

Miami-Dade Extension Connection

UF/IFAS Extension Miami-Dade County
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Florida Master Naturalist Program Coastal Shoreline Restoration student Ellen Siegel plants sea oats along Virginia Key Beach as part of ongoing restoration efforts lead by Frost Science Museum's MUVE program. See story on page 9. Photo: Ana Zangroniz

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Letter from the Editor

Jeff Wasielewski, Commercial Tropical Fruit Extension Agent

Dear Friends of Extension,

The end of the year is marked by reflection as we look back on what we have accomplished and what we could have done better. The beginning of a new year is marked by resolutions and looking ahead at what the new year might bring. As an Extension agent, I always try to do my best for my commercial tropical fruit clients, but I know that I can always do better. 2019 will be an exciting year for the tropical fruit program, as we will build on the success of the new growers' class we had in October of 2018 and we will offer a series of classes for specific fruit crops beginning in February, so be on the lookout for those.

I want to take this time to thank all of the authors that have submitted articles and pictures for the Extension newsletter in 2018. We truly couldn't do this newsletter without you. I also want to give a huge thank you to my co-editor Ana Zangroniz. The newsletter is something that both of us do in addition to our normal duties as Extension agents, and it is often a thankless task. That task is made much easier knowing that I have a partner that is willing to work hard and professionally to make the newsletter production function smoothly. Thank you Ana, you are one of a kind!

Finally, I want to thank all of the friends of Extension that visit us throughout the year. Whether you are getting your pesticide license renewed, joining a 4-H club, getting healthy eating tips, asking about a new insect, getting help setting up a nursery, or finding out the best fertilizer rate UF/IFAS Extension Miami-Dade County is here for you, and we have what you need. Thanks to everyone that called, emailed, or just walked in the door in 2018. We hope to see you again in 2019. Here's to a great 2019 and a wonderful start to the year.

Sincerely,



Comings and Goings

Goodbye to a Legend

Jeff Wasielewski, Commercial Tropical Fruit Extension Agent

As I took in my surroundings at Monica Dawkins' retirement ceremony, one thing was abundantly clear: Monica is loved. She is loved by her family, her friends, and her staff. There is no part of South Florida that hasn't been touched in a positive way by Monica. Leaving her ceremony that night, I was left with a feeling that she will be very hard to replace.

Before retiring, Ms. Dawkins was a proud faculty member of the UF/IFAS Extension Miami-Dade County for 41 years. She supervised the adult Expanded Food and Nutrition Education Program (EFNEP), which teaches low-income families with young and school age children, as well as pregnant mothers, proper nutrition for a healthier quality of life. Prior to this position, she supervised the 4-H Youth EFNEP with UF Extension. Monica pioneered 4-H EFNEP programming with the Native American Miccosukee Indian Children, and was also on the forefront of adult EFNEP programming with the Haitian population, coordinating the nutrition curriculum translation, to Haitian/Creole, the first county in Florida Extension to do so.

In just the past five years alone, Ms. Dawkins' program has positively impacted 8,339 low-income families as follows: Improved Nutrition Practices – 95%, Increased Food Resource Management – 93%, and Increased Physical Activity Levels – 56%. She has also collected numerous success stories from EFNEP participants as well as agency collaborators. Monica will be missed by the entire South Florida community. But like so many greats, it is only a matter of time until she finds her next project to start making big impacts.

How we'll miss you!

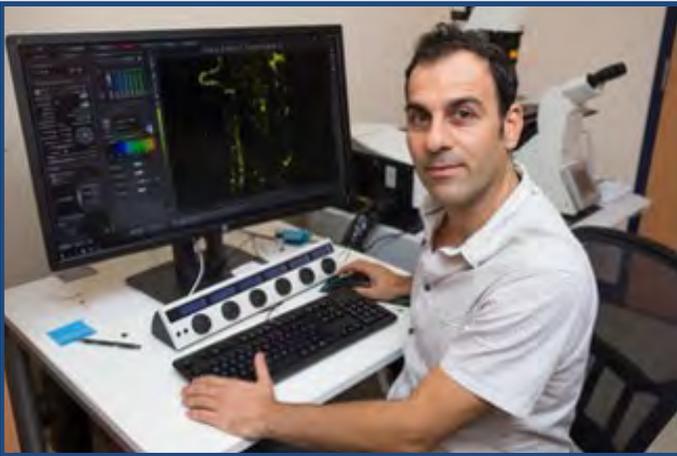


UF/IFAS Extension EFNEP Supervisor and Extension Agent Monica Dawkins. Photo: The Dawkins family

Tropical Research Education Center Spotlight

Better Understanding How Plants Function

Dr. Elias Bassil, Assistant Professor, UF/IFAS TREC



Dr. Elias Bassil using a confocal laser scanning microscope. This microscope is used to identify the localization of specific proteins within plant cells. Photo: Tyler Jones

Greetings, my name is Elias Bassil. I joined UF/IFAS and the TREC community in early 2017 as an assistant professor in the Horticultural Sciences Department. My background is diverse, spanning soil science, agronomy, environmental science, plant physiology, and plant cell biology. The fundamental interest driving my work, is to understand how plants function and how we can use information about specific biological mechanisms to improve horticultural productivity. I will elaborate on this later!

I got excited about agricultural science at an early age, while growing up on the island of Cyprus. My family had a citrus, pomegranate and olive farm that we tended to on weekends. I became very involved in the farm while a teenager and became obsessed with wanting to grow all sorts of fruits and vegetables and raise animals. For the few years before going off to college, we were able to produce everything needed for the family, except milk and flour. The farm produced all of our fruits, vegetables and meat. Thinking back, this was really farm to table and “eating off the land” in its purest form, and has been a big factor in how I view food, agriculture and impacts to our environment.

My early farm experiences were the impetus to want to understand more about agricultural science in general and horticulture in particular and began asking questions related to why particular crop cultivars do better under any given conditions than others, or why certain fruit cultivars taste better than others. I really wanted to understand how plants worked as organisms and how this can be translated to improving horticultural productivity.

In graduate school at the University of California at Davis I studied the effects of saline soils and saline irrigation water on safflower (*Carthamus tinctorius*). Safflower is an important source of high quality and healthy oil. It has high amounts of monounsaturated fatty acids. It is also a particularly deep rooted crop that can be used in rotation with cotton or tomato in California’s Central Valley, the San Joaquin Valley. Safflower is also a somewhat salt tolerant crop. The main objective of that graduate work was to determine if saline irrigation water and marginal, salinized soil can be used to grow it. Years of irrigation and the unique geology of the western San Joaquin Valley, lead to a problem with what to do with saline drainage water. In California this saline drainage water cannot be disposed of easily and alternative uses, including its possible use for irrigation, were sought after.

Results from the experiments I conducted, indicated that safflower could tolerate a significant amount of

Tropical Research Education Center Spotlight

continued

soil salinity and saline irrigation water without significant reductions in seed yield, oil quantity or quality. Some of the tolerance to the salt was related to weather but also to the ability of the plant to extract water from the subsoil. It turned out that safflower plants grown under the saline conditions of our experiments, had reduced height, leaf size and number but not flower number or total number of seeds or their oil content. The plants had a higher harvest index under salt. They basically adjusted their vegetative growth and development but not their reproductive capacity. This remarkable ability of safflower to adjust development according to conditions, which we call plasticity, is not unique and is in fact a widely seen in crop plants.

Plasticity is a fundamental difference between plants and animals. When you think about it in the simplest terms, plants are immobile which means they have to contend with changes to their environment, much more than animals do. Therefore they have evolved the genetic potential to adjust to their environment in order to ensure reproductive success. This has fundamental consequences for horticulture because now we can understand the genetic mechanisms that underlie differences in why some plants do better under salt, for example, than others. This examination of how plants adjust, or as it is known in plant physiology, acclimation, is a main focus of my work. I want to understand the basic biological mechanisms that allows plants to grow under stressful conditions and adapt to changes in their environment.

My safflower work has relevance to South Florida where sea level rise and salt water intrusion threaten much of the agriculture of this area. Soil flooding and periodic exposure to high salt, along with periodic drought and high temperatures are likely to significantly reduce crop yields as climate change progresses. We must improve crop resilience to these stresses in order to maintain agricultural productivity and profitability. We must do this using interdisciplinary approaches including better management, but improved varieties could play a vital role in growing varieties that are better suited to local conditions. In order to do this effectively, we must incorporate genomic tools and understand the genetic basis of specific stress responses of the plants that do better. In other words we want to understand the mechanisms that underlie why some varieties acclimate better to a particular stress. This has important implications to breeding and the effective use of biotechnology for crop improvement.

During domestication and breeding of most crop plants, breeders have selected plants for specific traits, most of which are yield associated. Most breeding efforts have not focused on breeding plants with high tolerance to salinity or flooding conditions. Wild relatives of most domesticated crops though, do have some level of tolerance to abiotic stresses and therefore have traits (genes) that could be useful to creating more stress tolerant cultivars. But we have to identify what the genes are behind those useful traits first. My lab at TREC works in part on few projects that try to understand the diversity of stress responses of two crops; avocado and tomato.

Tropical Research Education Center Spotlight

continued

Rooting around the avocado genome

South Florida has a long history of avocado cultivation. Recently two new threats have hit the local industry with potentially serious impacts on avocado productivity. Laurel wilt is the threat that has received the most attention but flooding and salinity are also important issues that need to be considered. In fact flooded trees are more likely suffer under laurel wilt. In order to deal with flooding and salt, more tolerant rootstocks need to be identified and tested. We are working towards identifying such rootstocks by comparing the molecular and physiological responses of diverse avocado cultivars to both flooding and high salt. We have collected a large number of seedling trees and are currently screening these in order to see if some do better under stress than other. We look at both physiological responses (i.e at the whole plant level) but also at the molecular level. We hope to find some rootstocks that are better adapted to the local soils and stress conditions that threaten South Florida avocado production.



Diverse avocado cultivars grown under shadehouse conditions for flooding and salinity experiments to test flooding and salinity tolerance. Photo: Melinda Yin.



Wild and cultivated accessions of tomato showing the diversity of leaf and fruits shape and size. Photo: Melinda Yin

We also work with another important crop to South Florida the tomato. The tomato is a wonderful system to study and compare abiotic stress genes because it is easy and fast to grow, we have a plethora of wild and diverse species and cultivars, it can be experimented on more easily than trees, and there are numerous genetic and genomic tools. For example it is amenable to genetic transformation making it easy to understand gene function. We can investigate gene function by ‘knocking out’ a gene and assessing the effects, or by moving the gene from one type of tomato to another (i.e. a salt tolerant to a salt sensitive type). We have collected a large number of wild tomato accessions that have been associated with improved tolerance to drought and high salt and are in the processes of screening these under stress. We look for the physiological responses that are associated with better acclimation to salt, and also at the genes and the networks that enable tolerant accessions to do better.

I look forward to working with local stakeholders and the local research community in the effort to advance both our basic understanding of how plants acclimate to their environment and deal with abiotic stresses, but also provide tools needed to breed better crop cultivars.

Eating Tips for the New Year

Monica Dawkins, EFNEP Supervisor & Extension Agent

The new year typically brings with it fresh wishes to eat healthier and lose weight. Many people believe they know the best ways to manage their weight. Let's start by testing your knowledge of successful weight loss habits with a quiz! The questions are based on the National Weight Control Registry (NWCR). See the bottom of the article for answers and statistics.

1. Which of the following is true? The NWCR found that people who lost weight and kept it off:

- A. Exercised at least 75 minutes every day of the week.
- B. Cut their carbohydrates in half and increased their protein intake.
- C. Ate breakfast every day.
- D. Stopped eating all sweets.

2. True or False: The NWCR found that people who kept the weight off used "special occasions" to treat themselves by eating more than they usually would.

Despite resolutions and billions spent on weight loss plans, why can't we seem to lose it and keep it off? The truth is: we may just be eating too much. The 2,000 calories per day average diet: is actually too much for many women and older adults. And if you eat more calories than you burn you won't be able to escape weight gain.

How many calories do you need?

For weight loss, a safe start is to cut 300–500 calories per day or increase your exercise to burn 300–500 calories (or some of both). As a "rule of thumb": most middle age and older adults need 13–14 calories per pound per day to maintain their weight. Most middle age and older adults need 9–12 calories per pound per day to lose weight. So: a 140 pound person needs 1,800–2,000 calories per day to maintain and 1,200–1,700 calories to lose weight. A 200 pound person needs 2,600–2,800 calories per day to maintain, and 1,800–2,400 calories to lose weight. If you have cut some calories and haven't lost weight, you may need to cut more.

Make calorie cutting easy

Switching to foods lower in "calorie density" helps cut calories. Calorie density refers to the calories of a food compared to its weight. A calorie dense food is high in calories for what seems like a small amount of food, while a food with low calorie density weighs a lot compared to the number of calories it contains. High calorie density foods may contain a lot of fat or refined carbohydrates, like sugar and flour. It is easy to over-eat these foods because they don't fill you up. Don't be fooled by marketing – just because the label says "low fat does not mean you can eat all you want!"

Eating Tips for the New Year

continued

Surprisingly, many low-fat, fat-free, or sugar-free baked goods, desserts, and other processed foods have high calorie density, and these foods can sabotage your weight loss efforts if you don't pay attention to portion sizes. Low calorie density foods often contain a lot of water and fiber. Non-starchy vegetables and fruits like spinach and oranges are the lowest calorie density foods. For example, a "100 calorie snack" such as a tiny portion of mini Oreo crackers is equivalent in calories to four cups of fresh veggies, or three cups plain popcorn (a whole grain). Which snack is more likely to fill you up? Also, fruits and veggies are loaded with heart-healthy antioxidants that reduce the risk of cancer and fiber to lower cholesterol levels as well as promote control of blood sugar levels!

Let's get moving!

Even the healthiest, most well-rounded diet won't keep the weight off if you don't exercise. For weight loss, 45–60 minutes of aerobic exercise is needed most days of the week; you don't have to train for a marathon, but moseying around the grocery store isn't enough, either – get the heart rate up a little! Fast walking works well. But even if you're thin or happy with your weight, you're not off the hook. The Surgeon General says that living a sedentary lifestyle is as detrimental as smoking two packs of cigarettes per day. You do not need a gym membership to get moving: climb a few extra sets of stairs each day, dance to the radio, check out an exercise video at your public library, use books or canned foods for weights. Ask a friend to join or support you in your New Year's resolution. Success is much greater when you've got someone else who is aiming for the same gold. So enjoy healthy food, stick with your physical activity, and reap the benefits of a stronger, healthier you!

Quiz Answers:

1. C
2. False

The NWCR has found that people who lose weight and keep it off generally have these habits:

- 98% of Registry participants report decreasing calories to lose weight and keep it off (1400 calories/d)
- 94% of Registry participants increased their physical activity, with walking the most common activity, and 90% exercise, on average, 1 hour per day.
- 78% eat breakfast every day.
- 75% weigh themselves at least once a week.
- 62% watch less than 10 hours of TV per week.
- Most rarely use "special occasions" as excuses to eat more than they should.

FMNP CSR Debut in Miami-Dade County

Ana Zangroniz, Sea Grant Extension Agent

In October 2018, Miami-Dade County hosted its first-ever Coastal Shoreline Restoration (CSR) module of the Florida Master Naturalist Program (FMNP). This module focused on restoration principles and approaches for three specific habitats: mangroves, oysters, and salt marsh. The objective of the course is to increase participants' understanding about living shorelines as an ecosystem-based approach to "softening" the shoreline, rather than building hardened structures.



FMNP student Mariana Boldu measures the weight of an oyster shell bag.

Photo: Ana Zangroniz

Day two's activities included learning about mangroves and their role in restoration projects in the county. The group traveled to the Deering Estate, where they canoed along the mangrove shoreline and practiced species

I co-taught with my esteemed colleague, Water Resources Specialized Agent Dr. Lisa Krinsky. The class totaled 24 hours of instruction time and consisted of classroom presentations, guest lectures, teamwork activities, field trips, and field activities.

The first restoration activity the class participated in involved traveling to the UF/IFAS Tropical Research and Extension Center. Under the direction of Dr. Ashley Smyth, the students worked together to bag and weigh oyster shell, collected from local restaurants and community events. The group totaled 34 bags (over 800 pounds of shell) that will be used for restoration in the Indian River Lagoon. The shell will be put back into the water to create new oyster reefs. The day culminated with tasting of two different kinds of oysters.



The FMNP CSR class with their 34 bags of oyster shell. Photo: Dr. Lisa Krinsky

FMNP CSR Debut in Miami-Dade County

continued

identification in the field. Guest Gary Milano, formerly of Miami-Dade County Department of Environmental Resource Management spoke about the projects, as well as his thoughts on how restoration efforts should progress.

The final day was perhaps the biggest treat, spent on Virginia Key. The group received a presentation about coral restoration and gardening techniques by two research associates from the University of Miami Rosenstiel School of Marine and Atmospheric Science (RSMAS). Furthermore, they all had the opportunity to connect a living coral fragment to a cement base, that would later be used for restoration. This particular activity was hard to top, but touring the SUSTAIN wave tank came really close. The SUSTAIN lab is RSMAS's latest technological marvel, generating hurricane-force winds and waves to test how local variables (like coral reefs) will respond in strong wave events, and will help researchers at RSMAS design and deploy hybrid coastal resilience structures (for example, reef balls with outplanted corals on top).

The students ended the last day of class by participating in an active restoration project on Virginia Key, managed by the Frost Science's Museum Volunteers for the Environment (MUVE) program. After an informative tour of the maritime hammock on Virginia Key, the group planted sea oats, just in time for the plants to be watered by an afternoon shower.

All in all, we were quite pleased with the entire class, as the students often engaged in thought-provoking discussions that benefited all of the members, including we instructors! Dr. Krimsky and I look forward to teaching this course again this February 20-22, 2019.

For more information on the Florida Master Naturalist Program or to view upcoming courses, please go here: <http://www.masternaturalist.ifas.ufl.edu/>.



From left: FMNP CSR students Ruben Colon, Erin Smith, and Pat Crocker discuss living shoreline design ideas during a course exercise.
Photo: Ana Zangroniz

Blues in the Garden

Barbara McAdam, Urban Horticulture Program Specialist



Jacquemontia pentanthos/Skyblue Clustervine
Photo: Roger Hammer

Do you have the “Dry Season Blues”? No rain in the forecast and warmer temperatures can leave you wondering how to keep your garden alive with color. Should you fertilize, will it get too cold or warm, or wet or dry?

Gardeners are always thinking ahead, planting today what will flower or fruit in the future. Not to worry if you are just starting to get a taste of the gardening bug, your skills will grow as you explore a whole new world. Let's take a moment to look at some blue bloomers that thrive in the dry season.

Jacquemontia pentanthos or Skyblue Clustervine is listed as native to the Florida Keys but my first sight of this plant was years ago at Jumby Bay, on St. Johns Island, Antigua. I was on a construction site meeting with the project architect and I could not keep my focus on selecting wood molding trims. Looking through the window openings to the vivid blue Caribbean sky and aqua blue water beyond, there lay another blue wonder. Growing wild in the dune scrub and covered with sulfur butterflies this sprawling vine lay scattered along the ground in many

locations. I had no idea what plant this was and 35 years ago, information was scant. I bought the first of many books on wildflowers, *Caribbean Wild Plants and Their Uses* by Penelope N. Honychurch at an airport gift shop on my way home.

The book helped me identify the scientific name, important if you want to know more. Unfortunately, no photos exist of my first sighting but today you can view the spectacular photography skills of Roger Hammer and find all the information you need on the Institute for Regional Conservation's [website](#).

Commelina erecta or Whitemouth Dayflower. My first sighting of this plant was quite tricky. I spied a whole field of these in full blue bloom on my way to a Saturday morning class at MDC–North Campus. When I returned after class they were nowhere in sight. The flowers on this native beauty actually melt by late morning. The “field” in question was a sandy, dry lot along 119 street that has now been developed.

Visit the Institute for Regional Conservation's [website](#) for information about the Whitemouth Dayflower. Note: These days I will turn around and have a closer look at plants and I try to have a camera with me at all times.



Commelina erecta/Whitemouth Dayflower
Photo: Roger Hammer

Blues in the Garden

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Both of these native blues bloom profusely in our dry winter season. This year our dry season rainfall is below average with warmer than normal conditions. The forecast is for neutral El Niño with a slight chance of wetter than average weather.

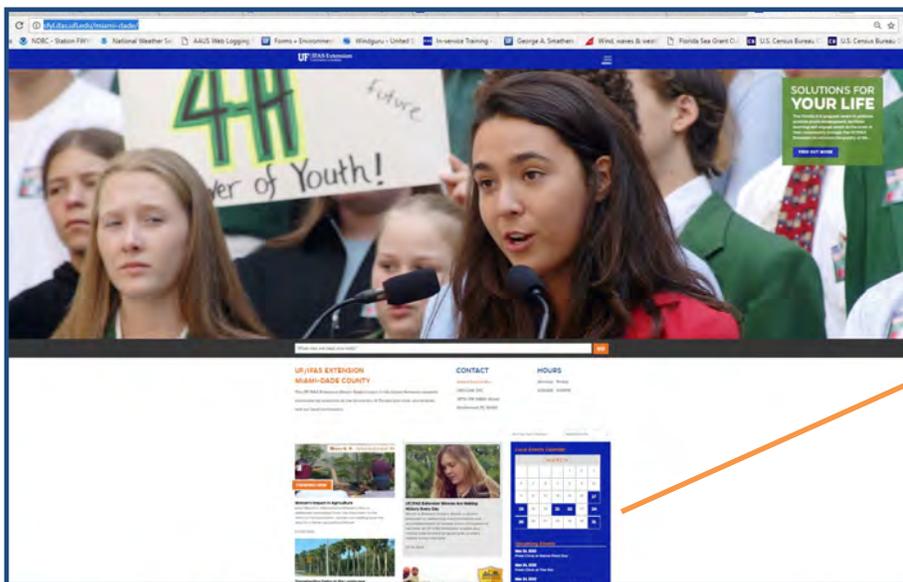
I found both the Skyblue Clustervine and Whitemouth Dayflower at Tropical Audubon's plant sales and you can look to find them at Native Plant Day, March 23, 2019 at Bill Sadowski Park. Look for details to update soon on the Dade Chapter website. Remember, even the most drought-tolerant plants need water to establish as they grow the fine root hairs damaged when planting. During Native Plant Day, we will be holding a [Rain Barrel/Water Conservation Workshop](#). You can also look for rain barrels at [local nurseries](#) that sell native plants and at Fairchild events. You may even find one on the raffle table at a Native Plant Society [Meeting](#).

For more South Florida plants that bloom in shades of blue, please see Dr. John McLaughlin's (aka "the Plant Doctor") publication, "[The Garden Blues and How to Enjoy Them](#)."

As always, happy gardening!

What's New at Miami-Dade Extension?

Check out our new website! To access our Extension Calendar, please visit our website: <http://sfyl.ifas.ufl.edu/miami-dade/> and scroll through the calendar. There, you will find all event information including how to register for classes and workshops.



Local Events Calendar						
MARCH						
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4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Upcoming Events

- Mar 24, 2018
Plant Clinic at Native Plant Day
- Mar 24, 2018
Plant Clinic at The Fair
- Mar 24, 2018
Rain Barrel/Water Conservation Workshop at Native Plant Day at A.D. Barnes Park

What is UF/IFAS Extension?

The UF/IFAS Extension Service is the liaison between research conducted at the University of Florida, other institutions of higher learning, other universities and stakeholders in Miami-Dade County. Our clientele includes growers (agricultural and horticultural), homeowners, youth, people interested in family issues or food and nutrition, and marine industries.

UF/IFAS Extension Miami-Dade County receives direct funding from the [University of Florida's Institute of Food and Agricultural Sciences \(IFAS\)](#) and [Miami-Dade County's Parks, Recreation and Open Spaces Department](#).

The **United States Department of Agriculture (USDA)** is the third partner in this cooperative agreement. The Miami-Dade County offices are part of a nationwide system of information, outreach, and education offered by county governments and land-grant educational institutions in each state.

This newsletter is edited by Jeff Wasielewski and Ana Zangroniz. If you have any questions or concerns, please contact us at sflhort@ufl.edu or azangroniz@ufl.edu.

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