

# Riverside County Cooperative Extension



## Semi-Annual Report – July 1-December 31, 2022

### **Board of Supervisors:**

Kevin Jeffries, First District

Karen Spiegel, Second District–Chair

Chuck Washington, Third District

V. Manuel Perez, Fourth District

Jeff Hewitt, Fifth District-Vice Chair

### **County Executive Officer**

Jeffrey Van Wagenen



**UNIVERSITY OF CALIFORNIA**  
Agriculture and Natural Resources

■ UC Cooperative Extension



**CONTENTS**

**Cooperative Extension**

**Riverside County**

<b>Programs</b>	<b>Page No.</b>
Budget and Funding Sources .....	3
4-H Youth Development.....	4-6
Agriculture Economics/Farm Management.....	7-8
Crop Production and Entomology.....	9-10
Environmental Horticulture.....	11-12
Integrated Pest Management.....	13
Master Gardener Program.....	14-15
Nutrition, Family and Consumer Sciences ...	16-18
Small Farms and Specialty Crops Program..	19-21
Sustainable Agricultural Lands Conservation Program (SALC).....	22-23
Viticulture.....	24-25
Vegetable Crops.....	26-28
UCANR Non-Discrimination Statement.....	29

Cooperative Extension is an off-campus educational arm of the University of California, Division of Agriculture and Natural Resources. It came into existence when the Federal Smith-Lever Act of 1914 established the nationwide Cooperative Extension at land-grant universities. The mission of UC Cooperative Extension (UCCE) is to connect the power of UC research in agriculture, natural resources, nutrition and youth development with California counties to promote healthy people, healthy communities, healthy food systems, and healthy environments.

In Riverside, the University of California entered a Memorandum of Understanding with the County in 1917 to promote the vision of sharing UC research and science-based solutions to solve local issues and improve the lives of Riverside County residents by forming a strong partnership with Riverside County.

This report includes a summary of our programs with highlights, accomplishments and efforts from July to December, 2022. Thank you for reading!

*Visit our offices in Moreno Valley, Indio and Blythe, and let us know how UC Cooperative Extension in Riverside County can be of help to you.*

*For information visit us on the web at:*

[ceriverside@ucanr.edu](mailto:ceriverside@ucanr.edu)

(951) 683-6491

**Rita Clemons**

**County Director**

**(951) 683-6491**

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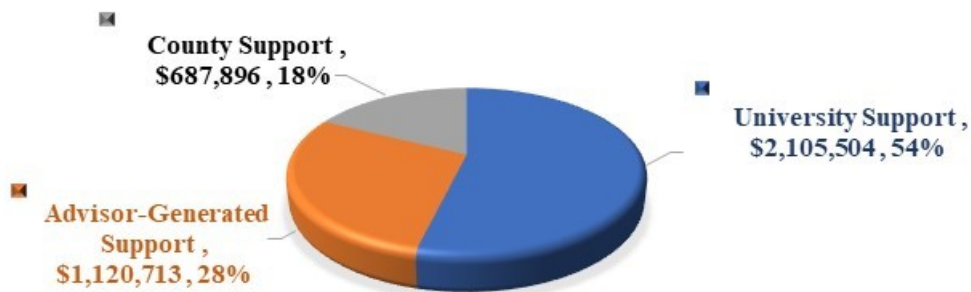
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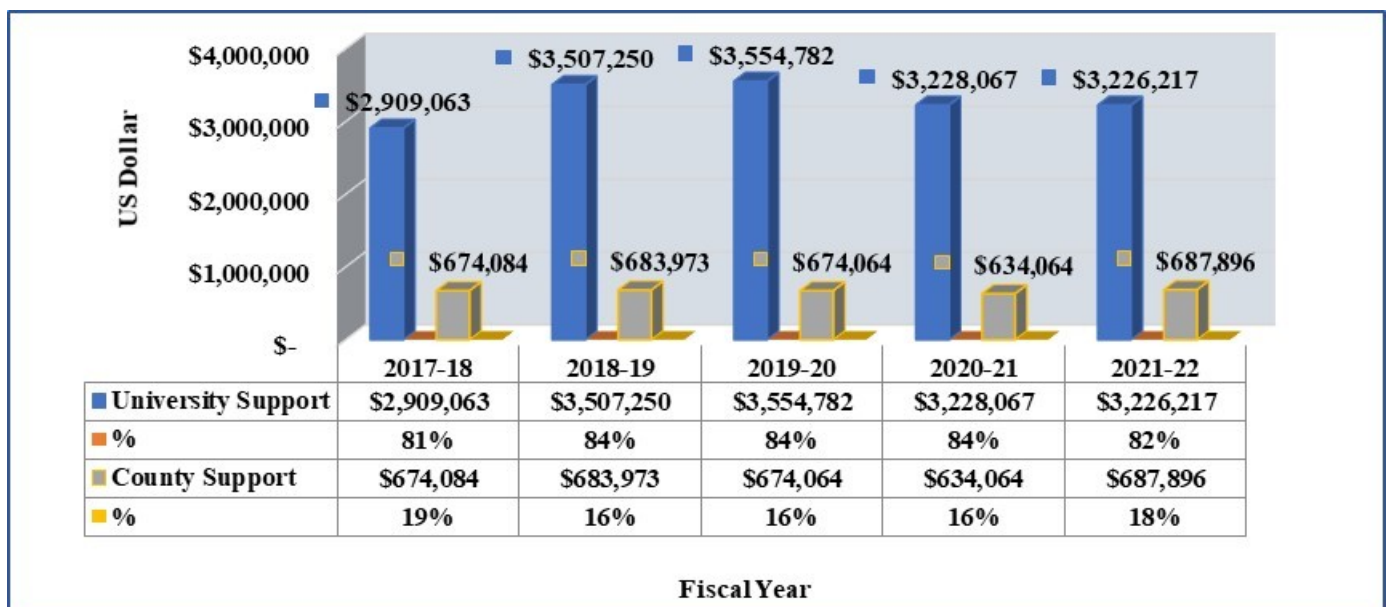
**UC Cooperative Extension (UCCE) Budget by Fund Source**

**Budget for Fiscal Year 2021-22**

University Support	\$ 2,105,504	\$ 54
Advisor-Generated Support	\$ 1,120,713	\$ 28
County Support	\$ 687,896	\$ 18
<b>UCCE Riverside Total</b>	<b>\$ 3,914,113</b>	<b>\$ 100</b>



**Budget for 5 years (FY 2017/18 to 2021/22)**





## 4-H Youth Development Program

Riverside County 4-H Youth Development Program serves youth ages 5-19 in Riverside County and promotes hands-on, experiential learning for youth of all backgrounds and locations. Our community clubs, camps, in-school, afterschool, and special interest programs encourage youth to take on leadership roles and teach life skills, community involvement, and personal development while they engage in new experiences. The program is led by faculty, staff, and adult volunteers from the University of California Division of Agriculture and Natural Resources (UC ANR), a statewide network under the University of California. Our research-driven programming provides positive youth development opportunities that enable youth to reach their full potential as competent, confident, leaders of character who contribute to and are connected to their communities.

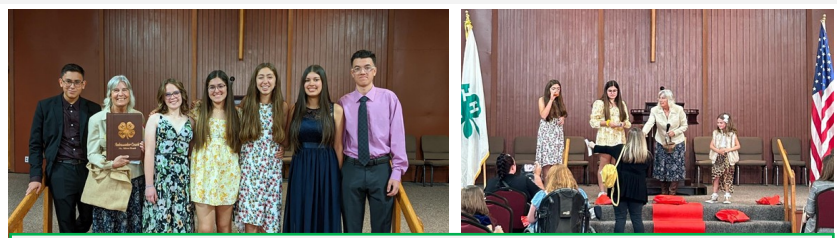
### Activities

**HEMET BACK TO SCHOOL EVENT:** On August 13<sup>th</sup>, 2022, Fifth District County Supervisor Jeff Hewitt invited Riverside County 4-H to participate in the city of Hemet’s highly anticipated back to school community event. Our team was able to promote our county’s community clubs with the help of the Hemet Harvesters 4-H Club as well as some of our County Ambassadors. To promote 4-H’s hands-on, experiential learning methods, we included an interactive “Sink or Float” science activity for families to engage with us and gave out some “4-H swag” to youth who guessed which items would sink or float in a large bin filled with water during the activity. The event and turnout amongst families within the local community was an absolute success. Our team was able to recruit families who had shown interest in joining our program!

**RED CARPET AWARDS & TALENT EVENT:** In November 2022, the Riverside County 4-H County Ambassadors planned, coordinated, and facilitated a Red Carpet Awards & Talent Event for all community clubs and 4-H families in the county to participate in at Hemet United Methodist Church! The County Ambassador team, led by one of our long-time volunteers Allison Renck, worked on this event for months to give recognition to youth members who excelled in their leadership roles, their community club projects, their annual record books, and much more. This event marked one of the first in-person county-wide events to happen after the COVID-19 pandemic. The event included a talent show and a cake/cookie baking contest where youth were given the opportunity to showcase their strengths and talents, regardless of what they might be. All youth members and their families were encouraged to attend and participate in the event while they represented their own community clubs in front of other clubs established throughout the county.



Hemet Back to School Event



Red Carpet Awards & Talent Event



## 4-H Youth Development Program

### Workshop

#### SCIENCE & ART NIGHT WORKSHOP SERIES

Beginning in October 2022, our team launched a new monthly Science & Art Night workshop series in collaboration with the Behavioral Insights Team (BIT) and the Consulate of Mexico in San Bernardino. These monthly workshops were open to local youth ages 5-18 and their families throughout Riverside County in an effort to bring 4-H's research-driven programming to local communities with no fees involved. Each monthly workshop consisted of a different topic and interactive activity for the whole family to participate in. This kind of programming typically brings new members into 4-H that become much more involved year-round in our community clubs. Exposing diverse youth into 4-H's unique education style and positive youth development methods ultimately helps us recruit members who would otherwise not be involved in our kind of programming outside of their regularly scheduled time in school. This opens the door for underserved communities to be directly involved in 4-H activities in a temporary manner and then further encourages them to be involved in our program year-round.

Our Science & Art Night series officially launched with our first workshop in October which was focused on a presentation about the first Mexican woman in space, Katya Echazerrata, as well as a Mars Rover activity that families completed as a team.

Our Science & Art Night series officially launched with our first workshop in October which was focused on a presentation about the first Mexican woman in space, Katya Echazerrata, as well as a Mars Rover activity that families completed as a team.



4-H Youth Development Program

Workshop Images

*The Science & Art  
Night monthly  
workshops continue in  
January through June  
2023*



*Our second workshop of  
the series was held in  
November and was  
focused on teaching  
youth members how to  
create their own solar  
ovens using pizza boxes!*



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## Agricultural Economics/Farm Management

Farm Management/ Agricultural Economics - Production economics, decision-making at the farm level, integrated input management, risk management. Riverside, San Diego, San Bernardino, Imperial, Santa Barbara, San Luis Obispo, Los Angeles, Orange, and Ventura counties.

Program's mission is to determine enterprises profitability and create understanding of what affects profit; thus guiding growers' to best management strategies and guiding researchers and educators future program planning and collaborations for ag. Sustainability, food safety and security.

### Peer reviewed publication in press:

<sup>1</sup>WANG, ZHENG, T. TURINI, J. SIDHU University of California Cooperative Extension Farm Advisors, Stanislaus County, Fresno and Kern Counties; C, SWETT and J. D. C. MUNERA, UC Davis, Plant Pathology, A. VINCHESI-VAHL, University of California Cooperative Extension Farm Advisor, Colusa County; R. GILBERTSON, Department of Plant Pathology, University of California, Davis; and E. TAKELE, University of California Cooperative Extension Area Farm Advisor, Southern California. Watermelon Production in California, Vegetable Crops Publication Series, Publication 7000, (in press).

## Presentation



High Density Avocado Planting: Impacts on productivity and water cost (9-28, San Diego). A comparison with traditional density planting.

Attendance-53; Certified Crop Consultants (CCC) credit available

Economic Sustainability and Viability of Vegetable Crops Production in Riverside County: Opportunities and Challenges (9-29 Coachella Valley). Economic trend analyses to understand the historical journey of the industry and to get perspectives as to how the industry's path will be in the future.

Attendance 49; CCC credit available





## Agricultural Economics/Farm Management

# Topics in Subtropics Newsletter

University of California Cooperative Extension

Fresno, Kern, Madera, Riverside, San Bernardino, San Diego, San Luis Obispo, Santa Barbara, Tulare, & Ventura Counties

### News from the Subtropical Tree Crop Farm Advisors in California

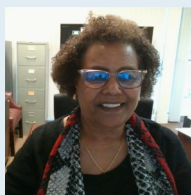
A quarterly newsletter during the Fall of 2022. The topics provided 4 articles of new research results and information to educate clientele with improved production practices for adoption of best management practices for enterprise profits in Subtropical Crops. Vol. 22, Fall 2022 articles included:

Mycorrhizae: An Underground Support Network for Trees.

Notes on Applying Gibberellic Acid (GA3) to Navel Orange and other Citrus in the San Joaquin Valley of California

Saline Waters - A Growing Problem

35th Anniversary of the Nematode Quarantine Facility at the University of California Riverside



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## Crop Production and Entomology

The Palo Verde Valley is unique to much of the rest of Riverside County. It has all the cotton production acres and most of Riverside County's alfalfa acres, and several other summer forage/hay crops such as Bermudagrass, teff and sudan. Research priorities for this past half year reflect this cropping pattern, focusing on alfalfa insect control and mitigating heat stress on cotton production, while also addressing a new world insect pest on alfalfa and providing information on insect control to multiple entities.

The advisor was also an invited speaker at the 2022 World Alfalfa Congress on alfalfa insects, and also presented multiple presentations at various location on biostimulants in agriculture as an invited speaker, helping to increase awareness of successes by the University of California Cooperative Extension in Riverside County.

### Efforts

Multiple field trials were conducted in grower fields. These included:

Five (5) field trials evaluating heat mitigation in cotton (*2 treatments in each field, 10 total in addition to untreated strips*).

Two (2) alfalfa insecticide trials, with main insect pests being leafhoppers and caterpillars.

Comparative evaluation of different colored sticky cards for monitoring bermudagrass insect pests.

Evaluation of Envita in bermudagrass.

Organized three (3) Progressive Farmers meetings with educational topics being nematodes, pigweeds in alfalfa, and winter alfalfa insects.

Served as coach of the California State 4-H Horticulture Team. Training materials developed, educational sessions via zoom.

Multiple articles in area UCCE newsletters.

### Program Highlights

First identification of the dot lined angle caterpillar in alfalfa. This insect was found in almost every field in the Palo Verde Valley, and is of concern as it represents a host plant expansion for this species. Alfalfa is Riverside County's #1 crop for value to the county. The extent of feeding damage/crop loss and much other information regarding this insect pest is yet to be documented.



*Dot-lined angle caterpillar*



## Crop Production and Entomology

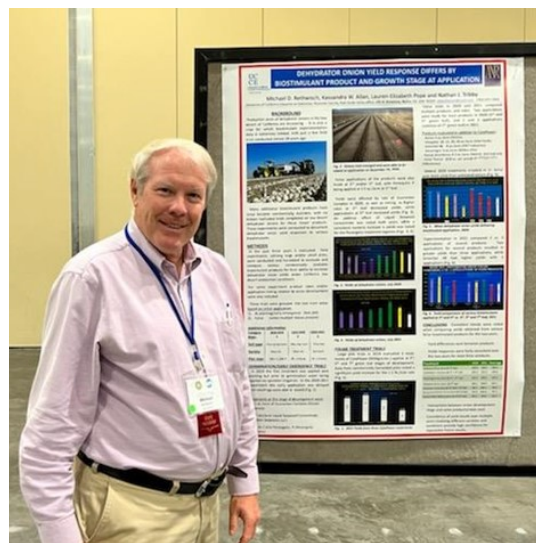
### Presentations

- ◆ *Biostimulants in agriculture - The Fertilizer Institute (St. Louis, MO), and three other presentations in Missouri (invited) (4 total presentations)*
- ◆ *Insects with Piercing-Sucking Mouthparts – 2022 World Alfalfa Congress (invited)*
- ◆ *Alfalfa Insecticide Results and initial data on nitrogen fixing bacteria - Corteva Pest Control Advisor meeting (invited)*
- ◆ *A review of the 2022 summer growing season - Palo Verde Valley cotton meeting*
- ◆ *Insects association with teff production in the desert southwest – National Association of County Agricultural Agents Western Regional meetings*
- ◆ *Biostimulants and dehydrator onion responses - National Association of County Agricultural Agents Annual meeting*
- ◆ *Update on winter alfalfa insects and their control – Progressive Farmers*
- ◆ *Cowpea Aphids in low desert alfalfa – 33<sup>rd</sup> Desert Crops Field Day*

### Accomplishments



*Coached California 4-H Horticulture team, placing 3<sup>rd</sup> in national 4-H Horticulture Contest.*



*Applied research poster at National Association of County Agricultural Agents was a national finalist (top 10 in nation) after being the California State winner.*



Michael Rethwisch  
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## Environmental Horticulture

The primary responsibility of my position in Riverside County is to develop and extend research-based information on drought, heat and pest tolerant landscape plants to arborists, landscapers, and government agencies. Goals are to broaden the plant palette of suitable native and non-native trees, shrubs, and groundcovers and to reduce impacts of urban heat islands by enhancing tree canopies in low-shade underserved neighborhoods. I also manage the Riverside County Master Gardener program and provide guidance and support to Volunteer Services Coordinator Rosa Olaiz.



### Trees for Tomorrow Start Today Presentations

Sadly, California currently has the lowest density of urban street trees in the USA with heavy losses due to poor species selection and care and invasive pests. To help reverse this trend, I provided training through webinars and live workshops and seminars to over 1,500 public and private urban foresters, landscapers, landscape architects and other ‘green industry’ professionals and Master Gardeners on proper tree selection, placement and care; using reputable search engines to select climate-appropriate species; pest and disease prevention, identification, and management; and, impact of mulch and soil amendments on tree growth and development. A highlight was presenting an invited talk to public and private stakeholders attending the statewide “Lead with Trees” conference in Rancho Mirage sponsored by the California Urban Forests Council and webinars I taught sponsored by the UC ANR statewide Master Gardener and Urban Integrated Pest Management programs.



*Prescott Preserve in Palm Springs with Master Gardener David Lahti and UC Riverside Palm Desert Center Director Tamara Hedges.*



*Hung Doan and Janet Hartin at the Lead with Trees Conference on Sept 30, 2022*



## Environmental Horticulture

### Applied Research

I serve as a co-principal investigator with other UC Cooperative Extension (Janet Hartin, Jim Downer, Alison Berry) and US Forest Service (Greg McPherson, Natalie Doorn, et al.) scientists on a 20 year ‘climate-ready landscape trees’ project at UC Riverside to measure the drought, heat, and pest resistance and overall performance of 12 under-planted species of native and climate-adapted non-native landscape trees. The project is entering its eight year. To date, 11 of the 12 species are performing well under no supplemental irrigation since March 2020. Results of this study have been shared with public and private sector decision-makers and stakeholders including planners, landscape architects, city foresters, wholesale and retail nursery personnel, and landscapers via webinars and live presentations/meetings. Results from a linked-trial (also in the inland valley) that I led with Dr. John Bushoven (Dept. Chair, Horticulture, Cal State, Fresno) that measured root system densities of four species from the larger ‘climate ready landscape tree study discussed above in which trees were either mulched or left unmulched were also shared. Root systems were measured using a non-destructive ground penetrating radar system. Results show that mulched trees had shallower, less dense root systems than roots in unmulched controls. These trials provide new data not previously available that I have shared with the “green industry” underscoring the importance of deep, infrequent irrigation beneath the root zones of mulched maturing trees to maximize deep rooting necessary to physically support large growing shade trees. (Mulch treatments around trees are often recommended to reduce soil evaporation which is an important water conservation method, especially during drought and water restrictions.) Information from this study is also beneficial in fire-prone areas in which organic wood-based mulches can be a fire hazard.



*Climate ready tree project entering its 8th year at UCR*

### Master Gardener Program Academic

#### Oversight

I provided general oversight for the UCCE Riverside County Master Gardener program which included presenting continuing education webinars, writing monthly newsletter articles and editing the newsletter, addressing inquiries about my research results, and helping with Master Gardener-led projects, such as the Prescott Preserve in Palm Springs.



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## Integrated Pest Management

My program deals with any pests that you can find inside or immediately around buildings such as bed bugs, cockroaches, termites, ants, fleas, flies, etc. I help pest control professionals, municipalities, counties, and housing managers with their pest control programs. I also provide state-approved pest control continuing education to licensed pest control technicians and inspectors

June 8<sup>th</sup>, 2022: Gave a talk to Riverside pest control technicians as well as other technicians from other counties at Pest Control Operators of California Expo meeting at Disneyland Hotel, Anaheim, CA

### PCOC's 2022 Expo will be held at the Disneyland Hotel<sup>®</sup> in Anaheim!

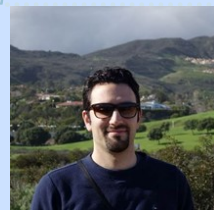
We have fantastic room rates at \$269 per night! The link to make your room reservations will be emailed to you with your confirmation of registration.

Reservations must be made by May 16, 2022. Prevailing rates may apply after this date or when the group rooms are sold out, whichever occurs first. Rooms are subject to availability.

#### EXPO SCHEDULE AT A GLANCE

WEDNESDAY, JUNE 8, 2022	
12:00 pm	PCOC Golf Tournament, Black Gold Golf Club (Separate Registration)
THURSDAY, JUNE 9, 2022	
8:00 am to 2:00 pm	Registration Desk Open
8:00 am to 12:00 pm	Committee Meetings
1:00 pm to 4:00 pm	Board of Directors Meeting. <i>Sponsored by</i> DOUGLAS PRODUCTS
4:00 pm to 5:00 pm	General Membership Meeting & Annual Elections
5:00 pm to 7:00 pm	Silent Auction. <i>Sponsored by</i> TARGET SPECIALTY PRODUCTS
FRIDAY, JUNE 10, 2022	
7:00 am to 1:00 pm	Registration Desk Open
8:00 am to 8:30 am	General Session (Lite Breakfast served)
8:00 am to 3:30 pm	Exhibit Hall Hours
8:30 am to 9:30 am	New Rodenticide Research, <i>Sponsored by</i> Bayer Niamh Quinn, PhD, Human-Wildlife Interactions Advisor, UC Cooperative Extension
9:30 am to 10:45 am	How to Win the War for Engagement and Retention. <i>Sponsored by</i> Aprehend Dr. Garland & Dorothy Vance, Founders of AdVance Leadership
10:45 am to 12:00 pm	Public Policy Panel, <i>Sponsored by</i> TARGET SPECIALTY PRODUCTS Andy Architect, NPMA's COO; Dominic DiMare, Legislative Advocate, Arc Strategies
12:00 pm to 1:30 pm	Lunch with the Exhibitors, <i>Sponsored by</i> CARDINAL PROFESSIONAL PRODUCTS  VESERIS
1:30 pm to 2:30 pm	Breakouts - Group A 1. <b>Growing a Business from the Ground Up</b> Mike Bullert, Owner of Big Time Pest Control 2. <b>Your Social Media Presence</b> Chaz Estrada, Sales Representative, Veseris
2:30 pm to 3:30 pm	Breakouts - Group B 1. <b>Planning for a Successful Commercial Fumigation</b> Doug Belle, Cardinal Professional Products 1. <b>A Needs Assessment Survey of So. Cal. PMPs</b> Siavash Taravati, UC IPM Program & Cooperative Extension, LA County
3:30 pm to 3:45 pm	Thank you and Closing of Exhibit Hall
6:30 pm to 7:30 pm	PCOC Reception
7:30 pm to 9:30 pm	PCOC Installation Banquet

Schedule of events and/or speakers are subject to change without notice.



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## Master Gardener Program

Riverside County pioneered the establishment of a Master Gardener volunteer program and has become instrumental for the expansion of the program throughout the state. Since its inception in 1980, we have disseminated over 1,500 Master Gardener graduates into the community with knowledge to extend environmentally safe and economically efficient gardening and landscaping.



### Events

Master Gardeners represented the UC Master Gardener Program at 103 “Ask the Master Gardener Informational Table” events and provided science based information to 15,035 residents of Riverside County. The events included were the Lavender Festival, Home & Backyard Show, Southern California Fair, Farmers Markets in Palm Desert, Palm Springs, Riverside, Murrieta, Temecula and Moreno Valley. We had 21 Speakers’ Bureau events with 305 people at these events



*Buddy and Pat at the Indoor Palm Springs Farmers Market*



*Michael, sharing horticulture information at the Riverside Home and Backyard Show Information table.*



*Lynn presented Maintaining a Healthy Landscape in a Drought at the Riverside Home & Backyard Show*

### Training Class

Preparations for the 2023-2024 Master Gardener Volunteer Training Class are under way. After evaluating the needs of the program, changes were made to the recruitment process to increase the number of qualified applicants. It was determined to fulfill the mission we need to look for community members vested in their local community and are willing to take on leadership and outreach roles. In addition, the trainees will be prepared to work in diverse communities throughout the county.

### The Western Municipal Water District

The Western Municipal Water District/Master Gardener presentations focused on Water Conservations. Our continued collaboration with Western Municipal Water District has been very successful, educating 138 community members on water efficiency. The theme for the Fall 2022 workshops was Water Efficient Gardens. Master Gardeners presented *Garden Transformation* by Patti Bonawitz, *Pollinators and Natives in Your Newly Designed Garden* by Susan Cline and *How Much Water Does Your Plants Need* by Lynn Coffman.



## Master Gardener Program

The Western Municipal Water District/Master Gardener presentations focused on Water Conservations. Our continued collaboration with Western Municipal Water District has been very successful, educating 138 community members on water efficiency. The theme for the Fall 2022 workshops Master Gardeners presented *Garden Transformation* by Patti Bonawitz, *Pollinators and Natives in Your Newly Designed Garden* by Susan Cline and *How Much Water Does Your Plants Need* by Lynn Coffman.

### Become a UC Master Gardener!

Riverside County Volunteer Training Class 2023-2024



**Mission**

*"To extend research-based knowledge and information on home horticulture, pest management, and sustainable landscape practices to the residents of California and be guided by our core values and strategic initiatives."*

For additional information about our program, general training information, and Volunteer Application visit: <https://tinyurl.com/2n5Spoc>



The University of California Division of Agriculture & Natural Resources (UCANR) is an equal opportunity provider. Complete nondiscrimination policy statement can be found at <https://ucanr.edu/sites/ucanr/files/199228.pdf>



**Information Sessions**

Becoming a UC Master Gardener begins with a personal commitment to education and service to the community. You must be a Riverside County resident and attend an Information Session to learn about our program.

Information Sessions listed below are Tuesdays from 6pm-8pm.

- April 4, 2023 - 75080 Frank Sinatra Dr, Palm Desert, CA 92211
- April 18, 2023 - 2980 Washington St Riverside, CA 92504
- May 2, 2023 - 75080 Frank Sinatra Dr, Palm Desert, CA 92211
- May 16, 2023 - 2980 Washington St Riverside, CA 92504
- May 30, 2023 - Register in advance for this Zoom meeting: <https://tinyurl.com/54nzz2jh>

**Interviews**

A selection committee of current UC Master Gardeners will review all applications, conduct in-person applicant interviews, and recommend acceptance to the UC Master Gardener volunteer training program.

A written application is due by June 2<sup>nd</sup> for Palm Desert Interviews and June 22<sup>nd</sup> for Riverside Interviews.

- June 6, 7, 8, 2023 - Palm Desert
- June 26, 27, 28, 2023 - Riverside

**Training Class**

The training course is a series of 18 classes that meet Tuesdays from 6pm-9:30pm. There is a \$225 class fee to cover textbooks and other expenses. Classes are scheduled to be held via Zoom with some select in-person sessions. Topics include soil, irrigation, plant pathology, weed management, vegetables, citrus, and much more. The classes are taught by agricultural experts and provide a basic introduction to horticulture and pest management.

Students must successfully complete the volunteer training course, complete required volunteer hours, and pass a final exam to be certified as a UC Master Gardener.

- Sep 12 & 26, 2023
- Oct 10 & 24, 2023
- Nov 14 & 28, 2023
- Dec 6 & 12, 2023
- Jan 9 & 23, 2024
- Feb 6 & 20, 2024
- Mar 6 & 19, 2024
- Apr 2 & 16 & 30, 2024
- May 7, 2024
- May 19, 2024 - Graduation



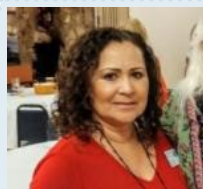


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Agriculture and Natural Resources

UC Master Gardener Program

Questions? Email Rosa Olaiz at [molaiz@ucanr.edu](mailto:molaiz@ucanr.edu)

*Master Gardener created QR codes to link to the UC ANR websites. This allowed the public immediate access to the information and eliminated excessive printed material at the information booths. QR codes now available are the UC ANR Quick Tip Cards and the IPM websites.*



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Master Gardener Helpline  
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Indio (Desert) :

## Nutrition, Family and Consumer Sciences

The CalFresh Healthy Living, University of California Cooperative Extension (CFHL, UCCE) program provides research-based education in the areas of nutrition, food safety and consumer economics. CFHL is working on two UC ANR Strategic Vision 2025 Initiatives: 1) Healthy Families and Communities: promoting healthy behaviors for childhood obesity prevention; helping consumers make informed decision regarding food choices, nutrition, and health; and improving consumers' food management skills, and 2) Ensure Safe and Secure Food Supplies: educating community organizations and consumers on safe food handling practices. CFHL, UCCE is one of three local implementing agencies for the CalFresh Healthy Living Program (CFHL) also known as SNAP-Education, funded by USDA through the California Department of Social Services. CFHL's mission is to inspire and empower under-served Californians to improve their health by promoting awareness, education, and community change through diverse partnerships, resulting in healthy eating and active living.

### Welcome



CalFresh Healthy Living, UCCE Riverside welcomed Dr. Yu Meng the Youth Families, and Communities Advisor for Riverside County in Sep 2022. She conducts research and academically oversees CalFresh Healthy Living, UCCE Riverside. She has more than 5 years of experience conducting community nutrition research and developing youth development program. Her current project including preventing/reducing household food waste and initiating farm-to-school networks.

**Yu Meng, Ph.D**

Youth, Family, and Community Advisor

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## CalFresh Health Living

During the 2022 fiscal year, the CFHL, UCCE Program continued to focus on the school setting (pre-K -12<sup>th</sup> grade). The team provided direct education to 2,719 children and youth, and 337 adults countywide. The team worked in 36 locations of various settings including 19 schools, 6 school districts, 12 Head Start/Early Child Education sites, 1 SNAP office, 1 community-based organization, 1 faith-based organization and 1 Indian reservation. CFHL, UCCE provided Policy Systems and Environmental (PSE) changes at 23 sites. PSE garden-based education and support was provided at 11 locations including 8 schools. The team provided 68 PSE activities including Smarter Mealtimes/Lunchrooms, Physical Activity and Wellness Policy initiatives, overall PSE efforts reached 19,401 youth and adult participants countywide, an increase of over 17,000 from FFY21, despite a significant reduction in staff. The team reached 6,820 participants with indirect program activities, supported/trained 83 teacher extenders and sustained 46 partner sites.



## Nutrition, Family and Consumer Sciences

### CalFresh Health Living

*The team achieved many successes including the following 2 with projects with the Coachella Valley Unified School District.*

**Coachella Valley Unified School District Nutrition Services-** The CFHL, UCCE Riverside team has partnered with Coachella Valley Unified School District (CVUSD) Nutrition Services for over 10 years. In addition to providing nutrition education with CVUSD teacher extenders, the team was successful in supporting the Food Service Director and Leadership Team in accomplishing the following:

- Facilitated a Wellness coalition that included the local health department (RUHS), Safe Routes for All organization, a local farmer, and the Dairy Council of California to update the 2017 School Wellness Policy which affected 16,625 students.
- Prepared the Leadership Team for the Triennial Assessment
- Supported the Leadership Team in facilitating 2 district-wide virtual Wellness Committee meetings
- Provided a Smarter Lunchrooms Movement (SLM) training for CVUSD Food Service Managers.
- Assisted Director apply and provide nutrition education to get awarded the CDE Fresh Fruit and Vegetable Grant for 5 elementary schools affecting 2,502 students.
- Provided weekly Harvest of The Month (HOTM) indirect nutrition education to 4 elementary (LHD is servicing 1 school) on a weekly basis
- Provided schoolwide HOTM food tastings at 4 CVUSD elementary schools participating in the Fresh Fruit & Vegetable Grant affecting 2,363 students.



*Persimmon taste test at Palm View Elementary*

The Harvest of the Month featured produce is... **PEACHES AND NECTARINES**

**Word Search**

Did you know... Genetically, peaches and nectarines are almost identical. They only have one different gene, the gene that makes peaches fuzzy!

Want to learn more about peaches and nectarines, watch this video!

K-3rd Grade with Grade-Middle

The Harvest of the Month featured produce is... **ZUCCHINI**

Did you know... Zucchini is a type of summer squash and is high in Vitamin C.

**Complete the Crossword Puzzle**

Across: 1. Most zucchini are \_\_\_\_\_ (color). 2. The vitamin keeps our immune system strong!

Down: 1. Most zucchini are \_\_\_\_\_ (color). 2. Today's produce is a \_\_\_\_\_.

Want to learn more about zucchini, watch this video!

K-3rd Grade with Grade-Middle

The Harvest of the Month featured produce is... **TOMATOES**

Did you know... Tomatoes are a fruit, not a vegetable.

**Complete the Crossword Puzzle**

Across: 1. Most tomatoes are \_\_\_\_\_ (color). 2. The vitamin keeps our immune system strong!

Down: 1. Most tomatoes are \_\_\_\_\_ (color). 2. Today's produce is a \_\_\_\_\_.

Want to learn more about tomatoes, watch this video!

K-3rd Grade with Grade-Middle

The Harvest of the Month featured produce is... **CUCUMBER**

Did you know... Cucumbers contain 96% water and come in a variety of colors and shapes!

**Word Search**

Hydrate  
Cucumber  
Water  
Vegetable  
Nutrients  
India  
Spring  
Summer  
Salad  
Pickle

Want to learn more about cucumbers, watch this video!

K-3rd Grade with Grade-Middle

*Harvest of the Month Activity Sheets for Coachella Valley Unified School District's Fresh Fruit & Vegetable Grant for 5 schools.*

## Nutrition, Family and Consumer Sciences

**CVUSD Adult School-** In the spring of FFY22, the CFHL, UCCE Indio team partnered with 4 different teachers to provide 5 Plan Shop Save Cook series (25 lessons) at the Coachella Valley Unified School District Adult School reaching 73 participants. 75% of participants reported increasing the use of MyPlate to build healthy meals. Some participant feedback includes the following:

- "I first learned that I need to plan before buying and always keep in mind the nutrition label facts when choosing products. Also look for ways to save money with coupons and going to different stores. And always keep food safe" -CVUSD Adult Participant
- "I learned to read the nutrition facts label when I go grocery shopping. I learned to change my portions of food and be careful of the amount of sugar intake. Thank you for these programs that help our community. I know pay attention on how to stay healthy." – CVUSD Participant
- "It helps us how to have control the cooked food, how to reuse the meals for breakfast and dinner to try to eat a balanced meal and include fruits and vegetables in the meals." - CVUSD Adult School Participant
- "For me it has helped me a lot to learn how to organize myself to save money when shopping for groceries and eat healthier. This is good and a great benefit to staying healthy for me and my family." - CVUSD Adult School Participant



*CFHL, UCCE Riverside Educator Jackie Velarde with Coachella Valley Unified School District Adult School (CVUSD) morning class with Plan, Shop, Save, Cook adult series certificates of completion.*

*CFHL, UCCE Riverside Educator Esmeralda Nunez with CVUSD Adult School afternoon class.*



*Cal Fresh Living, UCCE Riverside Program Staff  
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## The Small Farms and Specialty Crops Program

My extension and research program focus on the challenges and issues affecting small scale and specialty crop producers in the Inland Empire. My program aims to provide culturally and linguistically appropriate outreach in order to enhance the skills and abilities of socially disadvantaged, small scale, limited-resource, and specialty crop producers to make important management decision such as crop selection, variety development, sustainability, weed control, pest and disease management, irrigation practices, postharvest handling and storage, food safety, pesticide safety, marketing strategies, agritourism, financial and risk management, and more. The program fosters field research trials, educational programs, technical assistance, and publications that support and encourage the sustainability of diverse, thriving small farms. In addition, my program intends to strengthen connections between small scale and specialty crop producers and local and government agencies (USDA, CDFA) and programs to facilitate increased access to resources and program participation. I want to support farmers in all phases of their farming business development to improve their farming operations.

### Needs Assessment

To maximize the effective of our outreach programs, we are conducting a needs assessment of growers in the Inland Empire. The needs assessment includes questions related to agricultural workforce, drought impact, and general growers' needs. This assessment is funded by the Riverside Food Systems Alliance and is a collaboration between Chandra Richard (UCANR), Etaferahu Takele (UCANR), Kevin Grell (Pitzer College). In collaboration with the Inland Empire Resource Conservation District (Nancy Noriega and Lucy Ceja) and the Redland Natural Resources Conservation (Tomas Aguilar Campos), we conducted a four in-person needs assessment workshop in Spanish for our small scale producers. Over 142 respondents have responded from Riverside county. We hope to increase this number and reach about 300 respondents in the county.

### Welcome



In July, the Riverside County Small Farm Program welcomed Rose Olivas to the team as the Community Education Specialist III.



*Need Assessment with Producers in the Yucaipa Area*



## The Small Farms and Specialty Crops Program

### Extension and Outreach

We provided support to over 30 farmers in the riverside county. Our extension and outreach aim to provide technical support producers in the regions. In addition, we also assisted these producers in grants applications to support their operation. Aside from producers, we are helping to restore the Louis Robidoux Parkland and Pecan Grove Site with the IERCD (Mandy Parkes, Adrian Poloni, Alex Chacon) and Urban Forest Consultants (Nancy Sappington)



*Technical support to producers in the Coachella Valley*

## Workshops

### August

We coordinated one Riverside County Citrus Pet Management Field Day workshop on August 4<sup>th</sup> 2022 with 65 participants.

### October

We presented in support of the Northside Ag Innovation Center to the Riverside Economic Development Committee and councilmembers. In addition, we collaborated the IERCD and presented and demonstrated information regarding to the introduction to the FDA Food Safety Modernization Act to over 30 farmers and seven partners on October 20<sup>th</sup> 2022. We also conducted one need assessment workshop with 20 citrus and vegetable producers on the 21<sup>th</sup> in collaboration with Community Alliance with Family Farmers.

### September

On September 26<sup>th</sup> we attended the Advancing Equity - Rural Conversation for the Eastern Coachella Valley meeting held by USDA Rural Development and Congressman Raul Ruiz M.D. We discussed the issues affecting producers and their family in rural communities. We finished September with the Lead with Trees ~ CA Urban Forests Conference on 29<sup>th</sup> and 30<sup>th</sup>. As a board member for the Inland Empire Urban Forest Council, we tabled and provided outreach on tree care cares (watering and pruning guides). We also coordinated the soiree and contributed to the silent auction.

### November

**November:** We presented at the UCR Pesticide Safety Training on November 15<sup>th</sup> to 25 farm workers. In addition, we tabled and presented information Food Safety Modernization Act and information about the UCANR small farm team at the 8<sup>th</sup> annual Latino Farmer Conference on November 18<sup>th</sup> 2022.



The Small Farms and Specialty Crops Program

Workshop Images



Riverside County Citrus Pest Management Field Day workshop



Advancing Equity - Rural Conversation for the Eastern Coachella Valley meeting



Lead with Trees ~ CA Urban Forests Conference



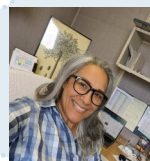
IERCD Introduction to the FDA Food Safety Modernization Act workshop



8th annual Latino Farmer Conference



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## Sustainable Agricultural Lands Conservation Program (SALC)

This program focuses on the conservation of agricultural lands statewide and preservation of their economic viability and sustainability across urban and rural communities by protecting lands at risk for conversion to non-agricultural uses, while reducing greenhouse gas emissions. A long-term community vision is needed to support agricultural communities, leverage existing programs, projects, and policies, and reinforce collaborative action to counteract trends. SALC is a statewide program offering planning, acquisition, and capacity grants to a diversity of applicants across city, county, and other local governments, California Native American Tribes, municipal planning organizations, and agricultural non-profits.



Dr. Chandra Richards continued her role at UC ANR as the Agricultural Land Acquisitions Academic Coordinator II (AC) to support the mission of the Sustainable Agricultural Land Conservation Program (SALC) across San Bernardino, Riverside, and San Diego Counties. In this period, the SALC Program for Round 8 opened for applications in May for planning, acquisition, and capacity and project development grants and closed in August/September. Award recommendations were announced by the Department of Conservation in early December and are to be announced at the Strategic Growth Council meeting in mid-December.

She met with 30 individuals through the Inland Empire regarding the SALC program, including non-profit organizations, water districts, cities, and California Native American Tribes. Chandra worked with the City of Yucaipa to provide technical assistance and submit applications for acquisitions within their city limits. She also supported several Inland Empire entities toward SALC capacity and project development grants this Round 8, including World Be Well, Oswit Land Trust, and Riverside-Corona RCD, all of whom were not recommended for funding or deemed ineligible for SALC capacity funds. Despite a huge setback for the Southern California area, her work in the Inland Empire remains strong and she will work with the Department of Conservation and Strategic Growth Council to secure funds for Southern California and advance equity and opportunity aligning with the mission of SALC.

Chandra presented on SALC at the Climate Smart Agriculture training in Santa Rosa in September 2022 to 15 people within UC ANR; the majority of folks are Community Education Specialists looking to collaborate with the SALC team and provide support for carbon farm planning/implementation. She continues to work with UCCE colleagues, City of Riverside, and Riverside Food Systems Alliance to highlight results of an agricultural workforce needs assessment for the Inland Empire region to understand the community, barriers, and needs. These results will be shared at upcoming conferences in early 2023. She continues to work with key partners and stakeholders to host events in Southern California and improve relationships with the state so that increased funding can be secured for agricultural land protection and conservation.



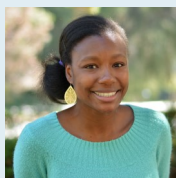
## Sustainable Agricultural Lands Conservation Program (SALC)

**Research:** She and Cristina continued to boost research through a survey needs assessment to learn more about the interest and capacity for planning grants in Round 8 (2022) and Round 9 (2023) of the SALC program. The survey portion has ended and 39 preliminary results were presented to the California Department of Conservation and Strategic Growth Council, as well as strategies, successes, and opportunities to increase regional SALC engagement. Our presentation highlighted multiple results that preliminarily highlight little interest in the program because of limited capacity, staff availability, eligibility requirements, and uncertainty of project types. Next year, the survey will be restructured to incorporate feedback and strategies for Round 9 funding, guidelines, and challenges. She and Cristina also created a *SALC Guidelines Blueprint* and presented regionally-relevant examples specific to various SALC eligible entities. All efforts were highly effective in increasing familiarity with SALC, building relevance, and increasing interest in proposal development.

Chandra developed a regional list of California Native American Tribal contacts in the Inland Empire to build relationships with, inform them of SALC opportunities, and provide technical assistance to. She also held conversations with multiple tribes to learn about their practices, discuss their interest in the program, and determine what recommendations are necessary for potential participation in SALC. More generally, she attended multiple regional and statewide grant meetings, Tribal forums, and priority population working groups to include SALC into conversations about sustainability and land conservation and connect with champions interested in grants that could improve capacity and funding for their entities.

### Workshops

*Chandra and her counterpart, Cristina Murillo-Barrick, who is the San Joaquin Valley Agricultural Land Acquisitions Academic Coordinator, co-hosted two regional capacity workshops for acquisition and capacity entities. The event highlighted regional successes in the program, explored regional opportunities and challenges in Southern California and San Joaquin Valley and assessing how to boost projects; it was attended by 35 participants over the two events. Chandra also presented an overview of SALC at the Climate Science Alliance Tribal working group meeting in late June 2022, to 40 attendees. She presented to the UC ANR Healthy Soils team of Community Education Specialists in September who were looking and provided an overview of SALC planning, capacity, and acquisition grants to the Community Education Specialists looking to collaborate with the SALC team and provide support for carbon farm planning and implementation. She also attended three conferences in November 2022 to disseminate SALC news and opportunities: San Diego Farm & Nursery Expo (Escondido, CA), California Climate & Agriculture (CalCAN) Summit (Davis, CA), and the NRCS Latino Farmers Conference (Escondido, CA).*



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## Viticulture

The viticulture program addresses issues affecting production and fruit quality in wine and table grapes. It develops research projects and extends basic and applied information through educational programs including seminars, workshops and field demonstrations to growers, pest control advisors, and field managers on identification and control measures of pests and diseases affecting grapevines.



### Program Highlights

Cultural practices, monitoring and identification of pest and diseases are discussed in a series of monthly meetings with wine growers. This program includes presentations in Spanish to educate farm workers on the most important pests and diseases affecting wine grapes.

### Research Activities

In 2022, a research trial was conducted to test the CAN-17, the number and weight of bunches and sugar dormancy-breaking activity of Sunergist (24-Epibrassinolide), a new material registered on grapevines to document its efficacy to induce budbreak and assess the risk of toxicity on grapevines. The goal was to search for an alternative dormancy-breaking agent to substitute hydrogen cyanamide ( $H_2CN_2$ ), a conventional and highly toxic material currently used in commercial table grape production in the Coachella Valley to improve the amount and uniformity of budbreak, and advance fruit maturation.

Although at the present the leading dormancy-breaking material is hydrogen cyanamide, additional research is needed to evaluate if the efficacy of Sunergist could be improved when combined with different doses of CAN-17.

Budbreak activity was evaluated comparing the activity of hydrogen cyanamide, CAN-17 (calcium ammonium nitrate) and Sunergist at 12 oz/ac and 17 oz/ac. Hydrogen-cyanamide and CAN-17 were more effective for advancing budbreak, at 61% and 44% respectively, followed by Sunergist at 17oz/ac, with 21% of budbreak. However, despite the differences of earliness of budbreak with hydrogen cyanamide and



*Dormancy-breaking trial in table grapes*





## Viticulture

### Pest Management

In the area of pest management, a monitoring program to detect the presence of the Western grapeleaf skeletonizer in winegrape vineyards was developed using for the first time a novel trap with an optic sensor. In the area of pest management, a monitoring program to detect the presence of the Western grapeleaf skeletonizer in winegrape vineyards was developed using for the first time a novel trap with an optic sensor. The grapeleaf skeletonizer is a voracious pest capable of producing extensive defoliation to grapevines and the detection of the pest throughout the season will determine which control option to use. The insect was detected using a FlightSensor trap that uses artificial intelligence with a “training trap algorithm” to recognize the pest. The trap is wireless and delivers instant alerts as text to a smart phone app or web dashboard. Clearly, FlightSensor is a promising alternative to sticky traps using pheromones to construct pest population models and predict the population cycles. Currently there is no assessment of the status of the grapeleaf skeletonizer in the region and more research is needed to forecast the population dynamics and develop a research-based area-wide management program with effective treatment options to control this pest.



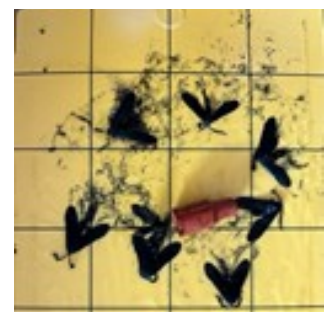
*Insect trap with wireless optic sensor*



*Grape leaf with Western grapeleaf skeletonizer damage*



*Larvae of Western grapeleaf skeletonizer*



*Sticky trap with male grapeleaf skeletonizers*

*Table grape harvest in the Coachella Valley*



*Flame seedless table grapes ready for harvest*



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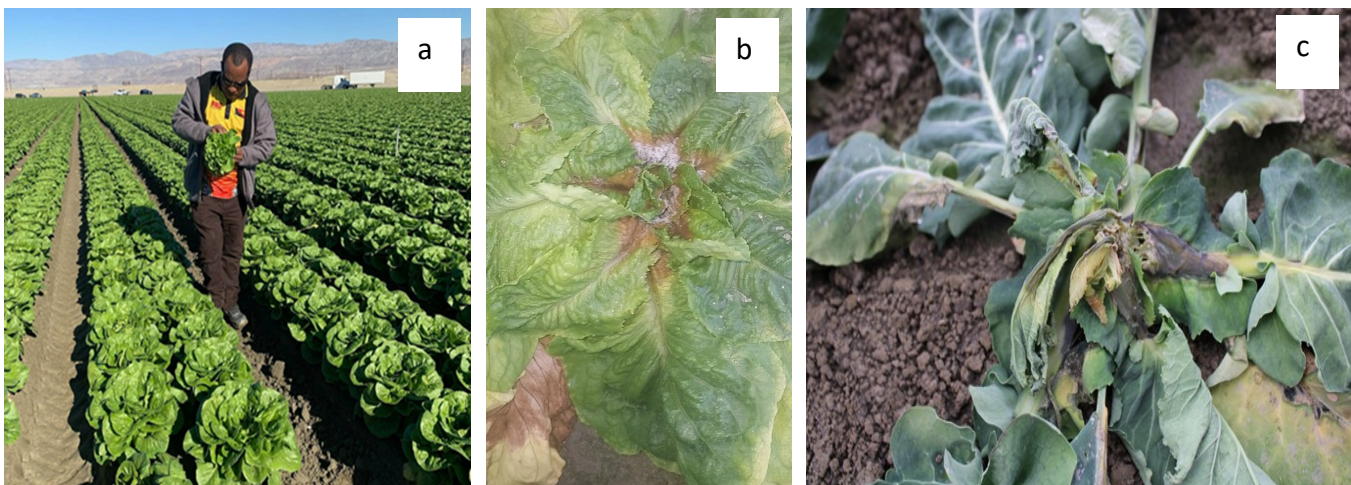


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## Vegetable Crops

Riverside county is comprised of four districts (Coachella Valley, Palo Verde Valley, Riverside/Corona, and San Jacinto/Temecula Valley) together account for vegetable production valued over \$334 million in 2020; 6% or \$20 million less than that in 2019 (Riverside Agriculture Commission, 2020). Coachella Valley is considered a ‘Winter Salad Bowl’ of California, where most winter vegetable crops are grown. Winter and early spring vegetable productions including cole crops, lettuce, carrot, celery, and artichoke among others are currently in full swing. Our research and extension efforts are directed at addressing low desert vegetable crop production challenges with emphasis on pests and diseases but also including soil fertility, water, and weeds. In the past 6 months, we have organized a vegetable grower meeting and a field day (Figure 1). We delivered four presentations directly to our clientele and attended one national research meeting to share our research findings to a wider audience. In addition, we responded to more than ten field calls throughout the county related to various aspects of vegetable production. We published a chapter in a book ‘Brassica - Recent Advances’ in IntechOpen and two newsletters in Imperial County Agricultural Briefs. We have completed one field trial and five other trials are currently underway. In addition, we submitted a proposal and granted a small UC IPM funding to conduct research on a novel approach to manage root-knot nematode. We have received and/or anticipating to receive donations from our generous Agricultural Industry partners (Nufarm, Valent, and Corteva) to conduct field trials on pests and diseases of vegetable crops. In collaboration with CalFresh team, we submitted an ACORNS (**Advancing California Opportunities to Renew Native health Systems**) grant to continue our efforts in promoting tribal food sovereignty, healthy food and nutritional training/education with Torres Martinez Desert Cahuilla Indian tribe in Coachella Valley. In addition, we are collaborating on two multi-state USDA grants.



*Figure 1. a) Scouting for pests and diseases in a lettuce field in Coachella Valley;*

*Figure 1. b) romaine lettuce infected by gray mold (*Botrytis cinerea*);*

*Figure 1. c) cauliflower decimated by swede midge (*Contarinia nasturtii*) which is often mistaken for bacterial rot in brassicas.*



## Vegetable Crops

**Publication/Newsletter:** A book chapter was published in a book ‘Brassica - Recent Advances’ in [IntechOpen](#) and two newsletters have been published in Imperial Agricultural Briefs in July (Vol. 25, [Issue 7](#)) and November (Vol. 25, [Issue 10](#)) issues. Issue 7 summarized post-harvest nematicide research conducted in a grower’s pepper field examining post-harvest nematicide chemigation treatment effects of Vapam (metam sodium) and Nimitz (fluensulfone). Issue 10 presented a progress report of a new nematicide ‘Salibro (fluazaindolizine)’ on its target and non-target effects on root-knot and beneficial nematodes on okra in Coachella Valley; the final report is ready to be published in a subsequent issue. The book chapter summarized edaphic factors affecting the performance of biofumigant cover crops used in biofumigation to control soil-borne pathogens with an emphasis on root-knot nematodes.

**Meetings and Field Day:** We organized a ‘Vegetable Growers Meeting’ in Coachella Valley where 7 speakers were invited from various aspects of vegetable production ranging from pest and disease management to irrigation and water management, and pesticide use regulations as well as economics of vegetable production. In addition, we organized a ‘Vegetable Field Day’ that attracted more than 30 growers, pest control advisors, and other stakeholders (Figure 2a). As far as presenting at clientele meetings, we delivered two 30-minute talks at California Pest Control Advisors (CAPCA) meetings held in La Quinta and Holtville. We also delivered an hour-long talk at ‘Progressive Farmers Meeting’ in Blythe organized by Michael Rethwisch (UCCE Crop Production and Entomology Advisor). We were invited to deliver a 45-minute presentation at UC Riverside’s Workers Pesticide Safety Training. In addition, we presented at the 33<sup>rd</sup> Annual Fall Desert Crops Workshop in Imperial Valley organized by Ali Montazar (UCCE Irrigation and Water Management) and Oli Bachie (UCCE Agronomy Advisor). As far as the national meeting, we presented at ‘Salibro Research Exchange Meeting’ held in San Diego (Figure 2b). Going forward, we have submitted an abstract to present a poster at UC ANR statewide Conference to be held in Fresno in April.



Figure 2 a) Vegetable Field Day in Coachella Valley



Figure 2 b) National Salibro Research Exchange meeting in San Diego



## Vegetable Crops

**Research:** A ‘Salibro Nematicide Trial’ on okra in Coachella Valley has been completed and a similar trial is underway on carrot in Imperial Valley is ongoing (Figure 3a); these research trials are being funded by Corteva. At Coachella Valley Agricultural Research Station, 2 insecticide trials are ongoing, where various formulations of spinosad are being tested on Lepidopteran pests (diamondback moth, cabbage looper, and beet armyworm); these trials were funded by Nufarms Americas. Two other insecticide efficacy trials are also underway at the same location and are tested against green peach aphids and western flower thrips on romaine and leaf lettuce; these trials are being funded by Valent (Figure 3b).

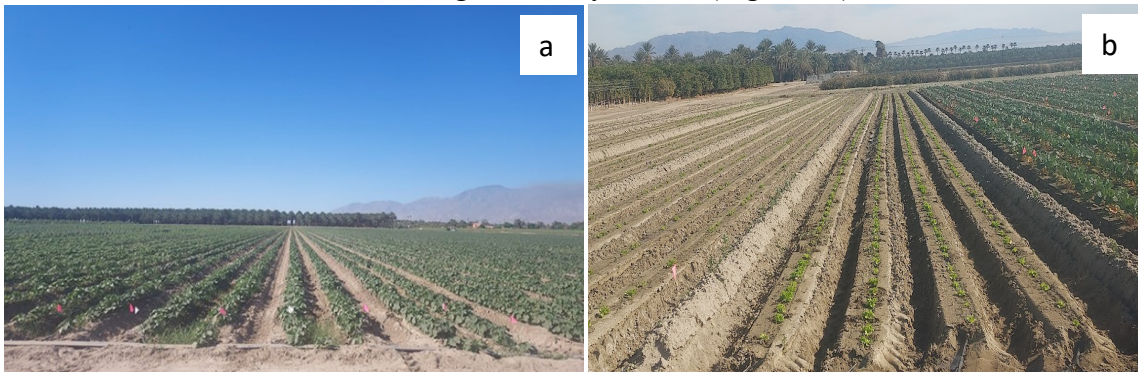
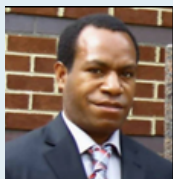


Figure 3. Showing field trials in Coachella Valley. a) Salibro nematicide trial on okra and b) insecticide efficacy trials on broccoli, romaine and leaf lettuce.

**Laboratory space:** Our laboratory space at UCCE Indio Office has been very helpful in moving our program forward and attracting grants and donations totaling \$68,000 so far (Figure 4). We will soon be relocating our laboratory to the UCR Palm Desert campus to continue our work.



Figure 4. Laboratory space in UCCE Indio location.



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### Grants and donations:

We have received a UC IPM grant (SA22-5981-05) for \$25,000 on a project entitled ‘Integrating root exudate treatment with reduced-risk fluorinated nematicide chemigation for root-knot nematode (*Meloidogyne* spp.) management in low desert vegetable crops’ to investigate the utility of integrating root exudate to enhance management through breaking egg dormancy. We have received \$21,000 from Nufarm Americas to evaluate Spinosad formulations against caterpillar pests on broccoli and romaine lettuce. Valent is giving us \$14,000 to conduct insecticide efficacy trials against green leaf peach aphid on romaine lettuce or western flower thrips on leaf lettuce. We are receiving \$8,000 from Corteva for the Salibro Nematicide Trials we conducted. In collaboration with CalFresh team, we submitted a \$30K ACORNS (Advancing California Opportunities to Renew Native health Systems) grant to continue our efforts in promoting food sovereignty, healthy food and healthy minds class, and nutritional training/education with Torres Martinez Desert Cahuilla Indian tribe in Coachella Valley. In addition, we are collaborating on two multi-state USDA grants.

**UNIVERSITY OF CALIFORNIA**  
**DIVISION OF AGRICULTURE AND NATURAL RESOURCES (UC ANR)**  
**NONDISCRIMINATION AND AFFIRMATIVE ACTION**  
**POLICY STATEMENT FOR UC ANR**  
**PUBLICATIONS REGARDING EMPLOYMENT PRACTICES**

**April 2021**

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*This policy statement supersedes the UC ANR Nondiscrimination and Affirmative Action Policy Statement for University of California Publications Regarding Employment Practices dated July 2013.*