

GROWERTALKS

Pest Management

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Shining a Light on New Technology for Thrips Management

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In the last issue of *GrowerTalks*, I shared some of the latest results from the American Floral Endowment's Thrips and Botrytis Research Library. This comprehensive resource, housed on AFE's website (endowment.org/tb), represents the culmination of 17 special research projects from our Thrips and Botrytis Research Campaign, made possible by the generous contributions of 25 industry sponsors totaling \$1.5 million. The Thrips and Botrytis Research Library, which is free to access, serves as a central repository for the wealth of knowledge generated from this campaign, offering the industry access to cutting-edge research findings and practical solutions. You can find articles, webinars and more available in both English and Spanish.

Pictured: A modified UV-C chamber with adjustable light fixtures positioned below the plant and angled to expose the underside of the leaves.

In September, I provided an update on the latest Botrytis research updates from the Thrips and Botrytis campaign. This month, we're shifting the "spotlight" to thrips management. As you know all too well, western flower thrips (WFT) are notorious for the damage they can cause to greenhouse crops. Fortunately, innovative research is offering new strategies for controlling these pests.

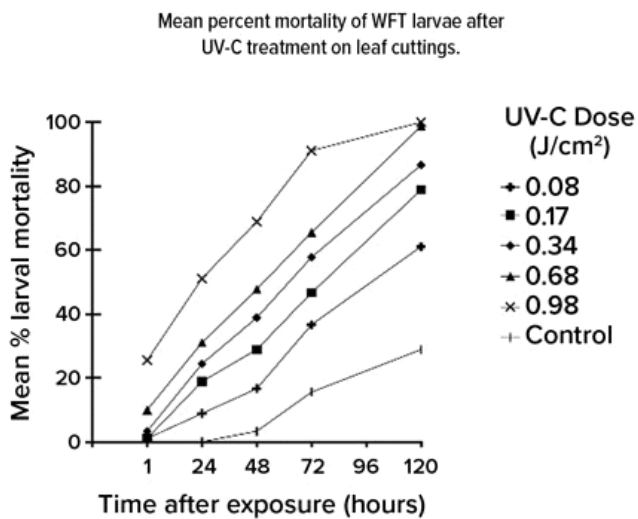
A bright idea

WFT are a persistent problem for greenhouse growers, especially since these pests like to hide on the undersides of leaves and lay eggs inside the leaf tissue, making them difficult to manage. AFE-funded research conducted by Drs. Margaret Skinner and Bruce Parker and their team at the University of Vermont Entomology Research Laboratory (uvm.edu/~entlab) has shown promising results using UV-C light to control WFT populations.

Ultraviolet energy, in particular UV-C light, is a novel approach to managing various pests and diseases in high-value crops. Research has shown that powdery mildew can be controlled with exposure to UV-C, but limited information is available on its potential for use against WFT. In their initial studies on leaf cuttings, the researchers found that exposing thrips-infested leaves to UV-C light significantly impacted WFT survival and reproduction.

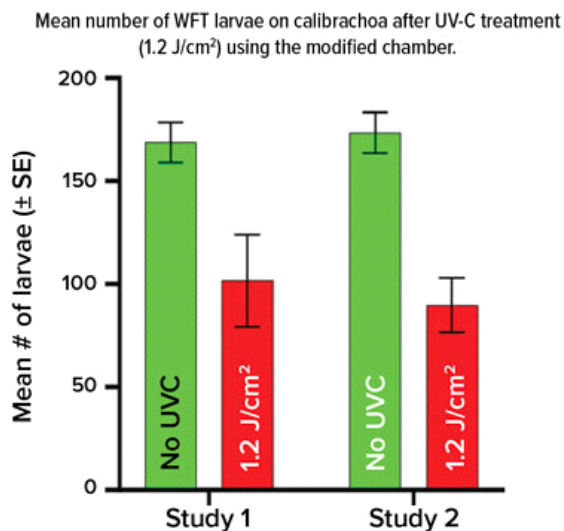
For instance, when WFT larvae were exposed to specific doses of UV-C light, about half of them died within 24 to 48

hours. The UV-C light also reduced the number of eggs laid by any surviving adults. When leaves containing WFT eggs were exposed to UV-C doses known to cause 30% to 40% mortality in adults, 86% to 98% fewer eggs hatched compared to untreated controls. This demonstrates that UV-C exposure may not kill all the WFT outright, but will reduce their ability to reproduce, thereby slowing the buildup of the population.



Pictured: Mean percent mortality of WFT larvae after UV-C treatment on leaf cuttings. • Mean number of WFT larvae on calibrachoa after UV-C treatment (1.2 J/cm²) using the modified chamber.

The researchers then took this study to live potted calibrachoa plants. One of the challenges with UV-C treatment is that it can be hard to target the areas where thrips are hiding, like the undersides of leaves. To address this, the UVM team designed a specialized UV-C chamber with adjustable light fixtures that can angle upward, making it easier to treat the lower leaf surfaces where thrips often feed and lay eggs. Using this modified UV-C system, the researchers treated infested calibrachoa plants and observed a 40% to 48% decrease in thrips larvae after exposure to UV-C light. Importantly, the UV-C treatment caused minimal damage to the calibrachoa plants.



The UVM team is continuing to refine this method and is currently working on developing an automated UV-C system that could be used on a larger scale in commercial greenhouses. This could become a valuable tool for growers looking to manage WFT without relying solely on chemical pesticides. The exciting thing about UV-C treatment is that it leaves no residues, causes little observable damage to the plants that were tested, and may reduce the use of agricultural chemicals and eliminate pesticide exposure to spray applicators. This project is still ongoing, so be sure to subscribe to AFE communications for the latest

updates on this important research, as well as other research updates and webinars like our recent Grow Pro webinar on Integrated Control of Thrips and the latest results from our newly funded Thrips parvispinus project.

Key takeaways

■ **UV-C light as a thrips management tool:** The research highlights UV-C light as a promising non-chemical option for managing WFT. Researchers are working to find practical ways to integrate UV-C treatment into pest management strategies.

■ **UV-C impact on thrips reproduction:** While UV-C light may not kill all WFT immediately, it significantly reduces their ability to reproduce. This is crucial for long-term control, as it helps slow down the population growth of these pests, making them easier to manage over time.

■ **Minimal plant damage:** The studies showed that UV-C treatment caused minimal damage to the plants that were

studied. This means that growers can utilize UV-C light without worrying about significant negative effects on plant health and quality.

Sustainabloom

Reducing pesticide use goes hand in hand with another industry topic: sustainability. Next month, I'll be sharing information about our new sustainability initiative, Sustainabloom, which is also the result of successful industry support and collaboration. Sustainabloom focuses on helping industry members approach, enhance and implement sustainable practices through in-depth guides and research-driven resources, all housed within our easy-to-navigate website, sustainabloom.org. By embracing sustainable practices, the floriculture industry can pave the way for a greener future, ensuring that our industry not only thrives today, but for generations to come.

Connecting research to the industry

At AFE, our dedication to the floriculture industry goes beyond just funding research. We strive to ensure that the valuable insights gained from our projects reach the hands of growers and industry professionals. In addition to the Thrips and Botrytis Research Library, we provide an array of resources, such as our monthly Grow Pro Webinar Series and the quarterly Growing Further newsletter, which are designed to keep growers informed and equipped with the latest knowledge.

The need for ongoing support

Looking ahead, the demand for innovative pest management strategies is more urgent than ever. The significant outcomes from AFE's Thrips and Botrytis Campaign highlight why continuous support from the industry is essential. The research findings not only deepen our understanding of alternatives to chemical controls, but also pave the way for practical solutions that growers can apply in their operations. This work is crucial for fostering a more sustainable and resilient floriculture industry. AFE can only continue to fund groundbreaking research and collaboration with industry support. Only by working together can we tackle these challenges effectively. **GT**

Visit the Thrips and Botrytis Research Library [HERE](#).

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