EXTREME HEAT: URC Handling; Phyto Mitigation; Mum Disease

Cultural and Technical Information for Greenhouse Professionals

GROWERTALKS MAGAZINE greenPROFIT MAGAZINE

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TECH ON DEMAND brought to you by GROWERTALKS

COMING UP THIS WEEK:

Plug & Cutting Conf Podcast
Nick's Tip: Mitigate Phyto in Heat
Cooked Cuttings
Flashback Poinsettia Article
Fusarium Under Cover
Finish Line ... AI

NEW PODCAST: All About the 2026 Plug & Cutting Conference

In episode 257, my goal was to explore and unpack the upcoming AmericanHort Plug and Cutting Conference, which is (in my opinion) a must-attend event if you grow or are considering growing your own young plants from seed, cutting, tissue culture or any other form. I've been "plugging" the conference in my newsletter over the past month or so and encouraging you to **REGISTER** for the event—scheduled for September 14–16 in Philly.

For **THIS EPISODE**, I was joined by AmericanHort's Education Program Manager Rachel Rawls to discuss some of this year's conference components, tour experiences, educational insights and networking opportunities, all of which are designed to help you level up your young plant production. Rachel was the perfect person for this conversation because she knows the conference inside and out, helped develop the sessions and other unique opportunities—and also because she's a great spokesperson and is super-enthusiastic about this year's conference and

tours.

The 2024 Plug & Cutting Conference Tour.

Here's some of what you can expect to hear about from Rachel and me:

- The focus of the Plug and Cutting Conference (young plant propagation) and why this conference is different than other industry events.
- Insight into the education tracks covering crop timing, plant health, automation, sustainability and business management.
- How peer-to-peer discussions and expert panels will give you and your team an opportunity for real-world learning and collaboration.
- Why the integration of skill stations (developed by the Buglady—Suzanne Wainwright-Evans) during production tours will give you hands-on experience in topics like cutting dips, scouting and more.
- Innovations in automation tailored for young plant production that will be found in the trade show, sessions and tours.
- Highlights of the awesome production tour lineup: Lucas Greenhouses, North Creek Nurseries, Star Roses & Plants and Longwood Gardens.
- The role of Spanish-language sessions in broadening industry access and workforce development.
- Tips on translating conference learning into actionable improvements at your greenhouse, including the availability of on-demand session recordings as part of your registration cost.

Learn more and register for the conference **HERE**.

There are now more than 255 Tech On Demand podcast episodes in the archive covering a huge range of topics related to the professional greenhouse, garden center, landscape, nursery and CEA markets. Jump back in to get caught up or take a minute to subscribe—that way you'll never miss an episode.

- **APPLE PODCASTS**
- **SPOTIFY**

Nick's Tip of the Week: Hot-Weather Phyto Mitigation

Each week, I'll work with my buddy Nick Flax, a technical services expert at Ball, to share a concern that's come up during one of his numerous calls with growers across North America. This week, he's helping you beat the heat—or what the heat can do when it comes to phytotoxicity on your crops.

PROBLEM: It's summertime and it is heating up everywhere! With lots of fall mums planted up, poinsettia cuttings on the bench, summer perennials growing out, and other fall programs starting imminently, there are plenty of reasons why you might need to apply IPM products or other foliar spray inputs soon. However, with close to (or above)100F temperatures across most of the U.S. this week, the decision to apply various inputs via foliar spray comes with an additional challenge: phytotoxicity (phyto) risk.

NICK'S TIP: Things like pest and disease pressure waits for no one, so if you must apply anything via foliar spray during extreme heat, keep the following in mind to mitigate the risk of phyto:

Be Mindful of the Time of Day
It may be common knowledge to most people in our industry, but I'm going to say it anyway: never apply insecticides, miticides, fungicides, PGRs or other adjuvants during high heat and/or high light conditions.

- Cool spray solution hitting hot plant tissue causes the water (and most everything dissolved or suspended in it) to cross cell membranes rapidly. This is largely a function of water potential, which is typically lowest in the canopy (low water potential = stronger “pull”), and infiltration, where rapid cooling of the plant cells creates a temporary vacuum that sucks water in through pores in the plant tissue.
- At baseline, too-rapid absorption of different compounds in pesticides, PGRs, and other inputs can cause damage to plant cells.
- Once inside, certain components in the spray solution can rapidly volatilize (become gaseous) inside the cells and cause further injury.

Field heat, or the thermal load accumulated by plants throughout the day, and light intensity are the biggest factors to consider. Time your applications for when field heat and light levels are the lowest to minimize phyto risk.

- While many growers like to apply products in the evening or shortly after sundown, this may not be the best option. If field heat has not fully dissipated (for example, right after sundown) and air temperatures are still high (85F+), rapid absorption of spray solution is still likely.
- Unless an even warmer weather front is moving into your area, field heat and air temperatures are typically the lowest shortly before sunrise. While no one likes to be in the greenhouse or field at 4 a.m. to spray, exceptional measures are occasionally necessary to protect crops from target pests or diseases and phyto risk.
- Ensuring that plants don’t incur damage is more important than accommodating your crew’s ability to get back in the area to handle plants without PPE for a full or partial day. You won’t have a crop to sell if all your plants get fried by a “hot” spray!

Think Critically About Formulations

Most IPM products include various carriers and adjuvants in their formulations. Emulsifiable concentrates (EC), suspension concentrates (SC), oil-based products (like mineral oils), and combinations (tank-mixes) of these types of products are the biggest concern when it’s hot out.

- If you must treat plants during extreme heat, when possible, use products with wettable powder (WP) or water-soluble formulations (like water-soluble granules/WSG) over ECs, SCs and oils.
- If you need to apply fungicide and insecticide to a given crop, space the applications out over a couple of days rather than tank-mixing. While the tank-mix is a time-saver, it is not worth the risk of potentially “burning” your crop. Prioritize which needs to go down first (use scouting and IPM action thresholds to determine this) and apply the other product shortly thereafter.
- If you MUST tank-mix, keep your “cocktail” to a minimum of two products. If possible, limit yourself to one EC or SC and use a WP or water-soluble product as the other component.

Mind the Wetting Agent

Use of wetting agents (surfactants) during unrooted cutting (URC) propagation is a popular practice and works wonders to help rehydrate them after they are stuck. Similarly, lots of growers add surfactants and other spray adjuvants to spray solutions to enhance efficacy. However, when environmental conditions are extreme and plants are physiologically stressed, these additions can potentially be the straw that breaks the camel’s back and be the cause of phyto.

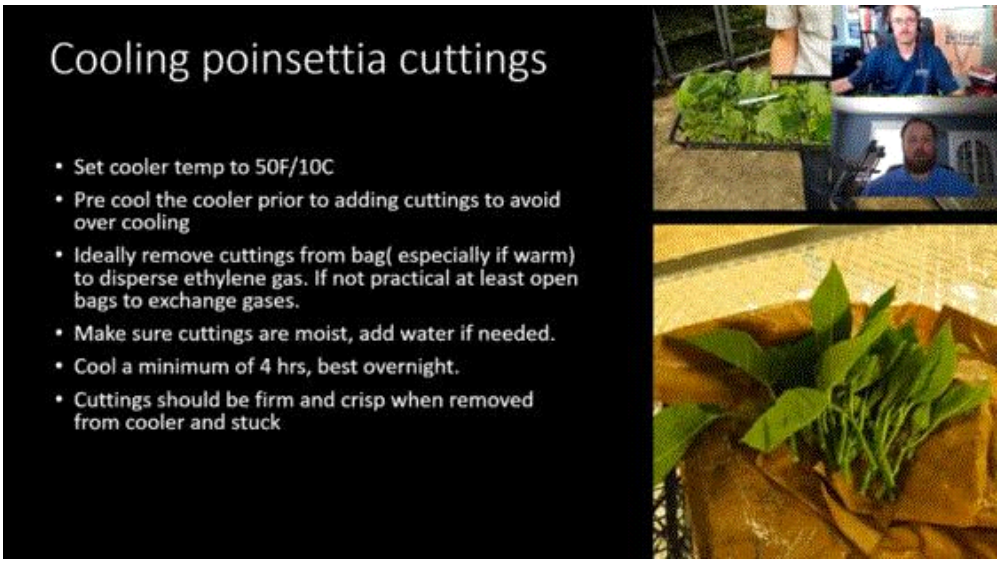
- Wetting agents work by breaking the surface tension of water on the leaf surface and allowing spray solutions to spread out more readily. While they don’t “strip” epicuticular wax on the leaf surface, they can alter the permeability of the leaf cuticle in a way that facilitates too-rapid absorption of different compounds in the spray solution.
- Use of too much wetting agent or application of certain wetting agents under extreme environmental conditions (extreme heat and/or high light intensity) can amplify this effect.
- If you are propagating URCs, consider waiting until extreme conditions in the greenhouse have passed to minimize risk.
- Check the labels of all products for whether or NOT to add a surfactant (wetting agent), as well as the surfactant type. IPM products will typically denote if an additional non-ionic or (specifically) organosilicone surfactant should be added to or withheld from the spray mix.

Minimize Crop Stressors Before Applications
Particularly for URC propagation during extreme heat, it's important to minimize environmental and cultural stressors before any application, but the same is true for rooted, young and finished plants.

- For URCs, if you normally rehydrate cuttings on the bench post-stick with a wetting agent, consider a different strategy to reduce the risk of potential phyto. Our **Best Management Practices: URC Hydration document** has a few different tricks that you can try.
- Check out **Dr. Nathan Jahnke's awesome deep dive on the importance of URC hydration** for more info on rehydration strategies (rehydration specifics start around the 27:30 mark).
- For finished plants, ensure that they are not drought-stressed by watering about 12 to 24 hours ahead of any spray application. Growing media moisture should be at a level 3 or higher on the 1–5 scale (1=air dry; 5=saturated) before you spray.
- Plants combatting rootzone disease pressure may also be more prone to phyto under high heat conditions. Restricted water uptake and subsequently reduced ability to keep up with evapotranspiration (water loss via transpiration and evaporation of water from the soil) will decrease water potential in diseased plants more than healthy ones. As mentioned in the first section on "minding the time of day," if water potential is low when a spray is applied, the risk of phyto increases. Ensure disease-stressed plants are fully hydrated and have as little field heat in them as possible before spraying.

Hot Poinsettia Cuttings

When I recorded this video back in 2020 with Selecta One's North American poinsettia expert James Doukas, I had no idea it would be one of the most important 10-minute videos we'd ever release. But it seems like every few years, a brutal heat wave coincides with the peak poinsettia URC shipping week. And that's the case this year … It's like 100F in the Midwest and I'm pretty sure this is Ball Seed's biggest URC ship week. Ugh.



So I present this to you once again, **HANDLING HOT POINSETTIA CUTTINGS**—the video. Share this one with your team so everyone can hear James share timely information for growers handling poinsettia cuttings that have heated up in transport. He discusses best practices when receiving cuttings, checking temperatures, and recommended protocols to implement. Then, we move to specific cooling strategies before wrapping up with a look at when cuttings are beyond saving and should be dumped to cut your losses. Hopefully it doesn't come to that!

Throwback Poinsettia Article! Starting on the Right Foot

Watching the video above (handling hot poinsettias) launched me down a rabbit hole reading up on tips to help get cuttings off to a strong start. And then I found **THIS ARTICLE** written by none other than our senior editor-at-large Ellen Wells for *GrowerTalks* back in May 2008. Ellen interviewed three legends in the poinsettia game—Dr. Allen Hammer, Harvey Lang and the late Jack Williams. All of these guys had forgotten way more about poinsettia production than most of you will ever know. No offense intended. It's just that these three are poinsettia giants. So, we should all heed their advice, as shared by Ellen (a legend in her own right).

The article is short enough to include it all in the newsletter.

Poinsettia Tips: Start Your Growing Season on the Right Foot

It's nearly time to start this coming winter's poinsettia crop. Are you prepared? We asked several poinsettia experts—Jack Williams from the Ecke Ranch, Dr. Allen Hammer from Dümmen Orange, and Harvey Lang from Syngenta Flowers—for tips on how growers should plan for poinsettia propagation and handle the critical first few weeks.

Before cuttings arrive

“Look at last year’s notes,” Allen says, “even before you start growing this year’s crop.” You’ll get a jump on handling similar issues that arise this year. Each year is different, but Allen says it never hurts to pull out the poinsettia manual to read up on recommended procedures.

Get ready for propagation by disinfecting benches and walkways. Cuttings are especially susceptible to pythium root rot brought into propagation area on dirty shoes and from other contaminated benches. Do what you can to protect the cuttings and prevent contamination.

“We really want to see cuttings out of the boxes as soon as possible,” Jack advises. “Have the media in pots or the filling machine ready to go. When the cuttings arrive, you can open the boxes and do whatever’s necessary to send the plants into the greenhouse as quickly as possible,” he says.

When cuttings arrive

Check the packing slips against your order as soon as you've taken the delivery. Logistics systems are good, Jack says, but it’s best to ensure you’ve gotten what you’ve ordered.

Jack also recommends having a veteran poinsettia handler open a few boxes and take a quick survey of the contents. Does the box feel warm inside? Is there an unusual odor that could be a sign of decay? “Don’t take problems into the greenhouse. Catch them before they get in there,” he advises.

If you have concerns, call the supplier immediately. Inform them you may have a problem. Jack says growers usually know within the first four days whether they’ll need replacements, and updating the supplier at ASAP gives them time to see if replacements will be available. Waiting several weeks to address the problem limits replacements and also throws off the production schedule.

Allen recommends unrooted cuttings be placed in a cooler overnight after they arrive. “It allows the cutting to get turgid,” he says, “and growers can use that time to plan their sticking for the next morning.”

Combating heat and light

Because rooted and unrooted cuttings can become dry, Harvey recommends applying a wetting agent the day after the poinsettias are potted or stuck. “This helps rehydrate the cutting and gets them out of a stressed stage,” Harvey says.

Growers receive poinsettia cuttings when conditions are hot and bright—not exactly ideal conditions for cuttings. Our three experts were unanimous in stressing the need to protect the young cuttings by using shading and misting.

“If you don’t have sufficient shade, it’s hard to hydrate the cuttings,” Harvey says. “You have to almost flood them with water, which leads to *Botrytis* and Erwinia soft rot.” He says too much light is a common problem, and he recommends providing shade to reduce light. This cuts back misting to proper levels and overall reduces stress on the cutting. Keep a careful eye on the weather, light conditions, and mist levels for the first 10 days.

Pinching

For Allen, the most critical step in poinsettia propagation is pinching, and he’s found it’s the step

growers most often delay. “When the roots reach the edge of the pot, you pinch them,” he says. This typically happens 10 to 14 days after potting for rooted cuttings and up to four weeks after for unrooted cuttings. “Even a five-day delay will show up in December as uneven branching,” he says.

Harvey has found that certain dark-leafed varieties don’t branch evenly after pinching. For those varieties, he recommends removing the first two to three upper leaves when pinching, making the lateral shoots branch more evenly.

Energy conservation
Poinsettia crops can require a good deal of energy. How can growers address this? “Early in the growing season is not the time to save energy,” Allen says. “It’ll cost you more at the end of the crop. Growers are building up the plant at this time, and they’ll need to provide the optimum environment, even it if means turning on the heat on cool early September nights.”

Jack says choosing the right genetics from the start can make a difference. Some varieties do very well grown in cooler temperatures, but they’ll need to be potted a week or two in advance to finish on time. They’ll even create a more durable product that travels and displays better at retail and in the home.

Quick Mum Tip: Avoiding Fusarium BELOW Your Groundcloth

It’s odd when only half of a plant collapses, and that’s probably why this grower reached out to the Tech On Demand team for help. With only one cutting in the pot and half a plant looking terrible while the other half looks fine, we certainly have a conundrum. Here’s the expert diagnosis:

The problem is likely to be *Fusarium* stem infection, which is blocking the water uptake in the branches on one side of the plant. Clean stock and a fungicide application early in the crop cycle can prevent this if there’s a history of this problem.

The disease is resident in the soil, and when plants are grown on the ground, eventually the roots grow through the ground cloth and become infected by coming into contact with the *Fusarium* in the soil below the cloth.

Finish Line …

Every year, I put together a calendar for AmericanHort’s **Cultivate** event in Columbus. I start with meetings and video/podcast commitments, then try to fit in as many educational sessions as I can, and lastly block out a few hours one of the days to walk the trade show. The schedule is always way too aggressive, and I never get to all the sessions I had planned to. For those of you

who attend the show each year, I'm sure you have the same problem.

But that's the beauty of Cultivate—spotting people you want to catch up with, getting distracted by a cool new plant or product, and staying after sessions to talk to the presenters are the reasons we go to these shows—and often result in the value that keeps us coming back year after year. So, I accept the fact my schedule will go out the window, and I'll be scrambling to complete only half of my goals.

Anyway … this year, my plan for Sunday includes three sessions on artificial intelligence in the green industry (and another session on Monday morning …). The specific topics (with links to the session descriptions) are AI's use in customer experience/commerce, AI in the supply/value chain, AI tools for scaling sales and AI being applied to hort now.

I'm not sure if I will make it to all four sessions but that's the plan. And I hope to learn more about how our industry can capitalize on AI and use it to build engagement and open new doors versus chip away at the human side of our businesses and the connection to nature we provide. I have a lot of thoughts on this but not a lot of true knowledge. So, rather than get on a soap box and shout into the void (or to you in this newsletter), I've decided to learn as much as I can and report back.

This exploration actually started a year ago when a friend and industry consultant cornered me at Cultivate'25 and told me about his own journey learning about AI from some of pretty major tech leaders and how he's seen some of the potential emerge when garden centers, growers and landscapers leverage AI tools. I was intrigued to say the least—but skeptical. I've been around a while and seen plenty of bright shiny things distract our industry and end up not living up to the hype. My gut tells me AI is NOT one of these things (as a whole), but some of the early use cases might be …

To hear the beginning of my "AI education journey", check out these two podcasts I recorded in the past year. And stay tuned for what I learn at Cultivate this year—assuming I don't get too far off schedule!

ARTIFICIAL INTELLIGENCE IN THE GREEN INDUSTRY (Part 1)

ARTIFICIAL INTELLIGENCE IN THE GREEN INDUSTRY (Part 2)

Until next week … Stay cool!

Please feel free to send your comments, constructive criticism and topic ideas to me at bcalkins@ballhort.com.

Bill Calkins
Editor—*Tech On Demand*

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