

INSIDE TREC



Summer 2024

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From the Desk of the Director

Dear readers,

November is right around the corner and that means here on the TREC campus we have begun gearing up for our flagship fundraising event, *One Night in the Tropics*. The event, scheduled for the first Saturday in November, not only supports TREC's research and educational initiatives, but also brings together the community to celebrate the Center's achievements. This event has now become a prominent feature of south Florida activities-to-look-forward-to by many, some traveling from as far away as Canada, Taiwan and South Korea to attend. We are once again grateful for the commitment from County Commissioner Danielle Cohen Higgins to sponsor this event and elevate its status to mark the kickoff of a month-long series of activities to celebrate Miami-Dade County's Farmers Month.

This year has an equally special meaning to us as it represents the 95 years since TREC was established in 1929. We certainly have come a long way focusing on a diverse array of tropical and subtropical crops and our sensitive ecosystems. From pioneering studies in tropical fruit biotechnology to innovative approaches in plant pathology, entomology, hydrology, and soil nutrition, our researchers have consistently pushed the boundaries of agricultural sciences. Our research has benefited both the environment and the economy. Thankful for the support we received from upper IFAS administration, we now have a full

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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 (continued)

complement of 18 faculty members covering 11 disciplines and representing 8 academic departments. The recent addition of the [Pauline O. Lawrence Student Residence](#), soon to be completed, marks a significant step in supporting the next generation of agricultural scientists. We can now comfortably accommodate up to 40 students and scholars in housing.

We have just completed the construction of a new Greenhouse which will be named in honor of two pioneers of our agricultural community: Charles S. Buster and John C. DeMott. Both of these men contributed significantly to the south Florida nursery industry. The new Greenhouse will enable Dr. Wu, our Ornamental Plant Breeder, to further the efforts these men began years ago in establishing the nursery industry in south Florida through the introduction of new varieties. The major difference being that Dr. Wu will have at his disposal an arsenal of modern breeding techniques that will expedite, considerably, the process of developing new varieties..

So, whether you're a long-time supporter or new to the TREC community, make plans to attend this must-be-a-part-of event, and feel free to stop by anytime to learn more about the Center's impactful work.

Edward 'Gilly' A. Evans



Our Team

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Faculty Covering Different
Disciplines

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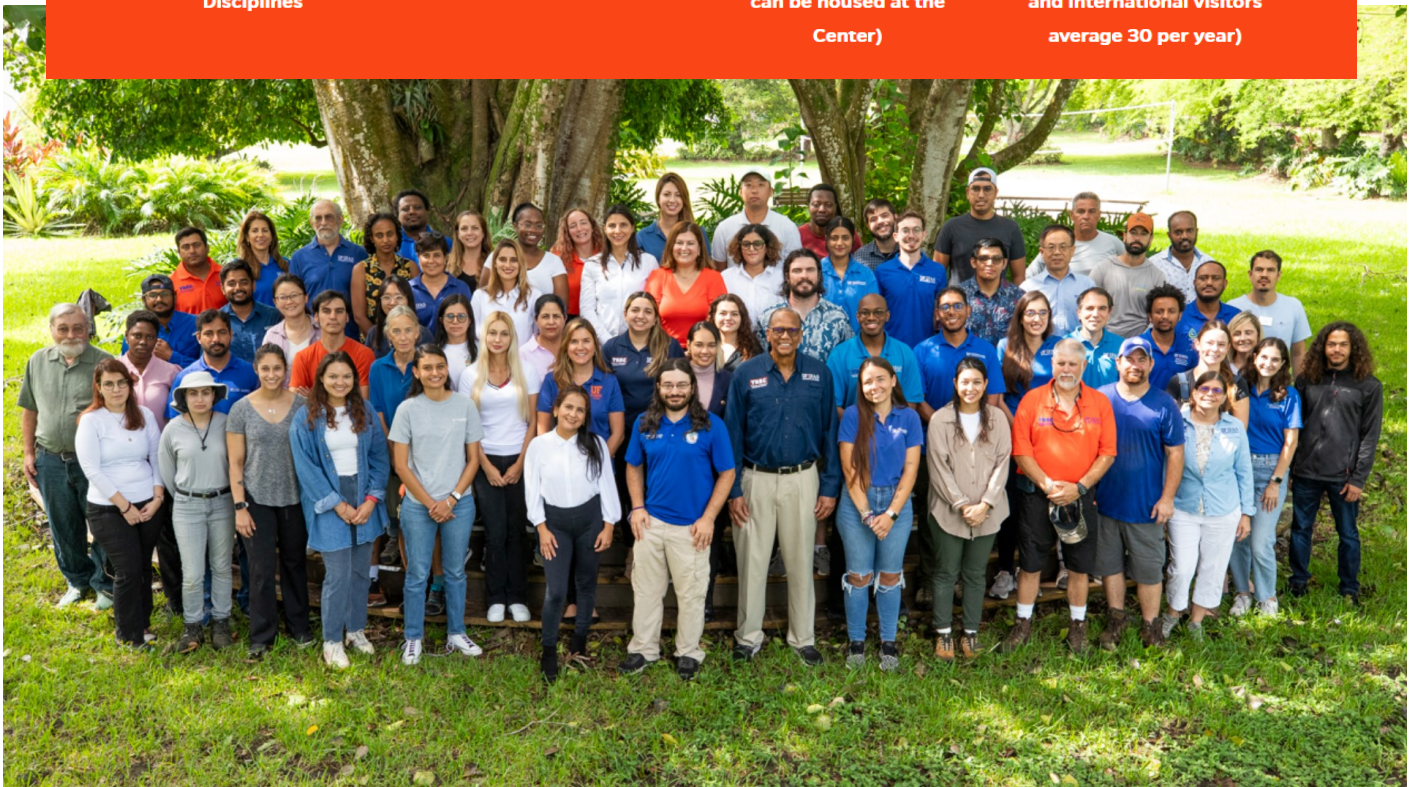
Support Staff

24

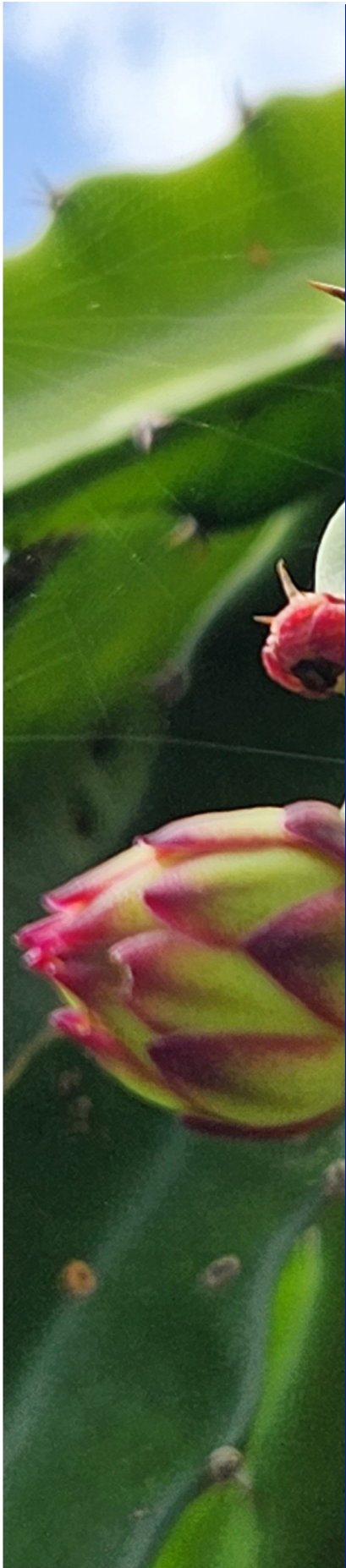
Graduate Students (up to 24
can be housed at the
Center)

30

Visiting Scientists (National
and international visitors
average 30 per year)



Research Report



In this installment of the UF/IFAS TREC's Research Report, you'll learn about Dr. Shouan Zhang and the research being conducted in his vegetable pathology lab. Dr. Shouan Zhang's research program focuses

on the detection and identification of invasive diseases threatening vegetable production in south Florida, and the biology, epidemiology, and management of economically important diseases on traditional and alternative vegetable crops and dragon fruit. At this time, researchers in Dr. Zhang's lab are exploring the interaction between soil salinity and tomato bacterial spot disease and practical practices to manage Dragon Fruit Canker (DFC).

Tomato is one of most important vegetable crops grown commercially in south Florida with Florida's fresh market value totaling \$336.5 million. Unfortunately, due to south Florida's nutrient-deficient soil, over-fertilization of crops could be a problem. When combined with poor irrigation management, some farm lands in south Florida have been found to have saline issues. How these saline issues affect tomato growth is one focus of the dissertation research being conducted by Ketsira Pierre, a PhD student in Dr. Zhang's lab. Ketsira's research is also looking into how soil salinity affects bacterial spot, an economically important disease caused by a bacterium *Xanthomonas euvesicatoria* pv. *perforans* (*X. perforans* for short) on tomato. Stay tuned to the Fall edition of *Inside TREC*, where Ketsira will be featured in the Student Spotlight!

Due to the citrus and avocado industries being severely impacted by huanglongbing and laurel wilt, respectively, growers in south Florida have been on the lookout for alternative crops. One low-maintenance alternative crop which has been planted in this region is dragon fruit, a climbing cactus with a short time period from planting to first harvest ([Hong, et al, 2023](#)). Unfortunately, growers in south Florida have been experiencing significant losses due to DFC, a prevalent disease caused by the fungal pathogen *Neoscytalidium dimidiatum* (*N. dimidiatum*). Although *N. dimidiatum* has been reported in southeast Asia including India, the Middle East, and the Americas (Ecuador, Puerto Rico), due to the absence of a disease assessment standard, there was no way for researchers across these continents to accurately compare the severity of the disease. Dr. Zhang and Dr. Pamela Dutra, a postdoctoral scientist in Dr. Zhang's lab, have collaborated with colleagues from Brazil to develop a standard area diagram (SADs) for the accurate assessment of DFC. You can learn more about the SADs for DFC severity in [their latest publication](#). To learn more about Dr. Dutra, we encourage you to review the "Post Doc Exposé" from the [Spring issue of Inside TREC](#).



Congratulations

Student Awards

Prerna Sabharwal, a Ph.D. student in **Dr. Geoffrey Meru's** Vegetable Breeding, Genetics and Genomics lab, was awarded the 2024 Southern Graduate Student Grant in the amount of \$21,997! Her project is titled "Leveraging Genomics-enabled Breeding to improve resistance to Powdery mildew in Summer Squash for Southeastern U.S."



Prerna Sabharwal was also awarded \$2,000 for the Living Legend Scholarship at Miami-Dade County's FNGLA 2024-25 Installation Banquet. She was joined by **Ajit Williams**, a PhD student in **Dr. Zachary Brym's** Agronomy lab, and **Max Gosselin**, a Masters student in **Dr. Daniel Carrillo's** Tropical Fruit Entomology lab, who also were awarded the \$2,000 scholarship. The Living Legend Scholarship encourages students to pursue careers in the horticulture industry.

Justina Dacey and **Jenna Reimer**, PhD students in **Dr. Ashley Smyth's** Biogeochemistry lab, each received a 2024-2025 CALS Scholarship for their work on restoring water quality in the Guana Estuary. Justina received the [Doris Lowe and Earl and Verna Lowe Scholarship](#) in the amount of \$2,000. Jenna received the [William C. and Bertha M Cornett Fellowship](#) in the amount of \$1,500.

Jesse Potts, a Ph.D. student in **Dr. Xingbo Wu's** Ornamental Breeding, Genetics, Genomics and Bioinformatics lab, was awarded [CALS Murial Rumsey Foundation Scholarship](#). In addition to the \$5,000 scholarship for the 2024-2025 academic year, Jesse is invited to attend the CALS Scholarship Reception on Tuesday, September 10.

Jesse Potts was also awarded the [Ruby N. and Roland A. Whealy Memorial Scholarship](#) by the American Floral Endowment in the amount of \$2,100, AND the [Golden Key Professional Development Award](#) in the amount of \$750.

Ketsira Pierre, a PhD student in **Dr. Shouan Zhang's** Vegetable Pathology lab, was awarded 3rd place at the 2024 Plant Health conference 2-minute impromptu competition held in Memphis, Tennessee. In addition to the green sash Ketsira wears (pictured here), she also earned free APS membership for 1 year and \$25 to spend in the APS bookstore.



Faculty & Staff Awards

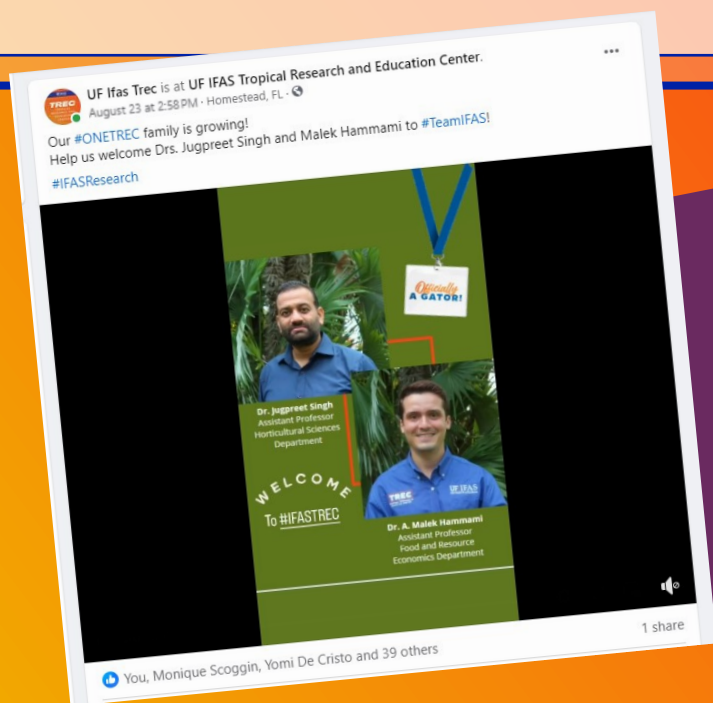
Drs. Zachary Brym, in the Department of Agronomy, and Haimanote Bayabil, in the Department of Agricultural and Biological Engineering, were promoted to Associate Professor with Tenure! We wish them continued success in their careers.



Congratulations To The Class Of 2024 UF/IFAS Faculty Earning Promotion, Tenure, Or Permanent Status!



Dr. Haimanote Bayabil was also recognized by the [UF Water Institute](#) for his excellent interdisciplinary research program, effective and far-reaching extension programs, and his engagement with the Water Institute over the past 6 years. As a result, Dr. Bayabil was selected as the 2024 University of Florida Water Institute Early Career Faculty Fellow. His fellowship term begins in Fall 2024 and will last until 2027. As a part of this award, Dr. Bayabil will present a Seminar during the Spring 2025 semester and receive a \$2,000 supplement each year of his appointment. Stay tuned to the [UF Water Institute's website](#) to watch Dr. Bayabil's Seminar. You can learn more about Dr. Bayabil's Water Resources lab [here](#).



In case you missed the Spring issue of *Inside TREC*, two new faculty members joined the #OneTREC family this semester. Drs. Jugpreet Singh and Malek Hammami are well on their way to establishing their respective labs. To learn more about any member of our faculty, [click here](#).

TREC IN FOCUS

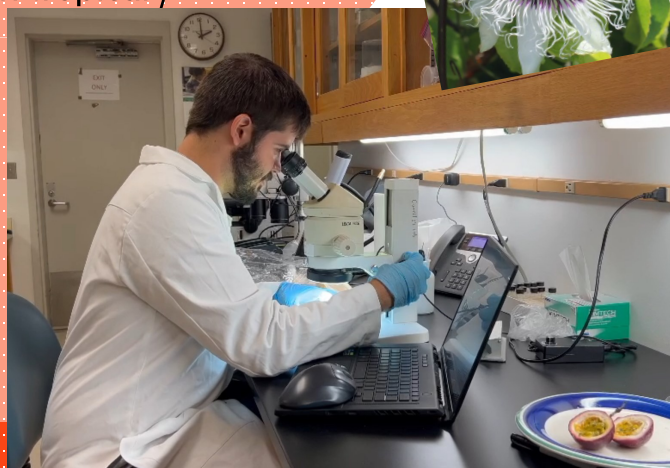
Graduate Student

Max Gosselin is a second-year Masters student in Dr. Daniel Carrillo's Tropical Fruit Entomology lab. Dr. Carrillo's lab conducts both fundamental and applied research on biological and environmental processes that affect the population dynamics and spread of plant-associated pest and beneficial arthropods in tropical /

subtropical fruit crop systems.

Max Gosselin is a native of south Florida whose focus is on social insects. For his research here, Max is focusing on aphids and the viruses they vector in passion fruit systems. To learn more about 1 of the insects damaging passion fruit in south Florida, [click here.](#)

You can find this and other videos on our YouTube channel: UFTropical!



PostDoc Exposé(d)

In this edition of TREC's PostDoc Exposé(d), we feature Dr. Sumit Jangra, a post doctoral researcher in Dr. Dakshina Seal's Vegetable Entomology lab.

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

A: I completed my Bachelor's and Masters from Kurukshetra University, Kurukshetra, India and PhD from Chaudhary Charan Singh (CCS) Haryana Agricultural University, Hisar. I contacted Dr. Seal for a postdoctoral opportunity and he offered me a position.

Q: What is the hardest aspect of your position?

A: Sometimes we wish to conduct few trials at growers' fields and convincing growers is a little difficult.

Q: How do your previous experiences prepare you for your role at TREC?

A: I worked on thrips and tospoviruses for over four years at Indian Agricultural Research Institute (ICAR), New Delhi, India before coming to TREC. From this exposure, I gained the experience needed to accomplish my tasks in the current project at TREC.



TRECEXTENDED

Jeff DeMott is the President and co-owner of Redland Nursery, Inc. and the Vice President and co-owner of Alpha Foliage, Inc. Redland Nursery and its affiliated entities comprise of a network of family businesses dating back to 1971 whose primary focus is wholesale ornamental horticulture while specializing as “growers, locators, designers, exporters, and consolidators.”



Advisory Board

Mr. DeMott graduated with a BA in Political Science and an MBA from Rollins College in Winter Park, Florida. He serves as Director for the Dade County Farm Bureau and previously served as Secretary. Mr. DeMott has served on the Miami-Dade County FNGLA board since 2010 as a former Director and President. His other agricultural leadership roles include serving as an Honorary Member of the Montgomery Botanical Center, Friends of Chapman Field for the Subtropical Horticulture Research Station at USDA ARS-Miami, and the YBS Advisory Board for Farm Credit of Florida.

Mr. DeMott and his wife Sarah married in 2006 and have two children, Tyler and Ella.

The Buster & DeMott Family Fishing Tournament has been raising money for scholarships for students seeking a degree in horticultural sciences, landscape architecture, and other related agriculture fields in Miami-Dade County for over 20 years.



Thanks to the generous contributions of Charles S. Buster and John C. DeMott, the pair will be recognized and honored at the unveiling of the Charles S. Buster and John C. DeMott Greenhouse.

You are cordially invited to attend the unveiling of the

UF/IFAS Tropical Research and Education Center
Charles S. Buster and John C. DeMott
Greenhouse NAMING CEREMONY

Charles S. Buster and John C. DeMott
Greenhouse NAMING CEREMONY

Thursday, October 24, 2024
from 4:00 p.m. - 6:00 p.m.

at the UF/IFAS Tropical Research & Education Center
18905 SW 280 Street, Homestead, Florida 33031

Hors d'oeuvres served at 4:00 p.m. with
Program beginning at 4:30 p.m.

RSVP by October 21 to 786.217.9226 or mis6664@ufl.edu





Lab Updates

Plant Diversity



Stops 4 and 5 of the Plant Diversity Tour at TREC are now available on TRECTV! [Click here to learn about the Silk Floss Tree and Baobab Tree](#), a must-see when visiting our Center.

As the southernmost research & education center in the continental United States, the UF/IFAS TREC is home to a large diversity of plants. From environmental factors (like trade winds) to human activities (like cultural values), there are any number of reasons why south Florida, and TREC, have an array of plant diversity.

So far the series has covered Native plants (Stop 1), Non-native plants (stop 2), and rare Haitian palms (stop 3). Stay tuned for future episodes covering assorted fruits, palms, and more!



Tropical Insights

Are you up to date on *Tropical Insights*? This podcast is focused on addressing issues that affect the agricultural community of south Florida with the experts who may know how to solve them.

If you're interested in discussing up-to-date alternatives to address the agricultural and environmental problems of south Florida, we encourage you to reach out to [Dr. German Vargas](#) to be part of *Tropical Insights*!





Dr. Pauline O. Lawrence Student Residence

#WhereGatorsLive



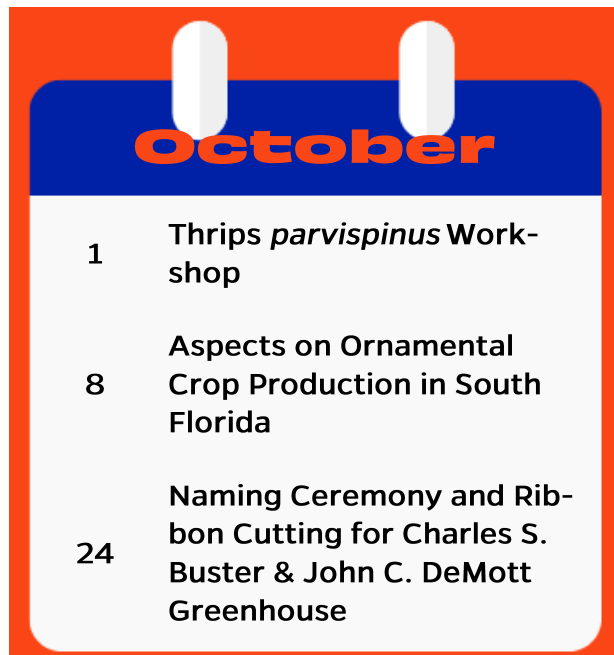
#POLStudentResidence

Nearly two years ago, on November 5, 2022, 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 foundation has been laid, the walls have gone up, and the exterior of the building is nearly complete.

We hope you'll join us on November 2, 2024 as we raise funds for the final stretch of this future student residence: the furniture and appliances. For more information on this year's event, [click here](#). We hope to see you in our tropical oasis!

Upcoming (Extension) Events



EDIS Publications

Brym, Z., Sharma, L., Obreza, T., & Mylavarapu, R. (2024). "UF/IFAS nutrient management recommendation series: Hemp: ss734-2024." EDIS 2024. DOI: <https://doi.org/10.32473/edis-SS734-2024>

Blare, T., Brym, Z., Bejarano Loo, A., Ballen, F. H. (2024). "Estimated costs and return of hemp flower production: AG479, 08/2024." EDIS 2024. DOI: <https://doi.org/10.32473/edis-ag479-2024>

Hammami, A. Malek, Huang, K., Guan, Z. (2024). "An overview of the avocado market in the United States: FE1150, 08/2024". EDIS 2024. DOI: <https://doi.org/10.32473/edis-FE1150-2024>

Schul, M. D., Smyth, A. R., Patterson, J. T., Zangroniz, A. N., Krueger, S. L., & Meyer, J. L. (2024). "The coral holobiont: A brief overview of corals and their microbiome: SL520, Rev. 08/2024". EDIS 2024. DOI: <https://doi.org/10.32473/edis-SS733-2024>

Wu, X., Moon, P., Chambers, A., Crane, J.; translated by Taco Vilatuna, A. (2024). "Cultivo de vainilla en el sur de Florida: #HS1350, 07/2024". EDIS 2024. DOI: <https://doi.org/10.32473/edis-HS1350-2024>

Research Publications

- Adeleye, V., **Seal, D. R.**, Martini, X., **Meru, G.**, & Liburd, O. E. (2024). Characterization of the spatial distribution of the pepper weevil, *Anthonomus eugenii* Cano (Col.: Curculionidae), in pepper fields in south Florida. *Insects*, 15(8): 579. DOI: <https://doi.org/10.3390/insects15080579>
- Bai, X., Smidt, S. J., Fan, Y., Brophy, T., **Her, Y.**, Manirakiza, N., **Li, Y.**, Bhadha, J. H. (2024). Farming shallow soils: Impacts of soil depth on crop growth in the Everglades Agricultural Area of Florida, USA. *Field Crops Research*, 316, 2024: 109253. DOI: <https://doi.org/10.1016/j.fcr.2024.109523>
- De Camargo Santos, A., **Schaffer, B.**, Rowland, D., Bremgartner, M., **Moon, P.**, Tillman, B., Rodrigues de Souza, E., & Bassil, E. (2024). Cross-generational effect of water deficit priming on physiology of peanut plants under water stress. *Journal of Agronomy and Crop Science* 210(4): e12736. DOI: <https://doi.org/10.1111/jac.12736>
- Edmond, V. V., **Moon, P. A.**, Bremgartner, M., **Wu, X.**, Bassil, E., (2024) *Agrobacterium*-mediated transformation, selection and regeneration of *Vanilla pompona*. *Plant Cell, Tissue and Organ Culture*, 158 (41). DOI: <https://doi.org/10.1007/s11240-024-02836-z>
- Gastelbondo, M.**, Nicholls, U., **Chen, S.**, Chambers, A., & **Wu, X.** (2024). First gynogenesis of *Vanilla planifolia* for Haploid production and ploidy verification protocol. *Plants*, 13(13): 1733. DOI: <https://doi.org/10.3390/plants13131733>
- Kanchupati, N. M., **Seal, D.**, **Jangra, S.**, **Schaffer, B.**, Liburd, O. E., & Beuzelin, J. (2024). Influence of parental age on reproductive potential and Embryogenesis in the Pepper Weevil (*Anthonomus eugenii*) (Cano) (Col.: Curculionidae. *Insects*, 15(8): 562. DOI: <https://doi.org/10.3390/insects15080562>
- Lee, J., Lee, S., **Jeong, Y.**, Seo, B., **Kim, D.**, Seo, Y., **Her, Y.**, & Choi, W. (2024). Enhancing flood wave modelling of reservoir failure: A comparative study of structure-from-motion based 2D and 3D methodologies. *Natural Hazards*, 2024. DOI: <https://doi.org/10.1007/s11069-024-06634-w>
- Li, S., Liu, Y. **Her, Y.**, & Nguyen, A. H. (2024). Enhancing the SWAT model for creating efficient rainwater harvesting and reuse strategies to improve water resources management. *Journal of Environmental Management* 366(2024): 121829. DOI: <https://doi.org/10.1016/j.jenvman.2024.121829>
- Li, X.**, Zaia, R., Liu, K., Xu., X., Da Silva, M., Rojas, A., Welbaum, G. E., Zhang, B., & Rideout, S. (2024). Response of the edamame germplasm to early-season diseases in the United States. *Agronomy*, 14(8): 1660. DOI: <https://doi.org/10.3390/agronomy14081660>
- Nascimento, R. S., Castro, E. S., **Tassi, A. D.**, Mineiro, J. L. C., **Carrillo, D.**, Ochoa, R., & Oliveira, A. R. (2024). The flat mite *Tenuipalpus ovae* De Leon (Acari: Tenuipalpidae): descriptions of all stages, ontogeny of setae and morphometric analysis. *Zootaxa*, 5485(1): 178-200. DOI: <https://doi.org/10.11646/zootaxa.5485.1.13>
- Navia, M.**, **Sendoya-Corrales, C. A.**, Espindola-Barquera, M. C., Barrientos-Priego, A. F., Ochoa-Ascencio, S., **Crane, J. H.**, & **Gazis, R.** (2024). Searching for laurel wilt resistance in avocados of Mexican and Mexican-Guatemalan ancestry. *Plant Disease*, (2024). DOI: <https://doi.org/10.1094/PDIS-06-24-1299-SR>
- Sanchez, F. W.**, **Crane, J. H.**, **Bayabil, H. K.**, Sarkosh, A., Shahid, M. A., & **Schaffer, B.** (2024). Physiological and biochemical responses of the achachairu tree (*Garcinia humilis*) to prolonged flooding. *Scientia Horticulturae*, 337(), 113573. DOI: <https://doi.org/10.1016/j.scienta.2024.113573>
- Teshome, F., **Bayabil, H. K.**, **Schaffer, B.**, Ampatzidis, Y., Hoogenboom, G., & Singh, A. (2024). Simulating soil hydraulic dynamics using crop growth and machine learning models. *Computers and Electronics in Agriculture*, 224(2024): 109186. DOI: <http://dx.doi.org/10.1016/j.compag.2024.109186>.

LET'S GET TROPICAL!

ICYMI — These are just some of the highlights from the Summer 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](#).

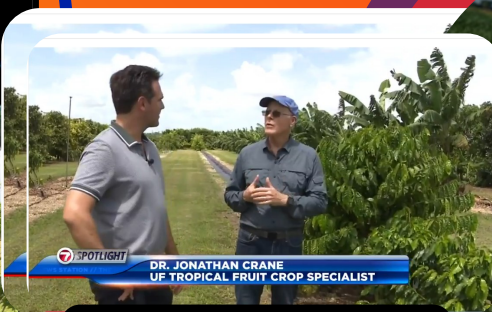
#TRECinTheNews

Christina Vazquez
@ChristinaWPLG

#DigitalDeepDive Where have all the mangos gone? 🥭 Today UF Tropical Fruit Crop Specialist Dr. Jonathan Crane is answering your mango questions. **#SoundOn** 🎧 The good news? He does expect "a rebound next year if we have good weather conditions." 🌤️: [local10.com/news/local/2024...](#)



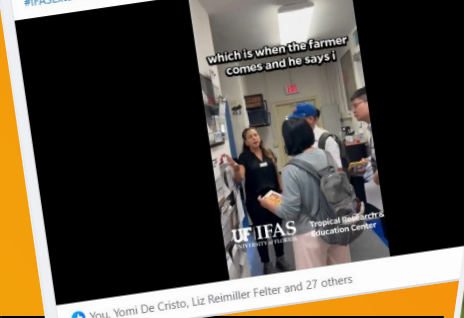
7:12 PM · Jun 27, 2024 · 38 Views



Dr. Crane met with Alex Browning near TREC's coffee planting to discuss the potential for a coffee market in Florida.



UF Ifas Trec is at UF IFAS Tropical Research and Education Center. August 28 at 4:27 PM · Homestead, FL. The UF/IFAS TREC PDC was established in 1990 to assist growers of vegetable, ornamental, fruit crops, and homeowners to rapidly identify the main cause(s) of various maladies that reduce quality of productivity and to recommend remedial actions. Learn more about the services offered by the PDC here: <https://trec.ifas.ufl.edu/plantdiagnostic/>. #IFASExtension



The UF/IFAS Central District wrapped up its workshop, Strengthening the Global Dimension of FI Cooperative Extension, in south Florida this week. With UF #IFASExtension Miami-Dade County, the agents discussed how **international** audiences challenge & enhance the programs of SoFlo.

