GROWERTALKS

Features

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Science on Stage

Laura Barth

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Funding the Future of Floriculture

Each summer, Cultivate, the green industry's largest trade show, brings together thousands of professionals for world-class education, cutting-edge innovation and practical insights that growers can immediately apply in their operations. The 2025 show was no exception. The American Floral Endowment (AFE) was proud to support two science-driven presentations highlighting research from our thrips and Botrytis initiative, with direct benefits to floriculture and greenhouse production.

Dr. Rose Buitenhuis of the Vineland Research & Innovation Centre, and Dr. Jim Faust of Clemson University each took the stage to share the latest on their respective projects. Dr. Buitenhuis focused on emerging strategies to manage Thrips parvispinus, an increasingly troublesome pest for ornamental growers, while Dr. Faust unveiled new findings in Botrytis management, including the use and potential pitfalls of biorational fungicides. Together, their work exemplifies AFE's mission to support research that empowers growers with sustainable, science-based tools.

Here's a breakdown of what was shared and what growers should know:



Managing *Thrips parvispinus*: Strategies for Prevention and Control

Presented by Dr. Rose Buitenhuis

While western flower thrips have long been a well-known nuisance, *Thrips parvispinus* has emerged as a new threat across greenhouses in the southeastern U.S. and parts of Canada. Unfortunately, it's not only damaging—it's also proving tough to control with existing thrips programs.

Dr. Rose Buitenhuis of the Vineland Research & Innovation Centre speaks during a session at Cultivate'25.

Dr. Buitenhuis and her collaborator Dr. Sarah Jandricic of OMAFRA have launched a comprehensive research program to design IPM solutions specifically for *T. parvispinus*. Their presentation at Cultivate outlined results from the first year of this initiative, covering three strategic areas: cutting dips, behavior analysis and biological control.

Cutting treatments: A preventative first line of defense

One major discovery was the importance of targeting thrips before they enter the greenhouse. Infested cuttings are believed to be the primary source of new introductions, so clean-start protocols like cutting dips are crucial. Trials on crops such as dipladenia, hibiscus and anthurium tested the safety and effectiveness of several biopesticides (e.g., Suffoil-X, EpiShield, Botanigard ES, BioCeres WP and EC, LalGuard M52, and Mycotal) and treatments like cold storage or hydroxyl radicals (using UV-C light paired with ozone and hydrogen peroxide).

- Low rates of oil-based products, including oil formulations of microbials, are generally safe for unrooted cuttings (dipladenia and hibiscus) and rooted plugs (dipladenia and anthurium). High rates are not recommended. Rooted hibiscus plugs are more sensitive than cuttings. LalGuard M52 at the tested rates was unsuitable for dip treatments.
- All products reduced *T. parvispinus* larvae, while only the high rate of SuffOil-X killed thrips eggs.
- Short-duration hydroxyl radical treatment is safe across crops and stages, but was not enough to reduce thrips. Longer exposure was more effective against thrips larvae, but may cause phytotoxicity. Further calibration of the treatment dose is required.
- Cold storage of the cuttings for 72 hours at 40.5F (4.8C) reduced thrips eggs, larvae and adults.

Takeaway: Growers should evaluate crop-specific sensitivity when implementing cutting and plug treatments, but consider this a strong option to reduce pest entry points.

Understanding behavior: Timing and host preferences

To refine monitoring and control strategies, the team also studied the behavior and life cycle of *T. parvispinus*:

- Flight activity peaks late in the day and is the best time to apply treatments that rely on contact.
- Thrips biology and performance vary by host plant species and leaf age. Use sensitive varieties as trap/indicator plants or grow resistant varieties only.
- Plant washes are the best monitoring method. Plant taps and sticky cards severely underestimate thrips infestations in the crop.

Takeaway: Growers might strategically scout or manage crops based on host suitability and daily thrips activity patterns.

Anystis baccarum (the “crazee mite”) is a biocontrol agent that preys on all foliar stages of *T. parvispinus*.



Biocontrol options: Predators that work

Standard biocontrols used for western flower thrips don’t cut it with *T. parvispinus*. Fortunately, two promising candidates emerged in their lab trials:

- *Orius insidiosus* (minute pirate bug) and *Anystis baccarum* (the “crazee mite”) prey on all foliar stages of *T. parvispinus*.
- Greenhouse cage studies also confirmed longer-term suppression, with both predators establishing populations over several weeks.

Takeaway: Incorporating these predators into IPM programs, particularly alongside clean plant materials, could significantly improve thrips control.

If you want to learn more, Dr. Buitenhuis shared the latest insights from this research during AFE’s August Grow Pro Webinar, sponsored by BioWorks. Visit endowment.org/growpro to view the recording.

Practical Strategies for Managing Botrytis

Presented by Dr. Jim Faust, as part of his presentation "Managing Botrytis and Handling URCs from Arrival to Prop Bench"

Dr. Jim Faust, a professor at Clemson University, shared an eye-opening update on his team's progress in developing more sustainable and strategic Botrytis control programs. As growers know, *Botrytis cinerea* (gray mold) can be devastating in both greenhouse and postharvest settings, and resistance to synthetic fungicides is a growing concern.

His research dives deep into the performance, interactions and resistance risks of biorational fungicides, with special attention to Howler EVO, a product containing *Pseudomonas chlororaphis* metabolites and Theia, a strain of the bacterium *Bacillus subtilis*.

Uncovering resistance risks: Cross-resistance is real

Surprisingly, Howler EVO shares a mode of action with the synthetic fungicide fludioxonil (Medallion). Dr. Faust's team discovered that both contain or are chemically related to pyrrolnitrin, meaning that alternating between them doesn't avoid resistance—it may accelerate it.

Takeaway: Growers should not rotate Howler EVO with fludioxonil. Use one or the other, but not both in the same program. For high-efficacy needs, Medallion remains the stronger product.

Timing and environmental considerations

Another key insight: Pyrrolnitrin is UV-sensitive, so Howler EVO should be applied after sunset or postharvest to preserve efficacy.

Takeaway: Application timing matters—consider environmental stability to avoid product degradation.

Synergy and compatibility: What works and what doesn't

Jim's research also revealed:

- Mixtures of Howler EVO with FRAC 3 fungicides (like propiconazole) can produce synergistic effects, improving efficacy and reducing the need for higher fungicide doses.
- However, mixing Howler EVO with another biocontrol product, Theia (*Bacillus subtilis*), led to antagonism—Howler inhibited the growth of the benefical bacteria in media and on whole plants.
- Calcium chloride, commonly added in tank mixes for Botrytis, showed no synergy when mixed with either FRAC 3 or FRAC 12 fungicides, though it is safe to use and provides the additive effect of two products.

Takeaway: Compatibility matters. Always check whether products complement or counteract each other—especially when mixing living biological control agents with other products.

New product exploration

The team also evaluated calcium propionate, a food-safe preservative, for Botrytis control. While it showed some activity, phytotoxicity and visible residues made it unviable for floriculture. Likewise, testing the systemic acquired resistance potential of polyoxin D (Affirm) showed mixed results—promising in early data, but not consistent across follow-up trials. Nonetheless, polyoxin D is an effective product for Botrytis management and is OMRI-listed for organic production.

Takeaway: Not all "natural" products are suitable for ornamental crops. Efficacy must be balanced with crop safety and visual quality.

To learn more about this research, be sure to register for AFE's upcoming Grow Pro Webinar featuring Dr. Faust on September 23, sponsored by BioWorks (endowment.org/growpro).

AFE research: Investing in grower success

From new biological insights on thrips to smarter fungicide rotations for Botrytis, AFE-funded projects presented at Cultivate 2025 delivered actionable takeaways that greenhouse growers can use immediately. These sessions reinforced the critical role that applied research plays in developing sustainable production practices that reduce losses, lower chemical use and improve plant health.

Growers who couldn't attend can still benefit—the latest research updates will be available through AFE via our Growing Further newsletter and Grow Pro Webinar series, and future updates will continue to be shared to shape best practices. Additional thrips and Botrytis resources can be found in our Thrips and Botrytis Research Library at endowment.org/TB.

As the floral and greenhouse industries face evolving pest and disease pressures, AFE's commitment to funding forward-thinking science ensures that growers have the tools and knowledge they need—not just to survive, but to thrive. This important work wouldn't be possible without the generous support of industry partners and donors who make AFE's research initiatives possible. Their contributions help fuel innovation and secure a stronger, more resilient future for the entire floriculture community. To learn more about supporting AFE's research efforts or to explore current projects, visit endowment.org. **GT**

Laura Barth is Research Coordinator at the American Floral Endowment.