

18 February 2021

American Floral Endowment  
Attn: Candice Musgrove  
1001 N Fairfax St., Suite 201  
Alexandria, VA 22314

Dear Paul Ecke, Jr. Scholarship Selection Committee,

First and foremost, I would like to thank you again for selecting me as the recipient of the Paul Ecke, Jr. Scholarship for 2020. The scholarship has helped aid in completing my research and present my findings at the International Society of Horticulture Science's IX Symposium on Lighting in Horticulture in Sweden this Spring, which was postponed due to the pandemic. Although it will be virtual, I am excited nonetheless to showcase my findings to an international audience.

Previously, my research focused on the impact of supplemental lighting on calibrachoa, impatiens, petunia, and snapdragon seedlings grown under a 16-hour long-day from blue and red light-emitting diode (LED) fixtures for two, three, or four weeks, LEDs with far-red light for one, two, or four weeks, high-pressure sodium (HPS) lamps, or a 9-hour short-day with no supplemental lighting for four weeks. After four weeks of lighting treatments, we collected measurements on seedlings and subsequently transplanted them into a common greenhouse environment to study the effects of the lighting treatments on flowering and growth. We found that far-red light applied for one to four weeks at the seedling stage did increase stem elongation of seedlings, however, finished plants were of comparable size to those grown under HPS or blue and red LEDs for four weeks. The root and shoot dry mass of all seedlings were also similar between HPS and LED treatments. Additionally, providing far-red from LEDs for at least two weeks cut down the time to flower for calibrachoa and snapdragon by 3 and 8 days, respectively, compared to HPS supplemental lighting. By hastening the time to flower, the finished plants were also shorter in comparison to plants previously grown under HPS. Overall, we found that LED supplemental lighting is a viable option to replace HPS lamps to grow seedlings and LEDs with far-red light should be used at least two weeks before transplant to hasten flower development in long-day plants. The findings from this study can be useful to growers, as not only will they save energy costs in the long term for switching to LED supplemental lighting but they can cut back on flowering time of some long-day plants which will allow them to increase the number of crop cycles they have each year and increase profits.

When I applied for this scholarship last year, my last replication of this research was still at the seedling stage and my other replication was coming to an end in the finishing stage. Once March came around, I was taking data on the finishing stage of my last replication. I remember terminating my experiment just days before Gov. Whitmer declared a state of emergency which halted most of the research and access to Michigan State University until May. I am beyond grateful that I was able to finish my experiment with only a few lost data points. Since March I

have been working from home and its crazy to think I have been doing this for almost a year, but a lot has changed since then. In July, I successfully defended my Masters thesis (virtually) and graduated with my M.S. in Horticulture. After which I continued to work with my original advisor, Dr. Roberto Lopez, on other research projects and then successfully transitioned into a Research Assistant for both Drs. Erik Runkle and Roberto Lopez, focusing on floriculture research last November. Although I am still new in the role, I have so far enjoyed being a mentor to new and former graduate students and enjoy carrying out new floriculture research to promote plant resilience within the industry.

I am aware that since I have graduated, I am most likely not eligible for the second award of the scholarship. Nevertheless, I am beyond grateful for being recognized as a scholar among the American Floral Endowment (AFE) and especially as a Paul Ecke, Jr. Scholar. I am excited to see who the next awardee will be and hope to promote the scholarships and internships AFE provides to the undergraduate and graduate students I mentor in my new role in the future.

Kind regards,

A handwritten signature in black ink, appearing to read 'Annika Kohler', with a stylized flourish at the end.

Annika Kohler