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GRIFFIN GAZETTE
FALL 2013



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to Simplify Spring Booking

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from GGSPRO

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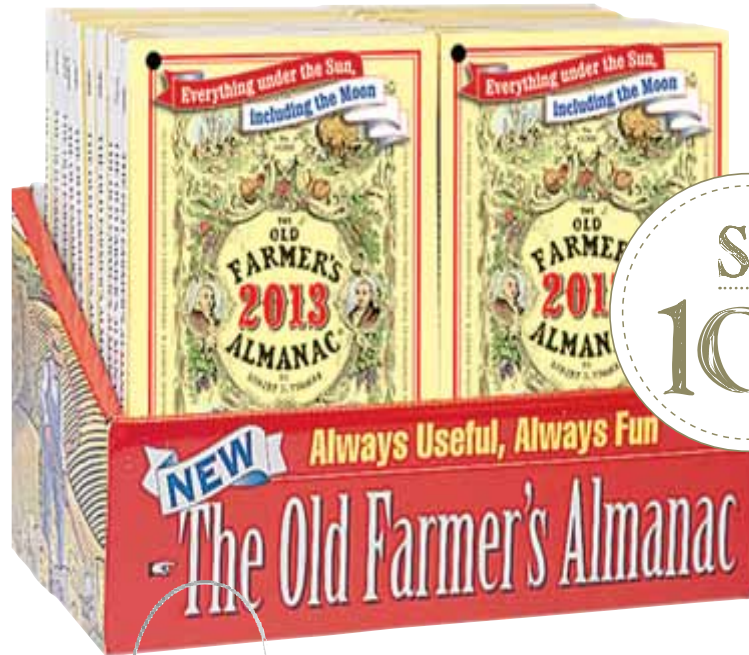
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Timing our efforts for fall sales

By John Johnston, Retail Education Manager



It's a common battle cry for many retailers: Put the past spring behind us, plan ahead for fall sales and make the changeover in how the store is displayed for the next selling season. Over the years, garden centers have wrestled with finding options to help stimulate customers' continued interest and keep them coming back to their stores. There are outstanding examples of fall activities like hayrides, scarecrow contests, pumpkin patch picking and children's face painting

that bring some good crowds. But, are they buying more from the store? Are you providing store events and more display options in your assortments to stimulate sales? When these questions are asked, I usually hear the response of "I did that for years and it doesn't work anymore." Or, "I don't have the manpower to do what I did in the past; it's too much work." Somehow, the word "tradition" fell by the wayside and with it, consumers seeking out the joys of past experiences. Where do we go from here? How do we change our strategy?

Today's family consumer is faced with the ultimate task of stretching their dollars (and time) as much as possible. All of the factors of raising children have become harder than ever when you consider the rising cost of living. Technology has raced to the forefront of learning and taken the place of exploration outside the home. Activities have declined. The beauty (and uniqueness) of the garden has been replaced by simplicity or just doing without. Just look at the fall bulb sales nationally as part of this occurrence. It takes some thought and some work to have success in plantings. Time was never an issue before. But, today it is. It's all about time. Speed is everything to consumers. Faster computers, better TVs, instant messaging, faster service, quicker decisions, simple solutions, complete packages, ready-to-use, fully assembled, grab 'n go and my personal favorite...the neighborhood gas station that now sells convenience in every way possible like coffee, sandwiches, prepared foods, hot foods, snacks, soups, gift cards, even beer and wine in some states... (in NJ, they even put the gas in my car for me!) They made it easier and less time consuming for people on the go.

When you start planning your fall sales strategy, think about the word, TIME. Are you creating a display that stresses an urgency for

planting in your signage or messaging? Remember the slogan, Fall Is For Planting? Fall is the perfect time to plant trees, perennials, bulbs and especially grass seed. Have you considered "packaging" all of the needed products to make it quick and easy for today's fast-paced consumer? Does your display have everything needed to complete their garden task? Or are these complementary products spread out all over the store? Ask yourself, will the consumer take the time to look for these additional needs? Plan out your lawn-care area to include not just grass seed, but all the additional things they might need. Spreaders, lime, fertilizer, topsoil, weed & grass killer, late fall fertilizer, garden hoses, sprinklers, hose carts, timers, thatching rakes, gloves, wheelbarrows, seed accelerator, PH test kits and meters are just some of the items needed. Consider including messages around some value-added services: Your professional advice on how to renovate a lawn, your professional services for hire, your delivery service and "bulk and bag" options. One of the most important things for your display is price. Is everything labeled, signed and visible to the consumer? Did you know that 54% OF ALL SALES FAILURES NATIONALLY are due to the lack of visible retail price? It takes time to hunt down associates and check prices; consumers will just move on. Don't make your discounting complicated. Not everyone can do the math in their heads when it comes to a percentage off the cost of goods. This results in seeing more ads showing "buy 1, get 1 free", or 50% off in today's retail environment. It saves consumers time and effort.

Consider another category to sell during the fall that trends well with today's lifestyles: Indoor gardening (especially fresh herbs for cooking and grilling) can be done with moderate success by anyone. We have lots to offer for the cook in the home. Small pots, soils, plants, moisture meters, remedies, seeds, and artificial lighting are just some of the products we can sell. Everyone has a connection with food. It's all about fresh, organic, all natural, free range, farm grown, local, regional, home made, pesticide free, etc. These are the buzz words of today's supermarket that carry over into our everyday lives. You have to agree that it's changed the way we think about eating...and shopping! It's about time that we consider new ways to re-invent our stores to make consumers want to spend more time and money in our businesses. Retail is about change to create new trends in consumer habits!

What changes will you make for your store for spring 2014?



Griffin Expos



"This year's events included several noteworthy changes; the growth Griffin has experienced over the past year was on display and it's clear to see how customers will benefit."

By Peter Konjoian

Back on August 14-15 and September 11-12, Griffin held its annual Grower & Retailer Expos in West Springfield, Mass., and Lancaster, Penn., respectively. This year's events included several noteworthy changes; the growth Griffin has experienced over the past year was on display and it's clear to see how customers will benefit.

The first and perhaps biggest change was the scope of the events – the Griffin Expos have nearly doubled in size! Griffin added more than 80 new retail and plant vendors to the mix, reflecting the expansion of SHS Griffin and the retail division, for more than 150 exhibitors in all.

To allow growers more time to browse, gather information, and take advantage of exclusive booking discounts and promotions, the show schedule was also extended. Traditionally a one-day event, each Expo now spanned two days, with an afternoon 'trade show only' session on Wednesday, the day before each Expo's main event.

Thursday's schedule at both Expos included a robust lineup of educational sessions, wherein attendees stocked up on information about a broad range of subjects.

The SHS Griffin team brought visitors up to speed on the latest in new varieties. Led by Ken Turrentine (head of sales), Jeanne Svob (seed business manager) and Gregg Urban (regional sales manager), the presentation covered new and exciting seed and vegetative introductions. The team also offered suggestions on which varieties growers should consider must-haves in their 2014 programs.

Griffin technical services manager Rick Yates covered pest control during his slot in a seminar which qualified for pesticide recertification credit. As always, Rick did a commendable job of describing the pest challenges growers are facing, and recommending the best real-world solutions to those problems.

John Johnston, Griffin's retail education manager, rounded out the program with a discussion on low-cost, high-impact ideas for IGCs. With more than 28 years of experience in distribution, John shared many excellent concepts to help retailers better address consumer needs.



Big Changes, Bigger Outlook

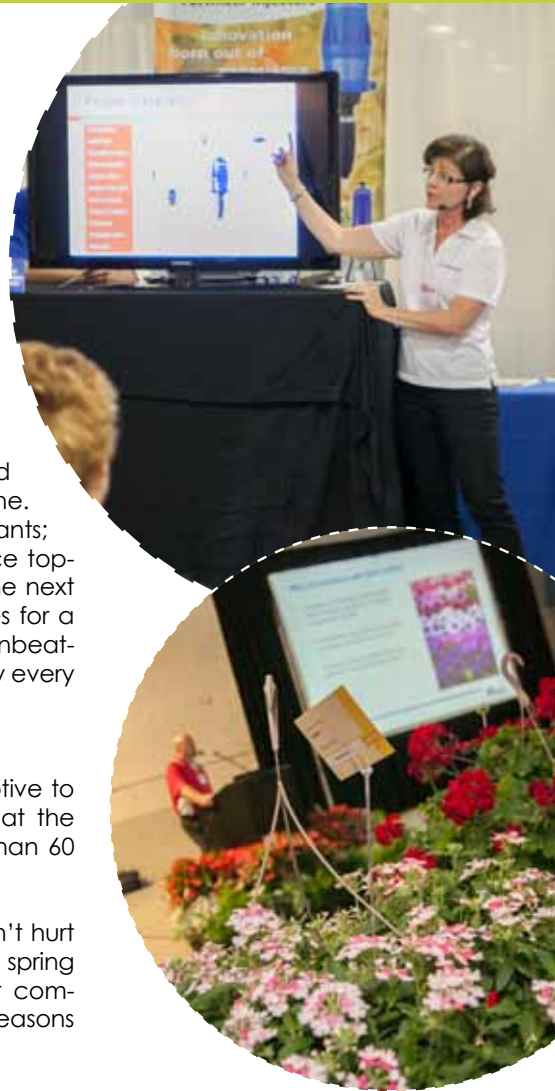
Griffin has been very busy during the past several years, carefully positioning itself to maintain a relevant position in a rapidly changing industry. Experts are in agreement that floriculture is showing the telltale signs that accompany other industries when they enter their mature market stage. When industries enter this stage of their life cycle, consolidation is required to keep efficiency up and motors humming.

The recent and expansive growth at Griffin offers growers and retailers everything needed to operate successfully. Think about it: Historically, greenhouse and nursery supplies comprised the company's backbone. Plant material, including seeds, cuttings and young plants; rounds out a professional grower's checklist to produce top-quality crops. The addition of retail wares addresses the next step in the value chain, with products and accessories for a total offer that consumers can't resist. Add to that the unbeatable expertise offered by the GGSPRO team and virtually every base is covered.

Back to the Expos

If attendance is any indicator, growers are very receptive to the changes at Griffin and their Expos. Attendance at the Grower Expos surged to an all-time high – up more than 60 percent over 2012 figures!

All in all, this year's Expos were a solid success. It doesn't hurt that customers are reporting positive results from the spring 2013 season; that certainly has much of the grower community feeling upbeat. Now let's string a few good seasons together to keep the momentum going!



easy steps

to simplify spring booking

By Allison Klicek, SHS Griffin Marketing Programs Manager & Jeanne Svob, SHS Griffin Seed Business Manager

It's time to plan for spring production. Where should you begin? There's so much to think about! So many factors to consider! Do you feel a headache coming on? Put down the aspirin and keep reading for a five-step approach to less painful plant ordering.

1. Get 'Em While They're Hot

Start with what worked well this year: What had the best sell-through? Which items sold out completely? Secure those varieties first to ensure the quantities and ship weeks you need most. At the same time, review the items that were flat or down in sales, adjusting your 2014 plan accordingly to minimize your losses and make room for more top sellers.

2. Discover The Next Big Thing

Once you've taken care of your current must-haves, turn your attention to new varieties. Breeders are continuously upgrading their genetics for better performance and more efficient production. We're also seeing plenty of all-new breeding breakthroughs including New Guinea impatiens from seed (from PanAmerican Seed and Syngenta Flowers), Starcluster vegetative pentas from Syngenta Flowers and Pinball vegetative gomphrena from Sakata.

Of the hundreds of new varieties for 2014, what's caught your eye? At a minimum, book trial quantities of a few introductions that excite you and fit your product mix. Today's new variety could be tomorrow's blockbuster, as we saw with Syngenta Flowers' Calliope geranium several years ago. Consumers often enjoy discovering something new and different at the garden center, and show their appreciation by becoming (or remaining) loyal customers.

3. Fill in the Blanks

Next, consider potential gaps in your product mix. What might be missing? Fruits, vegetables and herbs are hot right now; be sure these categories are represented in your programs. Think, also, about using them as season extenders. Fall-fruiting items such as late-season raspberries are interesting additions to the home garden. Cool-season vegetables can work well for both early spring and fall harvests.

In addition to adding new product categories, look for gaps in your existing programs. Is there room to broaden your offer? Take phlox as an example: *P. subulata*, *P. divaricate* and *P. paniculata* all flower at different times, extending your sales window and staggering color peaks in the home perennial garden. The same is true for varieties of iris and peony. Interest peaks when an item is in bloom; be ready with color whenever the surge hits.

4. Consider the Combos

Now is also the ideal time to plan your mixed containers. If you develop your own custom combo recipes, try mixing perennials and annuals together. Consumers can enjoy the combination during the spring and summer months, then transplant perennial components into the landscape in the fall – some extra bang for their buck. Some varieties of miscanthus, such as Morning Light, are well suited as vertical elements and help keep combos looking great into autumn.

If you use designer mix programs, take full advantage of the ease and efficiency these programs provide. Again, you'll want to consider what's working for you now – and what, among the many new mixes for 2014, might captivate your customers. Do they prefer the upscale look of monochromatic mixes? Consider Kwik Kombos Night in Pompeii Mix or new Confetti Garden Bel Air Red. Is your sell-through better with bright, high-contrast designs? In that case, try Confetti Garden Fleur de Edna or Kwik Kombos Summer Skyline Mix, both new for 2014.

5. Book Now, Beat the Rush

Connect early with your SHS Griffin sales representative to work through your needs and wants for 2014. Booking early is your best bet to sure up the basics and secure a spot near the front of the line for limited-availability items, particularly new varieties. Your SHS Griffin sales rep is also a terrific resource for program development and variety selection; look to us for advice on what's hot and what's not.

Photo Captions: A. New Guinea Impatient Divine Blue Pearl, B. Kwik Kombos Summer Skyline Mix, C. Confetti Garden Fleur de Edna, D. New Guinea Impatient Divine Scarlet Bronze Leaf, E. Kwik Kombos Night in Pompeii Mix



Form Meets Function:

Tips to Optimize Seed Product-Form Selection



A



B



C



D



E



F

By Jeanne Svob, SHS Griffin Seed Business Manager

When it comes to seed crops, the right product form can have a big impact on timing, production cost and even sell-through. As you crack open your SHS Griffin catalog and start planning your seed programs, keep these tips in mind to make the most of the product forms available to you.

When do you open your greenhouses? Are there items with longer crop times, like begonias or geraniums, that you want to bring in as plugs? Give yourself plenty of lead time to ensure you get what you need. Plug production for begonias, for example, can take 7–11 weeks.

Are there special requirements that you'd rather leave to a plug specialist? Geraniums and tuberous begonias need to be lit for best results. Verbena can be difficult to germinate. Vinca germs best in warm temperatures. Can you zone your greenhouse to accommodate all of the crops in your production?

Once you've decided which items you'll self-sow, carefully consider the best product form for your production.

Do you have limited germination space? Primed pansy seed can reduce time in stage 1 by 1-3 days, freeing up valuable bench space. If you decide to sow verbena, primed seed will germinate faster and more uniformly, increasing the number of usable seedlings.

How is your seed placement off the sowing line? Coated seeds of difficult-to-sow items like marigold, dahlia and zinnia flow more freely and are more visible on the media, resulting in fuller plug trays due to fewer skips and less seed waste due to fewer doubles.

Pellets are a must for small-seeded items like petunia and begonia. Do you use multipellets for lobelia, alyssum or portulaca? Yes, the cost of the seed is higher but the sow time

is considerably faster. Multipellet herb seed is new this year. Not only will you be able to sow it faster, the resulting crop is much more uniform since the number of seeds from pot to pot is more consistent. This can even improve sell-through of the finished crop since every pot will be full and lush.

And don't forget to try something new. This was a banner year for introductions from the breeding companies. New crop categories like cuphea and trailing snapdragons offer unique additions to your assortment. Cuphea Sriracha is a great item for 6" pots for late spring and summer sales. Trailing snapdragon Candy Showers flowers readily in short days, making it an interesting crop for early spring baskets or in combination with pansies or violas in spring or fall. New double-flowered color additions to the Profusion and Zahara series expand these popular lines of disease-resistant hybrid zinnias.

Looking for something for shade? Be sure to try New Guinea impatiens from seed. Divine and the new Florific series make it easy and economical to produce NGI for bedding-plant sales. And don't forget begonias! Varieties like Braveheart, Dragon Wing and Big are tremendous performers in beds and containers.

You'll also want to check out our expanded offer in vegetable seeds. Since becoming trendy a few years ago, home vegetable gardening continues to gain traction – and real estate – in garden centers around the country. SHS Griffin has added more than 20 veggie varieties to our 2013-14 seed assortment. Give your SHS Griffin sales representative a call for help in developing a deliciously profitable edibles program.

Photo Captions: A. Tomato Homeslice, B. Sriracha Violet, C. Marigold Seed, D. Petunia Seed, E. SimplyHerbs Collection, F. Obsession PinkChiffon



GGSP_{ro} - We're glad you asked!

By Rick Yates, GGSPro Technical Services Manager



GGSPro stands for Griffin Grower Services Professional, an apt name for the grower support provided by Griffin's technical team. While growers along the East Coast from Maine to Georgia are well acquainted with GGSPro, the acquisition of Syngenta Horticultural Services (SHS) last November makes this a good time to provide an introduction to GGSPro for some and an update for others.

Griffin's commitment to technical support is long standing and unique. It is one of the attributes that has set Griffin apart from other horticultural distributors for many years. Technical support fits well with the company's commitment to "service what we sell." In addition to the broad-based grower support available through GGSPro, Griffin provides additional value through technical support in the construction and irrigation departments. Nationwide plant sales through the formation of SHS Griffin have prompted the beginning of a phased-in rollout of GGSPro services and products to all 50 states.

The heart of Griffin's technical support remains the phone and e-mail assistance provided free of charge to our customers. The number of technical inquires increases each year and will exceed 14,000 for 2013. Having so many contacts with growers provides a unique window into the challenges being faced by greenhouse and nursery growers. GGSPro receives extensive feedback from growers that helps us to stay ahead of the curve when it comes to pest control and other issues facing growers. We are constantly re-evaluating and updating our recommendations based on what we learn from growers in the field. This level of grower interaction makes GGSPro function like a giant grower bulletin board, serving the grower community by evaluating and filtering incoming information and returning it in the form of timely recommendations and useful technical products. The GGSPro Reference Guide, with over 1,500 copies sold, is an example of that influence. The first two editions were built from the ground up with content based on the most frequently asked questions from our growers. The third edition, scheduled for release in January 2014, continues with that approach. In addition to updates to all existing chapters, a new chapter covering crop nutrition, water quality and fertilizers will be added. Other GGSPro products, such as educational DVDs and poster sets, were similarly inspired. Please visit www.GGSPro.com for a full listing of technical products as well as other useful information.

All of this growth makes GGSPro an exciting department to work in. With the increased opportunities comes the need for additional staff to meet the demand for services. Prior to the SHS

acquisition, technical specialists Virginia Brubaker and Joanne Lutz joined me to make up the technical team. Virginia brought with her 12 years of perennial production experience and has since expanded her expertise to cover nearly all aspects of greenhouse growing. Joanne joined the team nearly three years ago. She previously owned her own scouting business and spent time working in a plant diagnostic lab. Since the start of 2013, two new team members were added. Trilby Libhart joined GGSPro by stepping across the aisle from our Plant Department. We had our eye on Trilby for some time because of her years of experience as the Integrated Pest Management director for a large perennial propagator. Trilby supports the team by researching topics of interest and maintaining our database of information and photos. In the previous edition of the Griffin Gazette, Tami Van Gaal was introduced as the newest member of GGSPro. Tami is a great fit for our team, with 15 years of experience with a well-respected plug and liner producer in the upper Midwest. Check out Tami's cyclamen article in this edition of the Gazette.

The diverse backgrounds represented are part of the strength of the technical team. We actively share information across the team, ensuring that all are up to speed for current conversations and anticipated topics. The team also spends time in cross-training every week.

Many of you have had the privilege of receiving technical support from Virginia Brubaker by phone or e-mail over the past 19 years. Her many satisfied customers helped her earn a promotion to the newly created position of GGSPro Technical Support Supervisor. In this role, Virginia works to ensure that you will continue to receive the same enthusiastic and timely support that you have come to expect from GGSPro, no matter which team member fields your inquiry.

The GGSPro team is completed with two additional colleagues serving as an "advisory board" for the purpose of helping to guide the team forward from their areas of expertise. Len Roux is the project manager for GGSPro and was instrumental in identifying the need for the GGSPro technical products that were mentioned previously. Lou DeSisto is a key accounts manager for Griffin and provides wisdom and guidance from his years of successfully serving many of the largest growers in the Northeast. Together it is a great team that reflects the values of the entire Griffin organization. We are grateful for the strong support of Griffin ownership as well as the customers and vendors who play an important part in helping us fulfill our mission to provide timely and accurate technical support to our customers.

Protecting

Pansy, Petunia, Poinsettia or Perennials from Pathogens

By Nancy Rechcigl, Syngenta Flowers, Home & Garden Technical Service

Certain plants, annuals, perennials or holiday specialties are prone to certain diseases. Becoming familiar with the common disease problems will help you develop an effective management strategy. Most are in the form of leaf spots which can be the result of fungal, bacterial or viral infections. Root and stem rots can also be a problem anytime but especially so during the early stages of production when moisture management is critical. Diagnosing the causal agent of a disease can often be difficult by visual examination alone, since the physical signs of the disease may be similar among pathogens. To ensure plant quality, a preventive broad spectrum fungicide program should be partnered with proper cultural practices to reduce the risk of disease.

Foliar Diseases

Common fungal pathogens responsible for leaf spot diseases include *Alternaria spp.*, *Cercospora spp.*, *Colletotrichum spp.*, and *Myrothecium spp.* Leaf spots caused by fungal agents can be identified by the way they sporulate on infected tissue. Under the right environmental conditions, some may form small black fruiting structures within the leafspot. Other fungal diseases such as botrytis, powdery and downy mildews produce masses of fuzzy spores directly on the infected tissue. Leaf spots caused by bacterial infections are frequently characterized by dark, water-soaked lesions that are often surrounded by a dark margin or yellow halo. But beware, as many fungal leaf spots will have a dark margin or yellow halo as well. While leaf distortion and mottling are common signs of a viral disease, infections with impatiens necrotic spot virus (INSV)/tomato spotted wilt virus (TSWV) are known to cause dark ringspots or spotting on leaves in some plant species. Conditions of high relative humidity and free moisture on the leaves for 4-6 hours will promote foliar diseases. Irrigating early in the day and providing good air circulation between plants will help reduce the development of these problems.

Infections by *Botrytis cinerea* tends to be more of a problem during spring production, with tender new growth and blooms highly susceptible to infection. Botrytis spores are easily spread through air movement, requiring a thin film of moisture for a period of 4 hours or more to germinate. Initial infections will cause small, white spots or flecking on flower petals, which can often be confused with injury caused by thrips feeding or chemical spray applications. Under extended periods of cool temperatures and high humidity, disease can quickly progress, destroying blooms and other parts of the plant. Cultural tactics that help reduce the duration of leaf wetness, along with proper sanitation practices and preventive fungicides are all important tactics for controlling foliar diseases caused by botrytis and fungal leaf spot pathogens.

Recommended Fungicides for broad spectrum control of Foliar Diseases

- **Daconil Ultrex® fungicide** 1.4lbs/100 gal
Daconil is a multi-site contact fungicide with broad spectrum activity.
- **Heritage® fungicide** 1-4oz/100 gal
Heritage is a xylem mobile systemic fungicide and controls more than 33 diseases across all four classes of pathogens.
- **Palladium® fungicide** 4-6oz/100 gal
Palladium® fungicide with two active ingredients is highly effective for botrytis but also controls many of the most common foliar blights

All the above fungicides have good broad-spectrum activity on the foliar diseases and can be used as part of a rotation strategy. Once blooms are present, discontinue the use of **Daconil Ultrex** in

your rotation as this can damage flowers. **Palladium** fungicide has shown consistent safety to blooms and bracts.

Root & Stem Rots

There are several fungal diseases that can disrupt plug and transplant production causing root and basal stem rots. Infections by these pathogens generally results in plants that are stunted, wilt during the heat of the day, exhibit signs of nutritional deficiencies and at times, results in the death of the plant. Reducing the chance of infections starts with a clean growing area, utilizing good cultural and sanitation practices and reducing heat stress on the plants. A laboratory confirmation of root and stem diseases is always advised because symptoms are often indistinguishable.

Infections caused by *Rhizoctonia solani* commonly start at the soil line causing a dark brown discoloration of the lower stem. As the disease progresses, the stem will become girdled, causing the plant to wilt and collapse. The disease can also move down the stem causing infections in the roots. Rooted liners that are planted too deeply are more prone to infection. High temperatures and saturated media conditions can also promote disease. Drenching with **Heritage** at 0.9oz/100 gal or **Medallion® WDG** fungicide at 1-2 oz/100 gal is a common control for Rhizoctonia.

Infections by *Pythium spp.* can occur after roots have developed and have been damaged through oversaturated media, heat stress, high salts/EC in planting media or a combination of these conditions. Roots that are stressed and damaged are highly susceptible to infections. Drench applications of **Subdue Maxx®** fungicide 1 oz/100 gal, **Truban® WP** fungicide at 8 oz/100 gal or **Segway®** fungicide at 3-6oz/100 gal can be rotated and used on a 4 week interval to prevent *Pythium* infections. If growers have a history of fungal root rot problems early in the season, a tank mix of the products above will give broad spectrum preventative control. A product such as **Hurricane®** fungicide is a premix fungicide that provides broad spectrum control of *Pythium spp.*, *Rhizoctonia spp.*, and other fungal root rot diseases.

Black root rot caused by *Thielaviopsis basicola*, tends to be more of a problem during the spring when cooler temperatures are prevalent. Plants infected with this pathogen will be stunted and have yellow lower foliage. Unlike other root rotting pathogens that cause soft, brown root decay, infections by *Thielaviopsis* result in a blackened root system that remains intact. Alkaline soil conditions will favor disease development. Maintaining a lower pH of 5.5-5.8 can help suppress this disease. Preventive fungicide drenches using **Medallion WDG** at 1-2oz/100 gallon in a rotation with T-Methyl containing products are used to prevent this disease.

Important Cultural Tips

- Clean growing area/greenhouse and benches of all debris, and sanitize between crops.
- Irrigate early in the day to allow time for the foliage to dry before evening.
- Provide good spacing of plants and flats to allow for good air circulation and spray coverage.
- Scout and rogue crop weekly for insect and disease problems.

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Cyclamen Culture

By Tami Van Gaal, GGSPRO Technical Specialist



Proven versatility has expanded cyclamen use beyond the winter holidays to landscapes and combos. Appealing price points of smaller pots has also driven extended-season sales. Regardless of the end use, growers should focus on three key areas during production: moisture management, fertility and temperature. Add disease prevention, and crops are well on the way to a beautiful finish.

frequent watering benefits the crop more than heavier, less frequent watering. Signs of media kept too wet include thick roots and few active, white root hairs. Instead, manage moisture to encourage continuous development of white, active roots. Using coarse media to overcome wet growing can be problematic. Cyclamen roots need good contact with the media for adequate nutrient uptake. Overly coarse mixes actually lead to reduced nutrient uptake. Twisting roots indicate media is too coarse. A well-drained peat/perlite blend with some coarse peat is a good choice. Bark mixes with bark content less than 30% and small bark particles will also grow good crops.

Production Overview

Cyclamen varieties are grouped into four classes, with regular and novelty flower types in each. Cyclamen crop times are lengthy, 26-35 weeks by variety. Most growers reduce their crop time by 12-16 weeks by purchasing liners.

	Flower Size	Recommended Pot	Weeks from sow
Standard	Large to extra large	5-6"	28-35
Intermediate	Medium to large	4-5"	27-30
Miniature	Small to medium	3-4"	26-30
Micro	Small	2-3"	26-30

Liners should be transplanted prior to heavy rooting and petiole stretch. Transplant to maintain the same level of the corm as in the liner; do not bury or further expose the corm. Handle the liners with care, dibble the pots, and avoid forcefully pushing the root systems through the media.

For efficient bench use and best growth, space repeatedly during finishing. Begin with pot-to-pot spacing and space further when the leaves barely touch. Avoid crowding, which increases disease and diminishes plant form and quality.

Moisture Management

Greatly misunderstood, moisture management is a most important aspect of cyclamen production. Cyclamen roots are particularly sensitive to low oxygen levels, and nutrient uptake is relatively weak. Add growers' healthy avoidance of water stress to cooler growing conditions, and it's easy to understand why most cyclamen crops are grown too wet. Lighter, more

Fertility

Fertilizer choices for cyclamen should focus on calcium- and potassium-nitrate-based feeds with an N:K ratio of 1:2 and low phosphorus. Isolated, single applications of ammonium-based feed should be used only if leaf expansion or plant size is severely lacking.

During finishing, target media EC of 1.0 to 1.2 using 100-150 ppm N feed. Fertilizer EC should not exceed 1.5. Constant feeding is preferred to occasional feeding; avoid controlled-release fertilizers. Maintain pH at 5.6-6.0.

Under warm day temperature (DT), >75° F, cyclamen growth stalls and nutrients needs drop. During this time, decrease fertilizer rates by 30-50% to avoid excessive leaf size and unfavorable habit.

Nutrient deficiencies can appear when conditions fail to support good transpiration and nutrient uptake (wet media, warm temps, high humidity). Watch for iron, calcium and boron deficiencies.

Shelf life is enhanced by continued feeding through shipping. Eliminating feed at the end of the crop will drive stem elongation, flower fade, and loss of form.

Temperature and Light

Cyclamen prefer cool conditions, with night temperature (NT) at 62-65° F for liners and 60-65° F for finishing (65° F early, low 60s later). Ideal DT should not exceed 68° F, with growth ceasing at temperatures above 80° F. Average daily temperatures (ADT) at or below 60° F will also stall growth. Hold crops at 50-55° F nearly indefinitely with slow, but continued, flower production.

Article continued on next page.

Cyclamen Culture article continued from previous page.

Control of lighting for cyclamen serves to control leaf temperature. Light levels should be reduced to 4000-4400 fc in summer. During winter months, supplemental lighting will be beneficial if light levels fall below 2000 fc. Cyclamen are not photoperiodic; daylength manipulation is not necessary.

PGRs

Growth of cyclamen crops is best managed through control of moisture, fertility, spacing and light.

Diseases and Pests

Please consult the GGSPRO Insecticide and Fungicide Options Bulletin for rates and other detailed information regarding effective treatments for all disease, insects and mite pests mentioned. The GGSPRO Team is available to discuss pesticide and biological control strategies.

Botrytis is not uncommon during winter due to the dense plant canopy. Look for grey, fuzzy growth under the canopy. Flower damage shows as darkly pigmented areas or dark spotting on the petals. Remove spent leaves and flowers, reduce humidity, increase air flow, and balance media moisture with transpiration to avoid favorable conditions. Effective fungicides are available to be used in rotation.

Vascular disease caused by **Fusarium oxysporum** is more serious, though less common. Latent infections occur, with delayed expression as sudden leaf yellowing and wilt. On-site diagnosis involves slicing firm corms parallel and perpendicular to the soil surface; reddish/brown or purple/black discoloration indicates infection. Roots may appear healthy. Discard effected plants; no curative treatment exists. *Fusarium* spores are long-lived in soil and easily spread through water. Never reuse trays or pots for cyclamen, minimize splashing water and avoid heat/drought stress. Fungicides can be used to prevent the spread of *Fusarium*, but infected plants cannot be salvaged.

Bacterial in nature, **Erwinia** causes soft rot and rapid collapse. Attacking the crown, *Erwinia* softens the corm and generates an unpleasant odor. Immediately discard effected plants and preventively treat remaining plants with a bactericide labeled for *Erwinia*.

Two **anthracnose** diseases affect cyclamen. The less serious *Colletotrichum* causes small, brown spots on leaves. The more serious *Gloeosporium* (*Cryptocline*) attacks young petioles, with distinctive drying and malformation of the young tissue. *Gloeosporium* can also attack older tissue and flower buds, resulting in drying and distortion. Avoid leaf wetting and rotate labeled fungicides as needed.

INSV and **TMSV** occur in cyclamen. Watch for ring spots, mosaic patterns, atypical leaf coloration (yellow, bronze or brown) and distortion. Discard effected plants and control thrips, as they are the only means of transmitting these viruses.

Pests

Most common pests include thrips, cyclamen mite, broad mite, fungus gnats and shoreflies. Thrips can cause white streaking on flower petals. Cyclamen and broad mite cause severe distortion of young tissue, often evident at the corm level. Older leaves may malform with dry, brown areas. Flowers may twist on the petiole with browning and deformities. Always suspect cyclamen and broad mites when twisting and severe distortion is seen. Fungus gnats and shoreflies indicate that the crop is being grown too wet.

Photo Caption:

Left - Cyclamen with Broad Mite Bloom Damage, **Middle** - Cyclamen with Calcium Deficiency, **Top Right** - Cyclamen with Corm Fusarium Disease, **Bottom Right** - Cyclamen with Erwinia Soft Rot Bacterial Disease



3rd Edition

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sungro

HORTICULTURE

Spring 2014

For the past several months, Sun Gro Horticulture Inc. has been harvesting Canadian Sphagnum peat moss for use in retail and professional products for the Independent Garden Center (IGC) and the greenhouse grower. Like you, we have been planning what to produce for next spring's sales. Being the largest provider of peat moss in North America and the largest seller of peat moss, peat-based and bark-based growing media products, it takes proper planning to harvest the peat moss required for the next year's purchases.

Sun Gro starts the peat harvest process usually in May, and depending on weather conditions, completing in September. Throughout those months, we actually can be on the bogs harvesting for 45-50 days. Wet, rainy weather prevents us from harvesting the peat and this year, that weather pattern across Canada has reduced the number of days we've been able to harvest. After last year's mild and dry harvest season, we did have carry-over inventoried peat to utilize for this year's production. Although this year's harvest was at or below historical averages, Sun Gro is doing our best to redirect peat resources to meet our all our customers' requirements. Unlike other years when the weather disrupts the harvest, this year's peat harvest wasn't a complete wash-out.

Late summer and early fall are the traditional months when the Sun Gro distributors like Griffin Greenhouse & Nursery Supplies, offer IGC and greenhouse growers the opportunity to place early orders. We encourage our customers to place their orders as early as possible; early orders help us to manufacture the supply to meet customer demand.

Sun Gro Horticulture has embraced a new vision and mandate to meet the changing dynamics of the North American professional consumer Lawn & Garden markets. We continue to produce the highest quality value-added products for your use. We are expanding product and market offerings while simplifying our customers' supply chain. We look forward to spring 2014 and look back thankfully at the successes of 2013.

For over 80 years, Sun Gro has been passionately focused on becoming the leading supplier of superior quality advanced growing mixes and peat moss products in North America. For more information about our company, please visit www.sungro.com.

