



The Florida Ag Expo is Back *Thursday November 18<sup>th</sup>*  
**Registration is now Open!** Registration and Vendor details can be found here: <https://floridaagexpo.net/exhibit/>.



Here's the tentative schedule for our 2021 Florida Ag Expo.

**7:30 a.m. – 8:45 a.m. Breakfast**

**8:45 a.m. Welcome**

**9:00 a.m. – 11:00 a.m. AI/Robotics Session**

9:00-9:20 Opportunities and challenges for AI in precision farming; Arnold Schumann UF

9:20-9:40 Phenomics in Plant Breeding: Examples from Strawberry; Vance Whitaker, UF

9:40-10:00 AI and Robotics in Specialty Crops: Past Accomplishments and Future Direction.  
Dr. Karkee, WSU

10:00-10:20 Robotic Weeding Technology, Paul Nagel, Stout Ag

10:20-10:40 Automated Mechanical Weeding for Vegetable Crops, Pauline Canteneur, FarmWise

10:40-11:00 Advanced Tractor Automation; Daniel Carmichael, Bear Flag Robotics

11:00-11:15 Panel Discussion

**11:15 – 12:30 Lunch**

**12:30-2:10 p.m. Concurrent Sessions**

Pest Management Session

12:30-12:50 Asian Bean Thrips: Managing a New Invasive Pest of Florida Legume Crops; Hugh Smith UF

12:50-1:10 2021 Small Fruit Crop Insect and Mite Pest Update; Sriyanka Lahiri, UF

1:10-1:30 Nematode Management Update; Johan Desaeger UF

1:30-1:50 2021 Strawberry Disease Update; Natalia Peres, UF

1:50-2:10 2021 Vegetable Disease Update; Gary Vallad, UF

BMP Session

12:30-12:50 Understanding Senate Bill 712 and agriculture BMPs, Lakesh Sharma, UF, Soil and Water

12:50-1:10 Soil testing and BMPs, Rao Mylavarapu, UF, Soil and Water Sciences Dept

1:10-1:30 Improved soil-test based fertilizer recommendations - a state-wide program, Kelly Morgan, UF,  
Soil and Water Sciences Dept

- 1:30-1:50 Compact Bed Plasticulture for Reducing Environmental Footprint, Production Risks, and Costs, Sanjay Shukla, UF, Agricultural and Biological Engineering Dept
- 1:50-2:10 Improving effectiveness of compost by localized application methods, Shinsuke Agehara, UF, Horticultural Sciences Dept

**2:45-3:45**

**Field Tour**

- |  |                      |
|--|----------------------|
| Breeding for Mechanical Harvesting               | Dr. Sam Hutton       |
| Disease Management in Tomato/Watermelon          | Dr. Gary Vallad      |
| Smart Spray Technology for Herbicide Application | Dr. Nathan Boyd      |
| Effects of Cover Crops on Vegetable Production   | Dr. Johan Desaeger   |
| Artichoke and Hops Production in Florida         | Dr. Shinsuke Agehara |

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## Asian bean thrips: a new threat for leguminous crops in South Florida

Bruno Rossitto De Marchi, Cleveland Ivey, Andy Jean-Louis, Hugh Smith. GCREC Vegetable Entomology



Female (l) and male (r) Asian bean thrips. Photo: Cleveland

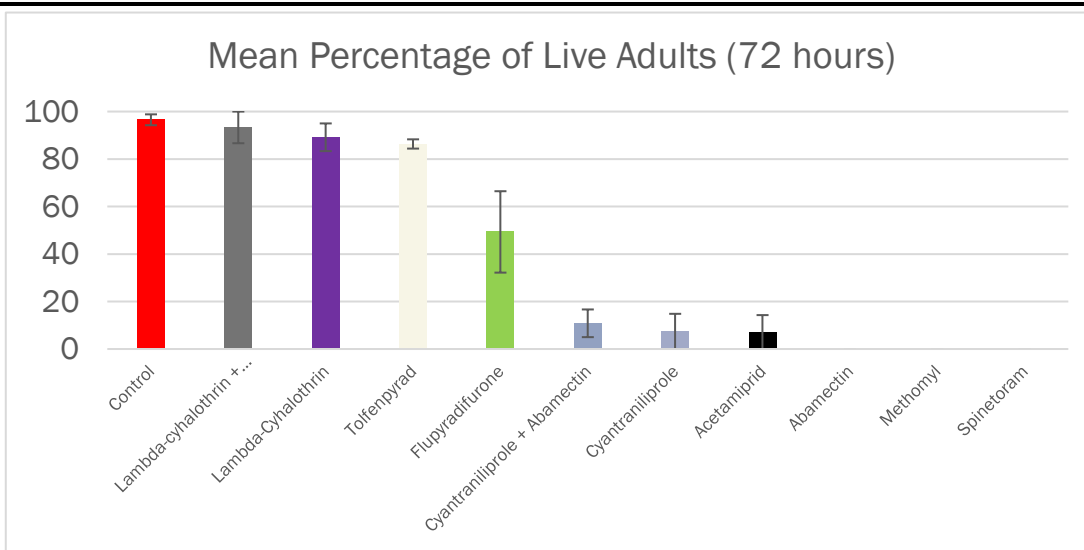


Asian bean thrips feeding on bean cotyledons

Asian bean thrips, *Megalurothrips usitatus* (Bagnall) is a new invasive species recently identified on snap beans in Miami-Dade County in March 2020. This species is causing major concerns to local growers as they feed on a variety of leguminous crops such as snap beans, yardlong beans, lablab beans, cowpea, peas, pigeon peas, among others. Homestead is a very diverse agricultural area that has suitable hosts for this pest available all year round. Controlling this pest has been very challenging for growers and there is little information about the best management practices for Asian bean thrips in Florida. In collaboration with growers, our team is carrying out research to better understand the distribution, biology, and hosts associated with Asian bean thrips in South Florida.

In addition, we are performing trials to evaluate the efficacy and residual effect of different insecticides against adults and immature stages of this pest. To evaluate the efficacy of

insecticides, a new laboratory bioassay was developed where ten adult thrips are transferred and confined in a petri dish containing a bean sprout treated with the top labeled rate of the insecticide being tested. The number of thrips found alive or dead is counted 72 hours later. Preliminary results revealed different efficacy of insecticides frequently used by growers against thrips in leguminous crops. The active ingredients spinetoram, methomyl, abamectin, acetamiprid, and cyantraniliprole have shown better efficacy among the insecticidal molecules tested. (Continued on next page)



This research will continue monitoring the insecticide efficacy for different Asian bean thrips populations collected in South Florida. The results are being shared with growers and extension agents to optimize insecticide rotations as part of season-long integrated pest management programs.

Efficacy of 10 insecticides against Asian bean thrips adults from a population collected in Homestead-FL



Bruno Rossitto De Marchi (post-doctoral research associate), Andy Jean-Louis (DPM student), Hugh Smith (associate professor) and Cleveland Ivey (PhD student) collecting thrips from lablab bean in Homestead.



### Former GCREC Grad Student is Ready for New Chapter

Jose Hernandez is a recently graduated Masters Student who worked with Dr. Shinsuke Agehara in his Horticultural Sciences Lab at GCREC. His work included, but was not limited to, studying the physiological roles of initial leaves of bare-root strawberry transplants during establishment and their impact on field performance. He also conducted a strawberry root study to understand the root development during establishment in field conditions using in-situ root imager mini-rhizotron. During his tenure with GCREC he also gained vast field experience including the construction and installation of irrigation systems, fertilization application using dosatron injectors, application of plant growth regulators (PGRs), and collection of phenotypic data and evaluation of strawberry fruit quality.

Highly qualified in strawberry production and physiology, this hard-working young man would be an asset to any company, public, private or research oriented. To review his complete CV/Resume – email [josevhmon@gmail.com](mailto:josevhmon@gmail.com)



# GCREC Welcomes New Faculty Members

## *AI Technology Faculty positions are filled.*

*Dr. Xu (Kevin) Wang and Dr. Daeun (Dana) Choi will be joining the GCREC team and heading up our new AI program to benefit central Florida growers and beyond.*

Dr. Kevin Wang received his PhD at Kansas State University specializing in Biological and Agricultural Engineering. He also has a M.S. degree in Computer Application Technology from China Agricultural University. Dr. Wang has many refereed publications and awards including 1<sup>st</sup> place in ASABE International

Student Robotic Competition 4 years in a row! He has been a lecturer and student mentor. His goal is to coordinate building a data center storing high-value crops referencing data that includes images, derived phenotypes, along with genetic and genomic data for breeding and genetic research nationally and internationally.

**Artificial intelligence** (AI) is intelligence demonstrated by machines, as opposed to the **natural intelligence.**

Dr. Dana Choi has a PhD in Agricultural and Biological Engineering from none-other-than the University of Florida! She also

received her M.S. from UF in the same course of study. She is presently an assistant professor at Penn State University and will be joining our team in early 2022. Her expertise focuses on precision agriculture applications for specialty crop production, deep learning and data analysis for crop monitoring. She also has an extensive list of publications, outreach extension activities and awards including 2019 Next Leaders Program from the Commission of Agricultural and Biosystems Engineering.



## GCPSA Event Welcomes New Students/Interns

Current and new students/interns gathered last week to get updates and reminders regarding the student housing. The event also included a round-table discussion and seminar. Thanks to all the students/interns and staff/faculty that participated in this important meeting.



A round-table discussion with former grad students and faculty included tips on how to succeed in grad school. The panel included Dr. Jessica Chitwood-Brown, Dr. Juliana Baggio, Dr. Vance Whitaker and Dr. Shinsuke Agehara. After the discussion Dr. Baggio gave a presentation on one of the diseases plaguing strawberry growers last year and again for the 2021-2022 season – Neopestalotiopsis.

### CCA and CEU Sessions are now Available

Registration for the next CCA-CEU session (5.0 CEUs in Soil and Water and 5.0 CEUs in Crop Management) is now OPEN. Please use the link below to register.

Link to the new course's registration page is: <https://ifas-nutrientsystems.catalog.instructure.com/browse/cca/courses/ifas-cca-educational-session--september-2021>

If you have previously registered, you may use the same userid and password. If you do not have the password, please click on Forgot Password link and create a new one. If you have any technical questions related to accessing the link or user credentials, please contact Melissa De La Paz at: [mdelapaz@ufl.edu](mailto:mdelapaz@ufl.edu).

**The course is slated to be opened next week- on Monday, September 13, and will remain open through the end of December 2021 for completion.**

Please let Dr. Mylavarapu know if you have any questions about the course.

Rao Mylavarapu, Ph.D. | UF Term Professor | Professor, Sustainable Nutrient Systems | Director of IFAS Analytical Services Laboratories | Soil & Water Sciences Department | 171 McCarty Hall A | PO Box 110290 | University of Florida | Gainesville FL 32611-0290 | 352-294-3113 |



## GCREC in the News

University of Florida scientist works on improving tomato production, size

[https://www.seedquest.com/news.php?type=news&id\\_article=131644](https://www.seedquest.com/news.php?type=news&id_article=131644)  
<https://www.tampafp.com/uf-scientist-works-on-improving-tomato-production-size-presents-latest-research-this-week/>

Update on Hop Variety Trials, Breeding

<https://vscnews.com/florida-hops-variety-trials-breeding/>

Timmberrrr! ... University Of Florida Experts Try To Take Subjectivity Out Of Tree-Falling Assessments

<https://www.tampafp.com/timmberrrr-university-of-florida-experts-try-to-take-subjectivity-out-of-tree-falling-assessments/>

Behind the scenes of a local brewery (includes interview with Shinsuke Agehara from GCREC)

<https://abc-7.com/news/local/2021/09/07/abc7-behind-the-scenes-of-local-brewery-growing-their-own-hops/>

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[Like us on Facebook](#)  
and check out our [YouTube Channel](#)

Give Back - Want to support Gulf Coast Research and Education Center? Consider making an online gift today! Questions can be directed to Cody Helmer at (352) 392-1975 or [chelmer@ufl.edu](mailto:chelmer@ufl.edu).

## Facebook

Horticultural Crop Physiology Lab updates,  
<https://www.facebook.com/UFHortLab>

Hops research updates, <https://www.facebook.com/UFHops>

## Grants and Awards

Dr. Mary Lusk has been awarded a new grant from the Tampa Bay Estuary Program. The project is called "Up in the Air and Down in the Water" and will research connections between atmospheric pollutants and water quality in Tampa Bay over the next 2 years. The grant is in collaboration with the Mote Marine Lab Red Tide Institute in Sarasota.

## Publications

Oh et al. 2021. "Genomic Characterization of the Fruity Aroma Gene, FaFAD1, Reveals a Gene Dosage Effect on  $\gamma$ -Decalactone Production in Strawberry (*Fragaria* × *ananassa*)" *Frontiers in Plant Science*.

Chandra et al. 2021. "Comparative Transcriptome Analysis to Identify Candidate Genes for FaRCg1 Conferring Resistance Against *Colletotrichum gloeosporioides* in Cultivated Strawberry (*Fragaria* × *ananassa*). *Frontiers in Genetics*".

Tapia et la. 2021. "Evolution of the MLO gene families in octoploid strawberry (*Fragaria* × *ananassa*) and progenitor diploid species identified potential genes for strawberry powdery mildew resistance". *Horticulture Research*

Barry, D.M., Diaz, J.M., Ferand, N.K., Myers, B.E., Wysocki, A.F. (2021). Improving the Student Teaching Experience: A Delphi Study of Cooperating Teacher Needs. *Journal of Agricultural Education*. December 2021 Issue

Lin, S.-Y. and S. Agehara. 2021. Budbreak patterns and phytohormone dynamics reveal different modes of action between hydrogen cyanamide- and defoliant-induced flower budbreak in blueberry under inadequate chilling conditions. *PLOS ONE* 16:e0256942. doi:10.1371/journal.pone.0256942

Agehara, S. and S.-Y. Lin. 2021. Chemical budbreak induction methods to increase blackberry yields under inadequate chilling conditions. EDIS HS1352. <https://edis.ifas.ufl.edu/publication/HS1419>

## YouTube

Determining When to Harvest Hops  
Univ of Florida Hops Research  
<https://youtu.be/U6i8rh65jyU>

Monthly Hopyard Tour (2021-09-02)  
<https://youtu.be/ggt9AeSRo50>



# Wow! Hops Update Shows Amazing Results for the 2<sup>nd</sup> Crop of 2021.

September 9, 2021 (Day 80 in Fall 2021)

Trellis height

3.7 m

4.6 m

5.5 m

Straight trellis



V-trellis



On Sep 7, we turned off LED supplemental lighting in the hopyard to induce flowering. Plants are now producing many flowers. They will soon transform into cones, which are what brewers use to make beer!







## KNOW YOUR SOIL HEALTH AND MAXIMIZE PRODUCTIVITY

Special Educational Series brought to you by: **Urban Soil & Water Quality Lab, GCREC**  
Fourth in the Series

### Soil Compaction

In this week's series, we explain soil compaction and what consequences it can bring to your crop productivity. Soil compaction occurs when soil particles are compressed together which increases their density and reduces pore space. This will reduce air content and movement of water in the soil and often makes it difficult for the plant roots to penetrate easily through the soil.

This can escalate causing water stagnation and unpleasant smell in the field.

Most times, compaction is caused by farm livestock and excessive use of heavy machinery on the farm. It can be an undesirable soil property as it may significantly affect your crop yields.



**Figure 1:** Illustration of a good Soil (Left) and a Compacted Soil (Right)  
(Image credit: Forigo roteritalia, 2019)

A compacted soil can be observed by using a knife and test the resistance to penetration or even digging a small soil pit and observe the appearance of the soil. A compacted soil will have a blocky appearance and will feel stronger and hard than the soil above or below.

If you soil is compacted, adding organic matter for example compost is a good way to reduce this problem.

**Don't Miss Out Next, More Still to Come!!**





## GCREC Grad Student takes the Lead on Recruiting for Environmental Hort Association

Alexander Schaller, Ph.D. student in the Environmental Horticulture

Department and the current secretary of the Environmental Horticulture Graduate Student Association (EHGSA) would like to share a little information about EHGSA and extend an invitation to everyone to join this organization.

EHGSA is a professional, not-for-profit organization formed in 1999 that is open to graduate students of any major at the University of Florida. EHGSA provides a forum for graduate students to come together, share their graduate school experiences, develop friendships, learn about horticulture, and work on their professional development. Every spring, EHGSA grows around 15 different varieties of coleus plants from cuttings, totaling approximately 4,000 plants. The varieties we grow were bred and released by UF's coleus breeding program, which was founded by Dr. Dave Clark. They sell these coleus plants at a sale later in the spring. The money from the plant sale is used to fund an educational trip (typically held in August) to learn about horticulture in other parts of the US and around the world. The money is also used to fund travel grants (up to ten \$300 grants per year) to help graduate students present their research at professional conferences, and it is used for social events and local trips within the state of Florida. If you would like to see a little bit of what they have done in the past you can check out our Facebook (<https://www.facebook.com/EHGSA/>)

They will hold their first meeting Thursday, September 16th, at 5:00 PM over Zoom. Please see the Zoom details at the end of this email. In the meantime, if you have any questions, comments, or concerns, please feel free to contact Alex. If you know other UF graduate students (from any major!) that might be interested in joining EHGSA, please share this email and my contact information with them ([aschaller@ufl.edu](mailto:aschaller@ufl.edu)). Finally, if you cannot make it to this meeting but are still interested in joining EHGSA or would like more information, please let him know.

Topic: EHGSA Fall 2021 First Meeting

Time: Sep 16, 2021 - 05:00 PM Eastern Time (US and Canada)

Join Zoom Meeting

<https://ufl.zoom.us/j/91609528361?pwd=VTN1T3ltbEw1ZGJJV1lrTOtpREV4QT09>

Meeting ID: 916 0952 8361 Passcode: 578887



## Charity Drive - SEND YOUR OLD PRESCRIPTION EYEGLASSES to the LION'S CLUB

GCREC is always working to do good in the neighborhood. This month we are collecting old prescription eyeglasses to send off to the Lion's Club. They will clean, repair and determine the prescription and make sure they get distributed to those in need. Ever since Helen Keller inspired them to champion the cause in 1925, they have served and advocated for the blind and visually impaired. Nearly a century later, this long-standing mission continues unhindered.

Check your junk drawers and closets for those old glasses and ship them off to your local Lion's Club.

Just another way to recycle and repurpose.

<https://www.lionsclubs.org/en/start-our-global-causes/vision>

## Blast from the Past



You may think GCREC has always been in the Balm/Wimauma area, but you would be wrong. GCREC was actually two centers back in the day – Bradenton and Dover – combined in 2005 into the amazing center we now call home. Here's a reminder of some of the dedicated faculty and staff who were in Bradenton and came to the new facility despite the longer drive to work. From left to right: Rick Kelly, Gail Bowman, Dr. Zhanao Deng, Nancy West, Joyces Jones and Dr. Brent Harbaugh. Dr. Deng continues his work here at GCREC while all the others have gone onto retirement.