Station News

The Connecticut Agricultural Experiment Station
Volume 15 Issue 11 | November 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

This Issue

ADMINISTRATION

JASON C. WHITE, PH.D., met by Teams with colleagues at the University of Minnesota and Convergent Bioscience to discuss collaborative projects (October 1, 15, 16, 30); along with **CHRISTIAN DIMKPA, PH.D.** met with colleagues at the Agricultural Research Council in South Africa to discuss future collaborative research (October 2); along with **Terri Arsenault** attended the monthly Laboratory Preparedness Advisory Committee (LPAC) via Teams (October 6); hosted a call with Mr. Paul Johnson of FocusCuba to discuss CAES agricultural research initiatives with the Ministry of Agriculture (October 6); participated by Teams in the Farmland Preservation Advisory Board meeting (October 7); met with Professor Philip Demokritou of Rutgers University and others in the Yale School of Public Health to discuss collaborative research on micro-nanoplastics and human/environmental health (October 8); participated in a ZOOM call with collaborators at the University of Minnesota and 3M to discuss a collaborative PFAS phytoremediation project (October 9, 16); met by ZOOM with Professor Dhimiter Bello of UMass Lowell to discuss collaborative emerging contaminant research (October 9); attended the University of Connecticut CAHNR Dean's Advisory Board meeting at UConn (October 9); along with **Yingxue (charlie) Yu, PH.D.** met by Teams with colleagues at the University of Rhode Island to discuss collaborator micro-nanoplastic research and a USDA grant submission (October 10); along with **Milica Pavlicevic, PH.D.** met by Teams with UConn Technology Commercialization staff to discuss a patent filing (October 10); met by Teams with colleagues at Clemson University and Johns Hopkins University to discuss a collaborative USDA grant submission (October 13); attended an organizational meeting on Teams for the 2026 International Phytotechnology Society meeting (October 14); along with **MICHAEL LAST** hosted the quarterly CAES Board of Control meeting (October 15); attended the AgInnovation Northeast quarterly call on Teams (October 16); spoke by Teams with Dr. Laura McConnell of Bayer Crop Sciences about a 2026 Gordon Conference on nanotechnology and agriculture (October 17); attended the PhD proposal defense of Mr. Jo Kiunga at the University of Massachusetts Stockbridge School of Agriculture (October 17); met by Teams with Department of Consumer Protection Division of Drug Control staff to discuss the Cannabis program (October 20); met by Teams with Dr. Nathaniel Heiden of Levo International to discuss collaborative work (October 22); hosted Ms. Reagan Strand of the Yale School of Public Health for a tour and description of CAES programs (October 28); participated in a Cell Press Webinar on "Securing a resilient future for agriculture through connections between technology and practice" and gave a presentation entitled "Nano-enabled agriculture: A sustainable path to circularity and global food security in a changing climate" (October 29); and was interviewed by a graduate student from the New Jersey Institute of Technology (NJIT) on nanosensors in agriculture as part of the NSF-I Corps program (October 31).

PUBLICATIONS:

1. Zhu, Y.; Zheng, S.; Gardea-Torresdey, J.L.; Keller, A.A.; **White, J. C**.; Zhao, L. 2025. CuO@SiO_2 seed priming enhances drought tolerance and phosphorus acquisition efficiency of maize. *Environ. Sci. Technol*. https://doi.org/10.1021/acs.est.5c11193.

Abstract: Sustainable agriculture requires minimizing resource inputs while maximizing the outputs. Here, we report that rationally engineered Fenton-like CuO@SiO2 nanoparticles (NPs), as a seed priming agent (20 mg/L, 24 h), concurrently enhanced drought tolerance and phosphorus (P) acquisition efficiency of maize, a climate vulnerable staple crop. Importantly, life cycle field pot trials reveal that CuO@SiO2 NPs seed priming increased the grain yield by 9.3% and 16.6%, respectively, under normal and drought conditions, compared to the hydropriming control. This enhanced drought-resilience and yield were attributed to reactive oxygen species (ROS)-intensified root system architecture (RSA) plasticity, including enhanced root hair density, deeper primary root, and prolific lateral root branching. RNA-seq revealed the activation of genes related to RSA modulation (PLA2, PG, and EXP), P/N/S uptake and assimilation (PHT, NRT, NR, NiR, and SULTR), and drought tolerance (ELIP, LEA, and DRP) in CuO@SiO2 NPs-primed seeds. Additionally, seed priming altered the seed metabolite profile, systematically elevating the content of adenosine triphosphate (24.1%), amino acids (7.6–105%), sugars (20–24%), organic acids (49–121%), phenolic acids (47–315%), and fatty acids (4.2–39%), indicating the boosted respiration and accelerated mobilization of seed stored reserves. Collectively, this simple and inexpensive ($0.62–1.15 per acre) seed priming strategy effectively enhances maize resilience to water and nutrient stress, offering a promising path toward sustainable food security.

2. Pavlicevic, M.; Rocha, R.; Huntley, R.; Vennapu, R.K.; Morales-Acosta, M.D.**; Liquori, J.; Zuverza-Mena, N.; Dimkpa, C.; White, J.C**. 2025. Immune response of root-knot nematode-infected tomato is improved by biogenic copper nanoparticles. *Pest. Biochem. Physiol.* 216, 1, 106755.

Abstract: “Green” synthesized copper nanoparticles from hemp plant waste (Cu-G-NPs) identified as brochantite, together with chemically synthesized copper nanoparticles (Cu-C-NPs), and copper sulfate ($CuSO_4$) were tested as foliar spray against Meloidogyne incognita in tomato (Solanum lycopersicum). The materials were evaluated in two separate greenhouse experiments designed to assess their effectiveness at the different temperatures: one under warmer growth conditions and another stimulating cold stress. In both experiments treatments were applied at 200 mg/L of Cu and effects were assessed over a 45-day-period. Cu-G-NPs decreased nematode egg numbers by 41 % (significantly more than $CuSO_4$ (35 %) and Cu-C-NPs (20 %)) and the number of galls by 38 % (significantly more than Cu-C-NP (24 %) and comparable to $CuSO_4$ (43 %)). In treatments with Cu-G-NPs, plants had a lower content of malondialdehyde (41 % decrease, compared to 25 % and 28 % decreases with Cu-C-NPs and $CuSO_4$, respectively) compared to infected control plants. Addition of Cu-G-NPs modulated hormonal response in the plants, by upregulating ethylene biosynthesis in leaves and downregulating salicylic acid-mediated response in roots. The presence of bioactive compounds, such as amines, carboxylic acids, esters, and sterols, on the surface of Cu-G-NPs (as determined using attenuated total reflectance Fourier-transform infrared spectroscopy) increased their effectiveness when compared to Cu-C-NPs and CuSO4.

Dr. Jason C. White participating in a Cell Press Virtual Webinar on "Securing a resilient future for agriculture through connections between technology and practice".

The wedding of Ms. Makenzie White in Pittsburgh PA .

ANALYTICAL CHEMISTRY

RAEES AHMAD, PH.D. attended the INFRAMES meeting at the University of Rennes, France, from October 15–17, where he took part in round table discussions on "Detection and Quantification of Micro- and Nanoplastics in Complex Media."

ANUJA BHARADWAJ, PH.D. met virtually with Dr. Robert Heimer and other collaborators from Yale University to discuss the newly NIH funded project on drugs of abuse on October 16, 2025. She also served as a judge for poster presentations at the 3rd Annual CAES Postdoctoral Scientist Research Symposium held at CAES, New Haven on Oct 24, 2025.

JASMINE JONES presented a poster titled "PFAS in Connecticut Soils" at the 3rd Annual CAES Research Symposium on October 24, 2025.

MANDEEP KAUR, PH.D. gave a *Flash talk* on "Role of micro-nano plastics in uptake and translocation of environmental pollutants in plants" at 2025 annual Sussex Symposium organized by Yale University at the Connecticut Agricultural Experiment Station on October 10th, 2025. She also presented a poster on "Translocation of environmental pollutants (EPs) in *Lactuca sativa* L., (Lettuce) and *Triticum aestivum* (wheat) under co-exposure of micro-nanoplastics" at the 3rd Annual CAES Postdoctoral Scientist Research Symposium at the Connecticut Agricultural Experiment Station on October 24, 2025.

YI WANG, PH.D. gave an invited talk at the seminar of the Department of Environmental Science of Baylor University, on October 12, 2025. The title of her talk was "Nano-Enabled Agriculture: Enhancing Plant Growth and Disease Management."

JINGYI ZHOU, PH.D. presented a poster titled "Carbon Dots for the Phytoremediation of Per- and Polyfluoroalkyl Substances" at the 3rd Annual CAES Research Symposium October 24 2025, and was awarded with "Best Poster Award".

PUBLICATIONS:

1. **Aikpokpodion, P.E.**, Womack, N., Das, R., Hsiao, B., **Dimkpa, C.O.** (2026). Controlling nutrient loss in plant-soil system using effluents from a zero-waste nitro -oxidation process for upcycling of agrowaste feedstocks. Agriculture, Ecosystem and Environment 397, 110054 https://doi.org/10.1016/j.agee.2025.110054

2. **Bui, T.H., Kaur, M., Zuverza-Mena, N**., Nason, S.L., **Dimkpa, C.O., Jones, J.P., White, J.C**. (2025). Iron-fortified Hemp-derived Biochar Reduces Per- and Polyfluoroalkyl Substances Bioaccumulation in Radish (*Raphanus sativus* L.)". In press, Environmental and Biogeochemical Processes.

ENTOMOLOGY

PHILIP ARMSTRONG, SC.D. provided research updates and discussed funding issues for the leadership team meeting of the Northeast Regional Center of Excellence in Vector-Borne Diseases (October 24); met and had dinner with Professor Sarah Hamer from Texas A&M along with Doug Brackney and Yale faculty members (October 28).

ANGELA BRANSFIELD provided BSL-3 laboratory training to four new personnel (October 15); participated via Zoom in Yale University's Biosafety Committee meeting (October 16).

KATHERINE DUGAS staffed a booth at the Ansonia Nature Center Autumn Fest, providing information about the CAES public services as well as information about the spotted lanternfly (October 18).

HANY K. M. DWECK, PH.D. gave an invited research seminar on "the Making of a Pest Fly" at the University of Kentucky Department of Entomology (October 22-24, 75-100 attendees including faculty and trainees from the Medical School).

ANDREA GLORIA-SORIA , PH.D. was the recipient of the 2025 CAES Recognition Award for Research and Innovation (October 6). Gave the invited plenary talk "Using population genomics to reconstruct *Aedes aegypti* evolutionary history" at the Entomological Society of Canada annual meeting. Calgary, Canada (October 7 – 170 attendees). Was interviewed by Robert Miller from the Danbury News Times/Hearst Media on Friday October 10, 2025 in relation to her recent publication in Science Magazine. The interview was cited within the story "How CT scientists tracked the mosquito that brought yellow fever to America 300 years ago", published by the New Haven Register (October 27). Was interviewed by Miguel Ángel Criado from newspaper El País (Spain), in relation to her recent publication in Science Magazine (September 17). The interview was part of the story "Dos de los mosquitos más dañinos han salido reforzados de su relación con los humanos" published on September 18 in El Pais (Spain and Latin America).

MEGAN LINSKE, PH.D. hosted the 2025 Wildlife Society (TWS) Leadership Institute (LI) Class as Chairperson of the LI Committee at TWS Conference in Edmonton, Canada (Oct 4-9); hosted the Self Care for Professionals Workshop in the TWS LI series (Oct 8); gave an invited presentation at the 2025 Tick Academy titled "Innovative Tick Control: Acaricide Strategies for Managing Blacklegged Ticks while Protecting Pollinators" (Oct 15); hosted the Women and Family Life Center's EmpowHer: Girls in STEM program as Lead Facilitator in conjunction with **Dr. Jessica Brown** (Department of Environmental Science and Forestry)**, Ms. Natalie Bailey** (Department of Environmental Science and Forestry) and Ms. Halie Shea (University of Connecticut 4-H Extension Center) (Oct 18), and **Mrs. Summer Weidman** and **Dr. Jeremiah Foley IV** (Department of Environmental Science and

Forestry) and Ms. Halie Shea (University of Connecticut 4-H Extension Center) (Oct 18), and **Mrs. Summer Weidman** and **Dr. Jeremiah Foley IV** (Department of Environmental Science and Forestry) (Oct 25); gave an invited lecture at Southern Connecticut State University's Medically Important Arthropods course titled "Tick Biology, Ecology, and Behavior" (Oct 27).

GOUDARZ MOLAEI, PH.D. attended the Cross COE meeting of the Tick-Bite Prevention group (October 1); lectured topics on vector-borne diseases at SCSU and CCSU as part of the CAES contribution to the CDC NEVBD TEC grant objectives in training the next generation of vector-borne disease experts (October 6, 13 and 20); presented an invited talk, "The Rising Tide of Tick-Born Illnesses" to the Yale Health Grand Rounds Series, an audience of the Yale Health clinicians (MD's, NP's, PA's, CNM's), nurses, fellows, nursing and medical students, pharmacists, and health educators (October 9); attended the Global Consortium on Climate and Health Education at the World Health Organization (WHO) EMRO region to plan a training course on climate change and public health (including vector-borne diseases) in 2026 (October 15 and 29); and attended the NEVBD-TEC October Leadership Meeting, discussed and reported progress (October 23).

GALE. E. RIDGE, PH.D. was interviewed by Maria Caceres from NBC Universal about yellowjackets and their observed predation on spotted lanternflies (October 3); hosted a display table at the Bethany Harvest Festival (October 5, 4000 visitors); spoke to 5th and 6th grade girls at Bethany Community School as part of their "Girls Exploring with Mentors in STEM," program (October 6, 10 girls); interviewed by Kevin Gaiss NBC CT about the future trajectory of the spotted lanternfly establishing in Connecticut (October 7); hosted the Experiment Station display table at the Ansonia Nature Center Festival (October 18); and presented a talk to the senior class at the University of St. Joseph's, West Hartford on bed bugs (October 24, 40 students).

JOHN SHEPARD presented the invited lecture"Mosquito and Arbovirus Surveillance " to undergraduate students at Southern Connecticut State University (October 6) (approx. 20 attendees); was interviewed about invasive *Aedes* mosquito species in CT by Roberrt Miller of Hearst Connecticut Media Group (October 9); presented the invited talk, "Fight the Bite – Mosquito and Tick-Borne Diseases in Connecticut" to the Long Hill Garden Club in Trumbull (October 14) (approx. 35 attendees).

PAULA WOLF co-hosted the October 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 (84 participants; October 3rd); participated in the Connecticut Beekeepers Association's October Bee Talks meeting, a monthly Q&A session to answer seasonal questions effecting CT Beekeepers (35 attendees; October 9th); attended a meeting of the Pollinator Advisory Committee to discuss regulations concerning the release of managed bee species in Connecticut (October 27); co-taught a microscopy workshop for the Back Yard Beekeepers Association (10 registrants; October 26th); participated in the Eastern Connecticut Beekeepers Association meeting, connecting with CT beekeepers, encouraging registration and answering questions (120 attendees; October 26th); participated in the first of a series of online workshops along with Apiary Inspectors of America conducting a Train the Trainer program for Extension educators about the tropilaelaps mite (October 30th ; 35 participants).

TRACY ZARRILLO met with Casey Johnson and Dr. Kelsey Fisher via Zoom to discuss Casey's upcoming presentation about CT and RI NRCS pollinator plantings at the Annual Meeting of the Entomological Society (October 10); attended a twilight tour of The Hickories Ecotype Seed Farm in Ridgefield, CT (October 15); attended a meeting of the Invasive Plant Working Group to discuss the legality of selling sterile invasive plant species in Connecticut (October 15); met with Dr. John Ascher, Michael Veit, and Spencer Hardy via Zoom to discuss an upcoming manuscript on regional bees (October 21); attended a meeting of the Pollinator Advisory Committee to discuss regulations concerning the release of managed bee species in Connecticut and was nominated to become secretary of the committee (October 27).

PUBLICATIONS:

1. **Nattoh, G.**, **Armstrong, P.M.**, and **Brackney D.E.** (2025). Cellular and molecular keys to entry: Mechanisms mediating *Orthoflavivirus* infection of the mosquito midgut. *PLoS Pathog*. 21(10). DOI: e1013617

Abstract: This article explores our current understanding of how orthoflaviviruses interact with the mosquito midgut during the early stages of infection. In it, we examine the roles that cellular receptors, midgut cell types, the orthoflaviviruses nonstructural protein 1 (NS1), and Wolbachia have on shaping infection outcomes.

ENVIRONMENTAL SCIENCE & FORESTRY

SCOTT C. WILLIAMS, PH.D. participated in the bimonthly meeting of the State of Connecticut Siting Council as an expert in the field of ecology (October 2); attended the national meeting of The Wildlife Society in Edmonton, Alberta (October 4 – 9), received the Distinguished Service Award for long-term commitment and service to The Wildlife Society (October 5), participated in a member assistance effort with professional certification (October 6), as Northeast Section representative, participated in meetings of the Certification Review Board (October 7 & 8); participated in a meeting with BanfieldBio on a collaborative NIH SBIR grant investigating tick repellent formulations to be integrated into fabrics (October 14); met with staff from White Buffalo, Inc. about future collaborative research efforts toward host-targeted tick management (October 15); participated in the bimonthly meeting of the State of Connecticut Siting Council as an expert in the field of ecology (October 16); participated in a meeting with staff from White Buffalo, Inc. and Massachusetts public health officials on a potential deer-targeted integrated tick management project (October 20); as the Northeast Section Representative, participated in a meeting to review applications for the Professional Certification Review Board of The Wildlife Society (October 21); participated in the evening meeting of the Town of Guilford's Conservation Commission (October 22); participated in an evidentiary hearing and public comment session of the State of Connecticut Siting Council as an expert in the field of ecology (October 23); gave an evening invited lecture to members of the Connecticut Chapter of the Sierra Club on the relationship between blacklegged ticks and invasive plants (15 attendees) (October 23); served as a judge for presentations during the CAES Postdoctoral Symposium (October 24); gave an invited lecture at the Avon Public Library on the intersections of forest and public health (50 attendees) (October 30).

NATALIE BAILEY participated in a Zoom call with BanfieldBio to discuss the development of a botanical acaricide (October 7); assisted with a program for fifth and sixth grade girls interested in STEM careers coordinated by **Megan Linske, Ph.D.** and the Guilford Women and Family Life Center (13 attendees) (October 11); co-presented a guest lecture on tick ecology and control measures to a combined class of biology undergraduate and graduate students at Central Connecticut State University (18 attendees) (October 13); participated in a collaborative Zoom call with members of the Banfield Biologic NIH SBIR-funded tick repellent fabric team (October 14, 28).

JOSEPH P. BARSKY participated in the Society of American Foresters (SAF) Student Scholars pep rally (October 6); interviewed by Steve Underwood of the Hartford Courant (October 8) and Jennifer Aherns of Connecticut Public Radio (October 9) regarding the results of the 2025 Acorn Mast Surveillance Program; chaired the 2027 SAF Regional Leadership Academy planning committee meeting (October 9); participated in the SAF National Convention local coordinators meeting (October 16); participated in the SAF House of Society Delegates meeting and received a National Recognition Award for Leadership and Operations (October 21); served as a Technical Field Tour Lead, Future Forest Scholar Mentor, Volunteer Coordinator, and Technical Session Moderator at the SAF National Convention in Hartford (October 22-25); gave a presentation on the Con-

Wildlife Society's Annual Meeting in Edmonton, Alberta, Canada as a 2025 class member of The Leadership Institute (October 4 –9); assisted with teaching an ecology-focused workshop with the EmpowHER: Girls in STEM program at the Women and Family Life Center in Guilford, CT led by **Megan Linske, Ph.D.** (12 attendees) (October 11); presented a guest lecture on tick surveillance, control, and disease prevention to undergraduate and graduate students at Central Connecticut State University (18 attendees) (October 13); as chair of the Postdoctoral Scientist Association, co-led the 3rd annual CAES Research Symposium (60 attendees) (October 24).

GREGORY J. BUGBEE attended the Twin Lakes Fall Coalition meeting (October 8); interviewed by Debra Aleksinas of the Lakeville Journal on progress to control hydrilla in East Twin Lake (October 8); gave an aquatic plant workshop to the Lyme Land Trust at the Lyme Town Hall (18 attendees) (October 9); provided input at the Connecticut Invasive Plant Working Group Fall meeting (October 15); participated in the United States Army Corps of Engineers MA Hydrilla Expansion (October 14) CT Hydrilla Demonstration Project (October 29) meetings.

RILEY DOHERTY participated in the Project Delivery Team meeting with the US Army Corps of Engineers to discuss the CT River Hydrilla Demo Project (October 1, 15); attended the Twin Lakes Fall Coalition Meeting in Salisbury (October 8); conducted an aquatic plant workshop at the Chester Town Hall (20 attendees) (October 9); participated in the Connecticut Federation of Lakes board meeting (October 15); participated in a quarterly AIS meeting with CT DEEP (October 27); participated in the US Army Corps of Engineers Cost Share Program planning meeting (October 27); attended the Northeast Arc Users Group Conference in North Falmouth, MA (October 27-29); participated in an OAIS – Connecticut River Conservancy partnership meeting (October 31).

JEREMIAH R. FOLEY, IV, PH.D. met with Drs. Nate Harms and Ben Sperry of the U.S. Army Corps of Engineers to discuss expanding the classical biological control program for Connecticut River hydrilla (October 15); gave an aquatic plant workshop with **Summer Weidman** to middle school students as part of the Guilford Women and Family Life Center's EmpowerHER Women in STEM program led by **Megan Linske, Ph.D.** (October 18); attended the quarterly Aquatic Invasive Species Meeting with the Department of Energy and Environmental Protection to discuss ongoing research and progress (October 27).

SUSANNA KERIÖ, D.SC. phenotyped 1,500 oak trees planted in urban forest gaps on a research project established through the Urban Silvicultural Network studying assisted migration and adaptation of oaks (October 7, 15, 20, 27); collaborated on a grant with collaborators from University of Delaware, the USDA Forest Service, the Central New York University, and John Hopkins University that was submitted to the USDA AFRI program (Physiology of Agricultural Plants) (October 21); attended the Society of American Foresters National Convention (October 22–25) and gave a guided tour of the Lockwood Farm chestnut orchards (50 attendees) (October 22), presented a poster "Mycorrhizal Inoculations of Urban Trees" (October 24), and gave a talk "Quantifying the Root Cause of Urban Tree Health Issues" (30 attendees)

(October 28).

SARA NASON, PH.D. met virtually with Adeyemi Adeleye (Columbia University) to discuss a collaborative grant proposal (October 2); met virtually with colleagues and students from the University of Minnesota (Dr. Christy Haynes, Riley Lewis, and Cheng -Hsin Huang) and CAES (**DR. JASON WHITE**, **DR. NUBIA ZUVERZA-MENA**, **DR. JINGYI ZHOU**) to discuss an ongoing funded collaboration on nanomaterial enhancement of PFAS phytoremediation (October 7); as the chair, led a virtual meeting for the Best Practices for Non-Targeted Analysis working group (October 7, 20, 21, 31); 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 progress on our EPA funded research (October 10); presented a keynote lecture titled "The Best Practices for NTA working group: Supporting and expanding the NTA community" at the International Conference for Non-Targeted Screening (Erding, Germany and virtual, October 16).

ITAMAR SHABTAI, PH.D. attended the Synchrotron Environmental Science 2025 conference in Stony Brook, NY (September 29-October 1) and gave an oral presentation titled "Combining synchrotron spectromicroscopy, stable isotopes and NanoSIMS to reveal the formation of soil organo-mineral associations" (150 attendees) (October 1); traveled to the Advanced Photon Source synchrotron with **Alice Zhou, Ph.D.** to conduct X-ray microtomography imaging on soil samples generated from a project supported by the 2024 BOC Award "Minerals matter: How does soil mineralogy control whether root exudates form new organo-mineral associations or disrupt existing ones" (October 20-22).

ELISABETH WARD, PH.D. met with foresters from Ferrucci & Walicki, LLC and Woodbridge Parks Association to discuss beech stand management at Alice Newton Memorial Park (October 2); met with collaborators from the Yale School of the Environment and South Central CT Regional Water Authority to discuss project on slash walls and soil carbon dynamics at Nathan Pond and Lake Saltonstall (October 3); met with **Susanna Keriö, D.Sc.**, and **Nathaniel Westerick, Ph.D.**, to discuss chestnut blight biocontrol project (October 3); participated in the Master Woodland Managers partners meeting (October 7); participated in the Forest Ecosystem Monitoring Cooperative state coordinators meeting (October 9); presented a talk titled "Connecticut's Changing Forests" at the Harwinton Garden Club (25 attendees) (October 9); met with collaborators from Yale University, Wesleyan University, and Great Mountain Forest along with **Susanna Keriö, D.Sc.**, to discuss project on non-structural carbohydrates and beech leaf disease (October 16); led a field tour and workshop on forest ecology

and stand dynamics for the Master Woodland Manager Program in North Madison (27 attendees) (October 18); participated in the Northeast Forest Health Cooperators meeting in Hillsborough, NH and presented Connecticut Forest Health updates (20 attendees) (October 20-21); participated in the Society of American Foresters National Convention in Hartford, CT (October 22-24); led quarterly CAES Office of Forest Health meeting (October 28); met with staff from DEEP Division of Forestry State Lands Management and New England Forestry Foundation to discuss beech stand management at Pachaug State Forest (October 29); met with staff from DEEP Urban and Community Forestry, Yale School of the Environment, and City of New Haven to discuss beech management in New Haven parks (October 31).

MADELINE WATTS participated in virtual meetings with the U.S. Army Corps of Engineers to discuss the CT River Hydrilla Project (October 1, 15, 29); presented at the CAES Postdoctoral Association Research Symposium on "Understanding Turion Dormancy in Connecticut River *Hydrilla* (H. v. *lithuanica*): Implications for Invasion Potential" (October 24); met with staff from SePRO to discuss lab protocols for using herbicide in mesocosms to assess native aquatic plant response (October 31).

SUMMER WEIDMAN participated in the virtual program committee meeting for the Northeast Aquatic Plant Management Society (NEAPMS) (October 1); presented updates on drone imaging of boat ramps on the Connecticut River to the Chester Harbor Alliance (15 attendees) (October 8); with **Jeremiah Foley, Ph.D.,** gave an aquatic plant workshop to middle school students as part of the Guilford Women and Family Life Center's Empow-HER women in STEM program led by **Megan Linske, Ph.D.** (15 student attendees) (October 18); chaired the virtual meeting of the Guilford Conservation Commission Lake Quonnipaug Subcommittee (October 21); participated in the quarterly Aquatic Invasive Species virtual meeting with CT DEEP (October 27); ran the pesticide recertification program for two NEAPMS webinars (October 20, 28); presented a poster titled "Detecting Northern Hydrilla (*Hydrilla verticillata* subsp. *lithuanica*) in the Connecticut River using Satellite Imagery" at the Northeast Arc Users Group annual conference in Falmouth, MA (October 27-29); participated in virtual CT River Hydrilla project meetings with the US Army Corps of Engineers (October 15, 27, 29, 30).

LEIGH J. WHITTINGHILL, PH.D. hosted Isabella Meibauer, a volunteer student taking online classes at Oregon State University in Environmental Science and Applied Ecology (October 1); attended the quarterly meeting of the CT Council on Soil and Water Conservation (October. 3); attended a meeting of the CT Council on Soil and Water Conservation Soil Health Plan committee to discuss the recreational and developed lands portion of the soil health plan (October 6); presented a talk "The nutrient content of repeat harvested greens from small scale urban and rural producers in central Connecticut" at the Sussex Symposium (40 attendees) (October 10); attended a meeting with Stacey Lumley, Accessibility Specialist from the State of Connecticut to discuss the accessibility audit of the CAES website and determine next steps (October 24); met with **Sudhir Sharma, Ph.D.** to discuss a potential research collaboration (October 27); attended a University of Connecticut Dissertation Defense for Alvaro Daniel Pantoja-Benavides as a committee member (October 28); met with **Sara Nason, PH.D.** and **Jingyi Zhou, PH.D.** to discuss a potential research collaboration (October 29); met with **Vickie Bomba-Lewandoski** and other CAES staff to

discuss the website accessibility audit and next steps (October 30).

PUBLICATIONS:

1. Patel, R. R., **Triplett, L. R.**, **Taerum, S. J.**, **Nason, S. L.**, **Wilson, C. O.**, and **Steven, B.** (2025). Diverse soil protists show auxin regulated growth in partnership with auxin-producing bacteria. *The ISME Journal*, wraf234 doi.org/10.1093/ismejo/wraf234.

Abstract: Predatory protists are single-cell eukaryotic organisms capable of hunting and ingesting bacteria and other microorganisms, which are thought to enrich populations of beneficial bacteria in the rhizosphere, potentially influencing plant health. However, the mechanisms underpinning protist interactions with plant growth promoting bacteria are not well understood. We examined the conservation of plant beneficial traits in bacteria associated with ten protists of diverse lineages that were isolated from the maize rhizosphere. Metagenomics, whole-genome sequence analysis, and functional assays of 61 groups of protist-associated bacteria identified tryptophan-dependent biosynthesis of the auxin hormone indole-3-acetic acid (IAA) as the most prevalent predicted trait. Mass spectrometry confirmed that all the protist cultures accumulated IAA after tryptophan supplementation, and that IAA production was bacterial-dependent. Hypothesizing that IAA affects protist function, we observed that exogenous IAA significantly increased the culture density and cell size of all ten protists. Examination of four partial protist genome assemblies identified 13 candidate auxin metabolic gene homologs conserved across plants and protists, and transcriptomic analysis of a Colpoda sp. protist revealed differential expression of thousands of genes in the presence of IAA, further supporting auxin regulation of protist function. These findings demonstrate that soil microeukaryotes can widely host auxin-producing bacteria and that much broader range of eukaryotic lineages perceive and respond to auxin signals than previously recognized. This significantly expands the known breadth of auxin perception as an interkingdom signal, with important implications for soil nutrient cycling and rhizosphere ecology.

2. 3rd Annual CAES Research Symposium

The 3rd Annual CAES Research symposium (presented by the Postdoctoral Scientist Association) was held on October 24th in Jones Auditorium. The event featured research presented by 24 postdoctoral scientists, technicians, students, and CAES affiliates in the form of 8 oral presentations, 1 lightning talk, and 15 poster presentations. Two invited keynote speakers, Dr. Lokesh Padhye (Associate Professor, Stony Brook University, Stony Brook, NY) and Dr. Jacob Crawford (Staff Scientist, Debug (Google), Boston, MA) presented their latest research on water quality and mosquito biocontrol, respectively. Newly hired Technician I **JACK HATAJIK** (Environmental Science and Forestry) won the best oral presentation award with his talk titled "Overstory ash mortality following emerald ash borer infestation is strongly associated with understory plant invasions" followed by the best oral presentation-runner up **CALEB BRYAN, PH.D.** (Entomology) with his talk titled "Neurological and cognitive effects of chronic exposure to chromium in urban bumble bees." **JINGYI ZHOU, PH.D.** (Analytical Chemistry) won the best poster presentation award for the postdoctoral scientist category with her work titled "Carbon Dots for the phytoremediation of per- and polyfluoroalkyl substances" and **RAVALI KRISHNA VENNAPU** (Plant Pathology and Ecology) won the best poster presentation award for the early ca-

reer researcher category with her work titled "Bacteria as biocontrol agents: Screening against *Fusarium* wilt and root-knot nematodes." Thank you to **DRS. JESSICA BROWN**, **JING YUAN**, **RAJA MUTHURAMALINGAM**, and **SHAIK ALLABAKSHI** for planning and running the event, and to the presentation judges **DRS. CHRISTIAN DIMKPA**, **SCOTT WILLIAMS**, **ANDREA GLORIA-SORIA**, **RAQUEL ROCHA**, **LEIGH WHITTINGHILL**, **JEREMIAH FOLEY**, **ITAMAR SHABTAI**, **ANUJA BHARADWAJ**, **REBECCA JOHNSON**, and **JESSICA BROWN**.

JP and Student he mentored: Society of American Foresters (SAF) CEO Terry Baker (right) stands with CT certified forester and ESF Technician **JP BARSKY** (left) who mentored Manisha Subedi (middle), a future forest scholar and graduate student from Nepal studying at Auburn University, at the SAF National Convention in Hartford.

Canoe CT River Swallows: Chief Scientist **DR. SCOTT C. WILLIAMS** takes in a moment of near solitude during the annual tree swallow (*Tachycineta bicolor*) murmuration from his canoe at sunset as part of an outing for the New England Chapter of The Wildlife Society in Lyme, CT. An informative article on this distinct behavioral phenomenon in Connecticut can be found in Estuary Magazine.

Eli Master Woodland Manager Tour: Station Forester **DR. ELISABETH WARD** stands tall as she lectures to private forest landowners on forest stand dynamics in North Madison as an instructor in the Connecticut Master Woodland Manager program.

STEM Boat and *STEM*: **DR. JEREMIAH FOLEY** and **SUMMER WEIDMAN** spoke to middle school girls about the finer points of detection and management of aquatic invasive plants throughout the State of Connecticut at the Guilford Women and Family Life Center's EmpowerHER Women in STEM program led by Entomology Department Scientist **DR. MEGAN LINSKE.**

Williams Award: Chief Scientist **DR. SCOTT C. WILLIAMS** received the Distinguished Service Award for his "long-term commitment and service to The Wildlife Society (TWS)" from TWS CEO Ed Arnett (left) and outgoing TWS President Art Rodgers (right) in front of 1,200 of his peers at the TWS National Conference in Edmonton, Alberta, Canada.

Research Symposium: Organizers, presenters, and attendees of the 3rd Annual CAES Research Symposium organized by the Postdoctoral Association leadership including **DR. JESSICA BROWN** (Chair, ESF), **DR. JING YUAN** (Professional Development Chair, ESF), **DR. RAJA MUTHURAMALINGAM** (Social Chair, PP&E), and **DR. SHAIK ALLABAKSHI** (Secretary, ESF).

PLANT PATHOLOGY & ECOLOGY

YONGHAO LI, PH.D. presented "Common Diseases That Affect Trees in Connecticut" Minor Memorial Library in Roxbury (September 27, 28 adults); presented a lecture "Diseases of Trees" for the CT Tree Warden School (October 2, 40 adults); presented "Backyard Compositing" Avon Free Public Library (October 2, 28 adults and one kid); presented "Selection and Care of Houseplants" Waterbury Garden Club (October 6, 28 adults); presented a lecture "Diseases of Trees" for the CTPA Arboriculture 101 course (October 9, 30 adults); presented "Backyard Compost 101: Turn Kitchen Scraps into Garden Gold" for the Mothers Out Front education program (October 29, 27 adults).

ROBERT MARRA, PH.D. presented a talk titled "DNA Fingerprinting of the beech leaf disease nematode, *Litylenchus crenatae*, reveals a Japanese origin, resulting in a population bottleneck in North America," at the annual Sussex Symposium, held at CAES (10 October, 75 adults); presented a talk of the same title at the annual meeting of the Northeastern Division of the American Phytopathological Society, in Boston, MA (24 October; 59 adults); met with staff at the Arnold Arboretum to collect foliage samples from various *Fagus* species (22 October); met with Erica Wessmann (Wesleyan University) at Yale University's Marsh Botanical Garden to perform sonic tomography on a white oak in preparation for an art installation (31 October).

FELICIA MILLETT participated in the NPDN Proficiency Committee monthly meeting (October 16) (11 adults); led the Plant Disease Discussions at the Tree Conditions Lab for the CTPA Arboriculture 101 course (Oct 24) (30 adults); and presented Pruning Woody Plants in the Landscape for the Wethersfield Men's Garden Club (Oct 27) (12 adults).

NEIL SCHULTES, PH.D. presented a poster entitled "Probing the nutrient requirements of *Erwinia amylovora* on the apple stigma" at CEAS on October 10th (75 participants); presented a short talk entitled "Investigations on nutrient requirements for growth of *Erwinia amylovora* on apple stigmas" at the 87th Annual Northeast Tree Fruit IPM Workshop in Northampton, MA Oct 21 (45 participants); attended the Northeast American Phytopathological Society meeting in Boston, MA Oct 23-24 (50 participants); attended the Annual Sigma Xi Meeting as a virtual delegate, October 30.

JAMES STANDISH, JEWELL JUNG, HIMANSHI JAYASINGHE, and NAZIYA NABI of ZENG lab presented four talks "Impact of chemical and biological immune inducers to 6 fire blight succeptible and tolerant apple cultivars", "Development of a Agrobacterium mediated transofrmation for Aureobasidium pullulans", "Impact of agriculturally applied streptomycin to bumble bee health and its gut microbiome" and "Understanding the disease resistance mechanism of a fire blight resistant cultivar", at the Yale Sussex Symposium in New Haven CT Oct 15 (50 participants); presented three talks "Development of a Agrobacterium mediated transofrmation for Aureobasidium pullulans", "Impact of agriculturally applied streptomycin to bumble bee health and its gut microbiome" and "Understanding the disease resistance mechanism of a fire blight resistant cultivar" at the Northeast American

Phytopathological Society meeting in Boston, MA Oct 23-24 (50 participants); and one talk "mpact of chemical and biological immune inducers to 6 fire blight succeptible and tolerant apple cultivars" at the CAES postdoctoral association symposium New Haven CT Oct 24 (50 participants).

Neuzivette Abecassis and **Ravali Krishna** from the **ROCHA Lab** showcased their research projects, "Identification of New Esophageal Gland Effector Candidates from Adult Females of the Root-Knot Nematode" and "Bacteria as Biocontrol Agents: Screening Against Fusarium Wilt and Root-Knot Nematodes," at the Yale Sussex Symposium (October 15, 50 adults) and at the Northeast American Phytopathological Society meeting in Boston, MA (October 23–24, 50 adults). Ms. Ravali Krishna also presented her work at the CAES Postdoctoral Association Symposium (October 24, 50 adults), where she was awarded Best Poster Presentation. Congratulations, Krishna!

PUBLICATIONS:

1. Volutella blight of pachysandra. CAES Fact Sheet. 2025. https://portal.ct.gov/-/media/caes/fact-sheets/volutella-blight-of-pachysandra.pdf?rev=46e42b53ed9d418c8ce07c3711cc75af&hash=7A558177E60126DCA4306BBA80C7B1F1.

2. Bacterial wilt of cucurbits. CAES Fact Sheet. 2025. https://portal.ct.gov/-/media/caes/publications/bacterial-wilt-of-cucurbits.pdf?rev=598c163924b841ceaee535c003ca5f53&hash=B64D91DDB4CB1A363C3A300542C06033.

3. Black rot of brassicas. CAES Fact Sheet. 2025. https://portal.ct.gov/-/media/caes/fact-sheets/black-rot-of-brassicas.pdf?rev=eeb7d44401b9452a99efe7b57a3007ce&hash=28D7DC990EAAF5111B6BABFB10CAB19D.

4. Millett, F., Standish, J., Scanley, J., **Zuverza-Mena,** N., Robinsin, V., Sundin, G. and **Zeng, Q.** 2025. The fire blight pathogen *Erwinia amylovora* enters apple leaves through naturally occurring wounds from the abscission of trichomes. The Plant Journal. DOI: https://doi.org/10.1111/tpj.70472

Abstract: The plant epidermis is a single layer of cells covering all plant organs. How pathogens overcome this barrier and enter plants is an important aspect of plant–pathogen interactions. For bacterial plant pathogens, known entry points include natural openings, such as stomata, hydathodes, and mechanical injuries caused by insect feeding, wind damage, or hailstorms. Here, we report that the fire blight pathogen Erwinia amylovora enters apple leaves through naturally occurring wounds caused by the abscission of trichomes during the course of leaf development. Through macroscopic and microscopic observations, we depicted a clear invasion path for E. amylovora cells, from epiphytic growth on glandular trichomes (GT) and non-glandular trichomes (NT) to entry through wounds caused by abscised trichomes, into the epithem, and subsequent spread through xylem. We further observed that GT and NT undergo an abscission process, and that the amount of naturally occurring wounds during abscission is associated with the increase in *E. amylovora* population. Key genes im-

zation of GT and NT were identified. The contribution of the type III secretion system and amylovoran biosynthesis during GT colonization was validated. Our findings propose a novel host entry mechanism of plant pathogenic bacteria through naturally occurring wounds during the abscission of plant surface structures.

5. Pavlicevic, M., Rocha, R. O., **Huntley, R.**, **Vennapu, R. K.**, Morales-Acosta, M. D., **Liquori, J.**, Zuverza-Mena, N., Dimkpa, C. O., & White, J. C. (2026). Immune response of root-knot nematode-infected tomato is improved by biogenic copper nanoparticles. *Pesticide Biochemistry and Physiology, v. 216*, pp.106755.

Abstract: "Green" synthesized copper nanoparticles from hemp plant waste (Cu-G-NPs) identified as brochantite, together with chemically synthesized copper nanoparticles (Cu-C-NPs), and copper sulfate ($CuSO_4$) were tested as foliar spray against *Meloidogyne incognita* in tomato (*Solanum lycopersicum*).The materials were evaluated in two separate greenhouse experiments designed to assess their effectiveness at the different temperatures: one under warmer growth conditions and another stimulating cold stress. In both experiments treatments were applied at 200 mg/L of Cu and effects were assessed over a 45-day-period. Cu-G-NPs decreased nematode egg numbers by 41 % (significantly more than $CuSO_4$ (35 %) and Cu-C-NPs (20 %)) and the number of galls by 38 % (significantly more than Cu-C-NP (24 %) and comparable to $CuSO_4$ (43 %)). In treatments with Cu-G-NPs, plants had a lower content of malondialdehyde (41 % decrease, compared to 25 % and 28 % decreases with Cu-C-NPs and $CuSO_4$, respectively) compared to infected control plants. Addition of Cu-G-NPs modulated hormonal response in the plants, by upregulating ethylene biosynthesis in leaves and downregulating salicylic acid-mediated response in roots. The presence of bioactive compounds, such as amines, carboxylic acids, esters, and sterols, on the surface of Cu-G-NPs (as determined using attenuated total reflectance Fourier-transform infrared spectroscopy) increased their effectiveness when compared to Cu-C-NPs and $CuSO_4$.

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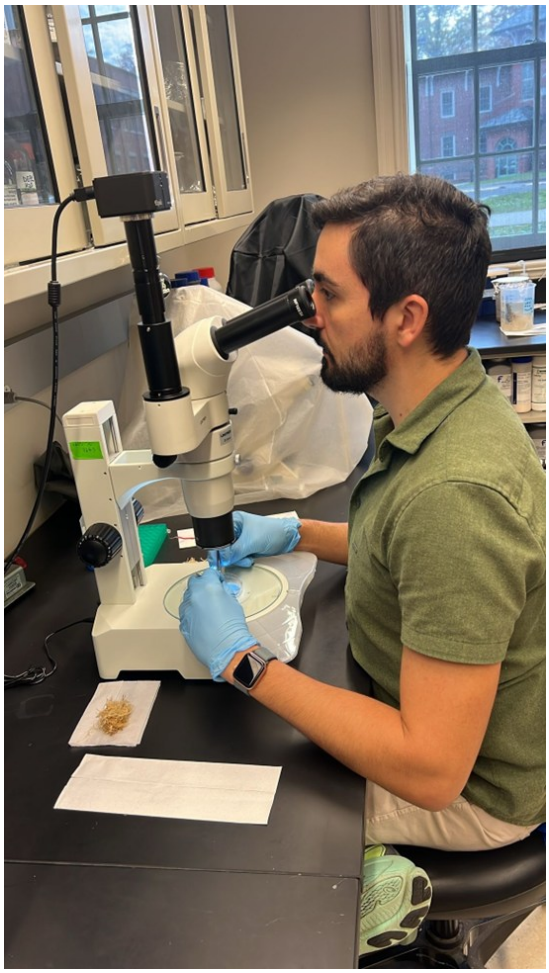
STATION NEWS



The **ROCHA Lab** is pleased to welcome **Ubirajara Moreira,** a PhD student from the Federal University of Ceará, Brazil. Over the next six months, Mr. Moreira will be conducting research at CAES, focusing on the genetic adaptations of two root-knot nematode species found in Connecticut to the region's temperatures.

Neuzivette Abecassis, from the **ROCHA Lab,** gives a presentation on her discovery of novel root-knot nematode virulence proteins at the Northeast American Phytopathological Society meeting in Boston, MA.

Ravali Krishna, from the **ROCHA Lab**, is awarded Best Poster Presentation for her work of new biocontrol agents against soilborne pathogens found in CT soils at the CAES Postdoctoral Association Symposium.

VALLEY LABORATORY

CAROLE CHEAH, PH.D. gave a presentation on battling hemlock pests with ladybeetles at Connecticut State Manchester (Manchester Community College), October 28, for the Community Science Lecture Series (55); had an article on using biological control to manage hemlock woolly adelgid on the Farmington River, published in the Fall 2025 issue of RMS Journal:

RICHARD COWLES, PH.D. presented "Management of redheaded flea beetle," among other topics at the Cooperative Extension nursery tour, Canterbury and Woodstock, CT, October 1 (25 participants). He discussed cover crops at the Cornell Club of Fairfield County meeting, Shelton, CT, Oct. 5 (20 participants). He presented "New exotic invasive pests," (covering spotted lanternfly and beech leaf disease) at the New England Chapter of the International Society of Arboriculture meeting, Southbridge, MA, Oct. 7 (120 attendees). He shared "Beech leaf disease management" with the Forest Health Workshop virtual meeting hosted by Eli Ward, Oct. 28 (12 attendees).

ROSE HISKES gave a talk on "Exotic Insects" to an Environmental Science class at St. Joseph's College in West Hartford (October 22) (18 students).

NATHANIEL WESTRICK, PH.D. participated in a meeting with Dr. Eli Ward and Dr. Susanna Kerio to discuss ongoing chestnut blight biocontrol research (October 3); presented an invited seminar to the Department of Plat Biology at Rutgers entitled "Dangers Abound: Protecting Northeastern Strawberries from Invasive Fungal Pathogens" (October 17) (35 Participants).

PUBLICATIONS:

1. Shao D, **Westrick NM**, Liu W, Yarden O, Zhao J, Kimura Y, Maeda H, Smith DL, Kabbage M, Dickman MB. (2025) A broadly conserved fungal chorismate mutase targets the plant shikimate pathway to regulate salicylic acid production and other secondary metabolites. *mBio*. 2025 Oct 20:e0203125. doi: 10.1128/mbio.02031-25.

Abstract: The molecular dynamics of plant-pathogen interactions are complex, involving a constant defense race between host plants and pathogens. Plants deploy antimicrobial metabolites and physiological responses to inhibit pathogens, while pathogens counteract these defenses using secreted proteinaceous effectors. Chorismate mutases (CMs) are effectors largely studied in biotrophic fungi and nematodes for their ability to hijack the host shikimate pathway by diverting chorismate from salicylic acid (SA) biosynthesis, subsequently undermining SA-mediated defenses against biotrophic infection. While CMs have been primarily linked to biotrophy, we identified a novel bifunctional CM from the broad host range and predominantly necrotrophic pathogen *Sclerotinia sclerotiorum* and demonstrate that orthologs of this secreted CM are present in far more diverse fungal lifestyles than initially theorized. Unlike currently characterized secreted CMs, *S. sclerotiorum* CM (SsCM1) localizes to the plant chloroplast where it interacts with plant plastidic CMs. While SsCM1 is a functional, albeit weak CM, it contains a novel domain architecture of bacterial origin, including a putative isochorismate

mate pyruvate lyase (IPL) domain. Interestingly, transient expression of SsCM1 *in planta* increases rather than decreases host SA levels. Our results indicate that secreted CMs are broadly conserved in many plant-associating fungi beyond canonical biotrophs and likely facilitate infection through a novel manipulation of the plant shikimate pathway that redirects the flow of this pathway toward increased SA production and away from the biosynthesis of downstream antimicrobial compounds. We propose that SsCM1-like effectors represent a novel class of secreted CMs that may be commonly utilized by plant-associated necrotrophs to achieve pathogenic success. group.

2. Cheah, C. (2025). The Farmington River: A case study in collaborative biological control of invasive hemlock woolly adelgid. RMS Journal Fall 38 (3): 1, 6-7. https://www.river-management.org/assets/Journals-Newsletters/2025%20Fall%20Vol%2038%20No%203%20%28Color%29.pdf

Funded Grants:

Specialty Crop Block Grant - $68,796.15, "Evaluation of Fungal Populations Responsible for Anthracnose Crown Rot and Commercial Strawberry Susceptibility to the Disease in Connecticut".

JOURNAL ARTICLES APPROVED OCTOBER 2025

Boyjoo, Y., Lee, J., Hwang, C.-Y., Qin, L., **Wang, Y., White, J.C.**, Chen, Q., Bhaw-Luximon, A. The art of evasion at the nanoscale: Engineered CuS nanovaccines resist intracellular sequestration in plants. *Nature Plants*.

Brown, J. E., Stickler, C., Machtinger, E. T. You Scratch My Back: White-footed mice (Peromyscus leucopus) sibling pairs engage in allogrooming in response to tick burdens. *Journal of Zoology*.

Ma, C., **White, J. C.**, Hao, Y., Cai, Z., Han, L., Cao, X., Wang, Z., Liu, Z., Zhao, J., Zhou, X., Feng, J., Zhang, J., Han, B., Qian, K., Zheng, W., Chang, Z., Xing, B. Trophic transfer of ZnS nanomaterials: Differential accumulation and toxicity from direct and dietary exposure routes. *Nature Water*.

Majumdar, S., DeLoid, G., Das, M., Kaur, M., Gaddi, W., Alotaibi, S., **Zuverza-Mena, N.,** Sadik, O., **White, J. C.**, Demokritou, P. Life cycle implications of polyvinyl chloride (PVC) micro-nanoplastics (MNPs): Interactions with coexposed environmental pollutants (EPs) and impact on their toxicity and bioavailability. *Environmental Science and Technology*.

Muthuramalingam, R., Gray, S., Wu, B., Pellagrino, R. A., **da Silva, W., Zuverza-Mena, N., Dimkpa, C. O.**, and **White, J. C.** Lignin-Derived Carbon Dots from Leaf Waste as Sustainable Plant Sunscreens and UV-Protective Foliar Coatings. *Langmuir*.

Pavlicevic, M. Rocha, R. O., Huntley, R., Vennapu, R. K., Morales Acosta, M. D., **Liquori, J., Zuverza-Mena, N., Dimkpa, C. O.,** and **White, J. C.** Immune response of root-knot nematode-infected tomato is improved by biogenic copper nanoparticles. *Pesticide Biochemistry and Physiology*.

Wang, B., Tang, C., Kuzyakov, Y., Ge, T., Gao, Y., Fang, Y., Lin, J., Jiang, Z., Xiao, M., Zhou, J., Luo, Y., Cai, Y., Yu, B., **White, J. C., Li, Y.** The impact of biochar on soil organic carbon priming: Underlying mechanisms and key drivers. *Critical Reviews in Environmental Science and Technology*.

Westrick, N. M., Marin, M. V., Henry, P. M., Hoffmann, M., and Peres, N. A. Emergence of Fusarium oxysporum f. sp. fragariae in the Eastern United States. *Plant Disease*.

Yu, Y., Vodicka, J., Chowdhury, I., Astner, A. F., Hayes, D. G., Flury, M. Enhanced Aggregation of Nanoplastics in the Presence of Soil Metabolites. *Environmental Science and Technology*.

Zhuang, S., Lin, Z., **Cai, Z.**, Li, C., Zhang, Z., Li, J., Xu, X., Liang, A., Wang, S., Jia, W., Cao, Y., Feng, J., Han, L., **White, J. C.**, Ma, C., Xing, B. Anthropogenic carbon nanoparticles trigger oxidative reprogramming of plant physiology and disrupt rhizosphere microbial networks in mangrove ecosystems. *Nature Communications*.

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Station News was prepared and edited by Dr. Jason White, Ms. Vickie Bomba-Lewandoski, and Mrs. Natalie Rivera.

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