



## 2023 Paul Thomas Floriculture Production Intern of the Year Awards

### Recognizing Talent and Passion from Across the Nation

Each year through the Vic & Margaret Ball Internship Program, AFE has the opportunity to match promising future horticulturists with top production greenhouses across the nation. These students get to see first-hand what it's like to work at top floriculture facilities, train under industry experts, and gain insight into their future career paths. Each intern is hand-picked and placed based on their wide range of experiences, perspectives, and unique studies. Students who successfully finish their internship, including completing a written report and multiple video blogs, are eligible for our Paul Thomas Floriculture Production Intern of the Year Award.

Last year, one intern stood out from the rest for her limitless passion, drive, and curiosity in horticulture, which she exemplified in her internship. We are excited to announce that **Emily Larsen of the University of Wisconsin – River Falls** is our 2023 Paul Thomas Intern of the Year!



"In choosing the Intern of the Year, our committee deemed it necessary to recognize two other interns who shone exceptionally bright in their internships and demonstrated the key characteristics of the Paul Thomas Award—Hannah Kramer and Zach Rosenkrans," AFE Vic and Margaret Ball Chairman, Dwight Larimer, AAF, PFCI, said. "We are happy to announce Hannah and Zach as Honorable Mentions for our Paul Thomas Award."



RESEARCH  
INTERNSHIPS  
SCHOLARSHIPS  
EDUCATION

## R.I.S.E. to Support Floral!

### 2023 Annual Fundraising Campaign

R.I.S.E. up to support the floral industry! In an effort to continue to increase support for important research, education, and other floriculture programs to advance our industry, we are conducting our annual virtual fundraising campaign from **May 15th–June 30th**.

These resources are vital to the ongoing growth of floral. This campaign will support the ongoing success of our industry across all segments, ages, and levels.



**DONATE  
TODAY!**



# About AFE

## AFE's Mission Statement

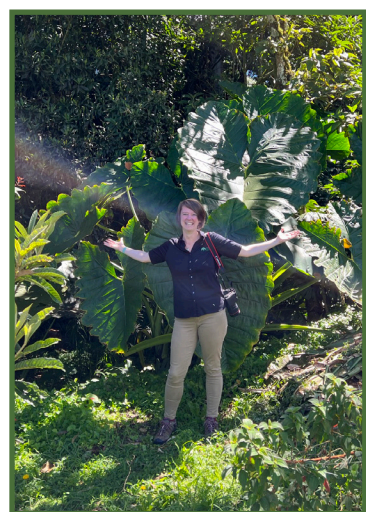
To be the trusted source and catalyst for floriculture advancement through funding of innovative research, scholarships, internships, and educational grants that best serve the dynamic needs and demographics of all industry sectors.



### The AFE Bulletin is proudly sponsored by the Todd Bachman Memorial Fund.

Todd Bachman served as Chairman and CEO of Bachman's before his untimely death in 2008. Todd was a past chairman of the American Floral Endowment and was very active in many state and national industry organizations. Those who knew him will always remember what a great communicator he was and his outstanding leadership and devotion to work and family. His wife and daughters are honored to carry on his legacy.

## Research Coordinator Laura Barth Inducted into GPN Magazine's 40 Under 40



We are pleased to announce that our Research Coordinator, Laura Barth, has been inducted into Greenhouse Product News (GPN) Magazine's 12th Annual 40 Under 40, Class of 2023. This accolade recognizes the outstanding achievements and contributions of 40 young professionals under the age of 40 who are making a difference within the horticulture industry.

The individuals honored with this distinction were nominated by their peers and selected for their remarkable achievements in their personal and professional lives. They have demonstrated "superior leadership, creativity, compassion, and innovative thinking," which are the hallmarks of this award.

Laura's induction into the 40 Under 40 Class of 2023 acknowledges her passion and dedication to the horticulture industry, as well as her innovative approach to her career. In her position as Research Coordinator at the Endowment, Laura has played a key role in overseeing AFE-funded research projects and initiatives to foster growth and development within the floral community.

"It is an honor to be recognized alongside these other young professionals who are part of this year's 40 Under 40 class and I'm incredibly proud to have been selected," Laura says. "AFE has been instrumental to my growth and successes in this industry – as an AFE scholarship recipient in grad school, and now as a professional in the industry where I get to do meaningful work that I love every day."



The American Floral Endowment congratulates Laura and the other outstanding young professionals inducted into the 40 Under 40 Class of 2023. "AFE remains committed to supporting and nurturing the next generation of horticulture and floriculture leaders. We are excited to see the positive impact they will continue to have on the industry," Executive Director, Debi Chedester, CAE, IOM, AAF, said. "We could not be more proud of Laura for receiving this great honor!"

You can read more about Laura and the other 40 Under 40 Class of 2023 members at [gpnmag.com](https://gpnmag.com).



## Annual Fundraising Campaign

MAY 15TH - JUNE 30TH

This year's new campaign theme touts the overall tagline of R.I.S.E., representing AFE's core programs: Research, Internships, Scholarships, and Education for the floral industry. AFE can only continue to provide funding and programs for our industry with the support of those whom we serve.

### R.I.S.E. up to support the floral industry!

“Your donation to AFE will lead to returns that help all businesses in this industry, including your own. No matter what segment of the industry your business is in, the Endowment's investments in research, educational activities, and scholarships are helping us all!”



- Dr. Marvin Miller,  
Ball Horticultural Company



### Your donation to AFE helps increase funding for:

- **Research** to produce healthier, longer-lasting flowers and plants.
- **Internships** to recruit tomorrow's leaders and provide hands-on training for young professionals.
- **Scholarships** to foster education and empower the next generation to choose careers in our industry.
- **Education** to provide ongoing learning opportunities and knowledge to all industry members at all levels.

### Together we can make a difference for all!



DONATE TODAY!

Scan to learn more or visit [endowment.org/rise](https://endowment.org/rise)





# The Driving Forces of Floriculture Sustainability

By Dr. Melinda Knuth, Amanda Solliday, and Dr. Brian Jackson at NC State University

Remember when organic labels appeared before an official organic definition? We are at the same moment with sustainability. Sustainability can be thought of as “meeting the needs of the present without compromising the ability of future generations to meet their own needs,” as defined by the 1987 United Nations Brundtland Commission, yet details in this space are certainly lacking.

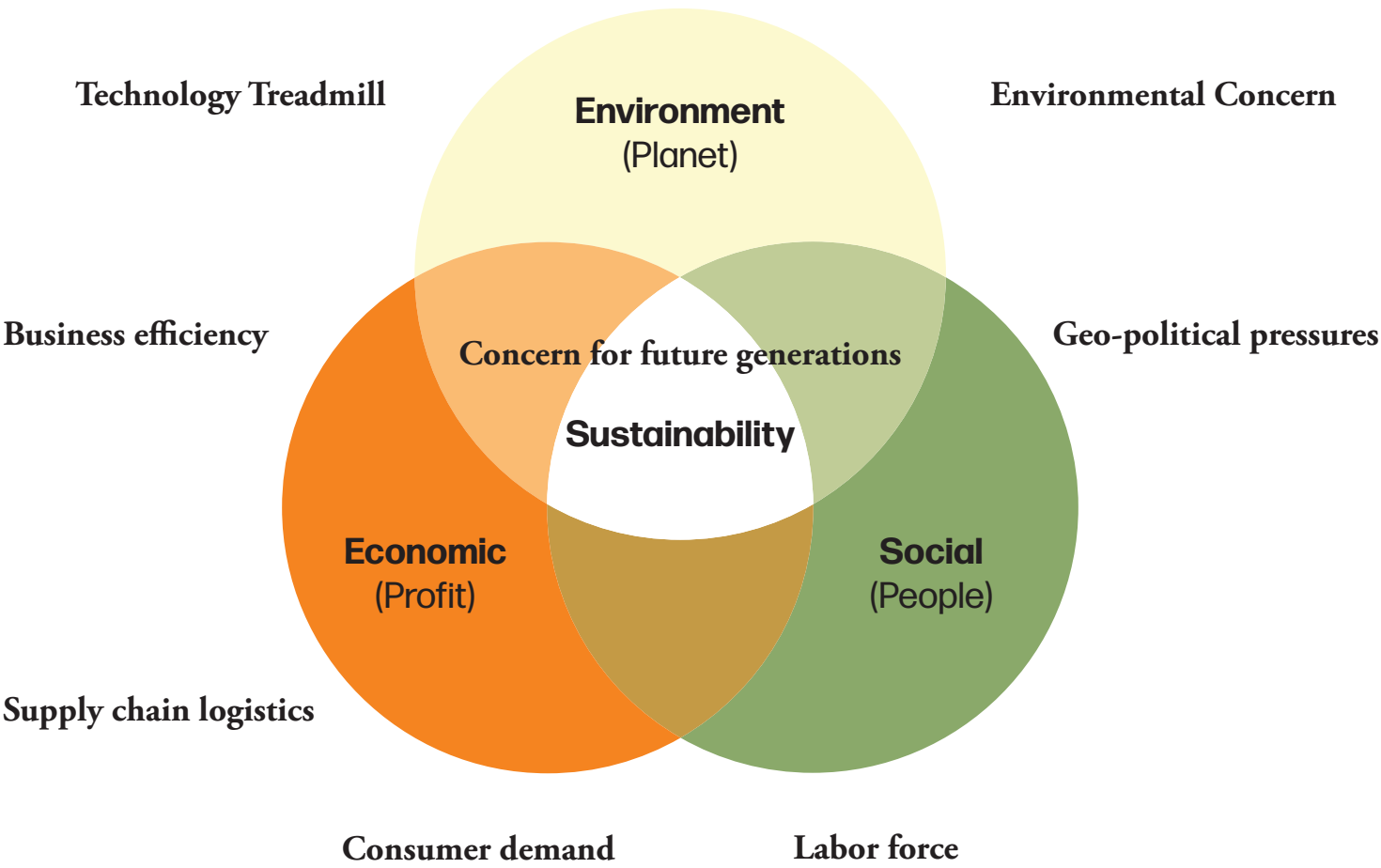
The semantic openness of sustainability is not something to be managed or eliminated, and it doesn’t lead to meaninglessness. Instead, this is a moving, living definition. For AFE’s floriculture sustainability project, we offer framings of pre-existing notions of sustainable development and use calls to action to transform theory into practice for stakeholders.

At the same time, we have to be careful not to greenwash our products. Greenwashing is an unsupported claim to deceive consumers into believing that a company’s products are environmentally friendly or have a greater positive environmental impact than what is true. Some of these products are marketed in green packaging or with a plant on the label to appeal to environmental consumers. Some common greenwashing terms are non-toxic, bio, earth-friendly, eco, certified green, or chemical-free. Greenwashing floriculture products will create bad press, and can betray and develop mistrust with consumers. As part of this project, we hope to assist businesses with using correct terminology and accurately represent the positive practices that floriculture firms are doing.

The primary focus of AFE’s sustainability project is to remain at the 40,000-foot level of what is currently being done in the floriculture industry and what can facilitate sustainability and sustainable practices today and in the future.

## Aspects of Sustainability

Sustainability does not just refer to environmental concerns but also economic prosperity and social well-being – referred to as the three pillars of sustainability, also first defined by the 1987 United Nations Brundtland Commission.



## Consumer demand

A major reminder to the industry: Our consumers are in the driver’s seat, and how they spend their income can make or break our industry. Today’s consumers are interested and involved in how their products are being grown and where their products come from. From requesting more products that align with their personal values and being willing to pay more for them, to human rights concerns and awareness (who creates the products we are using), to social pressures of being conscious of the environment, consumers are changing the way they interact with companies, including in floriculture. How do we balance their desire for readily available goods at any point during the year with a desire for environmentally conscious products? This is a problem we will have to address at an industry level.

**Coming soon...** The Floral Marketing Fund is releasing a study on Consumer Perceptions & Willingness to Pay for Sustainable Environmental Practices in the Floral Industry. This study aims to lay the groundwork for understanding consumer demand as it relates to sustainability. The full report and additional articles on consumer preferences with regards to sustainable practices will be available for free at [floralmarketingfund.org](http://floralmarketingfund.org).



also includes how businesses align themselves with public policies. Case in point: Some businesses are starting to incorporate sustainability plans and practices in their businesses because their employees are wanting and asking to lead these initiatives.

## Geo-political pressures

The first thing that comes to mind for geo-political politics related to floriculture is peat production. The United Kingdom has banned the use of peat at the retail level starting this year, 2024. By 2028, peat usage in wholesale and growing capacities will also be banned. Other European and South American countries are following suit with regulations of their own. In fact, Dr. Jackson has spoken with the House Agriculture Committee on peat usage in the United States, and these discussions have a high impact on our industry and are spurred by public opinion and governmental regulation.

Taking a look at an alternative for peat, coconut coir, we receive most of the coconut coir in the United States from Sri Lanka and South India. Within the past few years, the government of Sri Lanka has been taken over by a new party that is not supported well by its citizens. As a result, the government has restricted access to the exportation of their major industries. This includes coconut coir, and we have experienced shortages of coconut coir due to the consequences of their struggle.

This goes without saying too much, but the Russian/Ukrainian War has affected the entire world in some capacity. We, in the United States, are relatively shielded from these effects, but most of Europe has not. Russia supplies a large amount of Western Europe’s natural gas supply. Greenhouse businesses in The Netherlands and Germany have had to close their doors because of stoppages by Russia to countries that do not support their efforts in the war, and it has caused citizens to decide if they wish to heat their house or the greenhouse. This places alternative fuel options squarely at the forefront and has driven new sustainability practices as a result.

## Environmental concern

Environmental concerns are driven by the effects we visually see in the world. Climate change and associated water shortages are the driving forces for water and energy efficiency. These issues span managed environments from urban residential areas to agriculture production systems. Our industry must not only keep abreast of the changes but also evaluate its role in contributions to the planet’s changing climate.



## Technology treadmill

A driver that straddles environmental and economic sustainability is the technology treadmill. The technology treadmill is the cycle of improving technology, reducing the cost of production, and increasing farm sizes which often results in cyclical behaviors of constant technology change. One example of this cyclical response is chemical introduction and retirement due to the development of pest resistance. Lighting, substrates, energy sources, recyclable pots, building materials – there are many examples of technology in our industry that are constantly changing and improving, and it's also a driver for sustainability.

## Business efficiency

Some floriculture businesses are engaging in what are considered sustainable practices, such as water conservation and reduced pesticide use because it is also good for their bottom line. (Remember, sustainability also includes economic and financial viability.) Other companies have expressed inertia to apply some environmentally sustainable practices because they lack social resources (where to get accurate information and evaluate if it's useful for their business) or economic resources (what will this cost me? Are employee resources available for this new initiative?). Ultimately, sustainability must be viable for the business to succeed. When looking at an industry as a whole, companies have been pressured into applying sustainable practices because their competition is already employing the practice. And now, their customers expect these practices to occur at their business, too.

## Supply chain logistics

Which form of transportation is the best? How do you define "best"? We seek to provide the freshest product possible while also being conscious of the monetary cost. Sea freight gained popularity before the COVID-19 pandemic and continues to maintain popularity after. There is another cost that is looming in the background: carbon credits and accounting. Transportation is a major cost of carbon emissions across the globe. European companies are beginning to pay attention to this, and North American companies will need to take heed. A major question remains: How can we provide products that are fresh, cost-effectively transported, and environmentally conscious?

## Concern for future generations

This driver is a culmination of economic, environmental, and social impacts for the future, and it is propelled by individuals who wish to leave the world a better place for their children and grandchildren. And already, it is a common refrain we are hearing from floriculture industry members.

Dr. Brian Jackson and Dr. Melinda Knuth of North Carolina State University are overseeing this project. Read more about the project here: [endowment.org/sustainability](https://endowment.org/sustainability)

## Sustainability Officers: We Want To Hear From You!

Help us identify key sustainability practices and opportunities in floriculture. The American Floral Endowment's Sustainability Project aims to provide education and resources to the floral industry and make sustainability an accessible initiative for all segments of the industry.

To complement our current efforts, we are looking for sustainability officers and related staff working in floriculture who are willing to share information about their company's ongoing programs.



This could include efforts in composting, pot recycling, alternative substrates and recycling, carbon footprinting, nutrient use, lighting sources, integrated pest management, water conservation, and other areas.

If you'd like to share your company's successes in sustainability or future goals, please email Amanda Solliday at [asollid@ncsu.edu](mailto:asollid@ncsu.edu).

## Attending Cultivate 2023?

Be sure to join us for our Sustainability Roundtable meeting on Tuesday, July 18, at 8:00 am.



## Immersed in the Floral Industry

### AFE Board Meetings, Grower Tours, GLFEE + WF&FSA

This March AFE's Board of Trustees and Staff traveled to Grand Rapids, Michigan, to connect with the industry by visiting with growers and attending the Great Lakes Floral and Event Expo (GLFEE). While there, the Board held its committee and Board meetings. Following GLFEE, AFE staff and trustees continued on to Miami for WF&FSA to attend and participate in the annual WF&FSA Convention, which didn't disappoint!

### Hands-On Commitment to the Industry – Board Meetings and Grower Tours

Before the Expo, AFE Board members and staff met for their biannual Board and committee meetings to plan for another exciting year of AFE programs and initiatives. The Endowment's Strategic Plan, which runs through 2025, focuses on collaborating & partnering with the industry, providing educational and career resources, supporting innovative research, young professional development, and outreach & funding for floriculture. The Board and Staff also toured three leading production greenhouses in the area that have their eyes on future growth, Spring Meadow Nursery, Neal Mast Greenhouses, and Mast Young Plants.



### Looking Ahead with Sustainability in Mind – AFE's Involvement in GLFEE

AFE's meetings and tours were held in Grand Rapids in conjunction with GLFEE. This year GLFEE took place from March 3 – 5, and AFE was there in full force to participate in this year's theme, "A Whole New World," where "...we find ourselves reflecting upon things we have accomplished and mastered, and how that can propel us into future success and growth."

At the Expo, one of the hot topics related to the theme "A Whole New World" was sustainability. AFE engaged attendees with three different presentations highlighting the Endowment's sustainability projects. Dr. Melinda Knuth, NC State University, discussed the goals and outputs of AFE's Sustainability Project and the positive and negative pressures that are influencing sustainable practices currently used in the floriculture industry. She also led an interactive workshop to identify common themes and perceptions of sustainability in the attendees' various floriculture sectors.

Renato Sogueco of BloomNet and Jessica Kegerreis from Syndicate Sales discussed information from the Floral Marketing Fund (FMF) study "Consumer Perceptions & Willingness to Pay for Sustainable Environmental Practices in the Floral Industry," which both BloomNet and Syndicate Sales have supported as co-sponsors. They previewed initial key

findings from the study and shared sustainable best practices such as sourcing flowers locally, practical recycling, and the reuse of materials. The full report and findings will be released to the industry through the FMF soon!

### Seeing "The Future in Bloom" at WF&FSA in Miami!

Staff and Trustees also headed south to sunny Miami to join hundreds of industry professionals as they came together for the 2023 Floral Distribution Conference "The Future in Bloom" hosted by WF&FSA. The event was packed full of networking opportunities that allowed plenty of time to connect and discuss business with colleagues through discussion groups, speed networking and evening activities. The tabletop displays were buzzing with beautiful floral displays and new innovative products. It was a great event – well done WF&FSA!





# 2023 Paul Thomas Floriculture Production Intern of the Year Awards (cont.)

## Recognizing Talent and Passion from Across the Nation

### About the Paul Thomas Floriculture Production Intern of the Year Award

This annual award pays tribute to the late Dr. Paul Thomas, a retired University of Georgia Professor, a passionate supporter of student programs, and an advocate of AFE's Vic & Margaret Ball Internship Program. Recipients of this award truly embody the passion Dr. Thomas displayed for student programs and keep his spirit alive by pursuing industry opportunities.



## Emily Larsen, Paul Thomas Floriculture Production Intern of the Year

University of Wisconsin – River Falls  
3-Month Internship at Altman Plants

Emily's favorite thing about being in the horticulture field is that there's never a dull moment – and there's always something new to learn. "Whether it's making a prettier petunia, decreasing world hunger through grafting techniques, or studying bioremediation with sunflowers, horticulture spans a wide and diverse range of subjects and specialties."

Emily's passion for horticulture shines bright through her continuous involvement and experiences in the industry. As Leader of her high school FFA Floriculture team, she remembers fondly her team placing Silver at the National Competition and learning floral design, the importance of plant quality, plant identification, and problem solving in the industry. She also had the opportunity to work at a plant shop in Hudson, WI, serve as a seasonal horticulturist for the City of Woodbury Parks and Forestry, and even spend time doing freelance gardening.

Now, Emily is a junior at the University of Wisconsin – River Falls, studying Horticulture with a minor in Crop Science. In 2022, she spent three months at Altman Plants in Peyton, Colorado through our Vic & Margaret Ball Internship Program.

While on her internship, Emily really got to see first-hand what each step of the process looks like for large-scale crop production.

"Every day, I was working hands-on in the greenhouse, doing jobs like taking EC and pH readings, pinching young plants, sticking cuttings, and collecting chrysanthemum height data," Emily said. She was also



one of the main workers in the Altman Plants trial garden, which she was able to take pride in inventorying, planning, and tending to the garden throughout the summer. The 2022 Colorado Nursery and Greenhouse Association Barbeque was held in the trial garden at Altman Plants, and attendees got to see the trial garden Emily had worked so hard on.



One of the perks of the Vic & Margaret Ball Internship program is the chance to have your Faculty Advisor visit you on site, with the cost covered by AFE. Dr. Sonja Maki, Emily's Internship and College Advisor, was able to visit in August and spend the day at Altman Plants. While there, Emily had the chance to give her a tour of the facility, showcase her special projects, and introduce Dr. Maki to the expert growers Emily worked with.

With an eye for technology and a passion for research, Emily's internship experience proved eye-opening, exposing her to different areas of greenhouse production and allowing her the chance to figure out what she truly enjoys. She learned that while large scale greenhouse production isn't the career path she wants to focus on, the time she spent collecting data, taking measurements, and working with the trial garden showed her that she wants to pursue a research-based career path. In the months following her internship, Emily has been working at a seed testing lab and will be completing an internship at Ball's Plant Pathology lab this summer.

Part of being chosen as the Paul Thomas Intern of the Year includes a paid trip and registration to Cultivate, the premier event for the horticulture industry. "I'm looking forward to being connected with the brightest minds and the newest technologies in the horticulture field," Emily

said about the event. "Cultivate will help me get closer to accomplishing my goals by connecting me with leading people in the research and development sectors, as well as inspiring me with new technology."

Emily's work and her experience at her internship showcases the drive, endless passion, and promising future that the Dr. Paul Thomas award was created to recognize. We can't wait to see what Emily goes on to do in the future and the positive impact she is sure to have on the industry!

"I want to extend my most sincere thanks to all of the people at the American Floral Endowment who have made this experience possible," Emily said. "The Vic and Margaret Ball Internship Program has been instrumental in my career in horticulture, and for that, I am forever grateful."

## Hannah Kramer, Honorable Mention

Iowa State University  
6-Month Internship at Tagawa Greenhouses



Ever since she can remember, Hannah has been interested in plants and gardening. From picking out plants with her mom at the local plant nursery to tending to her family vegetable garden, she has always been drawn to the world of horticulture.

Hannah is currently finishing her senior year at Iowa State University, where she is pursuing a degree in Horticulture with a newly-added minor in Entrepreneurship. Before her internship at Tagawa Greenhouse, she worked at a garden center in her hometown, Wagner Nursery, and a public botanical garden, Reiman Gardens. Both of these experiences helped her hone her horticultural skills that led her to her success in her Vic & Margaret Ball Internship.

"Over this six-month internship, I truly have learned crucial greenhouse skills. Beyond that, I have gained a perspective of the process from start to finish," Hannah said. "I have met incredible people who were all more than happy to teach and share their piece of the puzzle with me."

"I cannot thank Tagawa and AFE enough for this incredible opportunity to gain industry experience before I graduate. It has made me not only a better employee but a better person," Hannah reflected. "This has truly been an invaluable experience that I recommend anyone with a strong interest in greenhouse do." In the fall, Hannah will be pursuing her Master's at Iowa State. After graduation, she hopes to have a promising career in floriculture greenhouse production where she can use what she's learned from these experiences every day.

## Zach Rosenkrans, Honorable Mention

Kansas State University  
6-Month Internship at Olive Hill Greenhouses



"I want nothing more than to use my passion for plants and people to reconnect society with nature and bring joy to others through plants and landscapes."

Before his internship at Olive Hill Greenhouses, Zach had already gotten a taste of horticulture from working as an intern at Frese

Ornamental Nursery in Quincy, IL, and an intern at Rock Cobble Farm in South Kent, CT. As for his Vic & Margaret Ball Internship, he was ready to try his hand at a different climate after spending time in the Midwest and Northeast. This led to him being placed at Olive Hill Greenhouses in sunny southern California.

Not a single day looked the same at Olive Hill Greenhouses. In the mornings, Zach would review a list of pending projects and tasks for each day, like watering benches or updating records. Some days, new plants and cuttings would arrive that would take priority over other projects, keeping Zach thinking on his feet and adapting to what each day needed. He also got to work on a few special projects during his six months there, including conducting an audit of the irrigation system, performing quality tests, and working on expanding their scouting program. "Olive Hill Greenhouses proved to be an excellent host for me. Their facilities and operations allowed me to apply knowledge from my classes as well as learn and develop new skills," Zach said.

As for the future, Zach's career plans focus on botanic and public gardens. "After my internship, I feel less nervous and more excited to graduate," he said. "I know that wherever I land, I'll get to grow amazing plants or use them to create something beautiful."

## AFE's Resources for Students

- Annual Scholarships for Undergraduate and Graduate Students
- Hands-On Internship Opportunities
- Business Internships
- Young Professionals Council for Networking and Personal Development

Learn more and apply at [endowment.org](https://www.endowment.org).



# Uplifting Arizona Florists Through Continued Education



We are thrilled to announce the recipient of AFE's 2023 **Arizona Retail Florist Education Travel Grant – Renee' Potter AIFD from Fred's Flowers in Tempe, Arizona!**

"I am so excited to receive the Arizona Retail Florist Travel Grant!

What a great opportunity AFE is providing for AZ florists to continue learning," Renee' said.

The grant was established in 2017 to help give owners, managers, and employees of retail florists located in Arizona the opportunity to pursue continued education through national industry events. Funding for this grant originated from the defunct FTD District 8K with additional initial funding requirements coming from an Arizona floral industry member.

Each year, AFE's Education Committee selects a recipient to receive a grant of up to \$1,000 to help cover the costs of attending an out-of-state educational industry event.

“What a great opportunity AFE is providing for Arizona florists to continue learning,” Renee' said. “I will be using this grant money to help fund my travels to Chicago for the AIFD Symposium in July 2023. Symposium is one of the best networking, social and educational gatherings of floral professionals. Never stop learning!”

Last year's Arizona Retail Florist Education Travel Grant Recipient, Patti Klawans, also used her grant to travel to AIFD Symposium. Patti was able to learn from skilled designers volunteering in the flower room last July in Las Vegas, Nevada, after a year of postponing travel.

"What an exhilarating rejuvenation to my floral education...The best education for any advanced or first-time designer is to work in the flower room with the designers doing anything they ask you to do. If you listen and tackle any task they give you, it will be the best education you'll ever get," Patti said about her experience in Las Vegas.

**AFE Grants for Retail Florists**  
*Applications Due October 1 of Each Year*

- Arizona Retail Florist Education Travel Grant
- Retail Florist's Continued Education Grant (for DC, VA, and MD)

*Learn more and apply at [endowment.org](https://endowment.org).*



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For just \$25 a month, industry members can come together to help ensure a bright and promising future for the floral industry. By becoming a Friend of Floral, you will truly make a huge impact by supporting:

- Programs to educate, empower, and train the next generation
- Cutting-edge, research-driven advancements resulting in flower longevity & sustainability
- Grants for continued education
- Career resources for employers and job-seekers

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SCAN ME!



# Planning for the Future Means Training for the Future

We're all familiar with the term "cross-training" as a great way of developing fitness. Training in several different sports and disciplines allows a person to work more muscles and improve agility. Cross-training makes it easier to participate in a variety of recreational sports successfully. Following that same principle, cross-training in business improves the fitness and overall health of your company and your employees.

Businesses of all sizes should think of cross-training as a disaster recovery plan. Better yet, an established cross-training program can be a way to avoid disaster. With many variables impacting the workplace, especially at the small business level, recruiting, hiring, and retaining good team members is challenging. In all segments of the floriculture industry, employers face tremendous demands when it comes to ensuring they are adequately staffed and at the correct times. If you're struggling to fill positions left open by departing staff members or just finding yourself short-staffed, cross-training may be the solution you've been looking for, and for that reason, the AFE Career Center is here to help!

To explain the different benefits of cross-training and make the process a little easier, AFE, through its Recruitment Resource Library, has put together a collection of useful resource materials that assist business owners in understanding the fundamentals of cross-training and provide a few tools to get you started. The resource materials hosted within the AFE Career Center include a sample cross-training program, a list of benefits cross-training may provide for businesses and staff, and easy-to-follow steps for developing a cross-training program.



The AFE Career Center was developed to be the floral industry's one-stop location for job postings and resume searching. In addition, this user-friendly platform, categorized by industry segment, houses helpful documents geared towards recruiting, hiring, and internships, including industry overviews, checklists for interviews and job fairs, help-wanted ads, and social media language. All documents are created to be easily downloaded, personalized, and shared. Each segment includes quick how-to instructions for the templates to make things even more accessible.

With the help of the AFE Career Center, you can begin to develop your cross-training program and discover the beneficial effects on your business and your staff.

As your employees develop new skills, you'll see new doors opening and potential emerging that may not have been evident before. With so many benefits, it's hard to believe that more businesses don't include cross-training in their business strategies.

As the industry continues to grow, these resources will undoubtedly become valuable tools for locating potential interns and staff members and preparing businesses for their next phase. The online library of these documents and many more is accessible at [endowment.org/recruitment-resources](https://endowment.org/recruitment-resources) and through a link on the Career Center.

The AFE Career Centers' resume bank and job board are steadily growing, but there is always room for more! To get started, visit [afecareercenter.com](https://afecareercenter.com)!





**American Floral Endowment**

**Launch your search today!**  
[afecareercenter.com](https://afecareercenter.com)

**AFE Career Center**  
*Connecting Floral Industry, Talent, and Opportunity*

USE CODE **SPRING20**  
to receive a 20% discount on your job posting as an incentive to support this helpful platform and grow its resources and content.

**20% OFF**



# Keeping Flowers Fresh: New AFE-Funded Research Exploring Alternatives to Traditional Ethylene Inhibitors

By Laura Barth and Dr. Rasika Dias

Everyone loves receiving a beautiful bouquet of fresh flowers, but making sure they stay vibrant on their way to your vase is a challenging task. A major cause for the deterioration of cut flowers is a gaseous molecule called ethylene, a plant hormone that causes flowers to wilt and fade and accelerates the drop of buds, petals, and leaves (Figure 1). In the floriculture industry, ethylene's effects can significantly reduce the quality and longevity of cut flowers during storage and transport. AFE-funded researchers at the University of Texas at Arlington have been hard at work trying to find a way to inhibit ethylene's adverse effects, and recent discoveries may offer promising alternatives to the methods currently in use.



Figure 1. Ethylene damage in the form of premature wilting on roses (right).

## Current Solutions and Their Drawbacks

Two treatments are commonly used to block ethylene's effects: 1-methylcyclopropene (1-MCP) and silver thiosulfate (STS). They are very effective, but both have their drawbacks. 1-MCP is a reactive gas that is difficult to handle and requires enclosed areas for application. STS contains heavy metals, which raises environmental and disposal concerns, especially when used in large quantities. It is also light sensitive and must be prepared just prior to use, which can be inconvenient.

1-MCP belongs to a family of compounds called cyclopropenes, which are potent ethylene inhibitors. (The parent cyclopropene is a tiny, triangular molecule made up of three carbon atoms and four hydrogen atoms.) Cyclopropenes like 1-MCP have a similar structural feature to ethylene, which allows them to bind to the ethylene receptor sites in plant cells without eliciting the ethylene response, thus preventing ethylene from exerting its effects on plant tissues. (This is called competitive inhibition.)

Silver thiosulfate contains silver ions ( $\text{Ag}^+$ ) that can alter ethylene receptors in plants. These receptors are proteins located on the surface of plant cells, which are responsible for sensing and responding to ethylene. By interfering with these receptors, the silver ions block ethylene from interacting with them. As a result, the plant cells do not receive the ethylene signal, and the associated ethylene effects are not initiated. STS can also reduce the overall production of ethylene in plants by inhibiting the activity of the enzyme that is a precursor to ethylene.

## The Search for Better Ethylene Inhibitors

Dr. Rasika Dias and his team at The University of Texas at Arlington are working to develop user-friendly chemicals that can be used in the cut flower industry to counteract ethylene's negative effects. They are also creating simple laboratory models of ethylene binding sites in plants to test potential alternatives to 1-MCP more conveniently, and to better understand how 1-MCP works on ethylene binding sites.

## Promising Results

The research team has synthesized several non-volatile 1-MCP alternatives, which were tested for anti-ethylene activity using fresh carnations. Some of these alternatives displayed good water solubility compared to 1-MCP and were more convenient to use. Two of the tested cyclopropene alternatives showed reasonable anti-ethylene activity, while a third reactive carbon-centered reagent displayed very strong anti-ethylene activity. These exciting findings represent a new approach to designing ethylene antagonists.

The team also managed to create four isolable molecules that feature

copper-ethylene bonds, which they believe can serve as laboratory models for the copper-ethylene binding site in plants (figure 2). Copper ions are essential for the function of ethylene receptors in plants, which have copper centers. Furthermore, they were the first to isolate molecules that show copper-cyclopropene bonds, providing insights into the likely interaction between ethylene-binding sites in plants and 1-MCP.

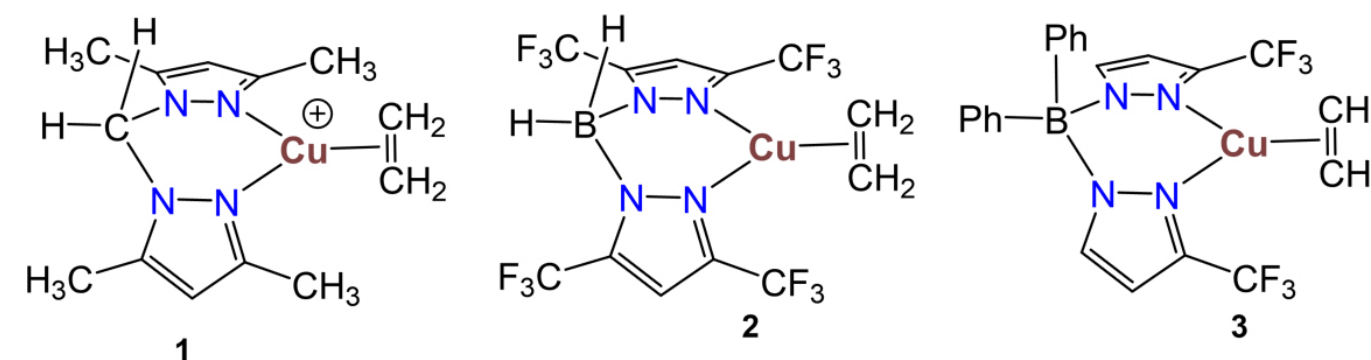


Figure 2. Molecules with copper-cyclopropene bonds: The widely used 1-MCP is a reactive organic molecule with a three-carbon ring. It is a cyclopropene and known to interact strongly with the ethylene binding sites in plants, which have copper centers. However, very little is known about the exact nature of this interaction. During this project period, Dr. Dias, for the first time, managed to isolate molecules that show copper-cyclopropene bonds.

## Industry Impact

These discoveries have the potential to greatly benefit the floriculture industry. The identified 1-MCP alternatives could be formulated into products for controlling ethylene's adverse effects on crops, while synthetic "ethylene binding site" models can speed up the screening of new anti-ethylene products. The structures of molecules that provide insights into 1-MCP action in plants can also be useful for developing better and more effective anti-ethylene reagents.

To read the full research report and additional articles on protecting crops from ethylene damage visit, [endowment.org](http://endowment.org). Additionally, you can learn more about postharvest handling recommendations for cut flowers during our upcoming June Grow Pro Webinar (see details below).

## Grow Pro Webinar Series

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**JUNE  
20**  
1:00 PM

### Current Postharvest Handling Recommendations for Cut Flowers

Speaker: Dr. John Dole, North Carolina State University  
Sponsor: Floralife

**AUG  
29**  
1:00 PM

### Controlling Whitefly on Poinsettia

Speaker: Dr. JC Chong, Clemson University  
Sponsor: Envu, Sanmite SC, SePRO & Syngenta Flowers

**JULY  
25**  
1:00 PM

### Creating a Culture of Sanitation

Speaker: Dr. Rosa Raudales, University of Connecticut  
Sponsor: Syngenta Flowers

**SEPT  
19**  
1:00 PM

### Hydroponics for Floriculture

Speaker: Dr. Chris Currey, Iowa State University



# Memorial Tribute Established in Memory of Marc van Iersel



A memorial tribute honoring Marc van Iersel has been established through the American Floral Endowment (AFE). Dr. Marc van Iersel, Researcher and Professor at the University of Georgia, peacefully passed away on April 20 2023, at the age of 57, with his wife, Lynne, and friend/former student, Claudia Elkins, at his side. Marc

was hugely impactful to the floral industry through his research and teaching.

Marc van Iersel was a horticulturist who pioneered intelligent systems that changed the way food and ornamental plants are grown. His approach was simple and direct: ask plants what they need and then automatically provide it. He published over 150 scientific papers with global influence and was invited to lecture about his research around the world, including Italy, Spain, Taiwan, Kenya, Canada, China, Chile, and Brazil.

Marc was the Vincent J. Dooley Professor of Horticulture at the University of Georgia, where he spent most of his career from 1995 on. Marc oversaw the UGA Horticulture Physiology Laboratory focused on photosynthesis and light use efficiency research. He also worked on applied research in controlled agriculture environments.

As a professor of horticulture, Marc developed biofeedback systems that measure soil moisture and use optical sensors to automatically control the amount of water and light provided to plants in greenhouses and vertical farms. The results had lasting impacts leading to happier, healthier plants with a smaller carbon footprint and cost.



Marc's highly influential research was funded by AFE for the last decade, including a current project on fluorescence imaging aimed at being a low-cost method for early stress detection.

“ Marc provided the flower industry with practical information based on sound science. He anticipated the needs of growers and sought funding to improve production and flower quality,” noted Dr. Terril Nell, AFE’s Research Director.

One of Marc’s well-known works was his leadership of Project LAMP, which focused on identifying the optimal light intensity and spectrum for the profitable production



of crops in greenhouses and plant factories. Project LAMP brought together plant scientists, engineers, and economists.

Marc was the recipient of numerous awards

and accolades, including the 2019 UGA Entrepreneur of the Year and fellow of the American Society of Horticulture Science. In 2017, he cofounded Candidus, Inc. with Erico Mattos, where they transitioned greenhouse lighting technologies to products.

Marc is survived by his loving wife, Lynne Seymour; brothers and sister (in-laws) Ruud (Yvonne) van Iersel, Yvonne (Rob) Deussen, and Frank van Iersel; nieces and nephews Floor and Sjors Deussen, and Sara and Yuri van Iersel; his in-laws, Eddie and Peggy Seymour, Sandi (Pawel) Antoniuk, Erik (Kelly) Hussey, and Annabel Antoniuk; a multitude of human friends as well as his six beloved pets; and a small army of students and colleagues who will continue his work and legacy.

In remembrance of Marc, please consider a donation to the **Marc van Iersel Memorial Tribute**. Donations can be made online at [endowment.org/donate](https://endowment.org/donate) or by sending a check to:

**American Floral Endowment**  
c/o Marc van Iersel Memorial Tribute  
610 Madison Street, Ste. 101, PMB 803  
Alexandria, VA 22314

*The family is always notified of donations, and contributions can be made in any amount.*

# Foster the Next Generation of Floral Leaders!

## Share the Word About AFE’s Young Professionals Council



Know a young professional interested in our industry? AFE has many resources to help budding professionals jumpstart their careers and reach the next level. The Young Professionals Council (YPC) offers

leadership, personal development, and networking opportunities to anyone in the industry ages 18-35. And the best part? It's totally free to join!

With ongoing labor issues, it's more important now than ever before to help build the pipeline of new industry members. We hope that you will spread the word about the YPC and encourage your employees and connections to take advantage of this great resource. To learn more and apply, visit [endowment.org/ypc](https://endowment.org/ypc).

## Upcoming Events and Opportunities for the YPC:

### Networking Happy Hour with AFE Board

**Date:** Thursday, June 22  
**Location:** Online

*This will be an informal Zoom meeting for YPC Members and AFE’s Board to connect, chat, and share updates. Ask questions and gain insights from leading industry experts.*

### In-Person Meetup at Cultivate

**Date:** July 15 - 18  
**Location:** Columbus, OH

### In-Person Meetup at ASHS Annual Conference

**Date:** July 31 - August 4  
**Location:** Orlando, FL

# When you’re feeling yoga pants more than yoga practice.



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## Grow Pro Webinar Series

Grower-Focused Research

## Young Professionals Council Webinars

Personal Development

## Reducing Thrips and Botrytis Series

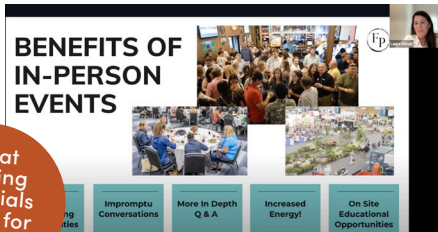
Disease and Pest Management

## Floral Marketing Fund Webinars

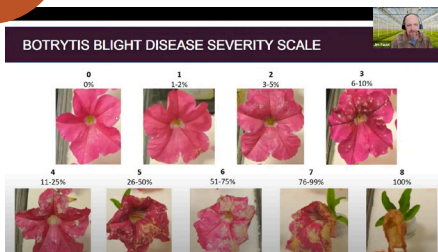
Consumer Research

Beyond the webinars, we also have content highlighting our internships, application processes, and more...

Returning to In-Person Events: Networking Tips and Tricks for Young Professionals



Great training materials to use for your staff!



Botrytis: Screening Biological Control Agents for Effective Blight Management

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## Missed one of the AFE webinars?



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