2 Awesome Podcasts; Mum Kickoff; Endophytes; CAST Perennials

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:

2 Podcasts with Leslie & Susie
Koppert Corner: Endophytes
Nick's Tip: Starting On Mums
CAST Perennials
Spots on Marigolds
Finish Line ...

TWO NEW PODCASTS: 4 Questions for Leslie AND Susie

I dropped two EPIC new Tech On Demand podcasts episodes this week—you've got to check them out! Both are conversations with industry veterans who've been vocal leaders and innovative thinkers in horticulture for years and have built diverse businesses that are completely different. Yet, many of the pieces of advice they share have plenty of wisdom in common. Neither of these guests back down from a challenge, and both have impacted the industry in more than a few ways.

FIRST UP is Leslie Halleck, a consultant, author, educator, certified horticulturist and *nonconformist* who opted NOT to pick four questions and instead answered whichever four questions I chose to throw at her. It's a fun episode that goes in many different directions and

touches on tons of different subjects but always circles back to a passion for the industry and all businesses and people involved. You absolutely have to listen all the way to the end of this one, because while there may be just four questions asked and answered, there's much more going on here.

Here are the four questions Leslie answered:

Q: Do you have a morning or evening routine you'd like to share with the listeners? Why do you do this?

Q: What's something about professional horticulture that annoys you and how would you change it?

Q: What are three tools you couldn't live without or couldn't do your job without. (This can be hand tools, technology, etc.)

Q: What advice would you give to a young person considering pursuit of a career in horticulture?

THE NEXT EPISODE was with Susie Raker, vice-president at Raker-Roberta's Young plants in Litchfield, Michigan. Susie is an innovator in many ways and although some of this comes from growing up in a cutting-edge family business, she is definitely her own person and has forged an amazing path in the industry. This discussion covers A LOT, and like the episode with Leslie, you'll have to listen all the way to the end so you don't miss anything!

Here are the four questions Susie selected:

Q: If you had a free hour, what would we find you doing?

Q: If you won the lottery and could start a horticulture business from scratch, what would it be and what would it look like?

Q: What advice would you give to a young person considering pursuit of a career in horticulture?

Q: What does the future of horticulture look like?

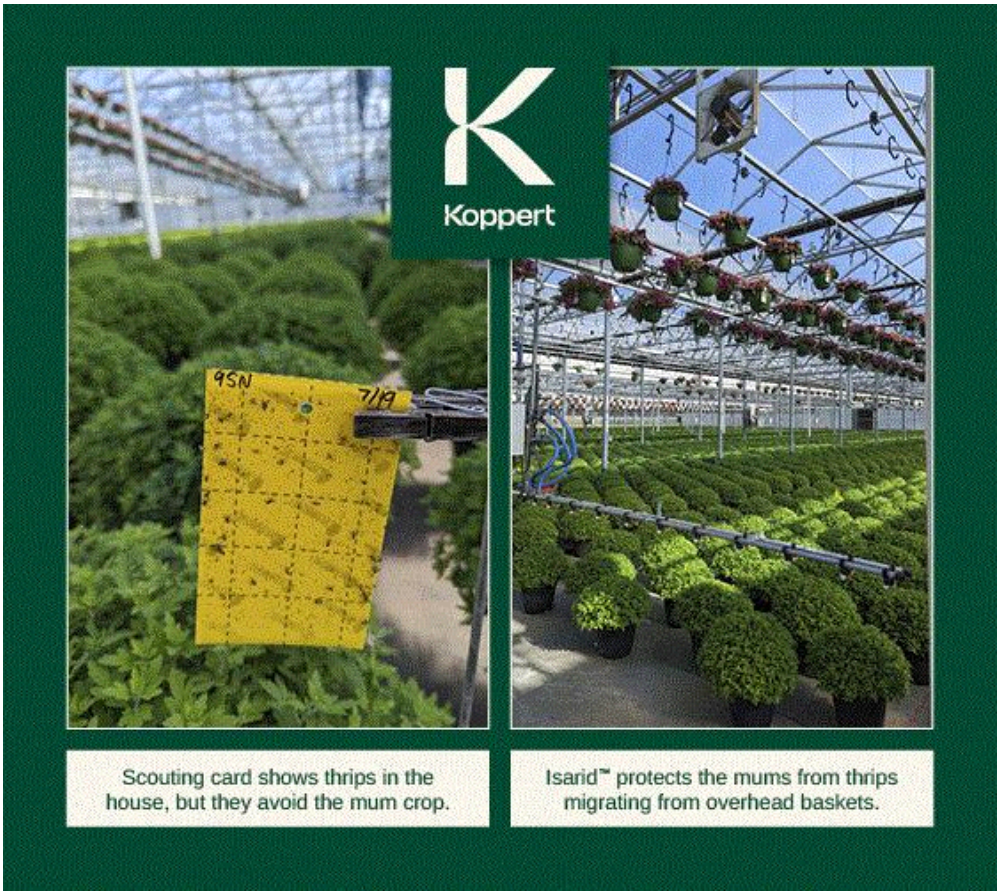
We're closing in on 250 Tech On Demand podcast episodes in the archive covering a huge range of topics related to the professional greenhouse, garden center, landscape, nursery and CEA markets. Take a minute to subscribe—that way you'll never miss an episode.

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

Last but certainly not least … shout out to **Mycorrhizal Applications** and **Prospiant Greenhouses** for sponsoring these episodes!

Koppert Corner: Understanding Endophytes

While walking through a crop of greenhouse garden mums in late July, my heart dropped. The scouting card I was looking at was saturated with 400-plus adult thrips after just seven days. Further examination of plants surrounding that card showed no signs of thrips presence or feeding damage on the mums, setting my mind at ease. But it got me wondering—what was going on?



Endophyte = Inside Plant

What I was observing was the result of an **endophytic response**—Isaria spores and metabolites moving through the roots and into the plant. This was achieved when Isarid (*Isaria fumosorosea* strain FE9901) was applied weekly as a sprench/drench to manage insect pests while the plants were growing pot-tight. Applied regularly to the root zone, the spores of **entomopathogenic fungus** (EPF) move into and colonize plant tissue, unleashing an endophytic response. Think of

it as a soft systemic response, but so much more.

Secondary Metabolites
Microbial endophytes and the secondary metabolites they produce are involved in defense signaling. Basically, the plant gives off **volatile organic compounds** (VOCs) that signal to insect pests that there is an organism on the plant that could kill them, resulting in avoidance or deterrence behavior. They can also alter the taste of the plant tissue, making it less palatable to pests.

But wait, there's more! Fungal endophytes are also known to have growth-inhibitory impacts on herbivores and plant pathogens. In the case of Isarid, secondary metabolites inside the plant can impact insect health, reproduction and survival, weakening pests and making them less effective at attacking plants.

Call in the Calvary
High numbers of the native predator **Orius** were observed in the unsold spring combo baskets left hanging above the mum crop at spacing. The endophytic response referred to as **recruitment signaling**, by which plants release VOCs to alert prey insects of a food source in the area, draws native beneficials to the crop.

The Caveat
These impacts will vary across plant species, meaning that an EPF that acts as an endophyte in one plant species may not activate this response in another plant species. In thrips-attractive seasonal annual crops, optimal results are obtained by alternating sprays and sprenches of Isarid weekly to achieve both contact and endophytic effects.

Reach out to a **technical consultant at Koppert** to learn how to unleash the endophytic response in your ornamental crops!

Nick's Tip of the Week: It's Time to Think Garden Mums!

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 starting the 2026 chrysanthemum discussion, which will continue through the summer.

PROBLEM: Weather across much of North America is warming up (or should soon) and garden mum inputs are starting to land on loading docks. It's time to kick off the mum season with some reminders and resources for you and your production team to help you fill the proverbial toolbox. I get many of the same core questions during just about every mum season, so each year I try to share some tips and tricks in the newsletter around this time.

NICK'S TIP: This week let's take a high-level look at the early stages of mum production. I will no doubt go much deeper into the crop as things progress this summer. I'll also throw in a heads up on crown budding for those of you who want to think ahead.

Propagation
Interestingly, lots of new mum growers want to try their hand at rooting their own cuttings. While mums are not the toughest crop to propagate, there are a few things that you absolutely need to get right if you want to do this yourself rather than purchase rooted liners.

Timing: In North America, most mum liners should be planted in the next few weeks to be ready for sale September through October. Since rooting takes approximately three weeks (occasionally four for less-experienced propagators), unrooted cuttings need to be stuck in early to mid May. Around week 26, you could possibly direct-stick a smaller container program and finish on time. However, by now, even well-rooted liners or larger inputs like 50-cells going into larger container programs would need to be pushed very hard to get an appropriate amount of size on them before flower initiation occurs.

Facilities: Successfully rooting mums requires an appropriate propagation area. Rooting mums in a Quonset-style house with minimal environmental control and no overhead mist emitters isn't impossible, but it will likely be difficult for inexperienced propagators. The ability to provide root-zone heat, shade in early stages of propagation, and the capacity to keep relative humidity high while minimizing excess moisture accumulating in media and on foliage are all key factors to rooting high-quality mums.

Premature Budding
A LOT of growers encountered premature budding (also known as "crown budding") in 2025. Old-school growers often defaulted to ethephon (Florel/Collate) sprays to overcome this, and newer growers were caught off guard and didn't know what to do when they started to see buds on their 5-in.-tall mums. There are a few things you can do to overcome this, but here are a few key take-homes if you aren't sure what to do.

Don't pinch them. We do this frequently with other crops to try to "reset" them, but it is not necessary for mums. Some folks also take the time to disbud each plant, but this is really just a drain on you and your team's time.

Avoid use of ethephon (Florel/Collate) if possible. Many modern varieties are quite sensitive to ethephon, and while your plants may branch a bit more vigorously after an effective treatment, these applications lead to smaller plants at finish. If liners are very well-rooted when you apply it and the crop gets pushed hard with fertilizer after ethephon treatment(s), the risk of small plants is much lower. However …

... If you just push hard with fertilizer at the first sign of crown budding, you can avoid pinching, disbudding and ethephon applications altogether. Apply an ammonia-based fertilizer like a 20-10-

20 (or even a triple-20 once or twice) at 300+ ppm N a few times in a row and new axillary shoots will push out from beneath the crown buds and cover them up entirely. This is so much easier, but you really need to keep the pressure on with fertilizer until you start to see results.

CAST 2026 Rewind: Perennials

Following California Spring Trials 2026, I've been reorganizing some notes and our daily newsletter musings into groupings and putting together reports on different trends and segments that stood out to me. I'll share some of these in the newsletter from time to time. Such as this:

Perennials have been quietly but decisively expanding their footprint at California Spring Trials. While annuals have historically been in the spotlight, the past few years have made it clear (at least to me) that perennial breeding is moving just as fast, reaching more markets and solving more production challenges than ever before. Across genera, breeders emphasized first-year flowering, container application, disease resistance, environmental tolerance and retail season extension, all while delivering seasonal color and improved habits for programs.

One of the most important perennial discussion points at CAST 2026 was the continued effort to fit perennials into annuals programs—without losing their hardiness or garden performance. That goal surfaced repeatedly this year in introductions bred for faster finishing, predictable sizing and multi-season appeal. Small, adaptable perennials capable of filling packs, quarts and mixed containers were everywhere, proving that perennials are now embedded in spring retail strategies rather than isolated to summer and fall sales.

That annualization of perennials was especially evident in crops traditionally viewed as landscape-only. A standout example was the DayScape series of daylilies (Darwin Perennials), which reflected a fundamental shift in how breeders are positioning classic perennials. The DayScape collection showcased nine colors bred specifically for rust resistance (extremely important below the Mason-Dixon line) but also for first-year flowering, long-lasting blooms, continuous rebloom, compact habit, wet and drought tolerance and more. Unlike traditional daylilies that peak briefly and then recede into foliage, DayScape varieties were selected for extended color display and strong retail presence. The many additional benefits reinforce the idea that daylilies are now legitimate players in spring and early summer container programs.

Broad adaptability was a recurring theme well beyond daylilies. Compact or “petite” perennial varieties were prevalent across the trials, offering growers options that fit modern production realities. Crops such as lavender Scent Mini Blue (Syngenta/ThinkPlants) illustrated how breeders are shrinking traditionally larger perennials into formats suitable for quarts and smaller patio pots—without sacrificing sensory impact. Despite its smaller size, Scent Mini Blue is all about fragrance and first-year flowering, aligning perfectly with what today’s shoppers are looking for.

Stress tolerance—both heat and cold—was another key message wrapped around perennial breeding at CAST 2026. Exhibitors repeatedly emphasized genetics that perform across regions. In gaillardia (one of my favorite perennials and a crop we’ve seen a bunch of new intros in over the past few years), additions to the Gusto series (Danziger), including Swift Saffron—which has a nice habit and good heat tolerance—meaning it’s expected to have a longer shelf life and better garden performance than other gaillardias. Along similar lines, heliopsis Forged in Fire has improved mildew resistance, dark stems and heavy branching—all of which lead to grower-friendly production efficiencies and landscape or home garden performance.

Cold hardiness has also been mentioned more and more at CAST for the past few years, showing that breeders are working on behalf of growers serving northern markets and looking to extend shoulder season sales. Several breeders showed us perennials trialed and selected for Zone 3 and 4, even with new varieties touting compact habits and container use. Obviously, these benefits aren’t impacting hardiness, which is nice to see.

Another long-term trend we’ve written about for the better part of a decade (and one that doesn’t seem to be slowing down) is the expanded role of perennials in mixed and combination programs. Several new recipes featured perennials as structural (thriller) elements paired with annual fillers and spillers, creating containers designed to evolve over time rather than peak and go to green. This approach increases perceived value for consumers and positions perennials as multi-season “investments.”

The main thing that stood out to me across all of the perennial introductions at CAST 2026 was that breeders are really focused on what happens after the sale. Disease resistance, long shelf life, limited color fading, reblooming without deadheading and true garden durability were consistently cited as priorities. The message was clear once again: perennials are no longer sold green, dependent on big full-color tags and a promise—they’re being bred for color on the retail bench every season AND performance customers and landscape professionals can actually see and appreciate for months and years.

I think perennials at CAST this year reflected both maturity and momentum. Current breeding efforts aren’t just for niche markets and novelty. We’re seeing plants that are easier to grow, easier to sell and easier to succeed with—across climates, container sizes and retail formats

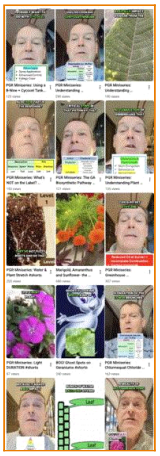
Watch all of our CAST 2026 VIDEOS on YouTube!

Quick Tech Tip: Black Foliage on Marigolds

The Tech On Demand team heard from a grower who saw some pretty ugly black leaf spots on his marigold crop. The diagnosis was that this is most likely Alternaria leaf spot or Septoria brown spot. Both are common leaf diseases on many different crops. Here’s the advice given to the grower that seems like good info to share with all of you.

Environmental conditions are key with marigolds. Wet foliage (as seen in the photo), late irrigation, dense canopies and poor air circulation are prime causes for disease proliferation. Such conditions also contribute to botrytis, which looks like it may be setting in on the edge of the petals. Managing your greenhouse environment closely will go a long way toward avoiding the ugly symptoms we see here.

Finish Line ...



Retired technical services guru Dr. Will Healy has been working with me to capture knowledge and experience gained over his 45 years working with plants (and growers) into short videos under three minutes each to post as YouTube Shorts and Instagram and Facebook Reels. So far, I've released more than 30 and we're currently deep into a long miniseries on plant growth regulators (PGRs). I think I'm going to take a short break from PGRs and jump into editing Will's mum shorts next week since it's the season …

Believe it or not, I'm working through a catalog of more than 100 video shorts Will has sent me! Your best bet to see these videos when I get them posted is to *subscribe* to the **BALL SEED YOUTUBE CHANNEL** and *bookmark* the **SHORTS PLAYLIST**. Or you can find them all on Instagram **@BallTechOnDemand**.

I'll talk to you next week!

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

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Editor—*Tech On Demand*

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