

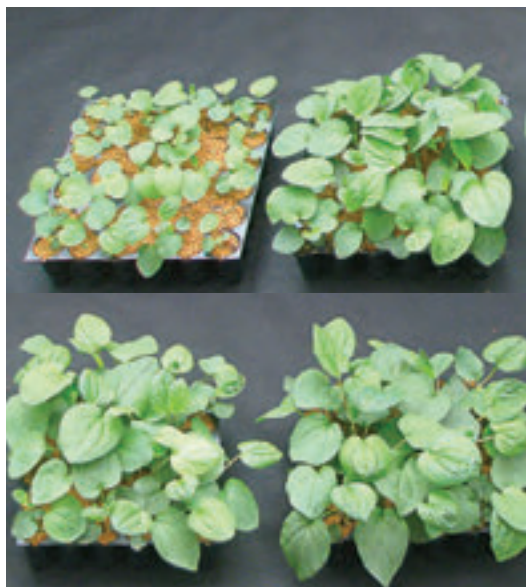
Funding Generations of Progress
Through Research and Scholarships

AFE Bulletin

2021 • ISSUE ONE

QUARTERLY NEWS FOR ENDOWMENT SUPPORTERS

Introducing Research and Outreach Project LAMP: Lighting Approaches to Maximize Profit



Supplemental lighting provides quicker crop turns, higher yields, and increased quality for the \$6.5 billion a year greenhouse floriculture and vegetable industry. But it comes at a steep cost, especially when growers adopt LED technology. **Electricity for lighting can account for 20-30% of operating costs** and lighting has been estimated to cost the controlled environment agriculture (CEA) industry \$600 million annually. Enter Project LAMP. They are a research and outreach team funded by a grant from the USDA Specialty Crops Research Initiative. **The study's mission is to help growers get more value out of their lighting systems** by sharing horticultural and economical information, developing tools to manage lights for optimal crop growth and quality, and providing strategies to maximize their return on investment.

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AMERICAN FLORAL
ENDOWMENT
60 Years Of Providing For The Future

Celebrating 60 Years of Providing for the Floral Future

We are excited to announce the celebration of our 60th anniversary throughout 2021. For 60 years, we have remained the leading charitable organization supporting floral and horticulture growth through scientific research, scholarships, internship programs, and educational grant funding – providing for all segments of the industry.

In honor of this momentous occasion, we are sharing a whole year of success stories, acknowledgments, and events, giving special recognition to those who have financially supported the Endowment, benefitted from funded programs, and volunteered their time and talents toward its 60 years of success.

The Endowment is currently funding 12 research projects and over 30 annual scholarships totaling over \$800,000 in research initiatives, educational grants, scholarships, and internships. Every donation helps support these important programs now and into the future.

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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.

CalFlowers Strengthens Scholarship Fund with Donation

CalFlowers, the leading floral trade association in California serving growers and the entire supply chain in 48 states, announces the donation of \$50,000 to the Endowment. The monetary gift is directed to fund the CalFlowers Scholarship.

"Supporting the efforts of the American Floral Endowment by continuing to fund the CalFlowers Scholarship is a worthy investment and a genuine measure of our commitment to nurture and sustain the floral industry," says Steve Dionne, executive director of the Fallbrook, CA-based association. "With longevity in mind, this substantial gift is a recognized way to fuel one of our many endeavors — to assure Floral has a sound future with top talent coming into the industry." Created for undergraduate students attending an accredited California college or



university, or for California residents attending a U.S. university or accredited college, the CalFlowers Scholarship was initiated in 2018. To date, the donation amount from CalFlowers to the Endowment for this

designated scholarship fund has reached \$200,000.

"Receiving this kind of financial support garners immeasurable attention to the on-going AFE scholarship program. We're especially pleased to administer the CalFlowers Scholarship along with 30 others because it means so much to the students, their families, and the floral industry," says Debi Chedester, AFE Executive Director. "The \$50,000 donation should result in an annual yield of \$8,000 – a rousing amount sure to be appreciated by future scholarship recipients."

CAL FLOWERSTM California Association of Flower Growers & Shippers

On board as Executive Director since November 2, but a long-time member of CalFlowers, Dionne adds, "Deciding and acting to donate to the scholarship fund at this level represents a way for the current board of directors to implement a mechanism to power the perpetual quality of the fund." The board, is dedicated to addressing current industry issues while planning for the future. Dionne indicates the board members of CalFlowers have great vision and the association is planning many ventures to bolster and augment current campaigns endorsing the aspirational goal of more Americans enjoying more flowers more often.

The Endowment awards 24 scholarships annually. Online applications and supporting documents are due by May 1 each year. Find more information at www.endowment.org/scholarships.



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 American Floral Endowment

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Memorial Tributes Established for Two Industry Icons

Paul Daum & Harold Wilkins

The Endowment announces two new memorial tributes. To read more about these industry leaders and make a contribution in their memory visit endowment.org/memorial-tributes/.

In Memory of Paul Daum



A new memorial tribute was set-up in memory of Paul Leonard Daum, who died on December 31st, 2020, at the age of 95. The \$1,000 fund was established by the Fred C. Gloeckner Company, his friends and colleagues.

Paul has been recognized by many as the “Father of the Latin American Flower Industry” for his many achievements and dedication to the floral industry. He dedicated over 50 years of his life to the founding and development of global floriculture primarily in the United States, Central and South America. Paul was instrumental in developing a prime export business in Latin America and the United States to which he was personally proud of the fact that it provided so many jobs in so many countries.

Paul was a technical representative for the Fred C. Gloeckner Co. from 1957 to 2004. He was known to have amassed one of the most complete libraries of both scientific and practical horticulture material – a library he freely shared with the industry. Additionally, Paul served with distinction on the board for 58 years. His experience and knowledge were valuable not only in selecting scientifically valid research proposals but in educating other board members on applications important to commercial floriculture.

Born in Canton, Ohio, Paul is survived by his sons Steven Daum of Smithers-Oasis/Floralife, Andre Daum, his three grandsons, and two great-grandchildren. Paul was married to his wife Miriam Daum for over 50 years and they shared a life together both in Miami and in Costa Rica.

In Memory of Harold Wilkins



A new memorial tribute was set-up in memory of Dr. Harold F. Wilkins, Professor Emeritus, Department of Horticulture, University of Minnesota, who passed away on January 7, 2021. Dr. Wilkins was a major force in the floriculture world, creating ideas, generating research, and mentoring students that profoundly influenced industry and academic directions. The \$1,000 fund was established by Royal Heins, one of his students and professional colleagues.

A lover of flowers for all his life, Harold was born in Cobden, Union County, Illinois. His entire family, including his parents J. Harley and Pauline Wilkins, was involved in the horticulture business.

His research over the years included many floral crops with a particular focus on cool weather crops that would require less energy for production. Dr. Wilkins’ research helped create the multi-million dollar Alstroemeria industry here in the U.S. and he is considered the “Father of the Alstroemeria Industry.” Additionally, his research included branching control for roses, carnations, and poinsettias. He and his graduate student, John Dole, authored two editions of *Floriculture Species and Production*, now the standard text at universities worldwide.

Harold Wilkins had a major impact on the floriculture industry and academics. With his larger-than-life personality and tireless energy, he leaves behind Bryan Gjevre and many students and colleagues. His memory will be kept alive through their stories of his generosity, devotion, and service and occasionally, stories of mischief, mayhem, and mishaps!



AMERICAN FLORAL ENDOWMENT

60 Years Of Providing For The Future

AFE Through the Decades



2021 marks AFE's 60th Anniversary!

Throughout the year, we will be celebrating the past, present, and future of the Endowment, highlighting the many successes over the decades and those that helped us get there.

For 60 years, and only through industry support, AFE has provided vital research, programs, and resources to advance the floral industry.

Your Contribution Supports:

- ★ **Research** to produce healthier, longer-lasting flowers and plants to boost profits for everyone.
- ★ **Scholarships and Internships** to recruit tomorrow's leaders and provide and hands-on training for the next generation.
- ★ **Educational grants** to provide learning opportunities and knowledge to all industry members.
- ★ **AFE Career Center** – the floral industry's one-stop-shop for employers and job seekers to connect, along with career development tools.

Become a Recurring Donor

Donate \$60 in support
of our 60th Anniversary
and receive a
commemorative t-shirt!

Your charitable donation is fully tax-deductible.



Visit endowment.org/60th

Partner with AFE to help us continue this important work!

Join us in
Celebrating
60 years

GIVE
\$60
FOR





#AFEANDME

As AFE kicks off our 60th anniversary in 2021, we've put together an exciting new campaign called **#AFEandME** to highlight the many achievements and memories of our floral community throughout the years. Noting the many industry successes and accomplishments made possible by YOU! Through your support and participation in AFE's research, scholarships, and internship programs, you have helped guide the floral industry for decades.

It's easy to participate and will help us tremendously with showing the impact AFE's programs have on solving challenges, growing the industry, and sharing new resources.

We will be sharing these stories throughout the year on our social media and in our publications. Here's a few of the great stories that we have already collected:



#AFEANDME

#AFEANDME



We want to hear from YOU!

Has AFE impacted you? Are you a long-time supporter? We'd love to hear your AFE story and share it with the floral community.

**Share Your AFE Story with Us
at endowment.org/60th**

Introducing Research and Outreach Project LAMP: Lighting Approaches to Maximize Profit

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By Neil Mattson, Cornell University; Josh Craver, Colorado State University, A.J. Both, Rutgers University and Marc van Iersel, University of Georgia

Barriers to LED Adoption

LED technology has evolved greatly over the last five years. Some LED fixtures are now on the market that have double the efficacy (light output per unit of electricity) compared to traditional high-intensity discharge (HPS and MH) lamps. However, there are substantial barriers to the adoption of LED fixtures by growers. The group recently conducted a survey about the greenhouse industry's lighting information needs. When asked why growers are not readily adopting LEDs, the most cited reasons were: initial capital costs too high, not enough knowledge on plant responses to LED lights, not sure which spectrum is right for me, and return on investment takes too long. Similarly, when asked what information needs growers have related to lighting the responses included: need for analyses of profitability of lighting for different crops (i.e., ROI, return on investment), determining how to choose the best lighting supplier,

lighting requirements by crop species, and information on available rebates/incentives for LEDs. Essentially, the survey brought up two major points: growers are hungry for more information on the economics of LED adoption (or supplemental lighting in general) and more information is needed on crop responses to LED lighting (what is the best spectrum, intensity, and lighting control strategy for a given crop).

Research to Address Industry Needs

The core focus of project LAMP is to better understand how the complex capabilities of LEDs can translate into more profit for the grower. For example, HID fixtures are essentially on/off devices, they supply only one light intensity and the spectrum cannot be changed. Some LED fixtures allow users to select from different spectra, vary light spectrum over the day or crop cycle, and adjust light intensity in real-time. Here are a few examples of the research in action.

Spreading out the daily light integral (DLI): At lower light intensity (PPFD), plants are more efficient at using supplemental light. Put another way, when the light intensity provided by sunlight is already

high, there is not much added benefit of supplemental light. Using dimmable LEDs, the team has tested the strategy of delivering the same DLI, but spreading it across more hours of the day. This strategy was tested for the leafy greens lettuce and mizuna. Spreading the same DLI over 20 hours vs. 10 hours per day led to an increase in fresh weight of 12% for lettuce and 20% for mizuna. For black-eyed Susan seedlings, increasing the photoperiod from 12 to 21 hours increased shoot dry weight by 30% and root dry weight by 24% (see Figure 1). These longer photoperiods do not increase the amount of supplemental lighting needed and increase crop yield without increasing electricity use.

Far-red increases light interception: When seedlings are young there can be a lot of wasted light, light that falls in-between leaves and is not absorbed by plants. Far-red light (wavelengths from 700-800 nm) has been previously undervalued and not included in the output of many LED fixtures. However, far-red light triggers plants to seek more light by either growing taller or developing larger leaves to capture

more light. The team has tested far-red light applications on the growth and development of lettuce and foxglove seedlings grown under LED light only. The increased far-red light intensity led to wider leaf surface area, and thus greater canopy light interception. Because the plants



Figure 1. Black-eyed Susan seedlings exposed to the same DLI as photoperiod increased from 12 to 21 hours. Plants receiving 21 hr of lighting had a 30% higher shoot dry weight than 12 hr plants



Figure 2. Lettuce grown with far-red (FR) light, had a greater leaf surface area and canopy light interception.



Figure 3. Fox-glove seedlings grown with far-red light had greater leaf surface area and size (fresh and dry weight).

captured more light, this ultimately led to greater plant sizes (fresh and dry weight) of both lettuce (Figure 2) and foxglove (Figure 3, below). So far, the results demonstrate that far-red light should be included for seedling production in growth chambers. Growers often worry about plants becoming too tall/leggy when exposed to far-red light, but this has not been an issue so far in trials. Keep in mind that sunlight too contains far-red light, so plants are used to far-red as part of the light spectrum. Including the same fraction of far-red in LED light as what is present in sunlight (19%) can increase growth under sole-source lighting. And importantly, far-red light can stimulate growth more effectively than PPFD: lettuce seedlings grow faster with 81% white light

and 19% far-red than with 100% white light. More work is needed to determine the potential benefits of far-red light in the greenhouse with a background of sunlight.

Calculating lighting needs: Because of the diversity of lighting fixtures on the market, it is important to compare several different products before selecting one for your operation. Many of the questions we receive from growers relate to the upfront costs and annual operating costs of different fixtures. We developed a spreadsheet calculator that helps growers estimate the number of light fixtures needed for their operation and the annual electricity costs. The tool requires the user to enter information on the light output and fixture efficacy, information that is readily obtained from the specification sheets of reliable horticultural lighting suppliers. **Look for a major upgrade to the calculator tool in the coming months.** The new tool will allow you to input your zip code to determine how much sunlight you receive throughout an average year and calculates the cost of providing supplemental lighting, based on your greenhouse conditions.

Note all photos are courtesy of Marc van Iersel, University of Georgia



Upcoming Application Deadlines

March 1st

- James & Helen Phillip Floral Design Grant Applications
- Mosmiller Internship Applications
- Vic & Margaret Ball Internship Applications

May 1st

- Undergrad & Graduate Scholarship Applications

June 1st

- Educational Grant Applications
- Retail Florist Continued Education Grant Applications

October 1st

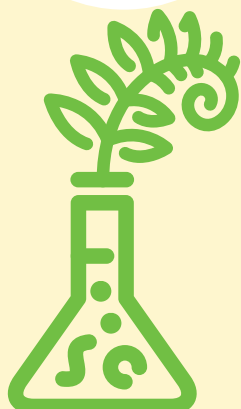
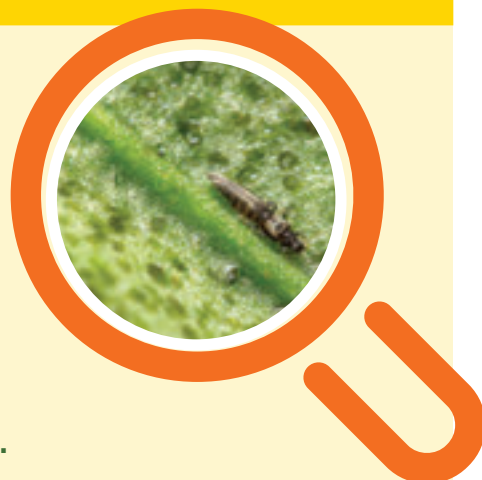
- Arizona Retail Florist Grant Applications
- Mosmiller Internship Applications
- Vic & Margaret Ball Internship Applications

Accepted Year Round

- Business Internship Applications

Visit endowment.org to apply!

Coming Soon... Thrips & Botrytis Research Videos



Presenting our 6 WEEK WEBINAR SERIES highlighting our funded thrips & botrytis research.

Each session of the 6 research presentations and Q&A will be available both in English and Spanish. Each part will also have a one-page infographic highlighting the key takeaways.

The videos and infographics will be released publicly as additional resources for our network of supporters in the Spring.

For more information on our thrips & botrytis research visit endowment.org/botrytis-thrips/.



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