

## Courtney Price Leisner, Ph.D.

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### EDUCATION AND RESEARCH APPOINTMENTS

- 2019-Present, Director of Atmospheric Deposition Site, Auburn University
- 2018-Present, Assistant Professor, Department of Biological Sciences, Auburn University
- 2015-2018, NIH Ruth L. Kirschstein National Research Service Award (NRSA) Postdoctoral Fellow with C. Robin Buell (Sponsor) and Sarah O'Connor (Co-Sponsor), Michigan State University
- 2014-2015, Postdoctoral Research Associate with C. Robin Buell, Michigan State University
- 2014, Ph.D., Plant Biology, University of Illinois Urbana-Champaign, Advisor Elizabeth A. Ainsworth
- 2009, M. Sc., Botany, Washington State University, Advisor Gerald E. Edwards
- 2007, B.Sc., Biology & Environmental Science

### PUBLICATIONS

Google Scholar: [https://scholar.google.com/citations?user=ha\\_WynkAAAAJ&hl=en](https://scholar.google.com/citations?user=ha_WynkAAAAJ&hl=en)

ORCID: <https://orcid.org/0000-0002-8285-686X>

\* *Indicates undergraduate author*

21. Sanz-Saez A, Potnis N, **Leisner CP** (*Submitted*) Crosstalk and trade-offs: Plant responses to climate change-associated abiotic and biotic stresses. *Invited Review, Plant Cell & Environment*.
20. Lawas LMF, Kamileen MO, Buell CR, O'Connor SE, **Leisner CP** (*Submitted*) Transcriptome-based identification of genes involved in monotropein biosynthesis and functional characterization of iridoid synthase in blueberry. *The Plant Journal*.
19. Rossi G, Woods FM, **Leisner CP** (*In Revision*) Quantification of total phenolic, anthocyanin and flavonoid content in a diverse panel of blueberry cultivars. *HortScience. Impact factor 1.455*.
18. Edger PP, Iorizzo M, Bassil NV, Benevenuto J, Ferrao F, Giongo L, Hummer K, **Leisner CP**, Lawas LMF, Li C, Munoz P, et al., (2022) There and back again; historical perspective and future directions for *Vaccinium* breeding and research studies. *Horticulture Research*. <https://doi.org/10.1093/hr/uhac083>. *Impact factor 6.793*.
17. Keshishian E, Cliver B, McLaughlin, W, Hallmark, H, Plackova, L, Novak O, Goertzen L, Cobine P, **Leisner CP**, Rashotte A (2022) Cytokinin response factor 2 is involved in modulating salt stress response. *The Plant Journal*. <https://doi.org/10.1111/tpj.15726>. *Impact factor 5.775*.
16. Lesinger K, **Leisner CP**, Sanz-Saez A, Tian D (2020) Impact of climate change on storage conditions for major agricultural commodities across the contiguous United States. *Climate Change* **162**: 1287-1305. *Impact factor 4.134*.

15. **Leisner CP** (2020) Review: Climate change impacts on food security – focus on perennial cropping systems and nutritional value. *Plant Science* **293**: 110412. *Impact factor* 3.712.
14. Colle M, **Leisner CP**, Wai CM, Ou S, Bird KA, Wang J, Wisecaver JH, Yocca AE, Callow P, Ben-Zvi G, Brodt A, Baruch K, Swale T, Shiue L, Song G-q, Childs KL, Shilmiller A, Vorsa N, Buell CR, VanBuren R, Jiang N, Edger PP (2019) Subgenome dominance and evolution of phytonutrient pathways in allopolyploid blueberry. *Gigascience* **8**: 1-15. *Impact factor* 7.267.
13. Wu S, Zhang B, Keyhaninejad N, Rodriguez GR, Kim HJ, Chakrabarti M, Illa-Berenguer E, Taitano NK, Gonzalo MJ, Diaz A, Pan Y, **Leisner CP**, Halterman D, Buell CR, Weng Y, Jansky S, Monforte AJ, Meulia T, van der Knaap E (2018) A novel mechanism underlies morphological diversification in plants. *Nature Communications* **9**: 4374-4386. *Impact factor* 12.353.
12. Winkler JA, Soldo L, Tang, Y, Forbush T, Douches DS, Long CM, **Leisner CP**, Buell CR (2018) Potential impacts of climate change on storage conditions for commercial agriculture: an example for potato production Michigan. *Climate Change* **151**: 275-287. *Impact factor* 3.537.
11. **Leisner CP**, Hamilton JP, Crisovan E, Marand AP, Manrique-Carpintero NC, Newton L, Pham GM, Jiang J, Douches DS, Jansky SH, Buell CR (2018) Genome sequence of M6, a diploid inbred clone of the high glycoalkaloid-producing tuber-bearing potato species *Solanum chacoense*, reveals high residual heterozygosity. *The Plant Journal* **94**: 562-570. *Impact factor* 5.775.
10. **Leisner CP**, Yendrek CR, Ainsworth EA (2017) Physiological and transcriptomic responses in the seed coat of field-grown soybean (*Glycine max* Merr.) to abiotic stress. *BMC Plant Biology* **17**: 242. *Impact factor* 3.93.
9. **Leisner CP**, Wood JC\*, Vaillancourt B, Tang Y, Douches DS, Buell CR, Winkler JA (2017) Influence of choice of future climate change projection on interpretation of growth chamber experiments on agricultural impacts: A preliminary study in potato. *International Journal of Biometeorology* **62**: 669-679. *Impact factor* 2.309.
8. Marand AP, Jansky SH, Zhao H, **Leisner CP**, Zhu X, Zeng Z, Crisovan E, Newton L, Hamernik AJ, Veilleux RE, Buell CR, Jiang J (2017) Meiotic crossovers are associated with open chromatin and enriched with *Stowaway* transposons in potato. *Genome Biology* **18**: 203. *Impact factor* 13.214.
7. **Leisner CP**, Kamileen MO, Conway ME\*, O'Connor SE, Buell CR (2017) Differential iridoid and antioxidant profiles across a diversity panel of 84 cultivated and wild blueberry species. *PLoS ONE* **12**(6): e0179417. doi.org/10.1371/journal.pone.0179417. *Impact factor* 2.766.
6. Hardigan MA, Crisovan E, Hamilton JP, Kim J, Laimbeer P, **Leisner CP**, Manrique-Carpintero NC, Newton L, Pham GM, Vaillancourt B, Yang X, Zeng Z, Douches DS, Jiang J, Veilleux RE, Buell CR (2015) Genome reduction uncovers a large dispensable genome and adaptive role for copy number variation in asexually propagated *Solanum tuberosum*. *The Plant Cell* **28**: 388-405. *Impact factor* 8.538.
5. **Leisner CP**, Ming R, Ainsworth EA (2014) Distinct transcriptional profiles of ozone stress in soybean (*Glycine max*) flowers and pods. *BMC Plant Biology* **14**: 335. *Impact factor* 3.93.

4. Yendrek CR, **Leisner CP**, Ainsworth EA (2013) Chronic ozone exacerbates the reduction in photosynthesis and acceleration of senescence caused by limited N availability in *Nicotiana sylvestris*. *Global Change Biology*, **19**: 3155-3166. *Impact factor 8.997*.
3. Betzelberger AM, Yendrek CR, Sun J, **Leisner CP**, Nelson RL, Ort DR, Ainsworth EA (2012) Ozone exposure-response for U.S. soybean cultivars: linear reductions in photosynthetic potential, biomass and yield. *Plant Physiology*. **160**: 1827-1839. (Cover article). *Impact factor 6.280*.
2. **Leisner CP** & Ainsworth EA (2012) Quantifying the effects of ozone on plant reproductive growth and development. *Global Change Biology*. **18**: 606-616. *Impact factor 8.997*.
1. **Leisner CP**, Cousins A, Offermann S, Okita TW, Edwards GE (2010) The effects of salinity on photosynthesis and growth of the single-cell C<sub>4</sub> species *Bienertia sinuspersici* (Chenopodiaceae). *Photosynthesis Research* **106**: 201-214. *Impact factor 1.85*.

### **BOOK CHAPTERS**

1. **Leisner CP** (2021) *S. chacoense* genome sequence. In *The Wild Solanum Genomes*. Editors Domenico Carputo, Riccardo Aversano, Maria Raffaella Ercolano. Springer International Publishing AG (<https://link.springer.com/book/10.1007/978-3-030-30343-3>)

### **FUNDING**

*Funding to date as PI: \$916,342; funding to date total: \$1,511,600*

#### *Principal Investigator (PI)*

- PI, NSF PGRP, “CAREER: Genomics-enabled plant physiology to understand climate change impacts on dormancy in perennial cropping systems” (\$1,489,597) (2022-2026) (*In Review*)
  - Previous work to understand climate change impacts on crop growth has largely focused on a small subset of high production annual row crops, leaving large knowledge gaps in our understanding of climate change impacts on perennial cropping systems. Perennial plants live more than one year cycling through a physiologically dormant state to withstand unfavorable growth conditions in the winter. This proposal will integrate whole-plant physiology, genome-wide association analysis and genome editing to understand the genetic mechanisms associated with seasonal cycling between dormancy and growth in perennial plants, as well as how environmental fluctuations associated with future climate change will alter developmental programs in temperate perennial plants. This proposal also aims to decrease barriers to participation in plant sciences for marginalized groups through exposure to research and career opportunities in agriscience-related fields through integration of my research project in proven programs at Auburn University through the Office of Inclusion, Equity and Diversity.
- PI, Alfred P. Sloan Foundation, Creating Equitable Pathways to STEM Graduate Education, “AU-UTRGV Collaborative: Expanding Lantix/Hispanic Opportunities, Education and Matriculation in Biology” (\$230,091) (2022-2024) (*In review*)
  - The goal of this project is to launch a pilot initiative to develop a bridge program that increases the participation of Latinx/Hispanic students in the graduate program of the Department of Biological Sciences (DBS) at Auburn University (AU). Considering that AU is a primarily white institution (PWI), this grant is part of ongoing efforts to diversify the student body of this institution, while expanding the graduate opportunities in biology of University of Texas Rio Grande Valley (UTRGV), one of the largest Hispanic-Serving

Institution (HSI) in the nation. By promoting the inclusion of underrepresented groups into graduate programs, this partnership provides a viable opportunity to produce systemic change in STEM fields.

- PI, USDA NIFA Foundational Knowledge of Plant Products program, New Investigator Seed Grant, “Understanding plant natural product biosynthesis in blueberry through core gene discovery” (\$281,173) (Award No. 2022-67013-36416) (2022-2024)
  - Blueberries produce iridoid compounds, which are potent natural products with human health benefits. Despite these known properties, little work has been done to fully understand the genetic basis of iridoid biosynthesis in cultivated blueberry. This proposal will use a multi-faceted approach incorporating transcriptomic, genomic and metabolomic data to elucidate genes involved in the biosynthesis of the iridoid glycoside monotropein in blueberry. Outcomes from this proposal will serve as a platform to understand iridoid production more fully in blueberry and can translate into the development of new blueberry varieties with enhanced human health benefits.
- PI, USDA NIFA Physiology of Agriculture Plants program, “Dissecting the physiological mechanisms of plant nutrient responses to rising atmospheric carbon dioxide levels” (\$635,169) (Award No. 2022-67013-36126) (2021-2024)
  - The unprecedented rise in atmospheric CO<sub>2</sub> concentration ([CO<sub>2</sub>]) is expected to increase the yields of C<sub>3</sub> crops but at the cost of important mineral nutrients. Despite the large body of literature documenting the experimental effects of elevated [CO<sub>2</sub>] on biomass and nutrient accumulation, the physiological mechanisms that link the increased biomass response with alterations in mineral nutritional content have not been empirically tested. This proposal using existing knowledge in soybean (*Glycine max* L. Merr.) to empirically test the hypothesized physiological and molecular mechanisms of mineral composition response to elevated [CO<sub>2</sub>] and build mathematical models of the underlying physiology of elemental accumulation to test how elevated [CO<sub>2</sub>] alters elemental accumulation in plants. Outputs of these models will be validated in a field setting to determine the most likely mechanism(s) associated with lower mineral nutrients in plants in elevated [CO<sub>2</sub>].
- PI, Alabama Agriculture Experiment Station, Agricultural Research Enhancement, Exploration and Development (AgR-SEED) Grant, “Understanding the mechanisms of dormancy and bud break in the perennial blueberry crop and impacts on market quality” (\$50,000) (2021-2023)
  - The overall aim of this proposal is to understand how elevated temperature impacts dormancy and bud break in blueberry and what impact this might have on blueberry fruit flavor and quality. Physiological data from controlled growth chamber studies will be analyzed to provide a dynamic representation of the transition from dormant bud to bud break for future modeling purposes. Market quality and sensory panel analysis will be used to understand how changes in bud break affect fruit flavor and quality. Results from this project will provide information to Alabama blueberry growers to aid in near-term solutions to safeguard production losses due to temperature variability and long-term solutions in terms of cultivar development and breeding strategies.
- PI, DOE Joint Genome Institute Community Science Program New Investigator Program, “Genomic regulation of plant biomass and nutrient responses to elevated carbon dioxide levels in soybean” (In kind support for RNA-Sequencing) (2021)
  - The objective of this grant is to sequence soybean cultivars exposed to elevated carbon dioxide ([CO<sub>2</sub>]) concentrations to generate transcriptomic data to begin to dissect the physiological and molecular mechanisms of mineral composition responses to elevated [CO<sub>2</sub>]. This proposal is in-kind support and therefore samples will be submitted to JGI for sequencing at no cost.

- PI, Alabama Agriculture Experiment Station, Award for Interdisciplinary Research (AIR), “Resolving the intricacies of host x pathogen x environmental interactions through an integrative systems biology approach in response to climate change (\$148,282) (2020-2022)
  - The objective of this grant is to use transcriptomics, metagenomics and physiology analysis to determine the interaction of biotic stress (plant pathogen) with abiotic stress (elevated ozone) in pepper plants. This project also utilizes a unique open-top chamber field site at Auburn University that is not replicated anywhere else in the country in scale or capacity. *I am currently Director of the Auburn University Atmospheric Deposition Research Site.*
- PI, Alabama Agriculture Experiment Station, Equipment Funding, “Utilizing controlled growth chambers to understand climate change impacts on plant nutritional quality” (\$18,882) (2019)
  - This grant enabled the purchase of a growth chamber that allows plants to be grown under elevated temperature and carbon dioxide concentrations predicted for the future.
- PI, Alabama Agriculture Experiment Station Agricultural Research Enhancement, Exploration and Development (AgR-SEED) Grant, “Assessing the impact of climate change on blueberry chilling hours and freeze tolerance in the southeast region” (\$49,935) (2019-2021)
  - This project utilizes climate modeling, growth chamber experiments, physiology analysis and innate cultivar diversity to analyze how future predicted changes in chilling hours and freeze events will affect commercially grown fresh market blueberry cultivars and to develop strategies for blueberry growers to handle the lack of chilling hours and inconsistent weather patterns predicted in the future.
- PI, NIH Ruth L. Kirschstein National Research Service Award Postdoctoral Fellowship, “Exploring the diversity of iridoid compounds in blueberry for human health benefits” (\$179,142) (2015-2018)
  - The broad, long-term objective of the proposed work is to improve the biochemical, molecular, and genetic understanding of iridoid production in blueberry to enable improved access to these compounds for future clinical research. The specific aims of the proposal are to 1) survey iridoid compounds in a diversity panel of *Vaccinium* spp. using biochemical analyses, 2) identify the genes underlying iridoid biosynthesis in blueberry through genomic, transcriptomic and bioinformatics analyses, and 3) perform functional characterization of the tailoring enzymes involved in the specific iridoid biosynthetic pathway in blueberry.

#### *Co-Principal Investigator (Co-PI)*

- Co-PI, Alabama Agriculture Experiment Station, Award for Interdisciplinary Research (AIR), “Developing the AU Hop Team: Breeding southeastern-adapted hop varieties with integrative horticultural, phenotypic, and genomic strategies” (\$149,280) (2021-2023)
  - The goal of this proposal is to conduct interdisciplinary research to overcome barriers to growing hops in the subtropical climate conditions of the southeastern U.S. This proposal will characterize the largest hop germplasm collection in the southeastern U.S., and evaluate and initiate a breeding program focused on the response of wild hops, hop cultivars, and potential future hop varieties to drought stress and environmental conditions of the southeastern U.S.
- Co-PI, Alabama Agriculture Experiment Station, Award for Interdisciplinary Research (AIR), “Improving soybean and peanut growth, drought-resistance and nodulation under field growing conditions, using a combination of rhizobacteria and pectin-rich seed amendments” (\$148,844) (2019-2021)
  - It has been demonstrated that experiments that inoculate with plant growth-promoting rhizobacteria (PGPR) can increase plant growth and yield under different abiotic stresses. Results from field studies with PGPR strains, however, have typically shown lower or no

yield improvement compared to greenhouse studies. My role in this proposal is to better understand the crosstalk between PGP strains, plants and nitrogen-fixing bacteria and test the benefits of inoculation in a field setting using transcriptomic analysis.

- Co-PI, National Peanut Board, “Discovering drought tolerant traits in peanut” (\$30,035) (2019-2021)
  - Current peanut breeding efforts at Auburn University have led to development of the breeding line AU16-28, which is able to produce high yields under mid -season drought. In spite of the apparent yield gain, it is unclear what mechanism the plant is utilizing that conveys the drought tolerant behavior in AU16-28. My role in this proposal is to understand which mechanism is responsible for drought tolerance in AU16-28 and other cultivars using transcriptomics.
- Co-PI, Project GREEN (Generating Research and Extension to meet Economic and Environmental Needs) Award, MSU, “Assessing the Impact of Climate Change on Potato Production in Michigan in the 21<sup>st</sup> Century” (\$69,600) (2015-2017)
  - The goal of this project is to determine if existing potato cultivars grown in Michigan, which were developed primarily in the late-20<sup>th</sup> century, will be impacted by altered CO<sub>2</sub> and temperature conditions anticipated in the mid-21<sup>st</sup> century. This project uses global climate modeling and controlled growth chamber experiments to determine adaptability of current potato cultivars to climate conditions predicted for 2041-2070. My role was to develop and lead this study.
- Co-PI, Campus Research Board Grant, UIUC, “Transcriptional Reprogramming of Floral Gene Expression by Ozone (\$7,920) (2012)
  - Elevated ozone has been shown to have differential effects on soybean pod and flower abscission rates. This has been observed in field and growth chamber experiments. The underlying mechanisms associated with this response, however, is unknown. The Campus Research Board grant funded library preparation and sequencing costs to perform transcriptomic analysis in soybean flower and pod tissue to determine their differential response to elevated ozone. My role was to develop and lead this study.
- Co-PI, Office of Public Engagement Grant, UIUC, “Plants iView” (\$19,744) (2011)
  - This is a matching public engagement grant to support the American Society of Plant Biology Education Foundation Grant funded the same year.
- Co-PI, Education Foundation Grant, American Society of Plant Biology, “Plants iView” (\$19,919) (2011)
  - The American Society of Plant Biology Education Foundation grant supported the creation and execution of “Plants iView”, an after-school outreach program focused on middle school students. The goal of this program was to recruit and retain students in the STEM pipeline and introduce them to the world plant biology through the lens (or point of view) of a plant. Since its inception in 2011 the program is still running through the University of Illinois Urbana-Champaign Department of Plant Biology.

## **HONORS AND AWARDS**

### **Honors and Awards**

- Fellow, Faculty Success Program, Office of Inclusion and Diversity, Auburn University (2021)
- Faculty Travel Grant Awardee, College of Science and Mathematics, Auburn University (2019)
- Travel Grant Awardee, American Society of Plant Biology Annual Meeting (2016)
- NIH Ruth L. Kirschstein NRSA Postdoctoral Fellowship (2015)
- Department of Plant Biology Fellowship, UIUC (2013)
- University Fellowship, UIUC (2013)
- Student Fellowship, 16<sup>th</sup> International Congress on Photosynthesis Research (2013)

- Harold C. and Sonja L. Labinsky Award, UIUC (2013)
- Govindjee Award for Excellence in Biological Science, UIUC (2012)
- Francis M. and Harlie M. Clark Research Support Grant, UIUC (2011)
- Graduate College Travel Grant, UIUC (2011)
- Travel Grant Awardee, American Society of Plant Biology Annual Meeting (2009)
- Betty W. Higginbotham Trust Award in Botany, WSU (2009)
- Betty W. Higginbotham Trust Award in Botany, WSU (2008)
- Aase Fellowship Award in Botany, Recruitment Award to School of Biological Sciences, WSU (2007)

### Teaching

- Postdoctoral Teaching Scholar, MSU (2015)
- List of teachers ranked as excellent by students, UIUC (2011)

### TEACHING

#### Auburn University

- BIOL 5130/6130, Advanced Plant Physiology (Spring 2021, 3 credit hours). Upper-level undergraduate and graduate course. Enrollment 13 students.
- BIOL 5440/6440, Global Change Physiology and Evolution (Fall 2020, Fall 2021; 3 credit hours). Upper-level undergraduate and graduate course. Enrollment 15 students.
- BIOL 3100, Plant Biology (Fall 2019, 3 credit hours with wet laboratory). Undergraduate course. Enrollment 41 students.
- BIOL 3020, Genomic Biology (Spring 2019, Spring 2022; 3 credit hours with computational laboratory). Undergraduate course. Enrollment 72 students.

### INVITED TALKS AND PRESENTATIONS

- **Leisner CP** (2022) Resolving the intricacies of host x pathogen x environment interactions through an integrative systems biology approach in response to climate change. Selected talk, Southern Section, American Society of Plant Biologists Annual Meeting
- **Leisner CP** (2021) “Climate change impacts on crop plant nutritional quality”. Invited seminar, Hermiston Farm Fair, Oregon State University.
- **Leisner CP** (2021) “Medicinal genomics: Exploring the diversity of iridoid compounds in blueberry for human health benefits.” Invited seminar, Department of Biology, The University of Texas Rio Grande Valley.
- **Leisner CP** (2021) “Medicinal Genomics: Exploring the diversity of iridoid compounds in blueberry for human health benefits”. Selected talk, Phytochemistry Colloquium, Botanical Society of America Annual Meeting.
- **Leisner CP**, Lawas LMF, Kamileen MO, O’Connor SE, Buell CR (2021) “Medicinal Genomics: Exploring the diversity of iridoid compounds in blueberry for human health benefits”. Selected talk, Phytochemical Society of North America.
- **Leisner CP** (2021) “Medicinal Genomics: Exploring the diversity of iridoid compounds in blueberry for human health benefits”. Selected talk, American Society of Plant Biology Annual Meeting.

- **Leisner CP** (2021) “Impact of choice of future climate change projection on growth chamber experimental outcomes: a preliminary study in potato”. Selected talk, American Society of Plant Biology Annual Meeting.
- **Leisner CP** (2020) “Medicinal Genomics: Exploring the diversity of iridoid compounds in blueberry for human health benefits”. Invited Seminar, School of Integrative Plant Science, Cornell University.
- **Leisner CP** (2020) “Potential impacts of Climate Change Projections on Potato Physiology and Storage”. Invited seminar, Plant Sciences and Plant Pathology department, Montana State University.
- **Leisner CP** (2020) “Genome Sequence of M6, and Inbred Clone of Potato”. Invited seminar, INTRINSyC Plant Biology Group, North Carolina State University.
- **Leisner CP** (March 2020) “Physiological and transcriptomic responses to abiotic stress in the soybean seed coat”. Invited talk, Soybean Breeders Workshop, St. Louis Missouri.
- **Leisner CP** (2019) “Our Changing World: Impacts of Rising CO<sub>2</sub> and Temperature on Nutrition”. Invited TESS (Together Embracing Successful Scholars) Talk, Office of Inclusion and Diversity, Auburn University.
- **Leisner CP**, Kamileen MO, Conway ME, O’Connor SE, Buell CR (2019) Medicinal Genomics: Exploring the diversity of iridoid compounds in blueberry for human health benefits. Selected talk, American Society of Plant Biology Annual Meeting.
- **Leisner CP**, Kamileen MO, Conway ME, O’Connor SE, Buell CR (2019) Exploring the diversity of iridoid compounds in blueberry for human health benefits. Invited talk, Southern Association of Agricultural Scientist.
- **Leisner CP**, Wood JC, Vaillancourt B, Tang Y, Douches DS, Buell CR, Winkler JA (2019) “Potential impacts of Climate Change Projections on Potato Physiology and Storage”. Selected talk, 12<sup>th</sup> Mini-Summit, Collaborations and International Partnerships: Keys to Sustainable Global Food systems, College of Agriculture, Auburn University.
- **Leisner CP**, Wood JC, Vaillancourt B, Tang Y, Douches DS, Buell CR, Winkler JR (2019) Impact of choice of climate change projection on growth chamber experimental outcomes: a preliminary study in potato. Invited talk, Keystone Symposia Climate Change-Linked Stress Tolerance in Plants.
- **Leisner CP**, Kamileen MO, Conway ME, O’Connor SE, Buell CR (2017) Exploring the diversity of iridoid compounds in blueberry for human health benefits. Invited seminar, North Carolina Research Campus Genomic Sciences Exchange Group, Plants for Human Health Institute.
- **Leisner CP**, Ainsworth EA, Yendrek CR (2013) Do elevated temperature-, ozone-, or drought-induced changes in leaf metabolism alter gene expression patterns in the seed coat of filling pods in field-grown soybeans? Invited seminar, Graduate Students in Ecology and Evolutionary Biology Symposium, UIUC
- **Leisner CP**, Ainsworth EA, Yendrek CR (2013) Do elevated temperature, or drought alter gene expression patterns in the seed coat of field-grown soybeans? Invited seminar, Graduate Students in Ecology and Evolutionary Biology Ecolunch Seminar, UIUC

## **POSTER PRESENTATIONS**

- **Leisner CP**, Kamileen MO, Conway ME, O’Connor SE, Buell CR (2020) “Medicinal Genomics: Exploring the diversity of iridoid compounds in blueberry for human health benefits”. American Society of Plant Biology Annual Meeting.
- **Leisner CP**, Wood JC, Vaillancourt B, Tang Y, Douches DS, Buell CR, Winkler JR (2019) Impact of choice of climate change projection on growth chamber experimental



outcomes: a preliminary study in potato. Gordon Conference, CO<sub>2</sub> Assimilation: Genome to Biome.

- Julie A. Winkler, Logan Soldo, Ying Tang, Todd Forbush, David S. Douches, Chris M. Long, **Courtney P. Leisner**, C. Robin Buell (2018) Potential impacts of climate change on storage conditions for commercial agriculture: an example for potato production in Michigan. Annual Meeting of the Association of American Geographers
- Julie A. Winkler, Logan Soldo, Ying Tang, Todd Forbush, David S. Douches, Chris M. Long, **Courtney P. Leisner**, C. Robin Buell (2018) Potential impacts of climate change on storage conditions for commercial agriculture: an example for potato production in Michigan. International Geographical Union (IGU) Regional Conference - Canadian Association of Geographers (CAG) Annual Meeting - National Council for Geographic Education (NCGE) Annual Conference
- **Leisner CP**, Kamileen, M, O'Connor SE and Buell CR (2016) Exploring the diversity of iridoid compounds in blueberry for human health benefits. American Society of Plant Biology Annual Meeting
- Ainsworth EA, Brown PJ, Leakey ADB, McIntyre LM, Barrios-Perez I, Dalsing B, Erice G **Leisner CP**, Montes CM, Morse A, Rios-Acosta L, Shim S, Sorgini CA and Yendrek CR (2014) Sites of ozone sensitivity in diverse maize inbred lines. Plant Animal Genome Meeting
- **Leisner CP**, Yendrek CR, McIntyre LM, Bernacchi CJ, Leakey ADB, Ainsworth EA (2013) Abiotic stress decreases leaf-level photosynthetic metabolism, but does not decrease sink strength in the seed coat of field-grown soybean. The 16<sup>th</sup> International Congress on Photosynthesis
- **Leisner CP**, Ainsworth EA, Yendrek CR (2012) Do elevated temperature- or drought-induced changes in leaf metabolism alter gene expression patterns in the seed coat of filling pods in field-grown soybean? Cold Spring Harbor Laboratory, The Biology of Plants
- Ainsworth EA, Yendrek CR, Betzelberger AM, **Leisner CP** (2012) Improving crop photosynthesis for increased tolerance to ozone. Society of Experimental Botany Annual Meeting
- Leakey ADB, Peery R, Hug B, Markelz RJ, Kelly R, Segura M, Gray S, **Leisner CP**, Slattery R (2012) Plants iView - an outreach program in plant biology for middle school students. Public Engagement Symposium, UIUC
- **Leisner CP**, Ainsworth EA, Yendrek CR (2012) Does elevated temperature and drought alter gene expression patterns in the seed coat during pod fill in field-grown soybean? Graduate Students in Ecology and Evolutionary Biology Symposium, UIUC
- Ainsworth EA, Nelson R, Skoneczka J, Betzelberger A, **Leisner CP** (2011) Ground-level ozone negatively impacts soybean quantity and quality. Agronomy Day, UIUC
- **Leisner CP**, Ainsworth EA (2011) The effects of tropospheric ozone on resource allocation to reproductive and vegetative structures in plants. Gordon Conference, CO<sub>2</sub> Assimilation: Genome to Biome
- **Leisner CP**, Offermann S, Edwards GE (2009) Salinity tolerance in the single-cell C<sub>4</sub> species *Bienertia sinuspersici*. American Society of Plant Biologists Plant Biology Annual meeting
- **Leisner CP**, Edwards GE (2009) Salinity tolerance in the single-cell C<sub>4</sub> species *Bienertia sinuspersici*. Western Photosynthesis Conference
- **Leisner CP**, Edwards GE (2009) Salinity tolerance in the single-cell C<sub>4</sub> species *Bienertia sinuspersici*. Molecular Plant Sciences Symposium, WSU

## PROFESSIONAL ACTIVITIES

### *Grant Panels*

- USDA NIFA panel review (2020, 2021)
- NSF Graduate Research Fellowship Program panel review (2020)
- Auburn University Intermural Grants Program panel review (2018)

***Ad Hoc Grant Review***

- USDA NIFA (2021)
- Royal Society Future Leaders -African Independent Research (FLAIR) Fellowships (2020)
- Foundation for Food and Agriculture Research, New Innovators Award (2020)
- University of Nevada Reno, Nevada Agriculture Experiment Station Multi-State Proposals (2020)
- American Floral Endowment (2019)
- Royal Society Challenge-led grants (2018)

***Ad Hoc Journal Review (29 Total)***

- African Journal of Biotechnology, Agronomy, Annals of Botany, AoB, BMC Plant Biology, Evolutionary Ecology, Ecotoxicology, Frontiers in Plant Science, Genome, Global Change Biology, Horticulturae, International Journal of Molecular Science, Journal of Agricultural Science, Journal of Experimental Botany, Journal of the Science of Food and Agriculture, Nature Plants, Nature Food, Nature Scientific Reports, New Phytologist, Photosynthesis Research, Phytochemistry, Planta, Plant Biosystems, Plant Biotechnology, Plant Cell and Environment, Plant Cell Reports, Plant Physiology, PLoS ONE, The Plant Genome

***Invited Workshops***

- Invited participant, “Physiological Genomics Workshop: Finding and Mending the Knowledge Gaps between Plant Physiology and Plant Functional Genetics/Genomics” (National Science Foundation, Grant No. IOS-1937660) (2020)
- Invited participant, NIH National Center for Complimentary and Integrative Health (NCCIH) Fellows Symposium (2017)

***Service***

- Officer, Botanical Society of America, Phytochemistry Section (2021-present)
- Secretary/Treasurer, American Society for Plant Biology Environmental and Ecological Plant Physiology Section (2020-present)
- President, Plant Biology Association of Graduate Students, UIUC (2012-2013)
- Treasurer, Women in Science, UIUC (2012-2013)
- Graduate Affairs Committee, Department of Plant Biology, UIUC (2011-2012)
- Founder and President, Women in Science, UIUC (2011-2012)

**MENTORSHIP*****Research Associates***

- 2021-current Auston Holland, Auburn University, Atmospheric Deposition Facility Site Manager
- 2020-2021 Seth Johnston, Auburn University, Atmospheric Deposition Facility Site Manager

***Postdoctoral Researchers***

- 2019-current Lovely Lawas, Auburn University

***Graduate Students***

- Fall 2022-current Ishveen Kaur, Auburn University; Ph.D. student
- Fall 2022-current Ravneet Kaur, Auburn University; Ph.D. student
- Fall 2022-current Guillian Hernandez, Auburn University; Ph.D. student (co-advised)
- Fall 2021-current Abby Guillemette, Auburn University; M.Sc. student (co-advised)
- 2020-current Collin Modelski, Auburn University; Ph.D. student
- 2019-2022 Giovanni Rossi, Auburn University; M.S. (non-thesis) student

***Undergraduate Students***

- 2022-current Natalie Powers, Auburn University
- 2021-current Sarah Jones, Auburn University
- 2021-current Sheridan Spivey, Auburn University
- 2019-current Emma Peacock, Auburn University; Honors undergraduate research; Undergraduate Research Fellowship Recipient; Dean's Medal recipient
- 2019-current McKenzie Shelton, Auburn University; Honors undergraduate research
- 2019-current Ember Crutchfield, Auburn University
- 2020 Whitney Anne Elliot, Auburn University
- 2019-2020 Anna Inman, Auburn University
- 2019 Kya Wideman, Auburn University, NSF REU in Computational Biology
- 2016-2017 Megan Conway, Michigan State University; Undergraduate research; co-author publication 7 above. Currently PhD student, University of Utah
- 2015-2017 Josh Wood, Michigan State University; Undergraduate research; co-author publication 9 above. Currently Research Assistant, Michigan State University

## **OUTREACH AND PROFESSIONAL SERVICE**

### ***Faculty***

- Chair, Department of Biological Sciences Diversity, Equity and Inclusion Committee, Auburn University (2020-present)
- Member, College of Science and Mathematics Diversity and Inclusion Task Force, Auburn University (2020-present)
- Exhibitor, Auburn College of Science and Mathematics Virtual Booth, Annual Biomedical Research Conference for Minority Students (ABRCMS) Meeting (2020)
- Exhibitor, Auburn College of Science and Mathematics Virtual Booth, Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) Meeting (2020)
- Participant in "Destination STEM" campus-wide outreach event, Auburn University (2019)
- Judge, Middle School Event, Greater East Alabama Regional Science and Engineering Fair (GEARSEF), Auburn University (2019-2021)

### ***Postdoctoral***

- Led undergraduate workshop titled "The Ins and Outs of Graduate School," Plant Genomics Research for Undergraduate Program, Michigan State University (2017)
- Developed lesson plan "Eat the Rainbow," Michigan State University 4-H Garden Curiosity Camp "Garden Chefs from Garden to Table" (2017)
- Volunteer Scientist, Smelly Plants! Mint Outreach (National Science Foundation, Award No. 1444499) (2016)
- Mobile App Development, Plant Detective! App, Michigan State University 4-H Garden, Seeds Of Science Program (2016)

### ***Graduate***

- Volunteer Scientist, Marble Elementary School 'Science Night', East Lansing MI (2014)
- Counselor, Pollen Power Camp (National Science Foundation, Grant No. IOS-1238030), UIUC (2014)
- Volunteer Scientist, Frank Hall School 'Science Night', Aurora, IL (2012)
- Panelist, School of Integrative Biology Graduate School Workshop, UIUC (2012)
- Panelist, "Dish It Up Lunch on Us" Women's Resource Center Panel, "Only Girl in the Room: Women in STEM", UIUC (2012)

- Founding member and volunteer of Plants iView, an afterschool outreach program focused on teaching plant sciences to middle school-aged students, UIUC (2011-2014)
- Scientific Mentor, Plant Science Team, Botanical Society of America (2008-2009)

### **Professional Society Memberships**

Botanical Society of America (2021-present), American Association for the Advancement of Science (2015-Present), International Society of Photosynthesis Research (2013-Present), American Society of Plant Biologists (2007- Present)

### **PUBLISHED MEDIA**

- 2021 Michigan farmers have crop storage problem as global warming brings higher temperatures, Detroit Free Press, <https://www.freep.com/story/news/local/michigan/2021/03/26/global-warming-crop-storage-michigan/7009991002/>
- 2020 Perennial Vegetables Are a Solution in the Fight Against Hunger and Climate Change, <https://civileats.com/2020/08/19/perennial-vegetables-are-a-solution-in-the-fight-against-hunger-and-climate-change/>
- 2019 Biochambers Partnership with Researchers: Rising CO<sub>2</sub> and Temperature Effects on Potato Crops. Research Highlight, <https://www.biochambers.com>.
- 2017 Potato 2050: Preparing for potato production in light of climate change. Futures Magazine, Michigan State University AgBioResearch (vol. 35, Nos. 1 & 2).
- 2014 Editors Pick: Leisner et al., (2014) Distinct transcriptional profiles of ozone stress in soybean (*Glycine max*) flowers and pods. *BMC Plant Biology* 14:335.