

# Everglades Research and Education Center

## Winter Newsletter

### 2021



# EREC Winter NEWSLETTER 2021

## A Word From our (new) Interim Director: Dr. Samira Daroub



These past two years have not been easy. We all suffered through Covid, some of us more than others even losing family members and friends. But through it all, EREC faculty, staff, and students have persevered and kept the Center functioning at optimum capacity conducting research and serving our clientele. This past year has been a very productive year with faculty and students attending in person meetings, prolific grant activity and an excellent publication record. Extension activities have been resumed in person while maintaining safety protocols, and other activities are offered online to ensure everyone has access to these events. I am also pleased to announce we are in the process of recruiting and hiring two new faculty members in Plant Pathology and Entomology, which will be a great addition to the EREC.

The center was part of the external REC review conducted in October. The three-member external review team toured our center, and met with faculty, staff, students, and stakeholders. The report is due this December and we look forward to receiving the recommendations of the review team.

I am very proud of all the accomplishments EREC faculty, staff and students have achieved in 2021 and I thank each one for their hard work and dedication. I hope you enjoy reading about these accomplishments in this Winter Newsletter!

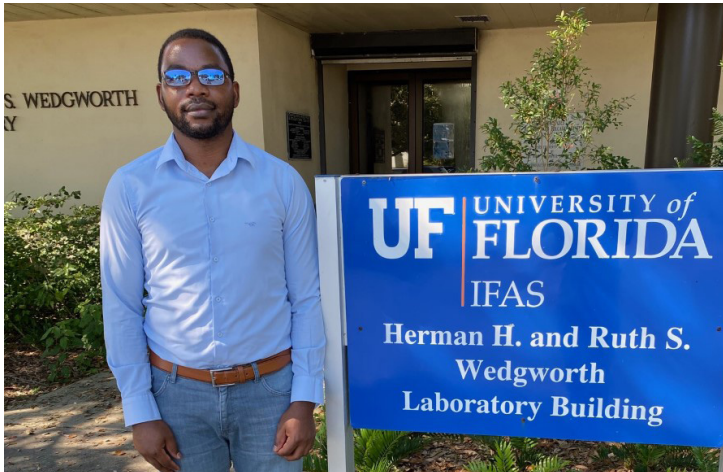
I wish everyone a much deserved Happy Holiday Break, and a Prosperous 2021!

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# Everglades REC: Student and Post Doc Updates

## New Members of the EREC



Noel Manirakiza is a PhD student, originally from Rwanda, Africa. He received his master's degree from Selcuk University, Turkey. As part of his PhD, Noel will be working on soil health sustainability and carbon sequestration in Soil and Water Sciences Department under the supervision of Dr. Bhadha and Dr. Yang Lin.



Xue Bai is a PhD student, originally from China. She received her master's degree from Beijing Normal University, China. As part of her PhD, Xue will be working on assessing conservation farming practices within the Everglades Agricultural Area in Soil and Water Sciences Department under the supervision of Dr. Bhadha and Dr. Sam Smidt.



Byron Manzanero is a Ph.D. student, originally from Belize. He received his Master's degree from Delaware State University in agricultural science. He now is apart of the Horticulture department at UF; his focus will be on the lettuce breeding program, investigating the host-pathogen interaction of Lettuce and Bacterial leaf spot. His advisor is Dr. German Sandoya.



Dr. Yuchuan Fan is a Postdoctoral Associate in the Everglades Research and Education Center at the University of Florida. He received his Ph.D. in Plant, Soil and Environmental Science from the University of Tennessee. His research focuses on soil health assessment for different agricultural management practices, sustainable nutrient management, crop growth modeling under climate change, and reducing nutrients and contaminants from agricultural drainage by the edge of field practices.

# Everglades REC: Student Updates

M.S. Student Eric Schwan Resende

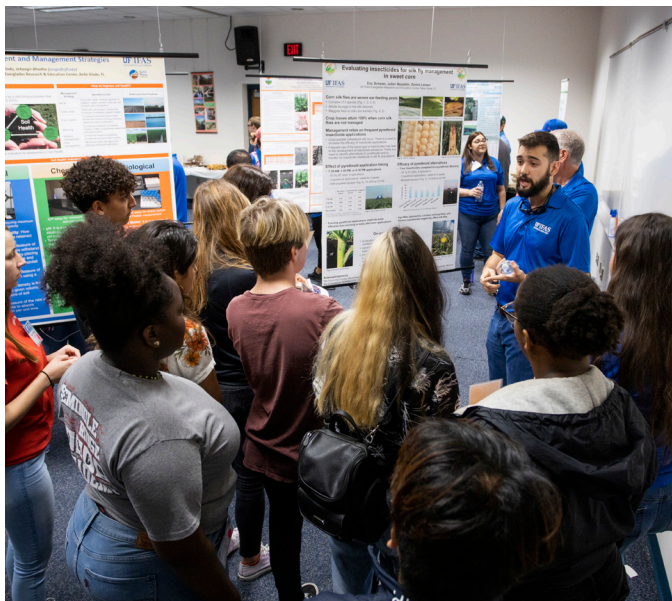
Dr. Nan Xu

Congratulations to Eric Schwan Resende on completing his Masters Exit Seminar and passing his defense! Eric is in the Entomology and Nematology Department and worked with Picture-winged Flies in Sweet Corn.

In the spring of 2022, Eric will be attending the University of Nebraska to earn his PhD. Eric's advisor throughout his time at the EREC was Dr. Julien Beuzelin. More information on Eric's research can be found on page 8.

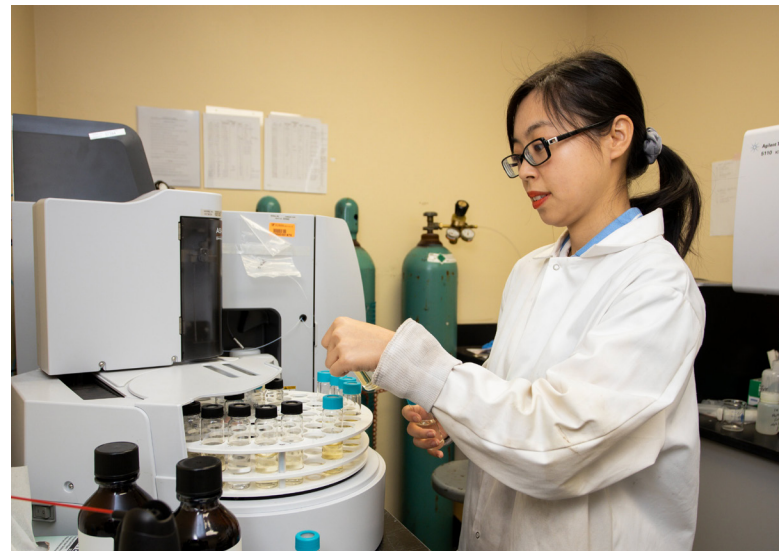


From Left to Right: Dr. Julien Beuzelin, Eric Schwan and Dr. Gregg Nuessly



Congratulations to Nan Xu for completing her PhD. Exit Seminar: Investing the Application of Bagasse for Sugar Cane Production in South Florida. Nan went on to successfully defend her PhD. thesis and graduate from the University of Florida earlier this year. Nan's advisor during her time at the EREC was Dr. Jango Bhadha.

Nan is currently a Postdoctoral Associate in the Horticultural Sciences Department at UF in Gainesville, working with Dr. Xin Zhao.



## Everglades REC: Student Updates

PhD. Student Balwinder Kaur

Congratulations to Balwinder Kaur on completing her MS in the Department of Entomology and Nematology! Balwinder worked on understanding the landscape ecology of corn silk flies in sweet corn and surrounding habitats during her research at the EREC.

In the Spring of 2022, Balwinder will start working with Corteva Agriscience™ in Iowa.

Balwinder's advisor during her time at the EREC was Dr. Julien Beuzelin. [To learn more about Balwinder's research, click the following link to watch a short video:](#)  
<https://www.youtube.com/watch?v=7CHriY3NEeg>



PhD. Student Hima Varsha Madala

Congratulations to Hima Varsha Madala on completing her M.S. Exit Seminar titled: Effects of planting method, fungicide seedcane application, and bud pre-germination on sugarcane growth and yield.

Hima will be continuing her education by pursuing a PhD. at the Everglades REC. Her advisor is Dr. Hardev Sandhu.



From Left to Right: Dr. Hardev Sandhu, Dr. Calvin Otero, Hima Varsha Madala, Dr. Richard Raid



## Everglades REC: Student Updates

PhD. Student Jesse Murray

PhD. Student Gustavo Kreutz

Congratulations to Jesse Murray on presenting his Master's exit seminar on: "Integrated Management Strategies for Mitigating a New Threat to Florida Lettuce: Fusarium Wilt." Jesse will be continuing his education at the University of Florida Everglades REC by pursuing his PhD. His advisor at the EREC is Dr. German Sandoya.

Jessie also represented the EREC at the Florida State Horticultural Society annual meeting, along with other members of the EREC Lettuce Breeding team.

If you would like to learn a bit more about Jesse's research, [the following link will lead you to a short video](https://www.youtube.com/watch?v=ttr_zbJSa1k): [https://www.youtube.com/watch?v=ttr\\_zbJSa1k](https://www.youtube.com/watch?v=ttr_zbJSa1k)



Gustavo Kreutz is a Ph.D. candidate in the Horticultural Sciences Department University of Florida. He is working in the Lettuce Breeding Program under the supervision of Dr. Germán Sandoya and his research aims to identify, select, and breed lettuce cultivars for superior nutrient use efficiency. Gustavo is also interested in the adaptation of lettuce to different production areas in Florida and to biotic and abiotic problems that threaten the lettuce industry in the EAA.

In 2021, Gustavo published one scientific manuscript, one extension article (EDIS), and one preprint manuscript (currently under revision). In addition, Gustavo received six different awards in 2021, including the Gerald O. Mott Meritorious Graduate Student Award from CSSA, the Bobby F. McKnown Scholarship from UF CALS, the Yara North America Scholarship from FFAA, two scholarships from the National Horticulture Foundation, and one travel grant to the ASHS Conference.

Gustavo, in collaboration with the EREC, created a short video detailing the research he has conducted thus far. [To view the video, click this link: https://www.youtube.com/watch?v=Aa4q5Kdj1Xg](https://www.youtube.com/watch?v=Aa4q5Kdj1Xg)



## Everglades REC: Faculty Updates

Dr. Richard Raid

Dr. Richard Raid will be receiving an award for his lifetime achievements in Integrated Pest Management at the International IPM Symposium to be held in Denver next March. Recognition is for both his pathology research/extension and his barn owl program.

In November, Raid and Ann Hartman hosted Dr. Motti Charter, an ornithologist with Haifa University. Dr. Charter presented several seminars in Florida on barn owls and other wildlife in Israel. Together, they have established a pair of high resolution “owlcams” that will be online and available for viewing worldwide in several weeks. Hartman, who won a Superior Accomplishment Award from UF during 2019, has been busy serving on the nomination and selection committee for 2021. Dr. Raid, who will be retiring in March 2022, hopes to continue his efforts with the local agricultural community even after retirement, and is contemplating a sustainable management program for rabbit pests using bobcats, collaborating with Dr. Robert McCleery from the Wildlife Ecology Department in Gainesville. Plans are to ultimately involve local 4-H and FFA students from surrounding communities in research and implementation, acquainting youth with both agriculture and wildlife while stimulating scientific inquiry. Students will also be assisting with a barn owl nesting box “build-out” in January to facilitate sustainable rodent control for local industry. With the industry’s full cooperation, the Everglades Agricultural Area has some of the highest barn owl densities in the Western Hemisphere.

If you would like to learn more about Dr. Raid’s barn owl program, click the link to below to see a video made by WSVN Miami News: <https://wsvn.com/news/special-reports/giving-a-hoot-farmers-use-barn-owls-to-control-rodent-population-protect-crops/>



# Everglades REC: Faculty Updates

## Dr. German Sandoya

Members of the UF/ IFAS Lettuce Breeding Program participated at the American Society of Horticultural Sciences (ASHS) annual meeting held in Denver, Colorado in early August. Germán Sandoya presented work on identifying lettuce accessions that slowly decay and have less pink rib, both postharvest disorders affect leafy vegetable growers at the EAA. Catherine Belisle (Ph.D. candidate) presented part of her research on antioxidants associated with Pink Rib Stress in lettuce. Gustavo Kreutz (Ph.D. candidate) introduced his work on Phosphorus Use Efficiency. Jesse Murray (Master's student) presented his research on Fusarium Wilt of Lettuce. Lis Rodrigues-Porto (Master's student) spoke about Lettuce Downy Mildew's work conducted in South Florida.

The UF/ IFAS Lettuce Breeding Program team welcomes two new students, Byron Roberto Manzanero and Hannah Mather. Byron is not new to the EREC; in the past, he was an intern in the Sugar Cane Program and recently completed his Master of Science in Plant Breeding at Delaware State University; he will continue the work on lettuce breeding for Bacterial Leaf Spot in lettuce during his Ph.D. Hannah recently graduated from the University of Arkansas with a Bachelor in Horticulture and she will work on heat tolerance in lettuce on her master's degree; she is spending her two first semesters learning some laboratory techniques at Dr. Kevin Begcy's laboratory in Gainesville. The team also welcomed the High School intern Maria Medina from Glades Central High School who is identifying lettuce seeds that can germinate at high temperatures; and Nikia Anacrayon from the University of Nebraska at Kearney who will be participating in several activities in the team. Both interns are originally from Belle Glade, Florida.

Congratulations to Catherine Belisle. Dr. Belisle said goodbye to the lettuce breeding program and joined as a Research Support Specialist at the Maple Syrup Program at Cornell Extension in New York State.

Our biologist Amanda Carroll completed three trainings in greenhouse. These trainings are important for the lettuce breeding program as the greenhouse is used to make crosses, selections and other important trials are conducted. Trainings are offered every year by the Environmental Horticultural Department. **More information for the trainings can be found at: training - <http://hort.ufl.edu/training/>**

2021 Publications from the Lettuce Breeding Team:

- HS1403/HS1403: Downy Mildew of Lettuce in Florida (ufl.edu): <https://edis.ifas.ufl.edu/publication/HS1403>
- HS1416/HS1416: Nutritional Benefits of Lettuce Consumed at Recommended Portion Sizes (ufl.edu): <https://edis.ifas.ufl.edu/publication/HS1416>
- HS1422/HS1422: Growing Lettuce in Small Hydroponic Systems (ufl.edu): <https://edis.ifas.ufl.edu/publication/HS1422>
- HS1423/HS1423: Strategies for Improving Phosphorus Use Efficiency in Lettuce Grown on Histosols (ufl.edu): <https://edis.ifas.ufl.edu/publication/HS1423>





## Everglades REC: Faculty Updates

### Dr. Julian Beuzelin

The Entomology Program led by Dr. Julian Beuzelin has continued focusing on sweet corn, rice, and sugarcane insect pest management.

In sweet corn, the efficacy of conventional and biological insecticides was evaluated to refine fall armyworm management. Commercial farms were sampled to determine corn silk fly relative abundance in sweet corn fields and adjacent habitats such as sugarcane fields and weedy borders. In addition, MS Student Eric Schwan Resende successfully defended his thesis aiming to initiate an insecticide resistance management program for corn silk flies infesting sweet corn. Using glass vial bioassays, he showed that pyrethroid resistance is a threat to sweet corn production. He also identified registered and non-registered insecticides that were effective through ingestion, suggesting that the development of insecticidal baits might represent an alternative to currently used insecticides. The presentation of these results earned Eric the Second Best Presentation Award for the Student Competition at the 134th Annual Meeting of the Florida State Horticultural Society held in September 2021 in Daytona Beach, FL.

In rice and sugarcane, monitoring for invasive pests, including the Mexican rice borer, did not detect any insect of concern in the EAA. MS Student Carolina Tieppo Camarozano and Intern Mariana Monteiro de Souza Barros joined the Entomology Program and initiated research on the use of biological insecticides and parasitoids for stink bug management in rice. New insecticide modes of action for wireworm management in sugarcane were also studied.



# Everglades REC: Faculty Updates

Dr. Mabry McCray

Dr. Samira Daroub

Dr. McCray has been working this year to finish several projects with sugarcane nutrient management. These include studies with phosphorus and potassium on mineral soils and nitrogen on shallow organic soils.

PhD student Shabnam Sadeghibaniani is working on studies evaluating sugarcane yield response to silicon on mineral and organic soils.

We have IFAS recommendations for silicon on organic soils, but not for mineral soils. Within the next year we hope to have new recommendations for phosphorus, potassium, and silicon for sugarcane grown on mineral soils.



Dr. Daroub attended the American Society of Agronomy-Crop Science Society of America -Soil Science Society of America (ASA-CSSA-SSSA) meeting in Salt Lake City November 2021 accompanied by MS student Maryory Orton, and two postdoctoral associates, Dr. Andres Rodriguez and Dr. Mohsen Tootonchi. They all presented their research on best management practices in south Florida, phosphorus sorption capacity of organic soils, and water quality in the Lake Worth Lagoon.

- During the meeting, Dr. Daroub received the 2021 SSSA Fellow award, the highest honor the society gives. In addition, the SSSA Representation and Recognition Taskforce that Dr. Daroub co-chairs was awarded the 2021 SSSA Presidential award. The Taskforce is working on initiatives for gender and diversity issues at the society.
- In response to Covid-19, Dr. Daroub in collaboration with several colleagues, offered the BMP training workshops in the Everglades Agriculture Area completely online through Canvas extension with UF IFAS. In 2021, over 150 participants finished the online self-paced free workshop consisting of 6 modules covering the best management practices program training in the EAA and earning educational CEUs. The workshops, both in English and Spanish, will be offered again online in 2022 starting in February.
- Dr. Daroub hosted a farewell dinner for Dr. Andres Rodriguez after three years of postdoctoral work at EREC to wish him the best with his next step in his career.



From Left to Right:  
Dr. Mohsen Tootonchi  
Maryory Orton  
Dr. Samira Daroub  
Dr. Andres Rodriguez



# Everglades REC: Faculty Updates

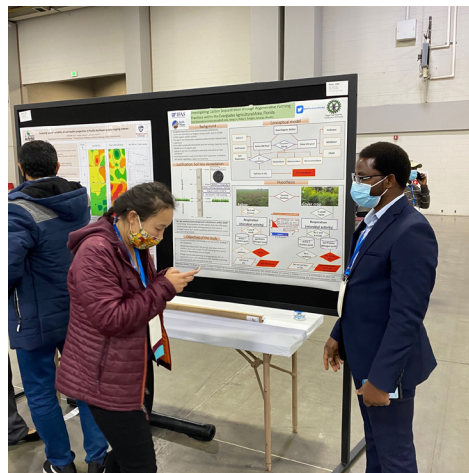
## Dr. Jango Bhadha

Dr. Jango Bhadha, Assistant Professor of soil, water, and nutrient management, has joined a national research effort to promote phosphorus sustainability across the United States. North Carolina State University will lead the team and work under the funding auspices of the National Science Foundation-Science and Technology Center (NSF-STC) in the newly established Science and Technologies for Phosphorus Sustainability (STEPS). STEPS aspires to facilitate a 25% reduction in human dependence on mined phosphates and a 25% reduction in phosphorus losses to soil and water resources within 25 years. STEPS funding is a five-year, \$25 million grant that is renewable for an additional five years.

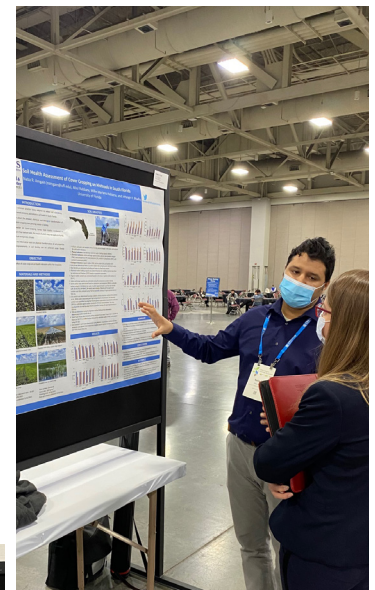
Dr. Bhadha attended the ASA-CSSA-SSSA annual meeting in Salt Lake City this year. He was accompanied by EREC Students Noel Manirakiza and Xue Bai, and Post Docs Naba Raj Amgain and Yuchuan Fan. Each member of the group presented the research that they have conducted at the Everglades REC.



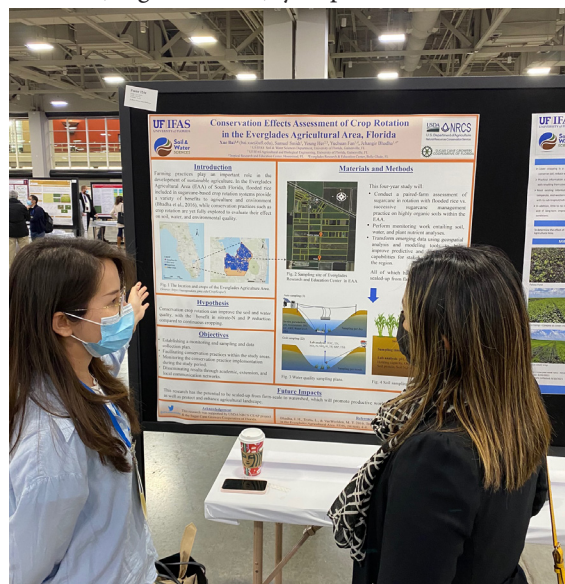
From left to right: Naba Raj Amgain, Noel Manirakiza, Xue Bai, Jango Bhadha, Jay Capasso, Yuchuan Fan



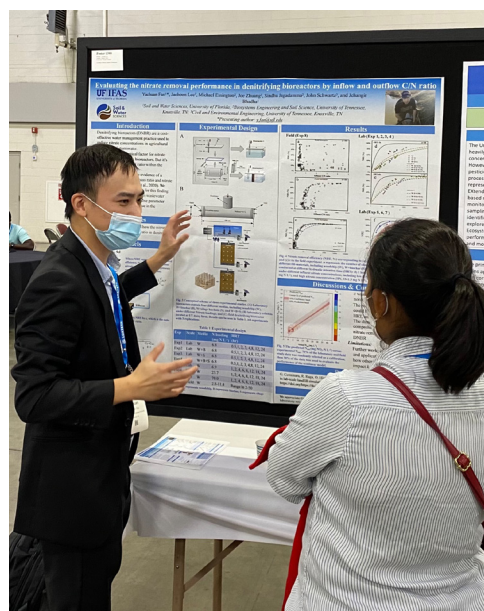
Noel Manirakiza



Dr. Naba Raj Amgain



Xue Bai



Dr. Yuchuan Fan

## Everglades REC: Faculty Updates

### Dr. Hardev Sandhu

- Department of Energy (DOE) approved our \$4 million funding in October 2021 to conduct bioenergy research in collaboration with Argonne National Lab. Faculty members at the Everglades Research and Education Center (Dr. Sandhu as PI and Dr. Daroub as Co-PI) are leading this project.
- In collaboration with USDA, Dr. Sandhu's lab released five new sugarcane varieties (CP 13-4474, CP 13-4513, CP 14-1377, CP 14-1490, and CP 14-1934) in the Sugarcane Variety Committee Meeting in June 2021. The first two varieties are recommended for sand soil and the last three for muck soils in southern Florida.
- Dr. Sandhu coordinated two sugarcane field days to release new cultivars in June and make selections from Stage III of the cultivar development program in November.
- Dr. Sandhu's graduate student, Hima Madala successfully defended her MS thesis research in November and graduating in December 2021. Hima and another graduate student, Saroop Sandhu also presented their research in the annual meetings of the American Society of Sugar Cane Technologists (ASSCT) and the American Society of Agronomy (ASA) in June and November 2021, respectively.
- Dr. Sandhu presented his research in ASSCT, ASA and an international symposium on 'Sugarcane from Sugar and Beyond- CaneCon 2021.



Dr. Hardev Sandhu



Saroop Sandhu

# Everglades REC: Extension Updates

Anna Meszaros

Anna was hired in August, 2021 as the new commercial (vegetable crop) horticulture extension agent for Palm Beach County. She is responsible for developing educational programs to support vegetable and fruit production. In collaboration with stakeholders including growers, crop consultants, industry members, and UF/IFAS faculty, she will design, conduct, and evaluate studies that assess vegetable variety performance, crop response to fertilizers and soil amendments, and improved weed and pest management tactics.

Anna collaborates with other extension agents to respond to clientele training needs regarding the Worker Protection Standard (WPS) and the Food Safety Modernization Act (FSMA), as well as the related Good Agricultural Practices (GAPs), for growers, harvesters, and packing house personnel. Don't hesitate to contact her with any vegetable production related questions, including pest identification and management. You can find her in the Extension Office of the EREC Admin Building during the vegetable growing season or you can reach her via email at [ameszaros@ufl.edu](mailto:ameszaros@ufl.edu). Follow her on Twitter @UF\_PBC\_VegFruit.



Dr. Richard Raid presenting at the 2021 Corn Workshop.

# Everglades REC: Retirement Updates

Dr. Tim Lang

Dr. Gregg Nuessly

Congratulations to Dr. Tim Lang on his retirement! Dr. Lang specialized in water quality and soil fertility.

He worked alongside Dr. Samira Daroub in the water quality lab for over 19 years!



Congratulations to Dr. Gregg Nuessly on his retirement! Dr. Nuessly worked at the Everglades REC for 31 years as an Entomologist, and as the Center Director since 2014.

Dr. Nuessly will continue his career at the EREC as an EMERITUS Faculty member.



If you want to see these announcements  
in real time, follow us on social media:

[@EvergladesREC](#)

Visit our website:

[erec.ifas.ufl.edu](http://erec.ifas.ufl.edu)

Check out our YouTube channel:

[UF IFAS EREC](#)

Thank you for reading the 2021 EREC Winter  
Newsletter!

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