

# HLA Happenings

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## Purdue Student Farm Interns Visit UIUC Sustainable Student Farm



This Wednesday our **Purdue Student Farm** interns took a trip to Illinois to visit UIUC's Sustainable Student Farm. We met with their farm manager, Matt Turino, who toured us around the 7-acre plot.



The UIUC Sustainable Student Farm boasts its own greenhouse, a permaculture area full of chestnut trees and currant bushes, and several pollinator habitats, some of which double as wind-breaks. Fruit production was also present, with a small peach orchard and several strawberry patches. The Purdue students joined the UIUC interns in the summer field (tomatoes, peppers, & eggplant) to help with the weeding, and got a chance to talk and laugh with the interns as some hand-pulled weeds while others chopped them using tools.



While the UIUC Sustainable Student Farm runs a smaller CSA than we do here at Purdue, they sell a significant portion of their produce to the UIUC dining courts, with their main crop being



Roma tomatoes that get turned into pizza sauce via a partnership with their food science pilot plant. They also run a successful on-campus farm stand that provides students with a place to buy a variety of fresh vegetables.



The higher acreage on the Sustainable Student Farm, and the difference in the market it caters to comes with differences in the kind of work being done and the tools used to do it. One of the biggest differences was in the amount and function of the mechanized tools used at the UIUC Sustainable Student Farm, and our students got to see a diversity of tractors each with various functions that are often performed by hand here at the Purdue Student Farm.



The storm rolling in cut our time with our UIUC friends a bit short, but it was an experience that highlighted the diversity between different universities' student farms, and we look forward to hosting the UIUC interns here at Purdue at the end of July.

New Publication from Drs. Sheibani, Gómez, and Mitchell

HortScience 60(7):1092-1098. 2025. <https://doi.org/10.21273/HORTSCI18565-25>

## Interactive Effects of Photon Flux Density and Carbon Dioxide Concentration on Energy-use Efficiency for Indoor Baby-greens Production

Fatemeh Sheibani and Celina Gómez

Department of Horticulture and Landscape Architecture, Purdue University, West Lafayette, IN, USA

Robert Morrow and Mike Bourget

Space Applications-Environmental Systems, Sierra Space, Madison, WI, USA

Cary A. Mitchell

Department of Horticulture and Landscape Architecture, Purdue University, West Lafayette, IN, USA

**Keywords:** CO<sub>2</sub>, diminishing returns, EUE, LEDs, light:CO<sub>2</sub> interaction profile, pigmentation, red oakleaf lettuce, vertical farming

**Abstract.** In effort to improve resource-use efficiency of indoor specialty-crop production, this study examined potential interactive effects of a range of photosynthetic photon flux densities (PPFDs) and carbon dioxide (CO<sub>2</sub>) concentrations on growth and quality attributes of densely seeded baby-stage red lettuce (*Lactuca sativa* cv. Rouxai). Growth PPFDs tested included 200, 300, 400, and 500  $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$ . Growth CO<sub>2</sub> concentrations tested included 400, 800, 1200, and 1600  $\mu\text{mol}\cdot\text{mol}^{-1}$ . Growth parameters including shoot fresh mass, shoot dry mass, and leaf area were measured after a 17-day cropping cycle. Quality attributes such as red pigmentation and chlorophyll concentration were quantified nondestructively. Energy consumption for lighting (kWh) was mea-

Various studies have evaluated methods to improve EUE of sole-source lighting in VF. Using a modeling approach, Avgoustaki and Xydis (2021) demonstrated that intermittent lighting could reduce electric lighting costs 16% to 26% compared with continuous lighting. Similarly, findings of a modeling and experimentation study by Kaiser et al. (2024) showed that dynamic lighting patterns changing in response to daily changes in electrical cost could help save energy in VF without reducing biomass production. LEDs for sole-source lighting also can allow flexible light quality, through which EUE can be improved. For example, substituting lower-energy far-red for red and blue wavelengths has been suggested to help improve EUE of lettuce production in VF (Carotti et al. 2024). Although research targeted to improve EUE is ongoing, overall energy consumption remains high. The estimated energy consumption for indoor-grown lettuce is anticipated to decrease with improvements in equipment efficiency and operational controls (Miserochci and Franco 2025), which cannot be considered a short-term goal.

High energy costs have prompted VF growers to produce rapidly turning baby-stage crops that include young plants of many different species grown under relatively low PPFDs, typically ranging from 150 to 300  $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$  of photosynthetically active radiation (PAR) (400 to 700 nm), trending toward the lower end of that PPFD range (Dou and Niu 2020). Tender and flavorful baby greens require only a fraction the production time of mature leafy greens (Medina et al. 2012). They have a competitive market

Dr. Fatemeh Sheibani, Professor Celina Gómez, and Professor Emeritus Cary Mitchell, along with collaborators from the Sierra Space Corporation, have published a research article in connection with the OptimIA SCRI project entitled Interactive Effects of Photon Flux Density and Carbon Dioxide Concentration on Energy-use Efficiency for Indoor Baby-greens Production. A link to the article can be found at:

<https://journals.ashs.org/hortsci/view/journals/hortsci/60/7/article-p1092.xml>

## This Week in the Jules Janick Horticulture Garden



Double Scoop Orangeberry Coneflower  
*Echinacea* 'Balscoberr'

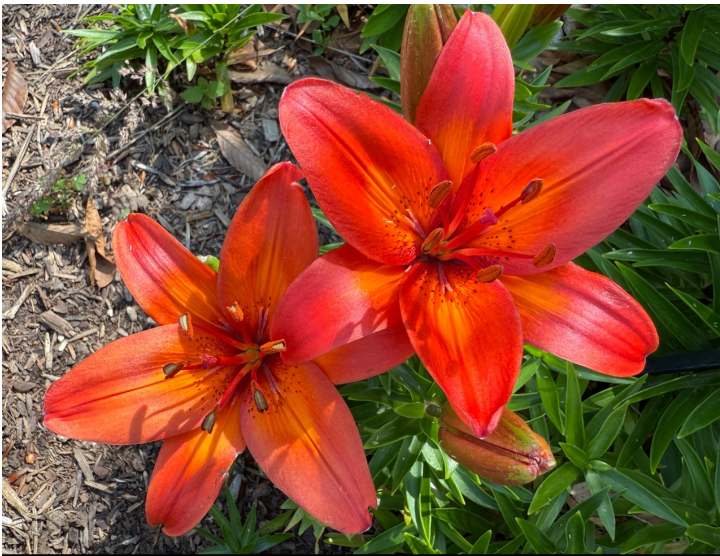


PURDUE  
UNIVERSITY



Jules Janick  
Horticulture Garden





Festive Joy Asiatic Lily  
*Lilium* 'Festive Joy'

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Jacob Cline Bee Balm  
*Monarda* 'Jacob Cline'

**PURDUE** UNIVERSITY  Jules Janick Horticulture Garden



Humelo Betony  
*Stachys officinalis* 'Humelo'

**PURDUE** UNIVERSITY  Jules Janick Horticulture Garden



Multi Blue Clematis  
*Clematis* 'Multi Blue'

**PURDUE** UNIVERSITY  Jules Janick Horticulture Garden





Royal Sunset LA Lily  
*Lilium 'Royal Sunset'*

**PURDUE UNIVERSITY** Jules Janick Horticulture Garden



Summer Peek-a-boo Ornamental Onion  
*Allium 'MCsmmpkb13'*

**PURDUE UNIVERSITY** Jules Janick Horticulture Garden



Snowdrop Windflower (in seed)  
*Anemone sylvestris*

**PURDUE UNIVERSITY** Jules Janick Horticulture Garden

## Midwest Farmers Wanted: Share How Past Weather Extremes Shape Current Farming Decisions



We are studying

How experiences of past extreme weather events influence present-day farming decisions?

### What to expect?

- **Interview length:** 45-60 min
- **Format:** In-person
- **When?** Flexible scheduling to suit your availability.
- **Topics:** Your farming experiences with past weather challenges, how you've adapted, and your thoughts on future farming.

Participants will receive \$100 as a token of appreciation.

### Project Supervisors

**Dr. Linda Prokopy**  
Professor & Department Head, HLA  
lprokopy@purdue.edu

**Dr. Aaron Thompson**  
Associate Professor, HLA  
awthomps@purdue.edu

### Interested?

**For more information, contact**  
**Shivika Aggrawal**  
PhD student, HLA  
saggraw@purdue.edu

### Why participate?

Your knowledge is valuable in understanding how farming communities navigate weather challenges and build strength through generations of knowledge and practices.

**PURDUE UNIVERSITY** Horticulture and Landscape Architecture

IMPACT: Social-Ecological Memory in Midwest Agriculture Interviews  
IRB-2025-449

Do You Know Farmers in Indiana, Illinois, or Iowa?



We are currently conducting interviews as part of the IMPACT<sup>2</sup>: Social-Ecological Memory in Midwest Agriculture project. This research explores how past extreme weather events shape present-day farming decisions and adaptation strategies.

We are looking to connect with farmers in Indiana, Illinois, or Iowa for interviews to learn about their stories and practices related to weather challenges and adaptation. Interviews are in-person, last about 45–60 minutes, and participants will receive a \$100 honorarium.

If you know someone who might be interested, please reach out to Shivika Aggrawal at [saggraw@purdue.edu](mailto:saggraw@purdue.edu).

Thank you for helping us amplify the voices and knowledge of Midwest farming communities!

Download the printable [flyer](#).

## Save the Date: Purdue Small Farm Education Field Day



**REGISTRATION OPEN!**  
**PURDUE SMALL FARM EDUCATION FIELD DAY**  
**JULY 24, 2025**  
at the Purdue Student Farm  
<https://www.purdue.edu/hla/sites/studentfarm/events/>  
**REGISTRATION:**  
<https://bit.ly/4iPJSN5>

PRESENTED BY: **P PURDUE UNIVERSITY** Horticulture and Landscape Architecture

Visit <https://ag.purdue.edu/departments/hla/facilities/student-farm/events.html> for more information.

Register at <https://bit.ly/4iPJSN5>.

## Hydroponic Crop Production Workshop



**Hydroponic Crop Production Workshop**  
**Date:** July 12, 2025 (Saturday, 8:30 am to 3:30 pm)  
**Location:** Department of Horticulture and Landscape Architecture Greenhouse Complex, 625 Agriculture Mall Drive, Purdue University, West Lafayette, IN 47907  
The workshop is a perfect opportunity to learn about hydroponic crop production for home and commercial-scale operations.  
**Register here:**  
**Registration fees:** \$60 per person  
• Lunch/ snacks provided  
• Parking is free  
• Taught by experienced Purdue faculty

Contact: Lori-Jolly Brown  
Tel: 765-494-1296 | E-mail: [ljollybr@purdue.edu](mailto:ljollybr@purdue.edu)

**P PURDUE UNIVERSITY** Extension

**Date:** July 12, 2025 (Saturday, 8:30 am to 3:30 pm)

**Location:** Department of Horticulture and Landscape Architecture Greenhouse Complex, 625 Agriculture Mall Drive, Purdue University, West Lafayette, IN 47907

The workshop is a perfect opportunity to learn about hydroponic

crop production for home and commercial-scale operations.

**Register here:** (forthcoming)

**Registration fees:** \$60 per person

- Lunch/ snacks provided
- Parking is free
- Taught by experienced Purdue faculty

## Purdue Turf and Landscape Field Day 2025



**REGISTRATION OPEN!**  
**PURDUE TURF & LANDSCAPE FIELD DAY 2025**  
**DON'T MISS!**  
**JULY 8, 2025**  
at the W. H. Daniel Turfgrass Research & Diagnostic Center  
<https://www.mrtf.org/event/turf-and-landscape-field-day>  
**REGISTRATION:**  
  
PRESENTED BY: **P PURDUE UNIVERSITY** + **MRTF** Midwest Regional Turf Foundation

Purdue Turf and Landscape Field Day 2025

July 8, 2025 at the W. H. Daniel Turfgrass Research and Diagnostic Center

Registration is now open:

<https://mrtf.org/event/turf-and-landscape-field-day/>

## Lawn Care Diagnostic Training



**REGISTRATION OPEN!**  
**2025 LAWN CARE DIAGNOSTIC TRAINING AT PURDUE**  
**DON'T MISS!**  
**AUGUST 14, 2025**  
at the W. H. Daniel Turfgrass Research & Diagnostic Center  
[https://mrtf.org/event/lawn-care-diagnostic-training/event\\_date=2025-08-14](https://mrtf.org/event/lawn-care-diagnostic-training/event_date=2025-08-14)  
**REGISTRATION:**  
  
PRESENTED BY: **P PURDUE UNIVERSITY** + **MRTF** Midwest Regional Turf Foundation

Register at <https://mrtf.org/event/lawn-care-diagnostic-training/>.

## Newsletters:

Facts for Fancy Fruits: <https://fff.hort.purdue.edu>

Vegetable Crops Hotline: <https://vegcropshotline.org/>

Purdue Landscape

Report: <https://www.purduelandscape.com/>



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Editor: Pamela J Fisher | Department of Horticulture and Landscape Architecture, 625 Agriculture Mall Dr., West Lafayette, IN 47907