Publications for 2025 NCERA-101 Committee

1. Published written works

5.A. Books

- None.

5.B. Book chapters

- Graham, T. 2024. The promise and pitfalls of controlled environment agriculture (CEA) - technological, biological, and societal considerations for an evolving agricultural landscape. In Future Food Systems: Exploring Global Production, Processing, Distribution and Consumption. Editor(s): Rickey Y. Yada, Rene Van Acker, Martin Scanlon, David Gray. Academic Press, Pages 43-54 https://doi.org/10.1016/B978-0-443-15690-8.00023-0
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5.C. Refereed journal articles

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5.D. Symposium proceedings

- Both, A.J., B. Bamka, T. Besançon, D.P. Birnie, III, C. Burgher, D. Giménez, S. Guran, M. Kornitas, P. Nitzsche, D. Robinson, W.R. Rucker, E. Schoolman, D. Specca, K.P. Sullivan, D.L. Ward, M. Westendorf, and C.A. Wyenandt. 2025. Lessons learned from three agrivoltaic installations in New Jersey. Accepted for Publication. 2024 Agrivoltaics World Conference, Denver, CO.
- Cammarisano, L., Frede, K., Graefe, J., Schreiner, M., Baldermann, S., & Körner, O. (2024, May). Pigment time-course of two lettuce cultivars in response to end-of-production blue-enhanced white light treatment. In X International Symposium on Light in Horticulture 1423 (pp. 47-54).
- Islam, M. N., Inam, A. S., Thakur, A. K., Ahamed, M. S., Ott, B., & Tabassum, S. (2024). A Cost-Effective Electrochemical Sensor for Real-Time Nitrate Monitoring in Hydroponics. *LPI Contributions*, *3065*, 5102.
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5.E. Presentations

- Ahamed, H.; Ahsan, T. M. A., M.; Ahamed, M. S. (2024). Evaluating the Energy Requirement of Indoor Container Farming across Diverse USA Climate Zones. ASABE Annual Meeting 2024, July 28-31, Anaheim, California.
- Ahsan, T. M. A; Ahamed, M. S. (2024). Exploring Trade-offs in Thermal and Economic Performance Across Different Collector Technologies for Solar-Thermally Cooled Greenhouses. ASABE Annual Meeting 2024, July 28-31, Anaheim, California.
- Ahsan, T.M.A; Ahamed, M. S. (2024). Hybrid Ground Source Heat Pump for Effectively Cooling and Dehumidifying Greenhouse Indoor Climate. ASABE Annual Meeting 2024, July 28-31, Anaheim, California.
- Bashir, Al, and Azlan Zahid. 2024. “Development of a Robotic End-Effector for Harvesting Greenhouse Hydroponic Lettuce.” American Society of Agricultural and Biological Engineers (ASABE), July 27-31, 2024.
- Bashir, Al, and Azlan Zahid. 2024. “Edge AI-Enabled Cutting Point Localization for Robotic Harvesting of Hydroponic Lettuce.” American Society of Agricultural and Biological Engineers (ASABE), Anaheim, July 27-31, 2024.
- Bashir, Al, and Azlan Zahid. 2024. “Real-Time Estimation of Strawberry Size, Weight and Level of Maturity: A Machine Learning Approach.”, AI in Agriculture Conference, April 15-17, 2024.
- Blanchard, C., Trandel-Hayse, M., Rodrigues, C., Wells, D., and T. Rehman. 2024. Fresh weight of indoor-grown lettuce under different postharvest storage practices. HortScience

59(9):S379 – Presented at the 2024 ASHS Annual Conference. September 23-27, 2024. Honolulu, HI.

- Both, A.J. 2024. Measuring and controlling light. Cultivate'24. July 13.
- Both, A.J. 2025. Agrivoltaics 101. 70th New Jersey Agricultural Convention and Trade Show. February 5.
- Both, A.J. 2025. Greenhouses for homeowners and gardeners. Home Gardeners School, Rutgers Office of Continuing Professional Education. March 15.
- Cammarisano L., Frede K., Graefe J., Schreiner M., Baldermann S., Körner O. (2025) Pigment time-course of two lettuce cultivars in response to end-of-production blue-enhanced white light treatment. Acta Hortic - LightSym – 19-22 May 2024 – Seoul, Korea.
- Chen J, Jones SB, Dixon C, Massa GD, Monje O, and McBride SM. 2024. Quantifying impacts of engineered soil texture and layering on liquid- and gas-distribution for reduced gravity in containerized soils using numerical simulations. Lunar Surface Science Workshop (LSSW) 24: Science Drivers and Capabilities for Lunar Surface Habitat Research Facilities. https://www.hou.usra.edu/meetings/lunarsurface2020/ [Poster]
- Chen, J., N. Avriantari, S. B. Jones, G. D. Massa, J. F. Keith, and S. M. McBride. 2025. Evaluating Nutritional Quality and Palatability Characteristics of Lettuce Cultivated using Cut-and-Come-again Method under Two Irrigation Management Strategies. The Human Research Program Investigators' Workshop (HRP IWS). Galveston, TX. Jan. 28-31. [Poster]
- Colvard, A.; Ferrarezi, R. S. 2024. Designing & building a high-tech small-scale vertical farm for residences. *Proceedings.* 2024 AgTech Research and Extension for Emerging Undergraduates Program Presentation, Jul 25th, 2024. Athens/GA, USA.
- Feng, X., & Jia, X. (2024). NCERA101: Controlled Environment Technology and Use Station Report 2024 of North Dakota State University. NCERA 101 Annual Meeting, Des Moines, IA. March 23-26, 2024.
- Feng, X., & Jia, X. (2024). North Dakota State University CEA report. NE 2335 Resource Optimization in Controlled Environment Agriculture Annual Meeting, Honolulu, HI, September 23, 2024.
- Finnell, N.; Ferrarezi, R. S. 2024. Developing low-cost residential vertical gardening system. *Proceedings.* 2024 AgTech Research and Extension for Emerging Undergraduates Program Presentation, Jul 25th, 2024. Athens/GA, USA.
- Genhua Niu, Qianwen Zhang, and Jun Liu. Biostimulants improved onion seedling and mini-bulb growth. Texas Organic Farmers and Gardeners Association Conference, January 27, Pflugerville, Texas.
- Genhua Niu. Biostimulants can improve organic vegetable seedling growth. American Society for Horticultural Science, Horticultural Plant Reproductive Biology Interest Group Webinar, March 4, 2025.
- Housley, M. J.; Malladi, A.; Lessl, J.; Buel, R.; Ferrarezi, R. S. 2024. Enhancing monoterpene indole alkaloid production in *Catharanthus roseus* through controlled environment cultivation and hormone applications. *HortScience* 59(9): S404 (Abstr.). 2024 ASHS Annual Conference, Sep 25th, 2024. Honolulu/HI, USA.
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metabolites. *Proceedings.* 2024 AgTech Research and Extension for Emerging Undergraduates Program Presentation, Jul 25th, 2024. Athens/GA, USA.

- Imberti, David. 2024. Balancing *for Success: Optimizing CO2, Light, and Temperature.* Indoor Ag Con, Las Vegas, U.S. March 11.
- Jannatul F. P., Dey, S. M., & Feng, X. (2024). Performance Evaluation of a Robust Chip-Based RF Sensor for Greenhouses Soil Moisture Determination. American Society of Horticultural Sciences Annual Conference, Honolulu, HI. September 23-27, 2024.
- Jeong, Sangjun, Genhua Niu, Shuyang Zhen. Blue and green light and temperature interactively regulate growth, morphology, physiology and phytochemicals of lettuce. ASHS, Hawaii, Sept 23-27, 2024.
- Jeong, Sangjun, Genhua Niu, Shuyang Zhen. Light intensity regulates the interactive effects between far-red light and temperature on lettuce growth, morphology, photosynthesis, and secondary metabolite. ASHS, Hawaii, Sept 23-27, 2024.
- Jeong, Sangjun, Genhua Niu, Shuyang Zhen. Light Intensity Regulates the Interactive Effects between Far-red and Temperature on Lettuce Growth, Morphology, Photosynthesis, and Secondary Metabolite. The X International Symposium on Light in Horticulture, Seoul, Korea, May 19-22, 2024.
- Jia, X. (2024). Water quality impact on hydroponic lettuce production. University of Wyoming Controlled Environment Ag Workshop. Laramie, WY. April 23-25, 2024.
- Kang, S. and S. Zhen, 2024. Interactive effects between far-red photons and orange or red photons on growth, morphology, and fruit yield of dwarf tomatoes. Annual Conference of the American Society for Horticultural Science (ASHS). Honolulu, HI. Sept. 23-27.
- Kashif, M.; Ahamed, M. S. (2024). Potential of Climate-Smart PV Shade Screen Impact on Greenhouse Thermal Loads. ASABE Annual Meeting 2024, July 28-31, Anaheim, California.
- Kashyap, R. (2024). Forging Collaborative Solutions: Plant Disease Management in Urban & Controlled Environments, August 21, 2024, NE ANR Update, Oconee County.
- Kashyap, R. (2024). Integrated Pathogen Management in Urban & Controlled Agriculture: A Research and Extension Initiative, October 16, 2024. CEA Growers Day - Griffin.
- Kashyap, R. (2024). Integrated Plant Disease Management Solutions for Georgia's Urban and Controlled Agriculture, December 11, 2024. NW ANR update, Spalding County.
- Kashyap, R. (2024). Navigating Plant Disease Challenges in Urban & CEA Systems. In Urban Ecology Seminar Series, University of Tennessee at Chattanooga. October 11, 2024 *(Invited)*
- Kashyap, R. (2025). Tackling Plant Diseases in Urban and Controlled Environments: Integrated Approaches. Green GTBOP Webinar Series. March 13. 2025.
- Katende, A. Ayipio, E., Lukwesa, D., and D.E. Wells. 2024. Split-root hydroponics: investigating cherry tomato resilience to salinity stress. Presented at Aquaculture America 2024. February 18-21, 2024. San Antonio, TX. https://wasblobstorage.blob.core.windows.net/meeting-abstracts/AA2024AbstractBook.pdf
- Katende, A. Lukwesa, D. Bender, G., Smith, M.R., and D.E. Wells. 2024. Substrate combinations for reduced perlite reliance in tomato cultivation. HortScience 59(2) supplemental: SR63. Presented at the 2024 Annual Meeting of the Southern Region of ASHS. February 2-4, 2024.

- Katende, A., Lukwesa, D., Ayipio, E. and D.E. Wells. 2024. Split-root hydroponics: investigating cherry tomato resilience to salinity stress. HortScience 59(2) supplemental: SR12. Presented at the 2024 Annual Meeting of the Southern Region of ASHS. February 2-4, 2024.
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- Kobayashi, K. 2025. Controlled Environment Agriculture and Protected Cultivation. Presented at the CTAHR Conference, University of Hawaii at Manoa, Honolulu, HI. April 10, 2025.
- Kobayashi, K. 2025. TPSS 300 Tropical Production Systems: The Course on the Edge of Forever. Presented at the CTAHR Conference, University of Hawaii at Manoa, Honolulu, HI. April 11, 2025.
- Kurasaki, R. and K. Kobayashi. 2025. Controlled Environment Agriculture for Hawai'i's Climate. Presented at the CTAHR Conference, University of Hawaii at Manoa, Honolulu, HI. April 11, 2025.
- Lariscy, E.; Housley, M. J.; Ferrarezi, R. S. 2024. Light intensity and composition for production of *Catharanthus roseus* in vertical farms as a source of biopharmaceuticals. *Proceedings.* 2024 AgTech Research and Extension for Emerging Undergraduates Program Presentation, Jul 25th, 2024. Athens/GA, USA.
- Li, Z; Karimzadeh, S.; Ahamed, M. S. (2024). Detection of Calcium Deficiency in the Growing Stage of Lettuce Using Computer Vision. ASABE Annual Meeting 2024, July 28-31, Anaheim, California.
- Liu, Jun and Genhua Niu. 2025. Organic watermelon seedling production under controlled environment. Texas Organic Farmers and Gardeners Association Conference, January 27, Pflugerville, Texas.
- Liu, Jun, Joseph Masabni, and Genhua Niu. Beyond the label: Implications on fertilization management of organic watermelon transplant production. Southern region ASHS. Grapevine, TX, February 1-2, 2025.
- Liu, Jun, Joseph Masabni, and Genhua Niu. Combat root zone stresses organic hydroponics. Southern region ASHS. Grapevine, TX, February 1-2, 2025.
- Locatelli, S.; Nicoletto, C.; Zanin, G.; Sambo, P.; Ferrarezi, R. S. 2024. Resistenza allo stress termico in piantine da vivaio tramite inoculo di funghi endofiti. *Proceedings.* II Convegno Nazionale di Orticoltura e Floricoltura. Jun 19th, 2024. Padova/Emilia Romana, Italy.
- Lukwesa, D., Katende, A., Ayipio, E., and D.E. Wells. 2024. Evaluation of split-root system in shrimp effluent-based saline aquaponics for managing salinity stress in red kale ('KX-1') Brassica napus L. var Paularia. Presented at Aquaculture America 2024. February 18-21, 2024. San Antonio, TX. https://wasblobstorage.blob.core.windows.net/meeting-abstracts/AA2024AbstractBook.pdf
- Lukwesa, D., Katende, A., Wells, D.E., and E. Ayipio. 2024. Evaluating split-root system in shrimp effluent-based saline aquaponics for managing salinity stress in red kale ('KX-1') (Brassica napus L. var. Pabularia). HortScience 59(2) supplemental: SR11. Presented at the 2024 Annual Meeting of the Southern Region of ASHS. February 2-4, 2024.

- Lukwesa, D., Lopez, J., Oyedele, R., Bartley, P., and D.E. Wells. 2024. Evaluating the combined effects of gypsum and split-root system on cherry tomatoes (Solanum lycopersicum var. cerasiforme) and red kale (Brassica napus L. var Pabularia 'KX-1') salinity tolerance threshold. HortScience 59(2) supplemental: SR63. Presented at the 2024 Annual Meeting of the Southern Region of ASHS. February 2-4, 2024.
- Majeed, Yaqoob, and Azlan Zahid. 2024. "Deep Learning-Based Plant Spacing Estimation for Efficient Resources Utilization in Controlled Environment Agriculture." American Society of Agricultural and Biological Engineers (ASABE), July 27-31, 2024.
- Majeed, Yaqoob, and Azlan Zahid. 2024. "Quality Index Measurement System for Tomatoes Based on Self-Attention Convolutional Neural Networks and Channel Pruning and Quantization." AI in Agriculture Conference, April 15-17, 2024.
- McElhannon, D.; Nam, S.; Ferrarezi, R. S. 2024. Reducing energy costs in greenhouse supplemental lighting for basil production using "daily light integral carry-over" method. *Proceedings.* 2024 UGA CAES Young Scholars Program Presentation, Jul 12th, 2024. Athens/GA, USA.
- Meng, Q.* and S. Msabila. 2024. An intermediate calcium-mobilizing biostimulant concentration controls tipburn of two greenhouse hydroponic lettuce cultivars without affecting growth (abstr). HortScience 59(9S):S237. [oral]
- Meng, Q.* and T. Kramer. 2024. Increasing the nighttime lighting duration can hasten flowering of long-day plants (abstr). HortScience 59(9S):S462. [oral]
- Nam, S.; Yelton, M..; Haidekker, M.; Bastos, L. M.; Nambeesan, S.; van Iersel, M. W.; Ferrarezi, R. S. 2024. Adjusting supplemental LED light intensities based on real-time chlorophyll fluorescence measurements in a greenhouse. *HortScience* 59(9): S332-S333 (Abstr.). 2024 ASHS Annual Conference, Sep 25th, 2024. Honolulu/HI, USA.
- Nam, S.; Yelton, M..; Haidekker, M.; Bastos, L. M.; Nambeesan, S.; van Iersel, M. W.; Ferrarezi, R. S. 2024. Controlling supplemental LED light intensities using a chlorophyll fluorescence-based biofeedback system in greenhouses. *Proceedings.* 2024 ISHS Light Symposium, May 10th, 2024. Seul, South Korea.
- Nam, S.; Yelton, M.; van Iersel, M. W.; Ferrarezi, R. S. 2024. Energy efficient supplemental lighting control using chlorophyll fluorescence. *Proceedings.* 2024 Auburn University Graduate Student Symposium, Apr 10th, 2024. Auburn/AL, USA.
- Nieters, C. E.; Malladi, A.; Fisher, P. R.; Furlani, P. R.; Ferrarezi, R. S. 2024. Impact of light intensity on selecting optimal hydroponic nutrient solution management strategies in controlled environments. *Proceedings.* 2024 CEA Workshop Presented by Plenty & the University of Wyoming, Apr 24th, 2024. Laramie/WY, USA.
- Ojo, Mike, and Azlan Zahid. 2024. "Enhancing Crop Health: An Embedded Edge AI Solution for Real-Time Disease Detection." AI in Agriculture Conference, April 15-17, 2024.
- Ojo, Mike, and Azlan Zahid. 2024. "Leveraging Deep Learning for Multi-Step-Ahead Greenhouse Microclimate Prediction." American Society of Agricultural and Biological Engineers (ASABE), July 27-31, 2024.
- Padeniya, U., Lukwesa, D., Davis, D.A., Wells, D.E., and T.J. Bruce. 2024. Evaluating the influence of dietary immunostimulants on growth in Nile tilapia (Oreochromis niloticus) and romaine lettuce (Lactuca sativa) in a biofloc-integrated aquaponics system. Presented at Aquaculture America 2024. February 18-21, 2024. San Antonio, TX.

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- Pandey, S.; Ogden, A.B. Exploring the Role of Grafting in Enhancing Cold Tolerance in Cucumber: A Transcriptomics Perspective. *Proceedings.* 2025 Southern Region American Society for Horticultural Science, Feb 3rd, 2025. Las Colinas/TX, USA.
- Pennington, M., Fain, G., Gamble, A., Pickens, J., and D. Wells. 2024. Effects of combining controlled release fertilizer and organic matter on nutrient retention in green roof media. HortScience 59(2) supplemental: SR8. Presented at the 2024 Annual Meeting of the Southern Region of ASHS. February 2-4, 2024.
- Peterson, B. J.; Burnett, S. E.; Hutchinson, J.; Ferrarezi, R. S.; Peterson, A. J. 2024. Arduino Uno can reliably log substrate moisture from a bus of digital sensors and control a drip-irrigation system. *HortScience* 59(9): S217 (Abstr.). 2024 ASHS Annual Conference, Sep 25th, 2024. Honolulu/HI, USA.
- Phan, P.; Housley, M. J.; Ferrarezi, R. S. 2024. Designing and building a high-tech small-scale vertical farm for residences. *Proceedings.* 2024 AgTech Research and Extension for Emerging Undergraduates Program Presentation, Jul 25th, 2024. Athens/GA, USA.
- Qin, K.; Ferrarezi, R. S. 2024. Adjusting dissolved oxygen using an ozone generator in nutrient solution for optimized kale and arugula growth in hydroponics. *HortScience* 59(9): S512 (Abstr.). 2024 ASHS Annual Conference, Sep 25th, 2024. Honolulu/HI, USA.
- Rahman, M. H., & Rehman, T. U. (2023). Assessing the salt stress tolerance of Kale plants grown in aquaponics system via spatial and spectral predictive regression models. *American Society of Agricultural and Biological Engineers Annual International Meeting*, July 9-12, Marriott Anaheim – Omaha, Nebraska.
- Rahman, M. H., & Rehman, T. U. (2024). Assessing Salt Stress Tolerance in Kale Plants Grown in an Aquaponics Environment Using a High-Throughput Phenotyping System. *American Society of Agricultural and Biological Engineers Annual International Meeting*, July 28-31, Marriott Anaheim – Anaheim, CA.
- Rahman, M. H., Rehman, T. U., Busby, S., Ru, S., & Sanz Saez de Jauregui, A. (2024). Drought Tolerance Assessment with Statistical and Deep Learning Models on Hyperspectral Images for High-throughput Plant Phenotyping. *International Conference on Precision Agriculture*, July 21-24, Manhattan, Kansas, USA.
- Rauf, H.; Jackson, D.; Lessl, J.; Puebla, M. A.; Staha, J.; Toma, C.; Ames, Z. R.; Coolong, T.; Ferrarezi, R. S. 2024. Optimizing sampling methods for sap extraction to enhance plant nutrient analysis in CEA. *HortScience* 59(9): S238 (Abstr.). 2024 ASHS Annual Conference, Sep 25th, 2024. Honolulu/HI, USA.
- Reyes, J., & Kashyap, R. (2025). Vegetable Disease Management under CEA. In Southeast Regional Fruit and Vegetable Conference 2025. January 2025, Savannah.
- Rodrigues, C. Invited speaker “Food Safety for Indoor Agriculture” at the Alabama Fruit and Vegetable Growers Association Meeting, Gulf Shores, AL, 2024.
- Rodrigues, C. Invited speaker “Mitigating Food Safety Hazards in Controlled Environment Agriculture” at the 22nd Southeast Regional Fruit and Vegetable Conference, Savannah, GA, 2024.
- Rodrigues, C. Mickos, V., Blanchard, C., and D. Wells. 2024. Bacteriophage as an alternative method to control Salmonella enterica in water-recirculated systems for lettuce production. HortScience 59(9):S127 – Presented at the 2024 ASHS Annual Conference. September 23-27, 2024. Honolulu, HI.

- Rodrigues, C., Blanchard, C., Trandel-Hayse, M., Wells, D., Rehman, T. Post-harvest strategies to improve shelf-life of indoor-grown lettuce. V International Conference on Fresh-Cut Produce: Maintaining Quality and Safety, Foggia, Italy, 2024.
- Rodrigues, C., Mickos, V., Blanchard, C., Wells, D. Controlling *Salmonella enterica* in Water Recirculating Systems for Lettuce Production using a Bacteriophage Cocktail. IAFP Annual Meeting, Long Beach, CA, 2024.
- Sandoval, E.T., Blanchard, C., Trandel, M., da Silva, A.L.B.R., Rodrigues, C. Controlling *Salmonella enterica* in Roots of Indoor-Grown Lettuces. IAFP Annual Meeting, Long Beach, CA, 2024.
- Schoeller E. N. 2024. Advancing CEA Integrated Pest Management: A Rapidly Growing Industry. Entomological Society of America National Meeting. (*oral presentation*).
- Schoeller E. N. 2024. Enhancing Biological Control with Banker Plants and Supplemental Foods. Michigan Greenhouse Growers EXPO. (*oral presentation*).
- Schoeller E. N. 2024. *Thrips parvispinus*: A Looming Threat to Horticultural Production. Michigan Greenhouse Growers EXPO. (*oral presentation*).
- Schoeller E. N. 2025. Integrated Pest Management in Controlled Environment Vegetables. Southeast Regional Fruit & Vegetable Conference. (*oral presentation*).
- Schoeller E. N. 2025. Management of Fungus Gnats and Shore Flies in Protected Agriculture. Environmental Protection Agency IPM Webinar. (*oral presentation*).
- Schoeller E. N. 2025. The Invasive Pepper Thrips: What Do We Know and What's at Stake? Growing Wisconsin Conference. (*oral presentation*).
- Schoeller E. N., A. Wright, ML Lewis Ivey, J. Marlier 2024. Effective Insect Pest and Plant Pathogen Management in Controlled Environment Agriculture. Controlled Environment Agriculture Summit East. (*panel oral presentation*).
- Schoeller E. N., Fields A, Seals C 2025. Mastering Integrated Pest Management: Best Practices for CEA Success. Indoor Agcon. (*panel oral presentation*).
- Schoeller, E. N. 2024. *Franklinothrips vespiformis*: A Promising Biocontrol Agent for Whiteflies and Other Pests of Southeastern Greenhouses. Entomological Society of America Southeastern Branch Meeting. (*oral presentation*).
- Schoeller, E. N. 2024. Integrated Pest Management within Controlled Environments. Southeast Small Farm Business Training Conference. (*oral presentation*).
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5.I. Patents

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