.com.





More from the Class of 2016

By Jeanne Svob, SHS Griffin Seed Business Manager

Vegetable gardening is back in vogue, in a big way! Home gardeners across the country are rediscovering the benefits of growing their own produce in beds and containers. To keep pace with popular demand, SHS Griffin has added more than 20 veggie and herb varieties to our seed assortment for 2015-16. Here are just some of the highlights:

Yummy Tomatoes!

Summerpick is a hybrid beefsteak tomato with 11-ounce fruits. Its flavor is a perfect balance of acid and sweetness.

Sugar Rush is a super-sweet hybrid cherry tomato. It's fast-maturing and extremely productive all season long.

Looking for something with a more controlled habit? Try Tidy Treats. This hybrid cherry produces tons of fruit on compact plants. Great for patio containers!

Little Napoli is a patio-type roma/paste tomato. Plants are compact in stature but yield large quantities of tasty fruits!

Chocolate Sprinkles is a hybrid cherry with uniquely colored fruits that are deep red with brownish-green stripes. Chocolate Sprinkles is more productive with better flavor and disease resistance than OPs of this type.

Heirloom Marriage tomatoes cross two heirlooms to create a hybrid, answering consumer demand for the distinctive look and flavor of heirlooms paired with better garden performance. Two new Heirloom Marriage varieties launched this season:

• Cherokee Carbon is a purple beefsteak that is a cross between Cherokee Purple and Carbon. Fruit has a well-balanced, full-bodied flavor with a unique color and "old fashioned" shape.

• Marzinera is a red roma/paste tomato resulting from the marriage of the popular San Marzano and Cream Sausage. Marzinera is a great cooking tomato with a delicious traditional taste. Large fruit set and an elongated fruit shape.

The Best of the Rest

Cutlass pepper is a patio-friendly, full-bodied plant yielding full-size fruits in continuous fruit sets for multiple harvests.

Shikou eggplant is an F1 Asian-type eggplant with dark, glossy fruit that is 6-8" long by 1-1½" wide. Shikou features an attractive purple calyx (stem); very few seeds; thin, tender skin and a very white interior.

Dolce Fresca basil won an All-America Selections (AAS) award for its bushy habit and shorter internodes. A largeleaf basil with better retail presentation and higher yields.

For the health conscious, try new SimplySalad Kale Storm multi-variety multi-pellet featuring assorted textures and colors including purple, green and blue. Kale lasts longer in containers than lettuce and won't bolt. Cool night temperatures in fall or early spring production bring out the rich colors in the foliage.

And just for fun, check out Toad pumpkin. Toad's bright orange color and multiple bumps and warts give it a truly unique character perfect for holiday decorating.

For more on our complete lineup of vegetables and herbs, check out the new 2016 SHS Griffin catalog, available this month in print and online at www.shsgriffin.com





The SHS Griffin 2016 Seed & Plant Catalog is coming

By Tracey Gorrell, Marketing Communications Lead

As this issue of the Griffin Gazette goes to press, we're putting the finishing touches on another key publication: the SHS Griffin 2016 Seed & Plant Catalog. The annual SHS Griffin catalog has been a valuable resource for our customers for many years, and the 2016 edition is shaping up to be our most comprehensive yet.

First things first: What's new for 2015-16? Every brand-new variety and series in our catalog is conveniently listed on page 9 and organized by category—seed annuals, perennials, herbs, fruits and vegetables, followed by vegetative annuals and perennials. No digging necessary to get to the good stuff!

Your complete guide to seed

SHS Griffin is uniquely dedicated to the seed business and our commitment is visible in our 2016 catalog. The SHS Griffin catalog serves as an A-Z guide to virtually all seed series and varieties we offer—more than 3,400 items! You'll find detailed descriptions, height and flower size, days to first flower (or fruit) from sowing, and available product forms. In many cases, you'll see full-color photos and component listings for seed mixes, too. Positioning charts are also included for popular crops such as geranium and cyclamen.

Our seed portfolio has been skillfully selected with focus on quality, reliability and sell-through potential. To further ensure your success, SHS Griffin is a stocking seed distributor, with state-of-the-art storage and regular performance testing to assure that our supply meets or exceeds published germination standards. We maintain rigorous standards and processes to confirm every variety we ship will perform at its best.

Looking for a particular item and want to know if we carry it? A quick flip to the index in the back of your SHS Griffin catalog reveals every crop class and series in our seed assortment.

The best of vegetative

The SHS Griffin 2016 catalog is a terrific reference for vegetative programs. We're your exclusive source for Syngenta Flowers' full spring vegetative assortment in print. From ageratum to vinca, we've got them all with in-depth information on timing, vigor, habit, seasonality and more.

Round out your program planning with new, top-selling and unique varieties from several other leading breeders. Our 2016 catalog features selections from Danziger, Dümmen Orange, Proven Winners, Sakata and Suntory. The book concludes with Syngenta Flowers' vegetative perennial assortment, complete

with height, hardiness zones, bloom period and container recommendations.

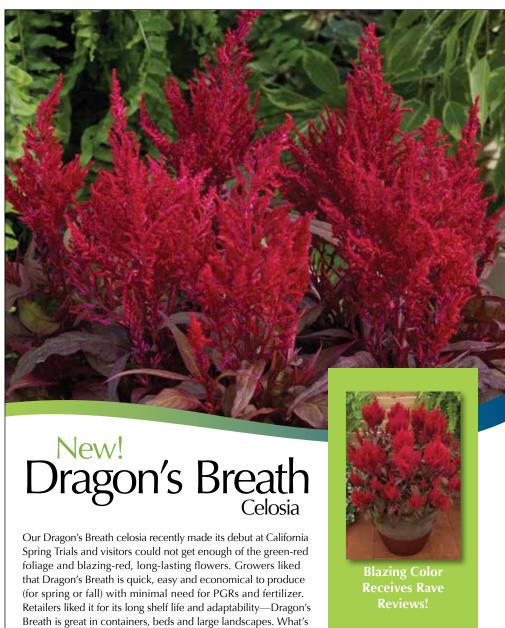
Go deeper with digital

The new SHS Griffin catalog will also be available electronically. The digital catalog is suitable for use on any computer or tablet-a convenient portable complement to the printed page.

The SHS Griffin 2016 digital catalog includes all of the product information and images shown in our print edition-and more. For the first time, we're including digital-only bonus content: detailed crop culture, quick reference guides and other tools to enhance your success with key classes and series.

The 2016 SHS Griffin catalog debuts this month. Contact your SHS Griffin sales representative, or stop by and see us at a trade show near you to pick up a copy. Current SHS Griffin seed customers will receive our 2016 catalog in the mail, along with seed pricing for the coming season. The digital edition will soon be available for download at www.shsgriffin.com.

On behalf of the entire SHS Griffin team, we're grateful for your partnership and eager to serve you in the season ahead.



more, Dragon's Breath exhibits even more red foliage and flowers under adverse garden conditions like heat, humidity and infrequent watering—it's perfect for the home gardener!

Visit www.sakataornamentals.com for detailed culture guidelines

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Special pre-order price \$105.00 + S & H when ordered by October 9, 2015. Item # 98-401

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Success Encourages New Customer Loyalty

By John Johnston, Retail Education Manager



Our industry has changed so rapidly over the past 10 years; it's hard to keep up with what's important to the retailer. Is it simply sales that keep the bills paid and the business afloat? Or does the store experience contribute to building loyalty and repeat customer traffic? Are we thinking about long-term customer value when we sell our plants, our products and even our service? Are we creating excitement? Does success after the initial sale draw that customer back to your store?

The Learning Experience

Our industry has evolved from a generation of hobbyists who would spend hours in their yards, refining their look and priding themselves on a glorious, weed-free lawn that was the envy of the neighborhood. Most homeowners planted a family garden to enjoy the freshest vegetables and herbs for their dinner tables. Not every project produced results; failures were certainly part of the experience. It wasn't a deterrent, though, to strive to be better next time.

The newest generations since the Baby Boomers have been instilled with the "you have to be the best" or "you can't fail" message from parents in order to get ahead in the competitive scholastic, athletic or business worlds. Failure is unacceptable. The fear factor of novices repeatedly killing plants breeds their discontent and discourages them from spending money in our greenhouses and nurseries. Time and convenience really does matter, and it shows in the ways consumers have taken shortcuts in just about everything they do. If they can't be successful with plants or afford to have someone do it for them, then they'll just go without.

Awareness and Education

Many garden articles are identifying industry issues that have been uncovered by research and abnormal weather conditions. Recently, bee hive collapse and neonicotinoids along with drought and water conservation are common topics in the national news. The heightened awareness prompts most of us to be better communicators in our stores, to embrace change and address concerns among consumers. We react to counteract the negativity that speeds its way throughout the news. Many retailers take a proactive approach to creating new stewards of our environment by providing seminars, unique products and good signage to their shoppers. The independent garden center always answers the call and has long validated products one to two years before any box store. We know how to explain products and how to get results. We've all seen customers ask questions from us and walk away without making a purchase, thinking it must cost less at the box store. Where's our reward for awareness and education?



Teach enjoyment and success to your customers and they won't give up even if they fail once in a while. Only by proactively sharing this knowledge can we create new customers loyal to our stores because of your efforts to teach success. 22



Teaching Enjoyment... and Success

Does your store employ a staff that's passionate about flowers and plants, and embraces a work culture to educate their customers effectively? Are we willing to invest in teaching our customers how to be successful? Renewing and reviewing our product (and plant) knowledge can make a difference towards consumer success with their purchases. Times (and plant genetics) have changed, which challenges us to teach an unsuspecting public new paths to success with their plants.

Just as the Knock Out rose has redefined carefree enjoyment of our national flower, the Wave petunia contributed to a different type of plant habit that now corners the market for size, color, bloom production and ease of care. These cascading plants love nitrogen to produce the elongated trusses for massive bloom production. For years, we were taught that unique phrase to pass on an easy way to understand the fertilizer analysis numbers of nitrogen (up), phosphorous (down), and potash (all around). We sold Super Bloom, Mor-Bloom, and Bloom Booster and the best-known Miracle Gro plant food 15-30-15 for everything that flowered for decades. More phosphorous was the battle cry for years! Are we still making the same recommendation for anything in bloom? Are we recommending the correct product for success? Think about your possibilities... plants need food, water, protection and accessories.

Uncover Hidden Profits

There are ways to drive extra sales – what I call the hidden 10% – in everything we sell through tie-in recommendations. Electronics stores do it every day by selling us an extended warranty – the guarantee of enjoyment or success for the consumer. I'm not suggesting we warranty plants, but that we recommend an add-on product (or products) that help consumers achieve the best results.

Women buying a dress will look to accessorize with additional purchases; any major retailer keeps these support products close by. It should be part of your business plan to suggest through communication skills both verbal (your staff) and non-verbal (your signage and displays) to provide complementary or support products that promote success.

All team members need to understand what your store's message is and how to convey a successful path for enjoyment. Every department manager has one or two "must have" products for planting success. We are the professionals of this industry that can teach through experience and by exchanging knowledge. Teach enjoyment and success to your customers and they won't give up even if they fail once in a while. Only by proactively sharing this knowledge can we create new customers loyal to our stores because of your efforts to teach success. Our new battle cry should be,"We love our plants and you will, too! Let us show you how." Good selling!

Image: Courtesy of Van Wilgen's Garden Center





1947 The bag may have changed, but the proven performance that more growers trust is still the same. 2015

FACTS ARE FACTS. Only one water soluble fertilizer brand has delivered the nutrition plants need to thrive longer than any other. Only one brand continues to reward growers who believe performance outweighs claims of being just about as good.

Time and nearly a zillion plants have proven there is no substitute.

Consult with your Territory Manager (who's an original, too) today.





Are You Ready to Try

Biological Controls?



Have you noticed how often you pick up a trade magazine and find articles touting the upside of using biological control agents (BCAs) to control insect and mite pests in greenhouses? Grower interest in biological controls continues to increase for several compelling reasons. Pesticide resistance, bee safety concerns, a sharp increase in greenhouse production of edible crops and a general desire to take a "greener" approach to pest control lead

the way. The initial transition to BCAs requires commitment and a bit of learning with solid support from an informed supplier. In response to expanding interest, GGSPro dedicates an entire chapter to the topic in our GGSPro Technical Reference Guide and produces many bulletins to assist growers in starting and maintaining successful BCA programs. Success stories are increasingly common as the industry becomes more educated about how to utilize this approach to pest control.

Implementing a BCA program involves a significant shift in how managers think about pest control and crop management. While this can feel like a hurdle to some, those who are committed to the approach will find that there is more and better information available to assist growers than ever before. The quality and selection of the BCAs themselves has also improved, contributing to increased success rates. It may be helpful to think of implementing BCAs as you would growing a new crop for the first time: You are already an expert in growing, so with some technical assistance and a healthy dose of perseverance you can succeed. Griffin offers a wide assortment of BCAs from a number of dependable suppliers, and can provide that extra technical assistance.

If you are on the fence when it comes to BCAs, consider starting small. Really small! Nematodes are a great entry point into biocontrol. They provide tried and true control for fungus gnats as well as effectively reducing thrips populations by attacking soil-borne pupal stages. Nematodes are also compatible with most traditional pesticide programs, further easing the transition. It is critical to know which pesticides can be used with BCAs, since beginning a BCA program rarely means that no more pesticides are used. GGSPro continually updates our database on pesticides that are compatible with one or more BCAs. With careful guidance you may be able to use certain pesticides to keep pests below damaging thresholds without unraveling the biocontrol program.

Another way to start small is to begin with BCAs in just one greenhouse. This approach also gives you a chance to step into this new endeavor with less risk. A house full of vegetables and herbs would be a prime candidate since there are fewer effective pesticides labeled for edible crops in greenhouses. Build on your success and expand into the rest of the range as your confidence grows.

Here's a checklist to help you evaluate your readiness to begin using BCAs. If some criteria aren't currently being met, tend to those before taking the plunge.

1.

Have a good understanding of pest and BCA life cycles. Understanding the biology of insect and mite pests is crucial for all types of pest control programs.

2.

Reduce incoming pest pressure. Segregate incoming shipments for careful scouting and treating with BCA-friendly pesticides if needed.

3

Practice strong sanitation. Sanitation is crucial. Weeds and "pet plants" can hobble a biocontrol program by providing safe haven for insects and mites.

4.

Work with your biocontrol advisor to schedule BCA orders in advance. Unlike pesticides, BCAs are alive and cannot be warehoused to anticipate your needs. Forecasting becomes easier as you gain experience.

5.

Practice vigilant scouting using sticky cards and plant inspections. Remember to track pests and beneficial organisms. Early detection of pests is critical because few BCAs are capable of controlling high pest populations.

6

Understand chemical compatibility. Know which pesticides are compatible with the BCAs that you intend to use before you release them. Quick action may be needed to save a biocontrol program, so be prepared in advance.

7

Ensure full team support. Everyone involved in the production of the crops needs to be on board with utilizing BCAs, including managers and ownership. Biocontrol is a team sport!

8

Have a realistic attitude. BCAs can be very effective, but they are not a simple solution. Learning requires commitment and some trial and error. (How did your first crop of poinsettias turn out?) Failures are not permanent. Clean it up and try again!





Last but not least, be sure to utilize the GGSPro team. The first thing we will do is review your pesticide application records for the previous four months to determine if any may interfere with starting your program. Sometimes a transition period to "softer," shorter residual pesticides may be needed before BCAs can be safely introduced. From here, you will be on your way to success with BCAs.

Top Image: Parasitized aphid mummies and ladybird beetle larvae **Bottom Image:** *Amblyseius cucumeris*, predator mite



Leaf-coir dromind megis: CT2 9UQ N262

Some growers in North America are showing an increasing interest in using a Sphagnum peat-coir growing medium for various crops and pots sizes. This interest is, in part, due to the beneficial properties of combining Sphagnum peat moss with coir. Peat-coir growing media can be formulated with different grades of peat (coarse grower grade or fine grade) and coir (chunk coir to coir fiber and pith) to create the ideal physical properties for specific growing applications. Thus, peat-coir growing media are being used for plugs, bedding plant, vegetable/herb, nursery, basket and large container production. Understanding the benefits of a peat-coir growing medium and the effects on plant growth can help growers get better results both at their greenhouses and for the end consumer.

Benefits and Uses: Functionally, a growing medium has to provide plants with basic aeration and water needs. The combination of peat and coir as the main components in a growing medium can enhance the ability of the media to fulfill the air and water needs.

Coir has a granular structure that, when added to Sphagnum peat moss, can contribute more total pore space and water-holding capacity when the root zone is fully saturated, generally resulting in increased rooting and germination. Grower trials have shown improved rooting in peat-coir growing media as compared to basic peat-based growing media. Coir has no waxy cutin to repel water as Sphagnum peat moss does, thus when combined with peat it acts as a natural wetting agent to assist in the rewetting process of peat moss. Therefore, when the growing medium dries out, there will be minimal shrinkage from the container walls so that water does not channel down the sides during irrigation.

Coir's high lignin-to-cellulose ratio helps the peat-coir media to decompose more slowly so there is significantly less shrinkage in containers over the life of the crop and maintains a favorable air to water balance in the root zone. Coir also has a higher starting pH from 4.9-6.5, so there is less need to add limestone to peat-coir growing medium.

Salts: Coir traditionally has been deemed as having excessive salts coming from potassium, chloride and sodium. This is true, but most of these salts are leached out prior to incorporation into the growing medium by washing the coir with water. Coir salt levels are typically less than 1.0 mmhos/cm (S.M.E. analysis) and when mixed with Sphagnum peat moss it only contributes salt levels of 0.2-0.5 mmhos/cm.

As previously stated, peat-coir growing media are being used for the production of plugs, bedding plant, vegetable/herb, nursery, basket and large container production. Growers especially like them as they enhance the ability of their baskets and large containers to flourish in hot, dry climates and under stressful conditions placed upon them by retailers and consumers. The uses of peat-coir growing media are becoming more important for growers and consumers as formulations are developed to address specific crop cultural needs.

For more information on peat-coir growing medium, such as our PRO-MIX HP-CC MYCORRHIZAE, please contact your PRO-MIX Sales Representative.

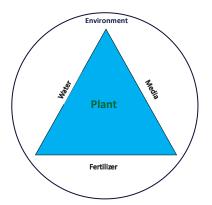


Listen to your plants; Acc



they have lots to tell you about fertilizer





Pic 1: (Top Image) Random chlorosis - Iron deficiency at low media

Figure 1: (Left Image) Fertilizer efficacy is impacted by water, growing media, crop & environmental interactions.

By Fred Hulme, Ph.D., Technical Services, ICL Specialty Fertilizer

Plant nutrition should be a very easy issue to deal with. Plants need certain essential elements, at the right ratios, the correct amounts and at the correct times. A systematic approach will consider the important factors: irrigation water, growing media, crops types, environment and production objectives (Fig. 1).

This will generally lead to a good fertilizer program – one that is simple to implement, fits most crop nutritional needs, but also employs a one-size-fits-all strategy that may not satisfy every crop you grow. Typically you will have to provide certain "picky" crops some special treatment to maintain quality.

Typical things that can go wrong in fertilizer selection include selection of the wrong fertilizers, adding too much fertilizer, adding too little fertilizer and pH issues. When developing your fertilizer program, analytical data can be very useful to help you prevent crop issues that impact quality and crop value:

- A comprehensive water test can account for the buffering of the water (alkalinity or bicarbonate level), nutrient provided with the water such as calcium & magnesium and any problematic ions like sodium or chlorides.
- In-house testing of EC (electrical conductivity or soluble salts) can validate that the fertilizer recipe is correct and that the injector is functioning properly.
- Conducting pH & EC tests on media can give you a general snapshot of the nutritional status of the root zone.

• Using a full-service nutritional lab can give you a more specific snapshot of the nutritional status of the root zone.

Invariably things will go awry even in the best designed fertilizer program. Part of this is due to the large diversity in crops with diverse genetics and crop stages that growers typically grow concurrently. Some environment variations are out of our control. Variability in growing systems (e.g. injectors, irrigation systems, and growing media) will impact the efficacy of fertilizers. Remember that most of the nutrients taken up by the plant are in ionic form in the soil solution and fertilizer efficacy is directly impacted by factors such as poor water availability or evapotranspiration, incorrect root zone pHs, poor root health, over leaching or extreme temperatures.

When things go wrong, crops are the ones to alert us of problems in our nutritional systems by exhibiting symptoms of nutrient deficiencies/ toxicities. Unfortunately at this point it may too late to change the fertilizer program, reverse the condition or make the crop salable. Plants cannot talk; they can't shout out: "Hey grower, calcium levels are down this week and my growing points are killing me, give me some 15-0-15..."

However if you "listen" to your plants through careful scouting and observation, you will find that plants are continuously providing feedback. Subtle crop appearance changes in foliar color, turgidity, wilting, and growth rates of both shoots & roots can help you address nutrient shortcomings before they become big problems. Most symptoms develop slowly and gradually and it is best to tackle these issues early on. Look for patterns of symptoms over time between benches/houses; indicator crops or cultivars, crop turns to identify/ eliminate possible causes of the problem.

When trying to diagnose the cause of deficiency symptoms and come up with an effective mitigation program, it is best to think holistically and consider the entire production system. It is easy to fall into traps based on assumptions and truisms:

- Example: This past year I have seen numerous cases in nurseries with extremely low root zone pHs (3.5 - 4.0) where crop exhibit chlorotic newer leaves (see Pic 1.).
- Diagnosis: We are trained to think that low media pHs cause micronutrients like iron & manganese (Mn) to become more soluble and excessive to plants. However in this case after media & tissue testing, the cause of the symptoms was actually determined to be iron deficiency. How could this be? Low pHs were resulting in very high Mn levels in the soil solution. The source of the Mn was likely from the bark used in the mix. This was flooding the system and preventing adequate iron uptake by the plant. By adding a Liquid Stem treatment, symptoms were reversed.

Finally here are a few comments on diagnosis:

- In a problem situation, media and tissue testing can help identify/ eliminate possible causes of a problem; but interpretation can be confusing and improper sampling can muddy the picture.
- Just because you have analytical data, doesn't mean the problem is nutritional in nature.
- Confer with your fertilizer company representative/extension agent/ consultant to help assess data and work up possible solutions.
- Anything that will impact root or shoot health can impact fertilizer efficacy (e.g. Pythium, viruses, PGRs, viruses, heat stress, and planting depth).
- Listen to your plants. They know a lot about nutrition.



Give your Plants the Edge

with Resilience[™] Enhanced Mixes!

Media growing has a new ally with Sun Gro Horticulture's Resilience mixes enhanced with silicon. Available in select Black Gold®, Fafard®, Sunshine®, Sunshine® Advanced, and Metro Mix® retail and professional mixes, Resilience is Sun Gro's brand name for growing mixes enriched with beneficial silicon—a patented technology developed by the company's own research horticulturists.

These enhanced potting mixes offer growers big benefits! In numerous trials, plants grown in Resilience mixes show increased stem diameter, improved root growth, increased drought tolerance and even earlier flowering — saving you time and worry while providing more resilient garden plants. Container-grown plants even recover better from less-than-perfect watering, which makes them more robust and gives them a longer shelf life.

"This is a major horticultural breakthrough," says Chris Bednar, Sun Gro's COO. "Growers can now have stronger, more vigorous, longer-lasting plants from the greenhouse to retail to consumer gardens."

What are the benefits of Resilience - enhanced mixes?

Time and time again, research at universities in commercial grower trials, and at the Sun Gro Discovery Center, supports significant and dramatic positive results with Resilience. Trials have shown that plants grown in siliconenriched mixes have the following advantages:

- 40% BETTER ROOT GROWTH for increased nutrient uptake and support
- 13% EARLIER FLOWERING for more attractive plants, faster
- 12% INCREASED STEM DIAMETER for stronger plants and reduced breakage
- 77% LONGER TIME BEFORE WILT for increased shelf life
- * Results will vary by plant type and grower practices.

The results are impressive! Resilience brings dramatic increases in plant growth and vigor in addition to better roots and stems, earlier flowering and delayed wilt.

Do Resilience-enhanced mixes benefit all plants?

Resilience research included collection

of week-by-week growth data of over 40 popular annuals, perennials and vegetables in a controlled greenhouse setting. Tests were conducted using Sun Gro's Sunshine, Fafard and Metro Mix professional lines of peat-based and bark-based growing and propagation mixes as well as Black Gold, Fafard and Sunshine Advanced retail mixes.

According to Janet Rippy Ph.D., lead researcher of the Resilience program at the Sun Gro Discovery Center, "Results may vary by species, growing conditions and grower practices; but after extensive research and trialing, we are confident that Resilience mixes benefit plant growth in numerous important horticultural plants."

The research is ongoing, but as we learn more, the benefits become increasingly clear. Silicon-enriched Resilience mixes can and should become an integral part of indoor and container gardening to allow plants to grow more naturally and resiliently in any contained growing environment.

How do Resilience - enhanced mixes work?

Plants absorb the easy-to-access silicon in Resilience mixes where it becomes part of the roots, shoots, and leaves to improve organic strength. It essentially provides reinforcement to make plants tougher and more resilient, which helps them cope better with environmental stresses. Stronger stems mean plants are more durable and wind resistant, and silicon-fortified foliage helps plants resist drought.

See the Resilience difference!

The results have been so impressive that we believe silicon-enriched Resilience growing mixes will become the new standard for growers. Why? Because you will see the results! When you use Sun Gro's quality potting mixes enriched with silicon, your plants will be stronger, last longer, and recover more quickly from infrequent or inconsistent watering. Try Resilience mixes and see the difference!

Where can I find Resilience mixes?

Selected Sun Gro products contain Resilience patented technology. To find products near you, please contact your local Sun Gro Sales Representative. Or go to www.sungro.com.



Top Image: Grown with Resilience **Bottom Image:** Grown without Resilience

Snapdragon 'Twinny Violet' grown with and without Resilience at the Sun Gro Discovery Center; the Resilience plant shows stronger,



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1 gal RTU						
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