

INSIDE TREC



Fall 2024

In this issue:

Director's Message	1
Research Report:	
Dr. Jonathan Crane	3
Student Awards	4
Faculty & Staff Awards	5
TREC <i>In Focus</i>	
Graduate Student:	
Ketsira Pierre	6
Post Doc: Dr. Livia Silva Ataide	6
Advisory Board: "Tony" DiMare	7
TREC Lab Updates	8
Upcoming Extension Events	10
EDIS Publications	10
Research Publications	11
Let's get Tropical!	12



Inside TREC is a quarterly newsletter distributed by the Communications & Marketing Development Unit of the UF/IFAS TREC via e-mail and can be found on the UF/IFAS TREC [website](#).

You may forward any questions or comments about this periodical to Monique Scoggin, mis6664@ufl.edu.

From the Desk of the Director

As we get ready to say farewell to another year, it's a perfect time to reflect on the remarkable achievements and exciting developments at the Tropical Research and Education Center (TREC). This year has been marked by significant milestones, groundbreaking research, and a renewed commitment to advancing the science of tropical and subtropical agriculture.

The year is extra special to us as it represents 95 years since TREC was established in 1929 on land donated by the Krome and Schaff families. Beginning with the pioneering studies in tropical fruit biotechnology to innovative approaches in pest and disease management, soil and water management, and climate change adaptation, to name a few, our researchers have consistently pushed the boundaries of agricultural sciences. Our research has benefited both the environment and the economy. The 95th anniversary saw the completion of a new Greenhouse facility, a testament to our commitment to providing top-notch facilities for our students and researchers. [The new Greenhouse was named in honor of two pioneers of our agricultural community: Charles S. Buster and John C. DeMott](#). Their contributions to the south Florida nursery industry will enable

continued on page 2

From the Desk of the Director

(continued)

Dr. Wu, our Ornamental Plant Breeder, to further their work, using an arsenal of modern breeding techniques.

One of the most notable highlights of the year was the hiring of three new talented professors with expertise in the areas of Vegetable Horticulture, Agricultural Economics, and Tropical Fruit Breeding and Genetics. Thankful for the support we received from UF/IFAS administration, we now have a full complement of 18 faculty members, covering 11 disciplines and representing 8 academic departments, working assiduously to execute our mission. That mission revolves around supporting and protecting tropical and subtropical agriculture in Florida, and preserving Florida's natural resources through discovery, development, and dissemination of science-based knowledge, tools, and feasible solutions.

This year, our researchers broke a record by publishing more than 100 peer-reviewed publications filled with new knowledge/discovery and our publications per faculty was above the UF/IFAS average. For instance, an example of the groundbreaking research being conducted at TREC includes Dr. Daniel Carrillo and his PhD student Marielle Berto focusing on [how specialized natural enemies with the innate ability to colonize ambrosia beetle galleries inside the tree could be used to manage the deadly laurel wilt pathogen](#), which threaten the Florida Avocado Industry, has piqued the interest of researchers in Mexico, South Africa and Australia. But the research we conduct is of no use if it only stays in the publications and is not adopted by farmers and stakeholders to improve their livelihoods. It is for this reason that this year, we had more than 11,000 engagements with farmers and stakeholders through a combination of field consultations, office consultations, group sessions, phone calls, and emails to impart our knowledge to the community.

At our plant diagnostic clinic, under the leadership of Dr. Gazis, with assistance from Drs. Revynthi, Seal, Carrillo, and Zhang, we processed a record-breaking 1,300 samples this year, thus enabling our farmers to increase their profits as a result of accurate and timely diagnoses and effective follow-up recommendations. Such efforts combined with the adoption of innovative techniques developed by TREC researchers is helping to ensure the long-term viability of our agricultural industry.

As for our campus, we used the funds we received from the Robinson family to complete the repairs and asphaltting of approximately 3,500 feet of roadway. With funds we received from UF/IFAS we made substantial renovations to 11 greenhouses and put on a new roof to the Plant Diagnostic Clinic which is housed in a 1940s building. The generous donations from the community and UF/IFAS administration for the Pauline O. Lawrence Student Residence (\$1.7 million) marks a significant step in supporting the next generation of agricultural scientists.

Community engagement remains central to TREC's mission. The 10th *One Night in the Tropics* fundraising event was a resounding success, bringing together more than 300 supporters from across the region and overseas to celebrate and support our initiatives. This event, held in conjunction with Miami-Dade County's Farmers Month, plays a crucial role in funding the dorm, student scholarships, and high-priority research projects. A heartfelt thank you to our supporters!

Looking ahead, TREC has ambitious plans to further enhance its facilities and infrastructure. One of the key projects contemplated is the expansion of our entomology research laboratories. This expansion will provide state-of-the-art equipment and additional space to accommodate the growing number of research projects and collaborations aimed at addressing the barrage of invasive pests. Our efforts will also be geared at completing the upgrade of the soil laboratory and repairing our farm roads. We are committed to expanding our outreach efforts to ensure that our findings benefit farmers, industry professionals, and the public. Finally, we look forward to an even more productive 2025.

Edward 'Gilly' A. Evans



Research Report



In this installment of the UF/IFAS TREC's Research Report, you'll learn about Dr. Jonathan Crane's myriad of projects in the tropical fruit horticulture lab. Dr. Jonathan Crane conducts an applied research program in tropical fruit production and extends the results to the tropical fruit industry which includes producers, industry representatives, and Extension agents. The results of his research come in the form of electronic multi-media material including but not limited to fact sheets, bulletins, videos, and web-based material on tropical fruit culture in south Florida.

Grant for continued research on avocados

A trans-disciplinary research team of 12 UF scientists from around the state (Dr. Jeff Rollins is the project director), including Dr. Crane, have secured a \$5 million grant from the U.S. Department of Agriculture-NIFA to combat laurel wilt and the redbay ambrosia beetles responsible for it. [You can read more about the scope of the grant here.](#)

As a part of the grant, Dr. Crane will participate in an introductory seminar so growers, interested investors, and researchers from around the world can learn more about the grant's scope and the future of avocado farming in Florida. [The virtual seminar is scheduled for 3 pm on Thursday, December 19](#) so that collaborators from as far as away as Hawaii can participate in the meeting. Thereafter, Dr. Crane will continue working with Drs. Romina Gazis and Daniel Carrillo on their ongoing field trials at TREC.

Newsworthy crops: Coffee

If you follow the Center's social media accounts, you may have noticed that [Dr. Crane was recently interviewed](#) regarding Florida's potential to grow coffee commercially; Dr. Felipe Ferrao is the project director of this statewide effort. Due to success of the first experimental coffee trial evaluated at UF, an additional 350 coffee plants were recently planted in south Florida. The plantings at TREC are just one of the four coffee plantings around the state. The coffee plants here have produced beans in as little as 12-13 months and Dr. Ferraro is confident that the trials will have nice results. Dr. Crane suggests that a successful coffee industry in Florida could result in a niche alternative crop for growers.

Additional collaborative projects

Dr. Crane's collaborative research also extends to [dragon fruit](#) (with Drs. Zhang, Gazis, and Dutra), finger limes (with Dr. Manjul Dutt), [passionfruit](#) (with Dr. Sarkhosh) and [sugar apple](#) (Dr. Carrillo). For sugar apple specifically, researchers (including Doctor of Plant Medicine intern, Adam Pitcher) were interested to find the distance from which the pollinating Nitidulid beetles could be attracted to the plant with specific pheromones. The result? Thirty feet. A lure could be placed up to 30 feet away from a sugar apple tree and potentially attract the beetle responsible for pollinating the plant. Stay tuned to [Dr. Crane's publications on EDIS](#) for the latest news you can use related to growing tropical fruits in south Florida.

Congratulations

Student Awards

Jesse Potts, a PhD candidate in Dr. Xingbo Wu's ornamental breeding lab, has once again racked up awards. First, he was awarded a \$500 scholarship from the Golden Key Honor Society. Next, he was selected as one of 7 students to lead a ROOT & SHOOT initiative, in partnership with Corteva, to organize a symposia series titled "Cultivating a Culture of Inclusive Excellence in Plant Science". ROOT & SHOOT is a collaborative effort involving plant science organizations that received a five-year grant from the National Science Foundation's LEAPS (LEAding cultural change through Professional Societies) program. The recognition comes with a monetary award of \$400!

Paola Villamarin, a Ph.D. student in Dr. Alexandra Revynthi's ornamental entomology and acarology lab placed FIRST in the Student Abstract contest at the Acarological Society of America's annual conference in Phoenix, Arizona. Marielle Berto, a Ph.D. candidate in Dr. Daniel Carrillo's tropical fruit entomology lab placed third in the same category. Both students received \$400 for their achievement.



*Wishing you a happy
holiday season*

UF IFAS
UNIVERSITY of FLORIDA



TROPICAL RESEARCH
AND EDUCATION CENTER

*& all the best
for the new year*



Faculty & Staff Awards

Dr. Bruce Schaffer was recognized by the American Society of Horticultural Sciences (ASHS) as one of its HortLegends. HortLegends is a video series of interviews in which longtime ASHS members reflect on their careers, what being a member of ASHS has meant to them, their advice for the next generation, and what excites them the most about the future of horticulture. [Click the link for full interview.](#)



Drs. Xingbo Wu and **Alexandra Revynthi** were awarded \$6,500 from the FNGLA's Endowed Research Fund at the UF Foundation for their proposal addressing FNGLA'S industry and extension research priority #4: genetics and breeding enhance quantities and diversity of plant material. Specifically, Drs. Wu and Revynthi will work on breeding industry-suitable tropical Hibiscus cultivars in Florida. To learn more about FNGLA's Endowed Research Fund priorities, [click here.](#)

Dr. Romina Gazis was selected as one of the University of Florida International Center's 2025 Global Fellows. This fellowship includes an award of \$5,000 to support her international research plans, as well as a \$1,000 stipend for her mentor.

Dr. Livia M. Ataide, a post doctoral scholar in **Dr. Alexandra Revynthi's** ornamental entomology & acarology lab, was recognized by the deans for her excellent work during the 2024 Postdoctoral Appreciation Week. She received a travel award for \$750. Learn more about Livia's work in the Post Doc Expose.

Dr. Saddam Hussain, a Research Scholar in **Dr. Haimanote Bayabil's** water resources lab, received special funding to present his research findings at the prestigious 8th International Plant Phenotyping Symposium, which took place at the University of Nebraska, Lincoln.

On November 21, TREC held its annual International Day and Star Performer Awards luncheon. At this luncheon the following staff were commended for notably contributing to the mission of the Center through their outstanding and meritorious service:

- ✦ Yuqing Fu
- ✦ Vincent Michael
- ✦ Jacob Hall
- ✦ Shannon Cutler
- ✦ Kevin Castro
- ✦ Maury Martinez



Clockwise from top left: Dr. Gilly Evans presents awards to TREC's 2024 Star Performers Kevin Castro, Yuqing Fu, Jacob Hall, and Maury Martinez.

TREC IN FOCUS

Graduate Student

Ketsira Pierre is a PhD student in Dr. Shouan Zhang's vegetable plant pathology lab. Ketsira is native to south Florida, having grown up in West Palm Beach, Florida and graduating high school from Palm Beach Gardens High School. Her interests in agriculture were always present as she grew up in an Haitian community and her dad grew many tropical fruits in their backyard. It wasn't until she got a job as a garden assistant as an undergraduate student at UCF

that she began to see it as a viable career option.

Ketsira's research explores the impact of bacterial spot on tomato plants as well as the interaction between soil salinity and bacterial spot disease. Bacterial spot is caused by a phyto-bacteria, *Xanthomonas euvesicatoria pv perforans* (*X. perforans*, for short), and is present everywhere tomato production occurs. To learn how more about Ketsira's research, we encourage you to [watch this video](#).



You can [find](#) this and other videos on our YouTube channel: [UFTropical!](#)



Post doc Exposé(d)

In this edition of TREC's PostDoc Exposé(d), we feature Dr. Livia Silva Ataíde, a post doctoral researcher in Dr. Alexandra Revynthi's Ornamental Entomology & Acarology lab.

Q: Where did you complete your Bachelor's, Master's, PhD? How did you arrive at TREC?

A: I earned my Bachelor's and Master's in Brazil and my Ph.D. at the Federal University of Viçosa, in Brazil, and at the University of Amsterdam, in the Netherlands. After working as an assistant professor in Entomology in Brazil, I decided to go another country for a new adventure, pushing my boundaries and expanding my horizons both personally and professionally. When I learned about the postdoctoral position at TREC, I was thrilled by the opportunity to work on innovative integrated pest management strategies for controlling mites and insect pests threatening Florida's specialty crops. The position perfectly aligned with my expertise and aspirations, so I embraced the opportunity, embarking on this exciting new chapter in my career.

Q: What is something unique to your role or your teaching/research/extension project here that you have not encountered before?

A: One of the most distinctive aspects of my role at TREC is the blend of research and extension activities. Not only do I conduct scientific research, but I also share these findings with the local

TREC EXTENDED



Anthony “Tony” DiMare is the Vice President for the DiMare Homestead and DiMare Ruskin, Inc. locations of DiMare Company/DiMare Fresh, a grower-packer-shipper-repacker-distributor of fruits and vegetables. He is a third generation grower with more than 39 years in the agricultural industry.

*Advisory
Board*

Tony presently serves on the Florida Fruit & Vegetable Association (FFVA) BOD (since 1990), Florida Tomato Committee (FTC), Florida Tomato Growers Exchange (FTGE) BOD (since 2018), including as Treasurer in 2018, and the Gulf Coast Research & Education Center Advisory Council, including as a former Chair. He formerly served on the FFVA Committee from 1997-2008 and as the Chair from 2004– 2006. Tony also served as the Chair of Florida Specialty Crop Foundation from 2006-2020 and Chairman of the FTC, FTE, and FTGE. He was a part of the Dade County

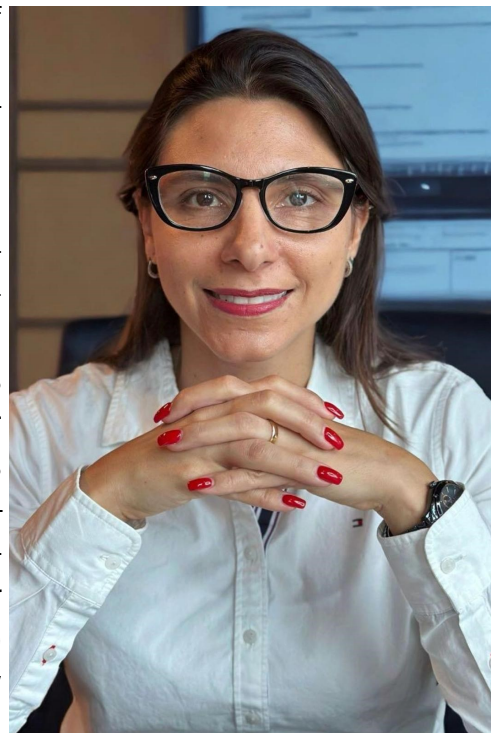
Farm Bureau BOD from 2004-2006 and a part of the United Fresh BOD from 2008-2012. He served as the Secretary of Agriculture’s Inaugural USDA Fruit & Vegetable Advisory Committee in 2004, as a part of Congressman Adam Putnam’s Florida Agriculture Trade Advisory Committee from 2002 to 2003, and Commissioner Adam Putnam’s FDACS Florida Agricultural Promotion Advisory Board Committee from 2013-2018.

Tony is married with 4 adult children and 4 grandchildren.

community through workshops, training sessions, and direct engagement with growers and stakeholders. This extension component is truly special because it allows me to see firsthand how university research can drive innovation and directly impact the lives of those who depend on agriculture. This dual focus on science and real-world application is incredibly rewarding and truly distinguishes my work at TREC.

Q: What is your next step? How has TREC prepared you for it?

A: I hope to continue promoting sustainable agriculture and contributing to the advancement of entomology, with a focus on balancing agricultural productivity with environmental conservation and human health. My academic journey has taken me across continents, and I am excited to embrace new challenges wherever they arise. The pressure of addressing invasive pests at TREC has improved my problem-solving skills and deepened my understanding of agriculture's complexities, allowing me to tackle similar challenges on a global scale. I am well-prepared to contribute to either the academic world or the agricultural industry. I look forward to what's next, knowing that it will be both challenging and deeply fulfilling!



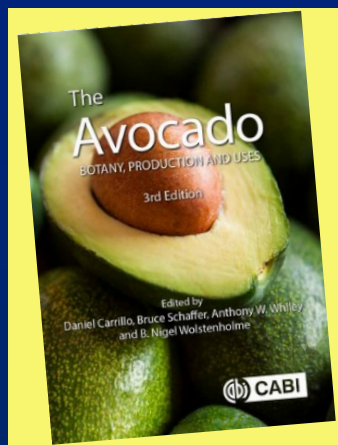
Lab Updates

"Tropical Insights" is a podcast hosted by Dr. German Vargas, a post-doctoral researcher in Dr. Alexandra Revynthi's Ornamental Entomology & Acarology Lab. In this podcast, German explores issues concerning agricultural and environmental topics directly impacting south Florida.

In this episode, he explores the Atala butterfly in a tale of urban conservation. [Click here to watch the latest episode.](#)



Dr. Zachary Brym, an Associate Professor in Agronomy, was the featured guest on Cultivating Curiosity's November episode titled *Agroecology: Where Ecology and Agriculture Meet*. [Click here to listen to his discussion with hosts Alyssa Vinson and Taylor Clem.](#)



The Avocado, 3rd edition is out now.
Edited by TWO faculty members from TREC!
To learn more, [click here.](#)

Can you believe it's been three years since the UF/IFAS Tropical Research & Education Center hosted several University of Florida leaders for the Groundbreaking of the Pauline O. Lawrence Student Residence?

In that time, the exterior of the building has been completed and the scaffolding for the interior walls has been placed. Plumbing lines can be seen and we expect that the Spring semester will yield the final touches on this historic building.

We hope you'll join us for the grand opening of the Pauline O. Lawrence Student Residence in 2025!



#POLStudentResidence

#WhereGatorsLive



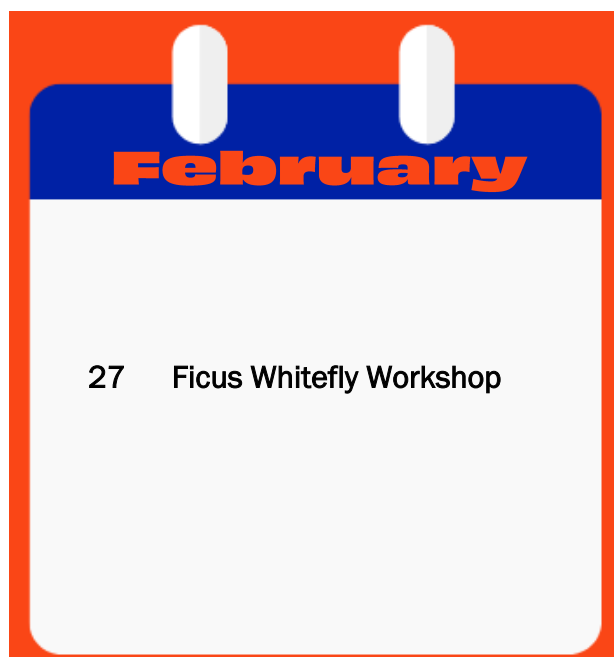
EDIS Publications

- Boufous, S., Wade, T., Chakravarty, S., Andreu, M., Bhadha, J. H., **Her, Y. G.**, & Yu, Z. “An introduction to carbon credit markets and their potential for Florida agricultural producers: FE1154”. EDIS 2024. DOI: <https://doi.org/10.32473/edis-fe1154-2024>
- Haley, N., **Revynti, A.**, Abu, H. & Blare. T. (2024). “Profitability and cost estimates for producing tropical hibiscus in south Florida: FE1158, 10/2024”. DOI: <https://doi.org/10.32473/edis-fe1158-2024>
- Karlsen-Ayala, E., **Gazis, R.**, & Smith, M. (2024). “A basic guide to mushrooms commonly encountered in potted plants in Florida: PP377, 9/2024”. EDIS 2024. DOI: <https://doi.org/10.32473/edis-pp377-2024>

TOP EDIS Publications

Three publications submitted by TREC faculty (Drs. Geoffrey Meru and Jonathan Crane) were ranked in the top **15** of the **2024** EDIS/Ask IFAS Top 100 publications for 2024. Those articles were:

- | | | |
|-----------|--|--------|
| 9 | Beneficios para la salud de la semilla y perfil nutricional de 35 cultivares de calabaza | 33,881 |
| 12 | Pineapple growing in the Florida home landscape | 28,044 |
| 14 | Mango growing in the Florida home landscape | 27,113 |



Research Publications

- Barry, S. C., Reynolds, L. K., Braswell, A. E., Gittman, R. K., Scyphers, S. B., **Smyth, A. R.** (2024). Perceived effectiveness drives shoreline decision-making for Florida's waterfront property owners. *Ocean & Coastal Management*, (258), 1 November 2024, 107353. DOI: <https://doi.org/10.1016/j.ocecoaman.2024.107353>
- Berihun, M. L.**, Tsunekawa, A., Haregeweyn, N., **Bayabil, H. K.**, Fenta, A. A., Meshesha, T. M., Kassa, S. B., Bizuneh, B. B., Hailu, Y. B. & Vanmaercke, M. Unveiling gully erosion susceptibility: A semi-quantitative modeling approach integrated with field data in contrasting landscapes and climate regions. *Geomorphology*, 468 (2024), 109485. DOI: <https://doi.org/10.1016/j.geomorph.2024.109485>
- Bijak, A. L.**, Reynolds, L. K., Martens-Habbena, W., & **Smyth, A. R.** (2024). Seasonal variability and seagrass traits affect methane fluxes in a subtropical meadow. *Journal of Ecology*, 112(9). DOI: <https://doi.org/10.1111/1365-2745.14412>
- Busuulwa, A., **Revynthi, A.**, Liburd, O. E., & Lahiri, S. (2024). Banker plant efficacy to boost natural predators for management of field populations of *Scirtothrips dorsalis* Hood (Thysanoptera Thripidae) in strawberries. *Insects*, 15 (10), 776. DOI: <https://doi.org/10.3390/insects15100776>
- Busuulwa, A., Riley, S., **Revynthi, A.**, Liburd, O. E., & Lahiri, S. (2024). Residual effect of commonly used insecticides on key predatory mites released for biocontrol in strawberry. *Journal of Economic Entomology*, toae220. DOI: <http://dx.doi.org/10.1093/jee/toae220>
- Jeung, M., **Her, Y.**, Baek, S., & Yoon, K. (2024). Sensitivity of hydrological machine learning prediction accuracy to information quantity and quality. *Hydrology and Earth Systems Sciences*. DOI: <https://doi.org/10.5194/hess-2024-284>
- Kinsman, M. E., Serviss, M. T., **Meru, G.**, Chase, C. A., Sargent, S., Simonne, A., & MacIntosh, A. J. (2024). A greener approach to assess bioactive compounds in tropical pumpkin (*Cucurbita moschata*) using colorimetry. *Frontiers in Sustainable Food Systems* 8(2024). DOI: <https://doi.org/10.3389/fsufs.2024.1480964>
- Liu, X., **Crane, J. H.**, **Wu, X.**, & Wang, Y. Integrated metabolomics and proteomics analysis provides insights into the formation of volatile compounds in three different polyembryonic mango cultivars. *Journal of Agricultural and Food Chemistry* 72(36). DOI: <http://dx.doi.org/10.1021/acs.jafc.4c04363>
- Main, V. A., Gilligan, M. K., Cole, S. M., Osborne, T. Z., **Smyth, A. R.**, Simpson, L. T. (2024). Challenges to seagrass restoration in the Indian River Lagoon, Florida. *Journal of Marine Science and Engineering*, 12(10), 1847. DOI: <https://doi.org/10.3390/jmse12101847>
- Pham, N. Q., Wingfield, B. D., Barnes, I., **Gazis, R.**, Wingfield, M. J. (2024). *Elsinoe* species: The rise of scab diseases. *Plant Pathology*, 14015. DOI: <https://doi.org/10.1111/ppa.14015>
- Pierre, K.**, Liu, Q., Jibrin, M. O., Jones, J., & **Zhang, S.** (2024). Potential of small molecules piperidine and pyrrolidine against copper-resistant *Xanthomonas perforans*, causal agent of bacterial spot of tomato. *Plant Disease* (). DOI: <http://dx.doi.org/10.1094/PDIS-04-24-0929-RE>
- Richmond-Cosie, L., **Schaffer, B.**, Shahid, M. A., Chaparro, J. X., & Sarkhosh, A. (2024). Responses of 'Flordaguard' and 'MP-29' *Prunus* spp. rootstocks to hypoxia and high root zone temperature. *Plant Environment Interaction*, 5(5): E70007. DOI: <https://doi.org/10.1002/pei3.70007>
- Reyes, G. J.**, **Smyth, A. R.**, Qiu, J., & Reynolds, L. K. (2024). Highly urbanized mangrove areas are small in size, fragmented, and missed by large-scale mapping efforts. *Wetlands*, 44(103). DOI: <https://doi.org/10.1007/s13157-024-01858-9>
- Sabharwal, P.**, **Thakur, S.**, Shrestha, S., **Fu, Y.**, & **Meru, G.** (2024). Breeding and genetics of resistance to major diseases in *Cucurbita*—A review. *Crop Science*, DOI: <https://doi.org/10.1002/csc2.21358>.
- Sanchez, F. W.**, **Crane, J. H.**, **Bayabil, H. K.**, Sarkhosh, A., Shahid, M. A., & Schaffer, B. (2024). Physiological and biochemical responses of the achachairu tree (*Garcinia humilis*) to the combined effects of salinity and flooding. *Plant and Soil*. DOI: <https://doi.org/10.1007/s11104-024-07109-4>
- Vargas, G.**, Greene, A. D., **Velazquez, Y.**, Latty, L., & **Revynthi, A. R.** (2024). Implementing sanitation practices against the hibiscus bud weevil *Anthonomus testaceosquamosus* (Coleoptera: Curculionidae). *Florida Entomologist* 107(1). DOI: <http://dx.doi.org/10.1515/flaent-2024-0023>

LET'S GET TROPICAL!

ICYMI — These are just some of the highlights from the Fall semester at UF/IFAS TREC. To stay up to date on all of TREC's news and events, follow us on all platforms at [UFTropical](#) or bookmark the *TREC in the News* page on our [website](#).

