

# Station News

The Connecticut Agricultural Experiment Station

Volume 15 Issue 5 | May 2025



The mission of The Connecticut Agricultural Experiment Station is to develop, advance, and disseminate scientific knowledge, improve agricultural productivity and environmental quality, protect plants, and enhance human health and well-being through research for the benefit of Connecticut residents and the nation. Seeking solutions across a variety of disciplines for the benefit of urban, suburban, and rural communities, Station scientists remain committed to "Putting Science to Work for Society", a motto as relevant today as it was at our founding in 1875.



# CAES

The Connecticut Agricultural Experiment Station

*Putting Science to Work for Society since 1875*

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**JASON C. WHITE, PH.D.** along with **Nubia Zuverza-Mena, Ph.D.**, **Jingyi Zhao, Ph.D.**, and **Sara Nason, Ph.D.** participated in a Zoom meeting with collaborators at Yale University and the University of Minnesota for a joint NIEHS grant (April 1); participated in the weekly NSF Center for Sustainable Nanotechnology (CSN) all hands call by Zoom (April 2, 9, 16, 23); attended the quarterly University of Connecticut College of Agriculture, Health and Natural Resources Dean's Advisory Council meeting (April 2); visited the University of California Riverside and gave a lecture entitled "Nano-enabled agriculture: A path to global food security in a changing climate" (April 3-5); along with **Yi Wang, Ph.D.** participated in a Teams call with collaborators at the University of Mauritius (April 7, 25); participated in a Zoom call ANSI-NSP to begin planning a workshop focused on standards for nanomaterials in farming and agriculture (April 8); gave introductory remarks at the CAES Vector-Borne Disease Symposium (April 9); met by Zoom with colleagues at the University of Minnesota and Convergent Biosciences to discuss collaborative research (April 9); along with **Vickie Bomba-Lewandoski** met with CT Grown to discuss a piece on CAES at 150 years (April 9); testified at the Appropriations Committee Public Hearing regarding the Agency Deficiency Bill (April 10); along with **Yi Wang, Ph.D.** spoke by Zoom with colleagues at Louisiana State University to discuss collaborative research and a laboratory exchange (April 10); attended the State Bond Commission meeting at the Legislative Office Building (April 11); met by Zoom with colleagues at the University of Minnesota to discuss collaborative research (April 11); gave a podcast with Dr. Adrian Percy (AgTech360 Podcast) of NCSU (April 14); along with **Sudhir Sharma, Ph.D.** participated in a Zoom call with colleagues at Columbia University to discuss collaborative research (April 15); participated in a Teams call with colleagues at Merrimack University (April 15); along with **Michael Last and LINDSAY TRIPLETT, PH.D.** hosted the spring 2025 CAES Board of Control meeting (April 16); hosted a member of Connecticut Innovations and Sea6 Energy gave a tour of CAES programs and facilities (April 17); spoke with FocusCuba about an upcoming trip to Cuba (April 18); met by Teams with CT DEEP regarding invasive species in the state (April 21); gave a lecture entitled "Nano-enabled agriculture: A path to global food security in a changing climate" on Zoom to the University of New Haven (April 23); met by Teams with Connecticut Innovations (April 23); along with Dr. Nubia Zuverza-Mena and Dr. Milica Pavlicevic met with collaborators at the University of Texas El Paso and the University of Rhode Island to discuss a joint USDA project (April 23); participated in the annual Experiment Station Associates meeting (April 23); participated in a Zoom call with colleagues at Qatar University to discuss progress on a joint NANOGREEN Project (April 24); met with members of the CT DCP to discuss the state cannabis program (April 24); gave a lecture entitled "Nano-enabled agriculture: A path to global food security in a changing climate" on Zoom to the University of Massachusetts Amherst (April 24); along with Dr. Claire Rutledge and other CAES staff participated in an Arbor Day public event at the CAES (April 25); along with Dr. Nubia Zuverza-Mena participated in a workshop entitled "Advancing Sustainable Nanotechnology: Exploring Nanomaterials in Operando Conditions at CFN" as part of the 2025 NSLS-II & CFN Users' Meeting at Brookhaven National Laboratory and gave a lecture entitled "Advanced analytical techniques for understanding the mechanistic basis and ultimate potential of nano-enabled agriculture" (April 28); met with potential collaborators at SWFT Labs in Long Island New York and gave a lecture entitled "Nano-enabled agriculture: A path to global food security in a changing climate" at Stony Brook University (April 29); met with Professor Azam Noori of Merrimack College to discuss collaborative research (April 30); and had a Zoom call with Professor Kurt Ristroph of Purdue University to discuss collaborative research (April 30).

## PUBLICATIONS:

1. Thangavelu; R. M., **da Silva, W.**, Hernandez-Viezcas, J. A., Oyanedel-Craver, V., Gardea-Torreseday, J. L., **Dimkpa, C., White, J. C., Zuverza-Mena, N.** (2025). A multi-nutrient nanocomposite enhances UV stress tolerance and modulates nutrient accumulation in lettuce. *Environ. Sci.: Nano* <https://doi.org/10.1039/D5EN00154D>.

**Abstract:** This study presents the development and evaluation of a novel nano-Zn-Mg-Mn-Fe composite, designed as both a UV-protective agent and a nutrient delivery system for lettuce (*Lactuca sativa*) under UV stress and LED lighting conditions. Lettuce plants were treated with foliar applications of the composite at 100, 200, and 300 mg/L during the fifth week of growth and exposed to UV radiation (360–400 nm for 10 hours daily) for two weeks. The 300 mg/L nanocomposite treatment significantly improved photosynthetic efficiency and plant growth under UV stress, increasing chlorophyll content ( $66.7\% \pm 3.5$ ), leaf area ( $45\% \pm 2.1$ ), and dry biomass ( $43.68\% \pm 1.8$ ) compared to untreated and ionic controls. It reduced UV-induced stress symptoms, such as photobleaching, necrosis, and yellowing, by lowering the damage score to 7 (compared to 26 in controls) and mitigating stress markers, including a  $30.5\% \pm 2.3$  decrease in flavonoid production and a  $25.8\% \pm 1.8$  reduction in SOD activity. Furthermore, the nanocomposite enhanced long-term nutrient uptake, increasing Mn ( $55.3\% \pm 3.2$ ), Mg ( $47.8\% \pm 2.7$ ), and Fe ( $62.5\% \pm 4.1$ ) accumulation. Under normal LED conditions, it elevated phosphorus levels in edible tissues by  $28.5\% \pm 2.2$  and potassium uptake by  $35.7\% \pm 3.1$  in roots, enhancing nutritional benefits. By converting harmful UV radiation into visible light, this nanocomposite offers a sustainable strategy to alleviate UV stress, reduce damage symptoms, and optimize nutrient management in agriculture.

2. Teng, M., Li, Y., Zhao, L., Zhou, C., **White, J.C.**, Sun, J., Zhang, Z., Zhao, X., Wu, F. (2025). Life cycle exposure to differentially charged polystyrene nanoplastics leads to gender-specific particle accumulation and neurotoxicity in Zebrafish (*Danio rerio*). *Environ. Int.* 198, 109441.

**Abstract:** Nanoplastics (NPs) have been widely detected in freshwater environments and photodegradation, as well as physical and chemical breakdown, lead to different surface charges on the plastics. Although evidence in the literature highlights the importance of NPs surface charge to neurotoxicity, substantial gaps in mechanistic understanding remain. In the current study, zebrafish were exposed to differentially charged NPs (PS, PS-NH<sub>2</sub>, PS-COOH) at an environmentally relevant concentration (10 µg/L). After full life cycle exposure, potential neurotoxicity, as well as brain damage and altered brain metabolism, were investigated through light sheet microscopy 3-dimensional imaging, histopathology, Evans blue dye (EBD) extravasation, gene expression, and untargeted and targeted metabolomics of brain tissue. Exposure to PS, PS-NH<sub>2</sub>, PS-COOH caused adverse effects on the performance of neurobehaviors, blood-brain-barrier (BBB) permeability, amino acid metabolism, damage to the BBB and mitochondria, and overt inflammatory response. Interestingly, PS-NH<sub>2</sub> (4.56-fold) and PS-COOH (3.59-fold) accumulated in the reticular formation (RF) of the male brain, while only PS-NH<sub>2</sub> was detected in the RF (6.57-fold) and ventral hypothalamus (Hv) (3.08-fold) of female brains. Several important biological pathways were negatively impacted in a charge- and gender-specific fashion. This study provides novel insights into the underlying toxicity mechanisms of differentially charged NPs in a model aquatic species, as well as the associated environmental risks of this important group of emerging contaminants.

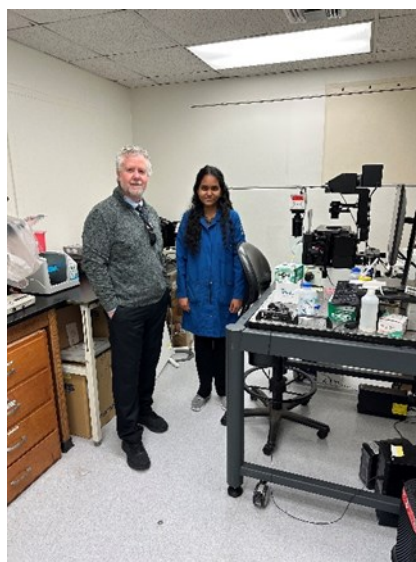
3. Wang, L., **Wang, Y., Deng, C.**, Eggleston, I., Gao, S., Li, A., Cai, K., Alvarez Reyes, W., W. R., Qiu, R., Haynes, C., **White, J. C.**, Xing, B. (2025). Optimizing SiO<sub>2</sub> nanoparticle structures to enhance drought resistance in tomato (*Solanum lycopersicum* L.):



Insights into particle dissolution and plant stress response. *J. Agric. Food Chem.* 73:16, 9983–9993.

**Abstract:** Drought stress significantly limits crop productivity and poses a critical threat to global food security. Silica nanoparticles (SiO<sub>2</sub>NPs) have shown a potential to mitigate drought stress, but the role of the nanostructure on overall efficacy remains unclear. This study evaluated solid (SSiO<sub>2</sub>NPs), porous (PSiO<sub>2</sub>NPs), and hollow (HSiO<sub>2</sub>NPs) SiO<sub>2</sub>NPs for their effects on drought-stressed tomatoes (*Solanum lycopersicum* L.). Silicic acid release rates followed the order: HSiO<sub>2</sub>NPs > PSiO<sub>2</sub>NPs > SSiO<sub>2</sub>NPs > Bulk-SiO<sub>2</sub>. Compared to untreated controls, foliar application of PSiO<sub>2</sub>NPs and HSiO<sub>2</sub>NPs under drought stress significantly improved shoot Si concentrations and plants' dry weight. These treatments also enhanced antioxidant enzyme activities (catalase, peroxidase, and superoxide dismutase) and phytohormone targeted metabolome levels (jasmonic acid, abscisic acid, and auxin), contributing to greater drought tolerance. Conversely, SSiO<sub>2</sub>NPs, silicic acid, and Bulk-SiO<sub>2</sub> had minimal impact on plant dry weight or physiological responses. These results highlight the importance of nanoparticles architecture in alleviating drought stress and promoting sustainable agriculture.

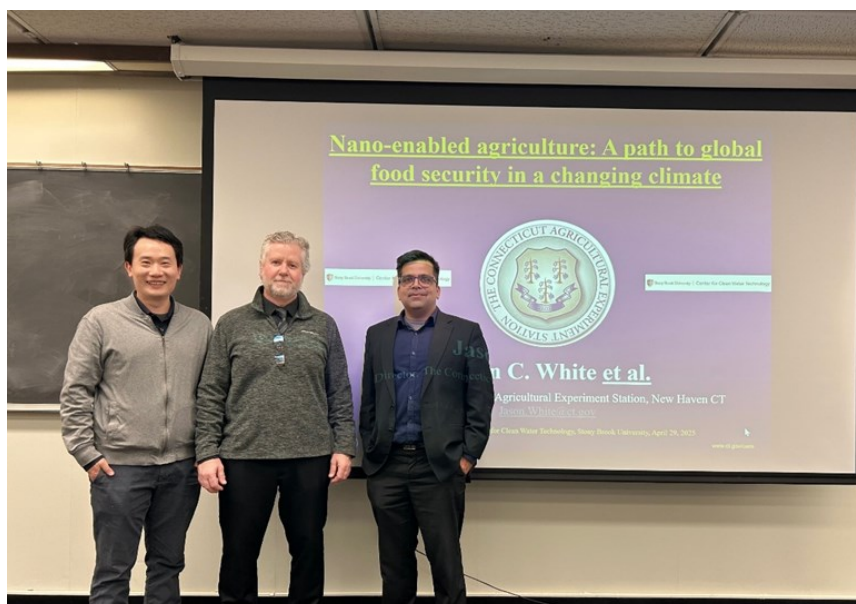
Dr. Jason C. White with collaborators at the University of California Riverside.





Dr. Jason C. White gave a podcast for AgTech 360.

Dr. Jason C. White with collaborators at The New York State Center for Clean Water Technology at Stony Brook University (on the left is former CAES Post-doc Dr. Zhengyang Wang).





**CHRISTIAN DIMKPA, PH.D.** was a keynote speaker at the National Root Crop Research Institute (NRCRI) 2025 annual research review and planning workshop which held in Umudike, Abia State, Nigeria between 8-11 April 2025. He spoke on the **role of materials in the sustainable production of crops**, focusing on root and tuber crops, and in the context of nanotechnology. The workshop was attended by participants, numbering over 500, from the staff of NRCRI and the Michael Okpara University of Agriculture, Umudike, as well as delegates from federal and state governments in Nigeria. The NRCRI is a globally acclaimed leader in crop improvement research and agronomy of root and tuber crops, including cassava, yam, ginger, and sweet potatoes among others.



### NEW DEPARTMENTAL STAFF:

**Zeyu Cai, Ph.D.** joined the department of analytical chemistry as an agricultural post-doctoral research scientist on April 4, 2025. Dr. Cai comes to CAES from China. He earned his Ph.D. in Ecology from the Chinese Academy of Sciences in 2022. Following this, he completed a three-year postdoctoral fellowship in China, further enhancing his expertise in nano-agriculture. At CAES, Dr. Cai will collaborate with his supervisor, Dr. Yi Wang, to investigate the interface behavior of nanomaterials on plant leaves and their subsequent physiological effects. This research aims to deepen the understanding of how engineered nanomaterials interact with plant systems at the molecular level, with potential applications in sustainable agriculture and environmental safety.



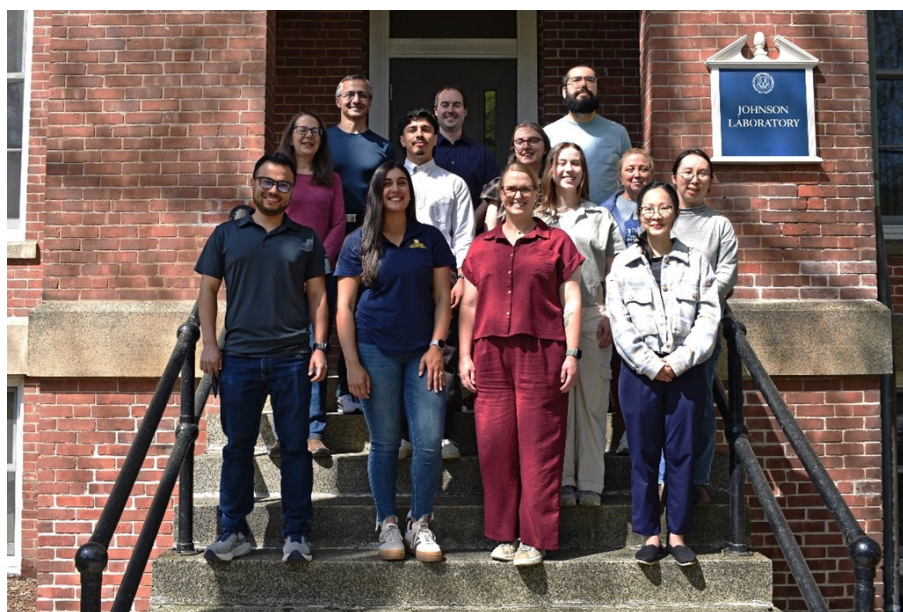


**Raees Ahmad** joined CAES on April 14, 2025 as postdoctoral fellow, bringing a background in analytical and environmental chemistry. He earned his undergraduate and first master's degree from the University of Malakand, Pakistan, where he focused on the photodegradation of dyes using molecularly imprinted polymers. He went on to complete a second master's degree at Kyungpook National University (KNU), South Korea, where he worked on the encapsulation of perovskite-like quantum dots within zeolite frameworks to enhance their photophysical properties. He then completed his Ph.D. in Analytical Chemistry at KNU, developing an advanced effect-directed analysis

technique that integrates online two-dimensional liquid chromatography with *in-silico* QSAR tools to identify both targeted and non-targeted contaminants in environmental samples. At CAES, he is currently working on suspect and non-targeted analysis of contaminants of emerging concern (CECs) and their transformation products in influent and effluent wastewater from treatment plants, as well as studying their accumulation and effects in plants. Additionally, he is conducting suspect and non-targeted screening of contaminants, particularly per- and polyfluoroalkyl substances (PFAS) in maple sap.

## DEPARTMENTAL NEWS:

**Sara Nason, Ph.D., Carlos Tamez, Ph.D., and Terri Arsenault** led a training on the analysis of toxins and poisons in food between April 29 to May 1, 2025. Ten participants from across the Food Emergency Response Network (FERN) attended the 3-day short course. Participants were given an overview of current FDA methods for sample processing and data review. Additionally, they were introduced ways to employ non-targeted analysis techniques to help improve compound identification. FERN is a nation-wide network of laboratories developed to provide capacity and capability for food defense and food safety testing.





**PHILIP ARMSTRONG, SC.D.** presented “Update on EEE Virus: Emerging Mosquito-borne virus of Public Health Importance” at the CAES Vector-Borne Disease Symposium held in Jones Auditorium (April 9, 95 attendees); along with **John Shepard.**, and **Angela Bransfield**, participated in a meeting with Connecticut Mosquito Program partners from CT DPH to discuss potential revisions to the CAES arbovirus risk maps and graphs (April 10) and along with **Angela Bransfield** provided animal training to personnel associated with the ABSL3 laboratory (April 29, 13 attendees).

**TIA BLEVINS** attended the 50th annual meeting of the Horticultural Inspection Society - Eastern Chapter in Dewey Beach, Delaware. Ms. Blevins, the chapter’s Archivist, presented two posters which highlighted the chapter’s 50-year history (March 31-April 3); participated in a pre-flight season webinar with the USFS Forest Health Assessment & Applied Sciences Team (FHAAS) which included an overview of training materials, digital mobile sketch mapper tablet functions, and content of ArcGIS online services (April 30).

**CALEB BRYAN, PH.D.** Presented at Quinnipiac University Earth Week with Claire Rutledge (April 21; ~25 attendees); Met with Quan Zeng about ongoing collaboration with Fisher Lab; met with Sarah Lawson, Tracy Zarillo, and Kelsey Fisher about collaborations and grant opportunities (April 3, 10, 17, 24); served as a judge for the Quinnipiac Signa Xi 14<sup>th</sup> Annual Student Research Conference (April 23).

**ANGELA BRANSFIELD** helped staff the registration desk at the CAES Vector-Borne Disease Symposium (April 9, 95 attendees); along with **PHILIP ARMSTRONG, PH.D.**, and **John Shepard**, participated in a meeting with Connecticut Mosquito Program partners from CT DPH to discuss potential revisions to the CAES arbovirus risk maps and graphs (April 10); met with a CT DPH inspector and provided tours of the BSL3 facilities to renew Public Health Laboratory registrations (April 28); and provided animal training to personnel associated with the ABSL3 laboratory (April 29, 13 attendees).

**JAMIE CANTONI** participated in a preliminary meeting with CDC collaborators to strategize the best approaches in analyzing the Active Tick Surveillance Program’s five-year dataset and discuss potential avenues for publication (April 7); following the NextGen Scientist seminar held in February, had the opportunity to host a student attendee at Bluff Point State Park and provided them with a comprehensive shadowing experience in the field (Groton, CT) (April 14); along with **Megan Linske, Ph.D. Jessica Brown, Ph.D.**, and **Natalie Bailey**, welcomed Michayla Savitt from Connecticut Public for a field visit to highlight the impact of the Active Tick Surveillance Program on tickborne disease research, prevention, and supporting public health efforts (Lyme, CT) (April 16); along with **Megan Linske, Ph.D.**, hosted a winning student inventor from the Connecticut Invention Convention State Finals, provided him with a tour of the tick lab and a few tick specimens to support the next phase of his invention (April 16); along with **Katherine Dugas** and **Paula Wolf**, staffed a table at the Hamden Earth Day Event, and was interviewed by Hamden High School students as part of their senior project (April 26).

**KELSEY FISHER, PH.D.** presented with Felicia Millet for the Woodbridge Garden Club about native meadows and monarch butterflies (April 1; 30 attendees); presented “Monarch butterfly biology, ecology, and conservation needs” for the Biology Seminar Series at Wesleyan University and met with various faculty, staff, and students (Apr 2; 50 attendees); met with Dr. Sarah Lawson at Quinnipiac University, Tracy Zarrillo, and Caleb Bryan about collaborations and grant opportunities (Apr 3, 10, 17, 24); met with members of the NC246: Ecology and Management of Arthropods in Corn about a collaborative genomics work to identify the mechanisms of resistance in Connecticut and Canada (Apr 8); met with Quan



Zeng about collaborative opportunities with bumblebee research (Apr 16); met with Emily Bick at University of Wisconsin Madison about European corn borer collaborative projects (Apr 16); met and brainstormed with Erik Dopman (Tufts University) and Brad Coates (USDA-ARS-CICGRU) about collaborative opportunities (Apr 17, 24); judged the Sigma Xi poster session at Quinnipiac University (Apr 23).

**ANDREA GLORIA-SORIA, PH.D.** Attended the Annual Vector-Borne Disease Symposium hosted by CAES on April 9, 2025 (95 attendees).

**MEGAN LINSKE, PH.D.** participated in a meeting with collaborators from BanfieldBio, Inc. and North Carolina State University to discuss blacklegged tick repellency trials and botanical acaricide development and application (April 1, 8, & 29); presented a talk titled “Prevention and Control of Tick-borne Diseases” at the annual Vector-Borne Disease Symposium (95 attendees) (April 9); hosted the Wildlife Society (TWS) Leadership Institute Committee meeting as an alumnus and Committee Chair (April 10); along with **Jamie Cantoni, Jessica Brown, Ph.D.,** and **Natalie Bailey,** hosted Michayla Savitt from Connecticut Public in the field to highlight the Active Tick Surveillance program and its connection to ongoing tick management research and public health efforts (Lyme, CT) (April 16); participated in the Northeast Fish and Wildlife Agencies Conference’s Northeast Section of the Wildlife Society’s Members meeting at Workshop Chairperson (20 attendees; Bretton Woods, NH) (April 22); gave an invited presentation titled “Predicting Outbreaks of Tick-Borne Diseases and Innovative Tick Control Strategies” for the Experiment Station Associates meeting (approx. 10 attendees) (April 23).

**CHRIS MAIER, PH.D.** displayed insect and other invertebrate fossils from significant collecting localities in the United States at the Annual Meeting of the Connecticut Entomological Society, Jones Auditorium (April 25, 17 attendees).

**GOUDARZ MOLAEI, PH.D.** attended the press conference organized by Senator Blumenthal and presented progress and future plans on the congressionally directed spending funding, “Monitoring Ticks and Tick-borne Pathogens to Better Guide Public Health Action” (April 7); presented a talk “Range Expansion of Native and Invasive Ticks and Exacerbating Public Health Challenges of Tick-borne Diseases” to the CAES Vector-borne Disease Symposium 2025 (April 9); attended the Monthly National Longhorned Tick (*Haemaphysalis longicornis*) meeting, provided the CT State report, and participated in the discussion (April 14); attended the Northeast Regional Center for Excellence in Vector-Borne Diseases Teaching and Evaluation Center (NEVBD TEC) Leadership and Advisory Board meeting to discuss progress and future plannings (April 16); attended the Public Health Entomology Training Cross-Centers of Excellence in Vector-Borne Diseases Working Group meeting to review updates and changes in public health entomology training, overview new initiatives, and discuss goals and future plans for the group (April 17); discussed with the tick surveillance and control plans in parks and recreation areas in the Town of Bridgeport, CT (April 21); attended a teaching conference on a case of Powassan virus infection at the Yale New Haven Hospital, presented a short talk “Range Expansion of Native and Invasive Ticks: A Looming Public Health Threat”, and participated in the discussion (April 23); was interviewed about the recent publication “A new spotted fever group *Rickettsia* genotype in *Haemaphysalis leporispalustris* from Maine, USA”, with the WUBR, a radio station at Boston University (April 28); and was interviewed by Hartford Courant about acorn abundance in some years and potential increases in tick infection prevalence and tick-borne disease incidence (April 29).

**RAFFAELA NASTRI** attended the 99<sup>th</sup> annual Eastern Plant Board meeting and the CAPS Pest Detection meeting in Dewey Beach, Delaware, presented results of 2024 CT CAPS survey activities and plans for 2025 surveys, discussed survey issues and techniques with 11 northeast states’ CAPS survey coordinators (March 31-April 3)

**GALE RIDGE, PH.D.** was interviewed about the biology of the spotted lanternfly by Channel 8 TV (April 16); the Orange girl scouts visited the IIO to study insects as part of their merit badge program (10 scouts and 4 chaperones); interviewed by Chris Polansky from CT. Public Radio, which was broadcast on Earth Day. The interview was, “This fungus targets invasive spongy moth. Could climate change alter their dynamic? (April 22); interviewed by Joseph Tucci, *Herst/Connecticut Post* on the spotted lanternfly (April 25); interviewed by Kevin Gaiss NBC CT about ticks, their pathogens, the Station tick testing laboratory, and how the public could protect themselves against ticks (April 28).

**JACOB RICKER**, attended the 99<sup>th</sup> Annual Eastern Plant Board meeting in Dewey Beach, Delaware (March 31- April 3). Additionally, he participated the elm zig-zag sawfly research summit, hosted virtually by North Carolina State University (April 25). Mr. Ricker also participated in the USFS Forest Health Assessment and Applied Sciences 2025 survey season’s pre-flight digital mobile sketch map training (April 30).

**CLAIRE RUTLEDGE, PH.D.** presented for the Pomperaug Valley Garden Club about spotted lanternfly (April 8, 45 attendees); presented about spotted lanternfly and emerald ash borer for Science Day at Housatonic Valley Regional High School (April 11, 50 students); presented on emerald ash borer biological control for Quinnipiac University Earth Week with Caleb Bryan (April 21: 25 attendees); organized and presented at the Connecticut Tree Protective Association’s Arbor Day celebration at the New Haven CAES campus (55 students, 8 adults).

**JOHN SHEPARD** presented “Mosquito-based Surveillance to Detect and Monitor Arbovirus Risk in CT” and the CAES Vector-Borne Disease Symposium held in Jones Auditorium (April 9, 95 attendees); along with **PHILIP ARMSTRONG, PH.D.**, and **Angela Bransfield**, participated in a meeting with Connecticut Mosquito Program partners from CT DPH to discuss potential revisions to the CAES arbovirus risk maps and graphs (April 10).

**PAULA WOLF** participated in the 2025 Northeast USA Honey Bee Update, a Q&A Lunch & Learn series in conjunction with Apiary Inspectors throughout New England. Updates are given to beekeepers about conditions affecting honey bees and beekeeper questions are answered regarding best practices; met with beekeepers and distributed information about honey bee registration at the following honey bee package pickup days – A & Z Apiaries (April 11), Mike's Beehives (April 12), Stonewall Apiaries (April 13), Mike's Beehives (April 19), Bee-Commerce (April 22<sup>nd</sup>), Stonewall Apiaries (April 28<sup>th</sup>); discussed beekeeping issues with beekeepers at the Spring Management meeting of the Eastern Connecticut Beekeepers Association (45 attendees, April 13); presented a talk about the importance of honey bees and other pollinators at the Earth Day assembly for Smith Elementary School in West Hartford (April 22, 380 attendees); along with **Katherine Dugas** and **Jamie Cantoni**, staffed a table at the Hamden Earth Day Event (April 26); gave 4 presentations to rotating groups of North Mianus 5<sup>th</sup> graders at Binney Park, a nature field trip put on by the Riverside Garden Club (April 30, 99 participants).

**TRACY ZARRILLO** hosted a collaborative meeting with Nicole Bell from UMass Extension who is creating handouts about CT bees for distribution at CAES events (April 1); attended a zoom meeting with Dr. Kelsey Fisher, Dr. Caleb Bryan, and Dr. Sarah Lawson of Quinnipiac University about collaborations and grant opportunities (April 3, 24, 30); was interviewed by Tyler Mahard of the Connecticut Department of Energy and the Environment about her recent publication on CT bees for the “Wildlife Highlights Newsletter” and the “CT Wildlife Action Plan Partner Network Newsletter” (April 3); attended the Northeast Natural History Conference in Springfield, MA with David Mantack, an undergraduate who works in the Zarrillo lab, who presented his work in a presentation about specialist bees in CT (April 6).



## PUBLICATIONS:

1. Harp, R.D., Holcomb, K.M., Retkute, R., Prusokiene, A., Prusokas, A., Ertem, Z., Ajelli, M., Kummer, A.G., Litvinova, M., Merler, S., Pastore y Piontti, A., Poletti, P., Vespignani, A., Wilke, A.B.B., Zardini, A., Smith, K.H., **Armstrong, P.**, DeFelice, N., Keyel, A., **Shepard, J.**, Smith, R. Tyre, A., Humphreys, J., Cohnstaedt, L.W., Hosseini, S., Scoglio, C., Gorris, M.E., Barnard, M., Moser, S.K., Spencer, J.A., McCarter, M.S.J., Lee, C., Nolan, M.S., Barker, C.M., Staples, J.E., Nett, R.J., Johansson, M.A. (2025). Evaluation of the 2022 West Nile virus forecasting challenge, USA. *Parasites & Vectors*. 18(152). DOI: 10.1186/s13071-025-06767-2

## GRANTS/AWARDS:

Kelsey E. Fisher and the NC246: Ecology and Management of Arthropods in Corn was awarded the 2025 AgInnovation Regional Excellence in Multistate Research Award. The Committee's ability to integrate cutting-edge research with Extension outreach has yielded exceptional results. From >300 peer-reviewed publications to the development of groundbreaking tools like audio-based insect monitoring and RNA interference technologies, NC246 exemplifies the transformative potential of cooperative research. The group's contributions to the "Handy Bt Trait Table," annual pest loss estimates, and multistate monitoring networks underscore NC246's essential role in providing farmers, industry, and policy-makers with timely, science-based solutions.

Tia M. Blevins was awarded the Horticultural Inspection Society – Eastern Chapter's Distinguished Service Award for her leadership by being in an officer position for 15 years, chairing multiple committees each year, and participating in the planning of meetings. She will receive a plaque at the 2026 annual meeting.





Arbor Day 2025 at CAES in collaboration with the Connecticut Tree Protective Association. A new elm tree was planted dedicated to Paul Wegner to replace the elm on the quad by Osborn Library that was damaged last year in the ice storm. Mr. Wegner was instrumental in preserving elm trees in New Haven in the wake of the arrival of Dutch Elm Disease. The tree was donated to CTPA and CAES by Pride's Corner Nursery.



The celebration included presentations of awards to the winners of the CTPA annual arbor day poster contest, one fifth grade student for each county and presentations on tree care and health by Joseph Barsky, Felicia Millet and Claire Rutledge.



Beech Leaf Disease:  
Caused by nematodes

- First discovered in Ohio in 2012, in Connecticut in 2019
- Forest and landscape
- A new challenge



The Horticultural Inspection Society – Eastern Chapter at their 50<sup>th</sup> annual meeting. Tia M. Blevins is the archivist for the chapter and is pictured on the right side of photo.



**SCOTT C. WILLIAMS, PH.D.** participated in a meeting with BanfieldBio, Inc. on a collaborative NIH SBIR grant investigating tick repellent formulations to be integrated into fabrics (April 1); participated in a conference call with research collaborators from Genesis Laboratories, Inc. on systemic acaricidal treatment of tick hosts (April 7); attended the CDC-sponsored Vector Day, an update on CDC-funded projects and funding forecast for entities with active CDC grants (April 8); attended the CAES-sponsored Vector Borne Disease Symposium in Jones Auditorium (April 9); gave invited lecture about integrated tick management for residents of Mason's Island at the Mason's Island Yacht Club, Mystic (25 attendees) (April 10); participated in a Zoom call with collaborative colleagues from Columbia University on the future of an ongoing CDC-funded integrated tick management grant (April 15); participated in a meeting with BanfieldBio, Inc. on a collaborative NIH SBIR grant investigating tick repellent formulations to be integrated into fabrics (April 15); participated in a meeting with staff from the CDC Division of Vector-Borne Diseases on progress made on a funded integrated tick management project (April 16); with **Megan Linske, Ph.D., Jessica Brown, Ph.D.,** And **Natalie Bailey**, met with Drs. Nicole Palffy-Muhoray and Natalie Mastick from the Yale University Peabody Museum about strategies for managing ticks on the Yale-owned Horse Island in Branford's Thimbles (April 17); attended the Northeast Fish and Wildlife Conference in Bretton Woods, NH (April 21-23) where, as outgoing Executive Treasurer, participated in the Northeast Section of The Wildlife Society's Executive Committee meeting (April 21) as well as the Annual Northeast Section Member's Meeting (April 22).

**NATALIE BAILEY** participated in a collaborative Zoom call with members of Banfield Biologic NIH SBIR-funded tick repellent fabric team (April 1, 15); participated in a Zoom call with BanfieldBio to discuss the development of a botanical acaricide (April 8, 22).

**JOSEPH P. BARSKY** met with Jim Woodworth of the Great Meadows Conservation Trust for a five-year review of habitat restoration recommendations (April 9); participated in a virtual meeting of local coordinators for the Society of American Foresters 2025 National Convention (April 10); gave a presentation on "Trees and Forest Research" during the Arbor Day Celebration at CAES with **Claire Rutledge, Ph.D.** and **Felicia Millet** (70 students, 10 adults) (April 25); gave a presentation on "Connecticut's Forests" during the Arbor Day Celebration at the Albert Schweitzer Institute at Quinnipiac University (21 students, 6 faculty) (April 25).

**JESSICA E. BROWN, PH.D.** participated in a collaborative Zoom call with Banfield Biologic NIH SBIR-funded tick repellent fabric team (April 1); participated in a Zoom call with BanfieldBio to discuss the development of a botanical acaricide (April 8); presented a virtual seminar titled "Advancements in the application of systemic acaricides to wildlife" to the New England Center of Excellence in Vector-borne Disease (12 attendees) (April 9); participated in a meeting of the CAES DEI committee (April 14); held a virtual question-and-answer session about ticks and tick-borne disease with a middle school science class through the "Skype a Scientist" program (20 attendees) (April 15); was accepted into The Wildlife Society's Leadership Institute class of 2025 (April 17); met with colleagues from the Yale Peabody Museum's Student Programs department to discuss tick management (April 17); as chair of the CAES Postdoctoral Association (PDA), led a meeting of the PDA board (April 17); as a member-at-large, participated in the executive committee meeting of the Northeast Section of The



Wildlife Society (NETWS) in Bretton Woods, NH (April 21); participated in an all-members meeting of NETWS in Bretton Woods, NH (April 22); presented a talk titled “Advancements in the systemic application of acaricides to wildlife” at the annual meeting of the Northeast Association of Fish and Wildlife Agencies in Bretton Woods, NH (30 attendees) (April 24).

**GREGORY J. BUGBEE** gave invited talks entitled “Aquatic Plant Management Options for West Lake” at the West Lake Clubhouse in Guilford (10 attendees) (April 4); gave invited talk “Container Gardening Indoors and Out” to the Harwinton Garden Club at the Harwinton Public Library (45 attendees) (April 10); gave invited talk “Hydrilla in the Connecticut River and the CAES/USACE Partnership” at the Lyme Town Hall (35 attendees) (April 23); updated the CT DEEP Aquatic Invasive Species Workgroup on related CAES work (April 14); co-chaired the spring virtual meeting of the Northeast Aquatic Nuisance Species Panel and provided a Connecticut update (25 attendees) (April 29 and 30); provided input at United States Army Corps of Engineers CT River hydrilla demonstration project and Massachusetts hydrilla expansion workgroup meetings (April 2, 9, 16, 17, 30); judged at the Quinnipiac University Science Fair (April 23).

**RILEY S. DOHERTY** attended the Project Delivery Team meeting with the US Army Corps of Engineers to discuss the CT River Hydrilla Demo Project (April 2); participated in a Cost Share Program planning meeting with the U.S. Army Corps of Engineers and RiverCOG (April 4); participated in the CAES 150th Anniversary Committee meeting (April 7); participated in the quarterly aquatic invasive species meeting with CT DEEP (April 14); participated in the CAES Diversity, Equity, and Inclusion Committee meeting (April 14); participated in the monthly Connecticut Federation of Lakes board meeting (April 16); taught two 4H students about geographic information systems and how we use it while they were shadowing the Office of Aquatic Invasive Species through the NextGen Scientist program (April 17); attended the Hamburg Cove Public Stakeholder Meeting in Lyme with **Gregory Bugbee** (April 23); attended a hydrilla research planning meeting with the U.S. Army Corps of Engineers, CT DEEP, and RiverCOG (April 25); presented and participated in a meeting with CT DEEP in Hartford to discuss the need for rapid response of aquatic invasive species in Connecticut (April 30); attended the Project Delivery Team meeting with the US Army Corps of Engineers to discuss the CT River Hydrilla Demo Project (April 30).

**JEREMIAH R. FOLEY, IV, PH.D.** attended virtual meetings with the U.S. Army Corps of Engineers to discuss CT River Hydrilla (April 2, 16, 30); toured the Aquaculture Lab at the Sound School and met with aquaculture consultant John Roy to initiate development of a tank farm for research on invasive and native plants (April 10, 21); attended the biological control conference (April 14–17); attended the quarterly Aquatic Invasive Species Meeting with the Department of Energy and Environmental Protection to discuss ongoing research and progress (April 14); attended the Northeast Biological Control Working Group meeting (April 15); served as an advisory panelist for the 2<sup>nd</sup> annual Connecticut River Valley Environmental Summit (75 attendees) (April 5); participated in RiverQuest (30 attendees) (April 19); attended a meeting with the Natural Diversity Database to coordinate efforts for protecting and re-searching rare and threatened native plants while treating for CT River Hydrilla in Hamburg Cove (April 25); and hired Eliana Petterson, a master’s student from Western Connecticut State University, as an intern as part of an applied stewardship program (April 25).

**SUSANNA KERIÖ, D.SC.** presented an invited talk on chestnut blight biocontrol to the CT Chapter of The American Chestnut Foundation (April 5); co-hosted representatives of The American Chestnut Foundation representatives for a visit in Griswold Research Center with **Michael Last** and **RICHARD CECARELLI** (April 9); phenotyped chestnut trees in the Sleeping Giant chestnut orchards with Elodie Eid from Harvard Forest (Apr 24); phenotyped 1,500 white oak and chestnut oak seedlings in collaboration with USFS scientists for a research project on assisted migration established through the Urban Silvicultural Network (April 4, 11, 18, 25).

**SARA L. NASON, PH.D.** as Chair, led virtual meetings for the Best Practices for Non-Targeted Analysis working group (April 1, 3, 15, 28); met virtually with colleagues and students from the University of Minnesota (Dr. Christy Haynes, Riley Lewis, and Cheng-Hsin Huang) and CAES (**JASON WHITE, PH.D., Nubia Zuverza-Mena, Ph.D., and Jingyi Zhou, Ph.D.**) to discuss an ongoing funded collaboration on nanomaterial enhancement of PFAS phytoremediation (April 1); met virtually with Bryan Berger and Michael Timko (University of Virginia), Fred Corey (Mi'kmaq Nation), Chelli Stanley (Upland Grassroots, and Katie Richards (Maine PFAS Labs), and others to discuss EPA funded collaborative work on PFAS (April 4); hosted a visit from Dr. Rob Heimer from the Yale School of Public Health to discuss a pending grant application investigating drugs of abuse (April 11); presented at the CAES Board of Control meeting on PFAS work at CAES (April 16); hosted a visit from Dr. Michael Eze from Missouri Science and Technical University (April 22); met virtually with representatives from CAES (**CHRISTIAN DIMKPA, PH.D., Jasmine Jones**) and the CT Departments of Public Health, Agriculture, and Energy and Environmental Protection to discuss final details of the new PFAS analysis in farm soils program (April 23); served as primary organizer and instructor for a CAES-hosted, 3-day, US FDA-funded training course on poison and toxin screening in food (April 29, 30).

**ITAMAR SHABTAI, PH.D.** presented invited seminar at the Department of Soil & Water Sciences, Hebrew University Faculty of Agriculture, Food, and Environment (50 attendees) (April 7) and gave a workshop on soil organic matter fractionation and characterization (10 attendees) (April 8-10); met with a colleague from Yale University to discuss methods for plant stable isotope labeling (April 21); along with **Alice Zhou, Ph.D.**, met with colleagues from Yale University to discuss a collaborative research project (April 22); participated in a meeting as a committee member of a graduate candidate from Purdue University (April 25); with **Blaire Steven, Ph.D.**, met with collaborators to discuss an NSF grant (April 28).

**JEFFREY S. WARD, PH.D.** gave invited lecture “Ecological impacts of overabundant deer” at the Town of Greenwich “Oh Deer” lecture series (73 attendees) (March 12); participated in a meeting of the Great Mountain Forest Trustees (March 15); spoke on winter shrub identification at the “Just Shrubs – Sorry No Trees” workshop at Flanders Nature Center, Woodbury (52 attendees) (April 1); interviewed about forest research by Catherine Wessel of Northern Woodlands Magazine (April 17).

**MADELINE WATTS** attended virtual meetings with the US Army Corps of Engineers to discuss CT River Hydrilla (April 2, 16, 30); toured the Aquaculture Lab at the Sound School and met with an aquaculture consultant to initiate development of an aquaculture lab for research on invasive and native plants (April 10, 21); attended the quarterly Aquatic Invasive



Species Meeting with the Department of Energy and Environmental Protection to discuss on-going research and progress (April 14); attended a meeting with the Natural Diversity Database (NDDDB) to coordinate efforts for protecting and researching rare and threatened native plants while treating for CT River Hydrilla in Hamburg Cove (April 25).

**SUMMER WEIDMAN** spoke on drone techniques for mapping hydrilla in the Connecticut River at the Chester Harbor Alliance meeting (12 attendees) (April 2); chaired a virtual meeting of the Guilford Conservation Commission Lake Quonnipaug Subcommittee (April 22); with **Madison Manke** gave an invasive aquatic plant management and identification workshop as part of the Three Rivers Community College Environmental Issues Seminar Series in Norwich (20 attendees) (April 23); participated in the virtual Aquatic Invasive Species (AIS) quarterly meeting with CT DEEP and UConn (April 14); participated in the CAES DEI Committee meeting (April 14); participated in the virtual Interagency GIS Meeting for CT State Agencies (April 16); participated in the virtual GIS Advisory Meeting with the CT GIS Office (April 17); participated in virtual meetings with the US Army Corps of Engineers to discuss CT River Hydrilla (April 16, 30).

**LEIGH J. WHITTINGHILL, PH.D.** attended the CAES DEI committee meeting (April 14); visited the Community Health Center rooftop garden in Middletown and met with Jane Harris of the Middletown Garden Club, and Mark Maselli, Founder and President and Craig Rosenberg, Regional Facilities Manager of the Community Health Center (April 17); judged the Sigma Xi Student Research Conference at Quinnipiac University (April 23).

## PLANT PATHOLOGY AND ECOLOGY

**YONGHAO LI, PH.D.** presented “Spring and Summer Gardening Tips” to the public at Covenant Living of Cromwell (18 adults, April 8); presented “Spring and Summer Gardening Tips” for the Preston Parks and Recreation Education Program (8 adults, April 10); participated in the National Plant Diagnostic Network Online Communication & Web Portal Committee virtual meetings (7 adults, April 9 and April 16); presented “Organic Gardening” to the Daytime Gardeners of North Haven (21 adults, April 22).

**ROBERT MARRA, PH.D.** presented a talk on “The Role of Fungi in Forest Ecosystems” at the annual Spring Gathering of the CT Chapter of the Appalachian Mountain Club, at the Cheshire Grange. (60 adults) (April 5); presented a talk titled “Beech leaf disease – Background, Biology, and Insights from Japan,” at the annual meeting of the Connecticut Professional Timber Producers Association. (35 adults) (April 26); participated in the monthly meeting of Divisional Forum Representatives of the American Phytopathological Society, via Zoom (7 adults) (April 28).

**FELICIA MILLETT** presented “Meadow Gardens” to the Woodbridge Garden Club (36 adults) (April 1); instructed “Horse Chestnut Leaf Blotch” at the Review Night of the Connecticut Tree Protective Association Arboriculture 101 Course held in Jones Auditorium (45 adults) (April 10); participated in the NEPDN monthly meeting (12 adults) (April 10); presented “Native Plant Gardening in Connecticut” to the Waterbury Garden Club (35 adults) (April 14); participated in the NPDN Professional Development Committee monthly meeting (9 adults) (April 14); hosted the NPDN Proficiency Committee monthly meeting (4 adults) (April 15); hosted 2 high school students as part of the Next Gen Scientist UConn 4-H Extension Program (2 students) (April 16); conducted a site visit at Clinton Nursery in Westbrook, CT (April 23); spoke to Cadettes from Orange Troop 60274 about tree diseases for a Girl Scouts Silver Award project (4 students) (April 24); and presented “Trees get sick too, how to keep them healthy” for 5th grade students at the Arbor Day Walgren Elm planting ceremony in Jones Auditorium (70 students) (April 25).

**RAVIKUMAR PATEL, PH.D.** presented an invited seminar on Unraveling the Power of Protist-Bacterial Partnerships: Novel Auxin Dynamics in the Rhizosphere at the Sigma Xi Chapter, Quinnipiac University, CT (April 14, 25 students); Delivered an invited talk on From Metagenomes to Mechanisms: Decoding Bacterial Partners and Auxin-Driven Growth in Soil Protists at the annual meeting of the Northeast and Connecticut Valley Branches of the American Society for Microbiology at Worcester State University, MA (April 25, 88 adults); Attended and presented seminar on Protist-bacterial symbioses in the rhizosphere: unveiling novel auxin-mediated interactions at the annual meeting of the Northeast section of the American Society of Plant Biologists at University of New Hampshire, Durham, NH (April 26-27, 65 adults).

**Anuja Bharadwaj** and **Megan Cahill** (Analytical Chemistry), **Caleb Bryan**, **Hany Dweck**, **Kelsey Fisher**, **Rebecca Johnson** and **Qi Xue** (Entomology), **Greg Bugbee**, **Jeremiah R. Foley IV** and **Leigh Whittinghill** (Environmental Science and Forestry), **Regan Huntley**, **Robert Marra**, **Raquel Rocha**, and **Neil Schultes**, (Plant Pathology and Ecology) served as judges for 40 student poster presentations in the 14th Annual Quinnipiac Sigma Xi Student

Research Conference at Quinnipiac University on April 23, 2025 (75 attendees).

## PUBLICATIONS:

1. Li, Y. and Millett, F. (2025). Seed Germination and Purity Analysis (2024). *CAES Technical Bulletin*. <https://portal.ct.gov/-/media/caes/publications/tb39.pdf?rev=6827d5386d6e470cbc49bb5764e93a29&hash=1495E971A25F81067D2AFBB978812BAB>

2. Taerum, S. J., Patel, R. R., Alamo J. E., Gage, D., Steven, B., Triplett, L. R. (2025). Rhizosphere-colonizing bacteria persist in the protist microbiome. *mSphere* 0:e00037-25. <https://doi.org/10.1128/msphere.00037-25>

**Abstract:** Soils contain diverse predatory protists that affect the abundance and behavior of rhizosphere bacteria, including bacteria that may benefit plant health. Protists harbor their own bacterial microbiomes, and we previously observed that plants inoculated with protists harbored rhizosphere bacteria similar to those in the protist inoculum. To determine how protist microbiomes affect the rhizosphere, we profiled the bacteria of eight diverse rhizosphere protist isolates after 2 years of laboratory culture. We then compared the protist culture microbiomes to maize rhizosphere communities 6 weeks after protist inoculation. Introduction of protists enriched 13 protist-associated bacterial amplicon sequence variants (ASVs) in the rhizosphere, which comprised ~10% of the rhizosphere bacterial community. Additional bacterial ASVs ranked highly in abundance in both rhizosphere (top 100) and protist (top 20) microbiomes; together, a median 47% of the protist microbiome was enriched or in high rank abundance in the rhizosphere. Inoculation with three out of eight protist cultures positively affected root biomass traits, but a protist mixture had no effect, indicating that the impact of protist-associated bacteria on plant growth is context dependent. Isolates of protist-associated bacteria had both positive and negative effects on protist growth in culture, suggesting that the bacteria use multiple strategies to survive in proximity to predators. This study demonstrates that even after long-term laboratory culture, rhizosphere protist cultures host bacteria that can colonize the rhizosphere of maize. The findings also identify diverse groups of rhizosphere-colonizing bacteria that persist among protist predators, which suggests that these bacteria could associate with or benefit from protists in the soil.

**Importance:** Understanding the impact of predatory protists on the plant microbiome will be essential to deploy protists in sustainable agriculture. This study shows that eight rhizosphere protist isolates hosted diverse and distinct bacterial communities and that a large proportion of these bacteria could be found colonizing the maize root environment 6 weeks after protists were inoculated onto seedlings. This study demonstrates that certain bacteria from the maize rhizosphere can persist for years in protist cultures and retain the ability to colonize rhizosphere soil, suggesting that protists might support the survival of these rhizosphere bacteria in the absence of the plant.



## DEPARTMENTAL NEWS:

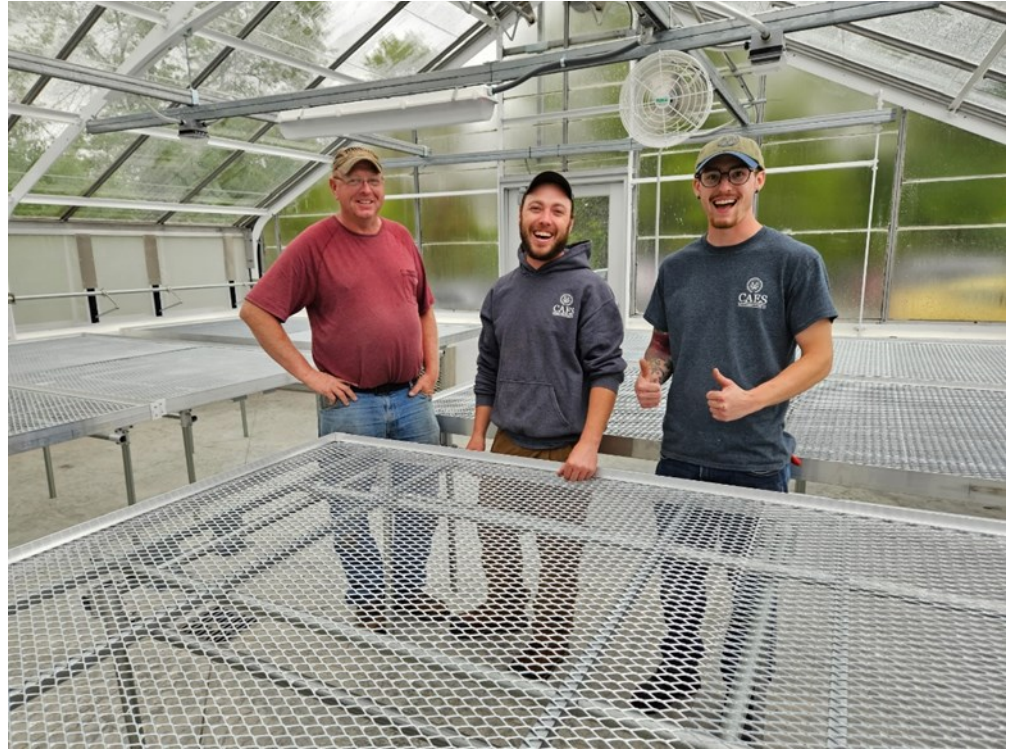


**Dr. Raquel Rocha** and husband Martônio welcomed their son **Matthew** on May 1, at 8.9 lbs with a thick head of hair. Everyone is doing well. Welcome, Matthew!



Quinnipiac University Sigma Xi Science Fair judges.

**Rollin J. Hannan Jr., Joseph Toth, and Joseph Liquori** completed the installation of the rolling benches for the newly renovated greenhouses. The project took about a week worth of labor, but in the end the Station is now equipped with modern day rolling benches. The completion of the benches also marks the completion of the greenhouses!



**Joseph Liquori** gave a guided tour of the renovated Plant Pathology greenhouse to members of the CAES Board of Control on April 16<sup>th</sup>.





**JATINDER S AULAKH, PH.D.** co-authored an article entitled “Recently labeled herbicide Frequency available for Christmas tree production” for the Michigan State University Extension Christmas Trees Blog (April 22, 2025); and was appointed the external advisory committee member (Ad hoc) of Henrique dos Santos Scatena, a MS student at the Cornell University (April 17, 2025); and had a zoom interview with Isaac Moss, a student at the Wesleyan University on “The Spread and Control of Mugwort” (April 11, 2025); and participated in the Advisory committee meeting of Henrique dos Santos Scatena (April 3, 2025); and presented a talk on “A Review of Weed management in Christmas Trees at the 64<sup>TH</sup> Annual Meeting of the Connecticut Christmas Tree Growers Association in Middletown, CT (March 1, 2025, ~80 attendees); and published an article entitled “Identification and Control of New Invaders in Christmas Tree Plantations” in the Real Tree Line Journal of the Connecticut Christmas Tree Growers Association [Volume 65 (1): 20-22].

**CAROLE CHEAH, PH.D.** gave a lecture on biological control of hemlock woolly adelgid in Connecticut to students and staff at Tunxis State Community College Apr 4 (23); presented on the same for the Master Woodlot Manager Program run by the Connecticut Forest and Park Association, Apr. 8 (33).

**RICHARD COWLES, PH.D.** presented “Early season pests,” for the Michigan State University sponsored Christmas tree growers’ online webinar series, April 2 (80 participants).

**NATHANIEL WESTRICK, PH.D.** participated in a weekly New England Small Fruit meeting between academic and extension staff across the northeast to discuss emerging pest and pathogen issues in strawberry, blueberry, and brambles (15 participants) (April 8, 15, 22, 29).

#### **PUBLICATIONS:**

1. Lindberg, B., Saha, D., **Aulakh, J.** (2025). Recently labeled herbicide Frequency available for Christmas tree production. MSU Extension Christmas Trees Blog. Available online at: <https://www.canr.msu.edu/news/recently-labeled-herbicide-frequency-christmas-tree-production>



Bai, T., Duan, K., Zhuang, D., Jiang, C., Wang, X., Huang, R., Coa, S., Tan, Z., Reyes, W. A., Haynes, C. L., Zhou, D., **White, J. C.**, Zhao, L. Nano-enabled wheat adaptation to heat stress and disease resistance. *One Earth*.

Costa Alves, T. R., de Moura, A. P., **dos Santos Silva, J. L.**, Pereira da Silva, I. V., Rodrigues de Oliveira, F. E., **LaReau, J.**, da Silva, E. F., Silva de Lima, J. S., **Steven, B., da Silva, W. L.**, Ambrosio, M. M. Q. Melon Cultivated In Continuous Monoculture Regimes Causes Changes In Soil Composition And Microbial Activities. *Soil Biology and Biochemistry*.

Costa, M. H. D., **dos Santos Silva, J. L.**, de Souza, J. J. F., Pereira da Silva, I. V., Alves, T. R. C., de Moura, A. P., **Costa, T.**, de Lima, J. S. S., **da Silva, W. L.**, Ambrosio, M. M. Q. Infection Routes and Pathogenicity of Multiple Fusarium Species in Melon Plants: Implications for Disease Management in Brazil. *Plos Pathogens*.

Costa, M. H. D., Milagres, J. S., **dos Santos Silva, J. L.**, El-Tanbouly, R., Shidore, T., **Muthuramalingam, R.**, Ambrosio, M. M. Q., **da Silva, W.** Complexing siRNAs in chitosan nanoparticles to suppress potato virus Y infection. *Journal of General Virology*.

**Cowles, R. S.** and **Aulakh, J. S.** Winter Injury. *The Real Tree Line*.

de Moura, A. P., **dos Santos Silva, J. L.**, Silva Ribeiro, J. W., Sousa da Silva, M. K., Silva Frutuoso, R. M., da Silva Filho, S. M., Ávila Filha, V. M., Gomes Souza, V. M., **da Silva, W. L.**, Ambrosio, M. M. Q., Colletotrichum brevisporum and Colletotrichum truncatum cause pumpkin anthracnose in Brazil. *Journal of Plant Pathology*.

**Foley IV, J. R.**, Min Lin, **Weidman, S. E.**, Cassone, J., Stalter, N., Marsicano, L., and **Bugbee, G. J.** Integrated Plant Management of Eurasian Watermilfoil: The Role of Grass Carp and Drawdowns in Candlewood Lake, CT. *Aquatic Plant Management*.

Garofalo, E. W., Rowland, D. and **Westrick, N. M.** First Report of Colletotrichum fioriniae causing Bitter Rot of Apple in Massachusetts. *Plant Disease*.

He, J., **Li, D. -W.**, Li, N., Zhao, J. -M., Mao, G. -Y., Cui, W. -L., Yang, J. -Y., Zhu, L. -H., Ye, J. -R., Huang, L. High diversity of Neopestalotiopsis, Parapestalotiopsis, Pestalotiopsis and Pseudopestalotiopsis (Sporocadaceae) associated with Cunninghamia lanceolata. *Fungal Diversity*.

**Hiskes, R. T.** Weather Effects on Broad-Leaved Evergreens, 2024 – 2025. *CAES Fact Sheet*.  
Hou, J., Zheng, T., Cao, Q., Zhu, S., **White, J. C.**, Xu, J., Yang, K., Lin, D. Optimizing rhizosphere iron plaque for nano-enabled sustainable agriculture. *Nature Sustainability*.

Katsafadou, A. I., Prodromou, S. I., Aalizadeh, R., **White, J. C.**, Thomaidis, N. S., Vizirianakis, I. S., Anastas, P. T., Kyriakides, T. C., Pastides, H., Thompsom, D. C., Vasiliou, V. Olive oil at the intersection of environment, public health, and one health: A sustainable path to global well-being. *Frontiers in Public Health*.

**Li, Y.** Volutella Blight of Pachysandra. *CAES Fact Sheet*.

Lilly, M. V, Davis, M., Kross, S. M., Konowal, C. R., Gullery, R., Lee, S. -J., Poulos, K. I., Gregory, N., Nagy, C., Cozens, D. W., **Brackney, D. E.**, del Pilar Fernandez, M. and Diuk-Wasser, M. Functional connectivity for white-tail deer drives the distribution of tick-borne pathogens in a highly urbanized setting. *Landscape Ecology*.

Malik, A., Krishna, P. M., **White, J. C.** Trends in nano-sensors and analytical protocols for the starch debranching enzyme activity and resistant starch evaluation in healthy foods design. *International Journal of Biological Macromolecules*.

**Patel, R. R., Triplett, L. R., Taerum, S. J., Nason, S. L.,** Wilson, C. O., **Steven, B.** Diverse soil protists show auxin regulated growth in partnership with auxin-producing bacteria. *Science*.

Thangavelu, R. M., **da Silva, W.**, Hernandez-Viezcas, J. A., Oyanedel-Craver, V., Gardea-Torreseday, J. L., **Dimkpa, C., White, J. C., Zuverza-Mena, N.** A multi-nutrient nanocomposite enhances UV stress tolerance and modulates nutrient accumulation in lettuce. *Nano*.

Xiao, M., Tang, C., Jiang, Z., Zhou, J., Luo, Y., Ge, T., Pan, L., Yu, B., Cai, Y., **White, J. C., Li, Y.** Opposing effects of maize straw and its biochar on soil N<sub>2</sub>O emissions by mediating microbial nitrification and denitrification in a subtropical Moso bamboo forest. *Geoderma*.



# CAES

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