

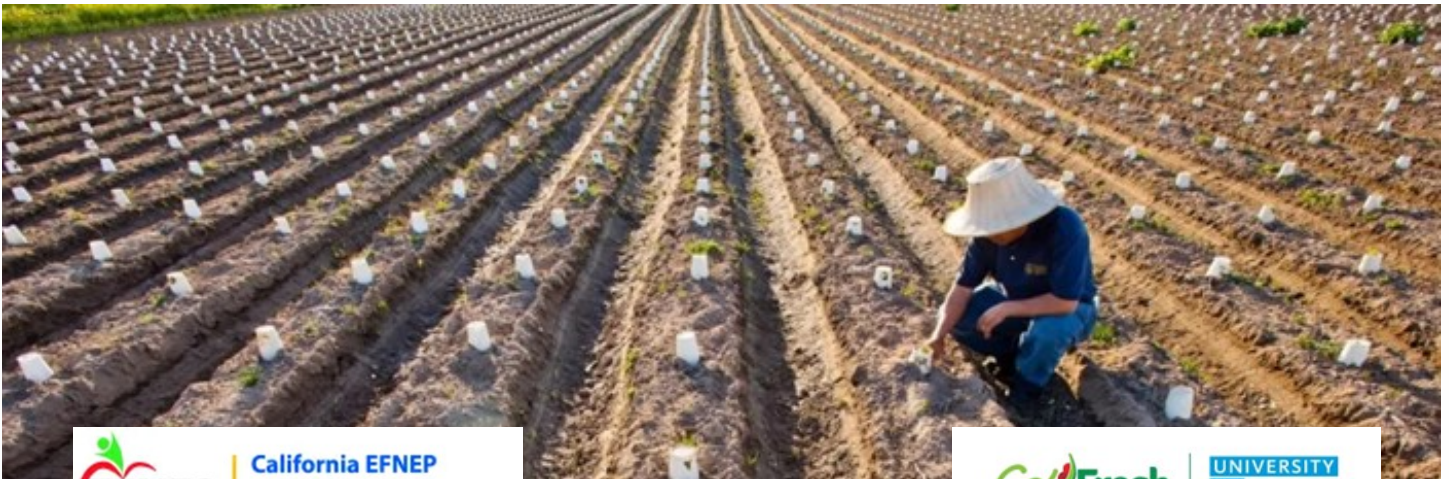


**UNIVERSITY OF CALIFORNIA**  
Agriculture and Natural Resources



**UC Cooperative Extension  
Riverside County**

**Semi-Annual Report  
UC Cooperative Extension Riverside  
July-December 2025**



**4-H Youth Development Program**  
University of California  
Agriculture & Natural Resources



**UC Master Gardener**  
University of California  
Agriculture & Natural Resources



**UC Master Food Preserver**  
University of California  
Agriculture & Natural Resources



**UC Small Farms Network**  
University of California  
Agriculture & Natural Resources



**Community Nutrition & Health**  
University of California  
Agriculture & Natural Resources



**UC Integrated Pest Management**  
University of California  
Agriculture & Natural Resources



**UC Sustainable Agriculture Research & Education Program**  
University of California  
Agriculture & Natural Resources

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*Visit our offices in Riverside, Palm Desert 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:*

*<http://ceriverside.ucanr.edu>*

*(951) 955-0170*

**Cooperative Extension**

**Riverside County**

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-December, 2025**. Thank you for reading!



**Rita Clemons**

Area County Director  
Riverside, San Bernardino and  
Orange Counties

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## **15 Ways UC Cooperative Extension is benefiting the County of Riverside**

1. Providing Local Research. UCCE scientists help to understand issues with local field experiments to ensure that decisions are based on local or regional data.
2. Safeguarding Natural Resources. UCCE provides expertise and coordinates efforts aimed at preventing and alleviating the effects of invasive pests and diseases, dangers to natural resources, including water, soil, and range.
3. Brokering Solutions. UCCE provides a neutral, facilitative presence for bringing parties together to find solutions to difficult problems facing the county's agriculture and natural resources industries and community health.
4. Empowering Volunteers. Over 460 4-H Volunteer Leaders extend research-based experiential learning while being supported by 4-H academic and staff.
5. Building Strong Communities. Local 4-H connects youth in civic engagement projects addressing local needs. Nutrition education builds healthy families who then contribute to healthy, strong communities.
6. Preparing tomorrow's Workforce. 4-H answered the call to our country's need for more science, engineering and technology college majors by adding more science opportunities, including the 4-H SET Expo.
7. Creating Leaders. 4-H is a place where generations spend quality time exploring, growing and learning together to better themselves and others. 4-H youth working with adult mentors become proficient in public speaking, problem solving, achieving goals, caring for others, and making healthy lifestyle choices.
8. Supporting Producers. Managers and Agencies: Many depend on UCCE to provide science-based advice on a wide range of issues to help protect and conserve our crops and natural resources.
9. Supporting Economic Development. UCCE looks for and tests new opportunities for agricultural producers. New income sources for farmers and ranchers are being explored with agriculture and nature tourism.
10. Channeling UC Expertise. UCCE connects with campus scientists to teach workshops, collaborate on research projects and support grant applications.
11. Providing for the Future. UCCE is educating today's farmers and landowners on how to maintain the viability and natural assets of their properties that they plan to transfer to the next generation.
12. Patrolling for Pests. UCCE identifies pests of agricultural crops, forestlands and urban landscapes, connecting to UC pest specialists for health problems requiring a higher level of expertise.
13. Supporting Agriculture and Natural Resource Industries. Continuing education programs keep producers current with new practices and opportunities.
14. Reducing Pesticide Use. UCCE conducts research on ways to better manage pests and diseases and teaches alternatives to pesticides.
15. Beautifying Public Places. Over 300 UC Master Gardener volunteers devote time and energy to creating demonstration gardens and educating residents about sustainable, effective gardening practices supported by an Environmental Horticulture academic advisor and staff coordinator.





## 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.

### CONSULATE SUMMER PROGRAM 2025

Over the course of 2 weeks in July 2025, over 45 youth participants from Riverside and San Bernardino Counties participated in our annual Consulate Summer Program! This program is offered in partnership with the Consulate of Mexico, in San Bernardino. This summer program delivers cultural content in a bilingual format to youth members ages 5-12. Youth have the opportunity to learn about Mexico's culture, diversity, heritage, and traditions through daily activities ranging from arts & crafts, science, health and fitness, and much more.



*Description: (Left) Youth play a game to end the first week of the Consulate Summer Program. (Right) Youth pose in front of the Mexico letters at the Consulate of Mexico in San Bernardino.*



### 4-H Youth Development Program

#### SOCAL LEADERSHIP SUMMIT 2025

On October 4, 2025, staff across Region 12, which includes Riverside, San Bernardino, Orange County, San Diego and Imperial Counties hosted an in-person 4-H Leadership Summit at the South Coast Research and Extension Center (SCREC) in Irvine. This event marks the second annual SoCal Leadership Summit, following the success of the 2024 summit. A virtual summit option was also offered in late October for those who could not attend the in-person event. We had over 90 youth members and adult volunteers from 6 different counties in Southern California participate in this regional event both in-person and virtually! Many workshops were offered covering a variety of important programming, recruitment, and specific project area content including iThrive sessions, Leadership Team Development, Record Book Academy: Sparks, Effective Communication: Talking with Adults, How Young People Connect to Communities, Engaging New Families in Your Club, and more!

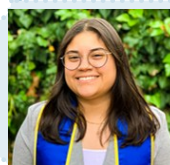


*Description: (Left) Youth Members, Adult Volunteers, and 4-H Staff pose for a photo at the end of the event. (Right) Stephanie Barrett kicks off the 2025 SoCal Leadership Summit and welcomes youth and adults in attendance.*

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## Climate Action and Land Equity (CALE)

Climate Smart Land Management Program is a new statewide program funded through the Department of Conservation. The program aims to build regional and state capacity to increase climate resilience on California’s natural and working lands toward a resilient, equitable, and carbon-neutral future. In alignment with the state’s initiatives and strategies to conserve 30% of the lands and coastal waters by 2030, this three-year grant award will enable UC ANR to build a practical, diverse, and meaningful approach that prioritizes equitable solutions and invests in the science highlighting that climate-smart, nature-based conservation solutions should be actively targeted, demonstrated, and accelerated on-the ground. The Climate Action and Land Equity Project (CALE) will magnify our commitment to protect and restore lands and support critical efforts to build resilience against the impacts of climate change.

### Activities

Chandra continued her activities as Land Equity Academic Coordinator and Principal Investigator for the Climate Smart Land Management Program grant, funded by the Department of Conservation (DOC). She continued the partnership alongside Community Alliance with Family Farmers (CAFF), California Association of Resource Conservation Districts (CARCD), and California Farm Bureau Federation (CFBF). She is working alongside Sierra Reiss, Land Equity Project Manager (Project Policy Analyst 3) to support outreach, engagement, and administrative activities. Sierra completed an exciting request for proposals to support professional outreach services and develop expansive engagement to historically underserved and underrepresented communities; funded groups include Asian Culture & Media Alliance; Condor Visual Media; Entravision; and San Diego Food Systems Alliance in partnership with California Farmlink.

Chandra continued magnifying and elevating the voices of land managers and community-based organizations in the Southern California region toward a unified outreach plan bridging connectivity on climate action and implementation. Over the summer, Chandra worked actively on the Agricultural Land Access contract alongside Lucy Diekmann (Urban Agriculture Advisor) and led two focus groups for Tribal members and leaders and one interview with a Tribally-led organization. This work culminated in a final report, executive summary, and short presentation to Strategic Growth Council and the Agricultural Land Equity Task Force (ALETF). She continues to highlight the CALE project regionally and statewide, with an impact spanning multiple partnerships, projects, events, and groups served.



## Climate Action and Land Equity (CALE)

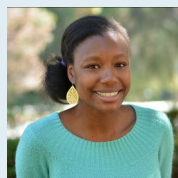
Alongside Sierra Reiss, Chandra co-led a third CALE event: Building Connections for California Land Access - a virtual space featuring speakers from American Farmland Trust, Dept. of Conservation, California FarmLink, Environmental Mediation Center, and Above & Beyond Real Estate services on topics ranging across climate action, succession planning, land matching, and technical services. Sierra has taken on outreach moving forward alongside Los Angeles Food Policy Council to plan the third in person event, tentative for February 3, 2026 (Compton, CA). This event is centered around agritourism and diversifying income streams. The CALE team also continue to update educational materials including the Statewide Partners Map, a Grower Workbook, a 2025 Impact Report, and other resources available to land seekers, holders, and managers.

### EVENTS

Chandra attended the following events over the second half of 2025: 30x30 Partnerships Summit (San Diego, CA and Iipay Nation of Santa Ysabel), CARCD Conference (Sacramento, CA), Agricultural Land Equity Task Force (Virtual), Inland Empire Farmland Conservation (ongoing, Virtual). Chandra is also co-leading the Systemic Inequities Program Team which is a newer team of specialists, researchers, and educators focused around equity-centric topics within the scope of agriculture, natural resource management, youth development and education, and nutrition.

Chandra compiled her peer review research needs assessment identifying barriers, challenges, and limitations to land use, access, tenure, and diversification issues for the Southern California region and analyzing land match, connection, and succession opportunities available to land managers. Part of this assessment included a 2025 presentation to American Farmland Trust’s Land Transfer Navigator Forum (Virtual) about continued need for support here. This extensive analysis of grower needs assessments from San Diego and Inland Empire and from state match and member programs continues to be necessary to the larger conversation and any replications in new or existing areas remain instrumental to our knowledge, perspective, and shared strategic recommendations for state policy initiatives.

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## Community Nutrition and Health

As an Area Youth, Families, and Communities Advisor based at Riverside County UCCE, I academically oversee CalFresh Healthy Living, UC, Expanded Food and Nutrition Education Program, and Master Food Preservation programs. Our programs have a common goal to improve **community nutrition and health**. In particular, we engage with limited-resources families, individuals, and communities to evidence-based nutrition and health knowledge to improve their well-being and living environment. I provide leadership and bring expertise on research to strengthen and expand Community Nutrition and Health Extension education programs.

### Research

**Plan, Prep, Preserve:  
Your Path to Saving  
Food and Money**

Developed by the University of California  
Agriculture and Natural Resources (UC ANR)  
Consumer Climate Change Literacy  
Workgroup Members (2025):  
Marisa Neelon, MS, RD; Yu Meng, PhD;  
Deborah Schnur, PhD; Natalie Price, MPH;  
Janessa, Hartmann, MS; Alexa Erickson, MPH, RD;  
Veronica Van Cleave-Hunt, MS;  
Irene Padasas, PhD.

**UNIVERSITY OF CALIFORNIA**  
Agriculture and Natural Resources

My current program and research support household food waste reduction, farm to table movement, and Youth Participatory Action Research (YPAR).

In October, I attended National Extension Association of Family and Consumer Science conference in Michigan and presented the Plan, Prep, Preserve: Your pathway to saving food and money, Educator Toolkit to Extension educators national wide. The Toolkit received great feedback and training evaluation showed that 40% educators were not aware of food waste reduction education materials and 95% planned to use this toolkit in their community education programs. This Toolkit with lesson plan and teaching slides is completely free to use and I would love to provide trainings to anyone who are interested to use in their education programs. Please reach out to me if you are interested.



## Community Nutrition and Health

In November to December, I wrapped up my research on understanding the implementation of YPAR Career Pathway Toolkit with data collection and analysis. Current study showed that YPAR not only increase students healthy eating confidence, attitudes, and behaviors, but also increase students self-efficacy in skills and competencies in career readiness. Thus, it is important we have career readiness training and education materials for educators to reinforce the skillsets to support positive youth development. Manuscripts are in preparation of submission.



In December, I attended both the regional Farm to School conference in Imperial and national farm to cafeteria conference in Mexico. I am eager to collaborate with local school food services and growers to increase the students food and agriculture literacy and increase local food procurement. I will collaborate with Master Food Preserver, CalFresh Healthy Living, UC, and Desert Research and Extension Center Farm Smart program to hold a one day Farm to School field trip and workshop for educators in January, 2026. Please reach out to me if you are interested in participating or holding another one in near future.

*Please contact me if you are interested in collaborating on research and extension programs in area of community nutrition and health.*

\*\*\*\*\*



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## Community Nutrition and Health

### CalFresh Healthy Living, UCCE

CalFresh Healthy Living, University of California Cooperative Extension Riverside County, assists individuals in leading healthier lifestyles. CFHL, UCCE provides education to SNAP-eligible populations on proper nutrition, optimizing food resources, and maintaining physical activity across all age groups. These effective, evidence-based nutrition and physical activity programs are strategically aligned with policy, systems, and environmental (PSE) change initiatives to create long-lasting community change.

### Torres Martinez Desert Cahuilla Indian Reservation

#### Tribal Fellowship

The SNAP-Ed Fellowship provided tribal members with a first-of-its-kind opportunity to learn about SNAP-Ed's evidence-based nutrition and wellness programming and gain practical experience delivering curricula alongside the CFHL, UCCE Riverside team. Between June 2025 and December 2025, the fellow completed project-based activities, gained insight into preventive health careers, and provided valuable cultural feedback to refine lessons tailored to the Torres Martinez community. Feedback was collected biweekly and shared with CWC members and CFHL leadership at both the state and local levels.

The fellowship schedule, approved by the CWC, included designated time for lesson support, addressing questions, and discussing cultural adaptations. The fellow contributed to various program initiatives. CFHL, UCCE Riverside delivered a six-lesson Food Smarts Kids series to TANF families, engaging 23 participants, with the fellow assisting in three of the sessions. Additionally, CFHL, UCCE Riverside expanded their programming by partnering with the Boys and Girls Club to provide weekly CATCH classes for children aged 5–12, promoting physical activity and healthy eating.

Fellowship activities included developing social media content, writing a fellowship narrative, participating in CWC meetings, and training to become a CFHL, a UCCE Riverside community extender, serving as a health ambassador for the Torres Martinez community.

#### The Torres Martinez Community Wellness Committee Meetings

The CWC is a consultative body composed of tribal community and tribal council members working to advance health and wellness on the reservation. The CWC met 3 times to co-develop health education activities for the community. CFHL, UC, and UCCE facilitate these meetings and assist with planning and implementing educational activities. This group plans health and agriculture related activities intended to support healthy eating and active living and to dovetail as much as possible with calendared Torres Martinez events to improve time effectiveness, efficiency, and reach.

**Community Nutrition and Health**

**CalFresh Healthy Living, UCCE**

**Torres Martinez Desert Cahuilla Indian Reservation**

**The Temporary Assistance for Needy Families (TANF) FoodSmarts Workshops**

Delivered a six-lesson Food Smarts Kids series to TANF families, engaging a total of 23 participants.

**Boys and Girls Club – CATCH Lessons**

Delivered CATCH lessons to 15 participants from July 29 to September 24. Staff delivered a 3-hour BEPA 2.0 and CATCH PE training session for Boys & Girls Club staff and interested CWC members.



*CATCH Training Torres Martinez*



*TM Food Smarts Class*

**Fiesta Event**

On December 6th, Jenifer and Esmerlada attended the Fiesta Event and provided Grow-at-Home Kits (Radish and Carrots) and Native American Recipe Books/Recipe Cards created by the Tribal Ambassador Committee.

**A’avetum Christmas Party**

On December 16th, Jenifer and Esmeralda attended the A’avetum Christmas Party, where they provided Native American Recipe Books/Recipe Cards created by the Tribal Ambassador Committee and made a soup from the recipe cards.

## Community Nutrition and Health

### CalFresh Healthy Living, UCCE

#### Desert Sands Unified School District ECE

CFHL, UCCE Riverside partnered with Desert Sands Unified School District to deliver comprehensive nutrition education, physical activity promotion, and family engagement initiatives in Early Childhood Education (ECE) programs. The collaboration focuses on serving parents, educators, and young children, supporting healthy behavior at home and in the classroom.

- ◆ In August 2025, staff delivered a Go Glow Grow (GGG) Refresher training session to ECE staff, administrators, and teacher aides.
- ◆ In September 2025, the staff enrolled 15 ECE teachers and 337 ECE students. Additionally, the staff delivered Lesson 6 of GGG to all 337 students.



*DSUSD Ms. Contreras GGG Lesson 6*

#### Coachella Valley Unified School District (CVUSD)

CFHL, UCCE Riverside partnered with the Coachella Valley Unified School District (CVUSD) to provide evidence-based nutrition education at Coral Mountain Academy, Mountain Vista Elementary, and Cesar Chavez Elementary.

##### **Coral Mountain Academy (CMA)**

CFHL, UCCE Riverside staff facilitated nutrition education sessions at Coral Mountain Academy, where students from TK through 5th grade across CMA, Mountain Vista, and Westside Elementary Schools, with a total of 152 participants. In September, staff enrolled three 2nd-grade teachers, and Lesson 1 from 'Good for Me and You,' which was delivered to 67 students. Additionally, four 4th-grade teachers were enrolled to deliver a lesson from 'Up4it' to 98 students. Furthermore, staff organized a fall garden planting event, engaging students from 1st, 2nd, and 4th grades.

##### **Mountain Vista Elementary**

CFHL, UCCE Riverside staff facilitated a fall garden planting day for TK/K students on October 13, 2025. Staff provided garden support and materials, including garden soil, seeds/seedlings, and soil amendments. In November, staff began the GGG Series with 6 TK/Kinder classes, engaging 128 students.

##### **Cesar Chavez Elementary**

In November, CFHL, UCCE Riverside staff began the GGG Series for 5 TK/Kinder classes at Cesar Chavez Elementary, engaging a total of 96 students.

## Community Nutrition and Health

### CalFresh Healthy Living, UCCE

#### Agua Caliente Elementary

CFHL, UCCE Riverside collaborated with Agua Caliente Elementary School, located within the Palm Springs Unified School District (PSUSD), to deliver evidence-based nutrition education. In September 2025, staff enrolled four first-grade educators and conducted Lesson 1 of "My Amazing Body," actively engaging 88 students.

#### Blue Zones

In partnership with Blue Zones, staff delivered nutrition education and gardening programs and encouraged physical activity through various educational activities. Between July 22 and September 30, staff led 9 TWIGS workshops for the Blue Zones Coachella project, engaging 35 participants.



Blue Zones

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**Cal Fresh Living, UCCE Riverside Program Staff**

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## Community Nutrition and Health

### Expanded Food and Nutrition Education Program (EFNEP)

The Expanded Food and Nutrition Education Program (EFNEP) works with limited-resource families to build knowledge, skills, and confidence for making healthy food and lifestyle choices. Through interactive lessons, hands-on cooking demonstrations, and community partnerships, EFNEP inspires participants to create lasting, positive changes in their health and well-being. In the past six months, EFNEP in Riverside County has expanded its reach, strengthened partnerships, and delivered engaging classes that connect directly with the needs of the community.

### Meet Our New EFNEP Educators



Marlen Gaspar joined EFNEP as a Community Nutrition Educator II in Riverside County after transitioning from CalFresh Healthy Living, where she served for three years. Marlen brings valuable experience in community-based nutrition education and is committed to empowering individuals and families to make small, sustainable changes that support long-term health. Her background and familiarity with UCCE programming have allowed her to integrate smoothly into EFNEP and begin serving the community effectively.

Vianca Nuñez also joined the EFNEP team as a Community Nutrition Educator II, bringing nearly three years of experience from CalFresh Healthy Living. Vianca has great experience working with diverse youth and adult audiences and contributes strong instructional skills to EFNEP programming. She is focused on continuing to serve community members through nutrition education that supports healthier lifestyles and informed food choices.



Together, Marlen and Vianca enhance EFNEP’s outreach efforts in Riverside County and contribute to the program’s ongoing mission to improve nutrition security and health outcomes among low-income families.

**Community Nutrition and Health**  
**Expanded Food and Nutrition Education Program (EFNEP)**

**Educational Activities**

EFNEP educational activities in Riverside County expanded through both adult and youth programming led by newly onboarded educators. Marlen Gaspar successfully completed a full series of *Eating Smart • Being Active* at the Riverside IEHP Community Wellness Center. Due to strong engagement and continued partnership interest, EFNEP is returning to the site for an additional series in the current year. In addition to adult programming, Marlen is piloting a new youth curriculum, *Fuel for Life*, at La Sierra High School in Riverside. This pilot focuses on building nutrition knowledge and healthy lifestyle skills among high school students and supports EFNEP’s efforts to expand youth-focused education. Vianca Nunez is delivering EFNEP programming to early childhood education parents through Desert Sands Unified School District at the Eisenhower Community Center. Her work supports parents and caregivers in building healthy habits within the home environment. In addition, Vianca is actively conducting outreach to establish new community partnerships in the Palm Desert area to expand EFNEP’s reach and identify additional sites for future programming.



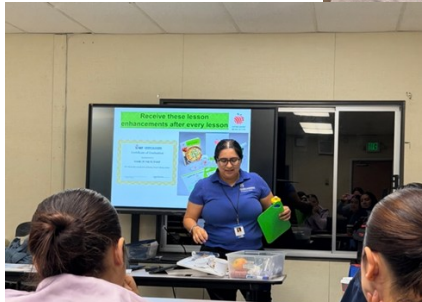
*EFNEP partners with IEHP’s Community Wellness Center in Riverside.*



*Marlen prepares a delicious and healthy apple salad recipe for IEHP participants.*



*Vianca launches EFNEP’s Eating Smart • Being Active curriculum in*



*Vianca’s Early Childhood Education group in Palm Desert enjoying some movement!*



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|  |   |  |  |  |   |
|--|---|--|--|--|---|
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|--|---|--|--|--|---|



## Community Nutrition and Health

### Master Food Preserver Program

The UC Master Food Preserver Program is a public service and outreach program. The Master Food Preserver Program extends UC research-based information about home food safety and preservation to the public with the help of our trained volunteers.

### Training/Conference/Meeting

We successfully completed our volunteer re-appointment for our 2025-26 volunteer year. Each volunteer completed a reappointment quiz demonstrating their knowledge on food safety practices and demonstrating their ability to locate and utilize researched based materials.

#### Highgrove Library (Summer Meals activity July 2025)

UCCE Master Food Preservers worked with youth and parents to help show them how to completed freezer jam. This event was a hands on event were the youth received the material to make a batch of freezer jam to take home and enjoy.

#### Luis Rubidoux Pecan Grove - Pickling Event (July 2025)

UCCE Master Food Preservers created an outside kitchen were the public was able to see how easy it is to created unique blends of pickled items in their own home. Each participant was provide a kit to take home and detailed instructions on how to create a perfect pickled batch for their friends, family and Co-Workers.



#### Anza Farmers Market – Information Table OUR FIRST

ONE! A recent graduate arranged for us to attend the local farmers market to introduce our program to local residents. This area is rural area where the local grocery store is a 30min or more drive. The local community was very excited to have access to hearing about researched based food preservation and discussing food safety. This market is seasonal and we look forward to returning in 2026.





**Community Nutrition and Health**

**Master Food Preserver Program**

Wildomar Library - Boiling Water Bath Presentation (August 2025)

Our local Master Food Preserver connected with a local garden group in Wildomar. We presented the basics of Boiling Water Bath Canning to the group and discussed how to utilize researched based recipes, building our own canner from your kitchen supplies as well as sharing great end of garden recipe ideas. The garden group is very excited to learn more about his process so they can preserve their garden harvest.

The Farm Wildomar CA – Hands-on Class (September 2025)

Our program was able to secure use of the local club house kitchen. We have presented the basics of boiling water bath canning then welcomed the attendees to prepare and process their own jar of pickled carrots. There was so much buzz we are planning to return in the Spring to work on pressure canning meats!

Luis Rubidoux Pecan Grove – Fall Festival (Oct 2025)

Our volunteers were out in full force showing our how to dehydrate apples and create a no waste house hold by using all the scraps from apples. We demonstrated how to properly prepare apples for dehydrating as well how created home make season blends from your pantry items.

**EAT Center – Appler Processing (November 2025)**

Our team of Certified Master Food Preservers presented a fantastic hands-on apple sauce class. During this class attendees learned how to prepare and process homemade applesauce, apple butter and home season blends for the holiday season.

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## Crop Production and Entomology

This program focuses on the crop production needs of crops in the Palo Verde Valley. During July-December these crops are primarily alfalfa (harvested all year round and planted in the fall), and cotton (which is harvested in late fall). Onions, broccoli and some garlic are planted in the fall.

Multiple field trials are conducted during the year, with 2025 July-December trials focusing on alfalfa insect control, cotton heat stress mitigation, and evaluation of several seed applied biostimulants for subsequent grow responses from several fall planted crops.

### *Accomplishments*

The California Association of Pest Control Advisors (CAPCA) chose the advisor as the 2025 recipient for ‘Outstanding Contribution to Agriculture’, recognizing multiple successes during his career, including coaching the national champion 2024 and 2025 California 4-H Horticulture teams as well documenting new agricultural pests and involvement with documenting insecticide resistance in several desert insect pests, thus resulting in positive economic impact for many growers. Other notable individuals who have been so recognized have included a former California governor and a former USDA Secretary of Agriculture.

**Presentation:** Multiple educational presentations were developed on alfalfa insects and their control and given in Arizona and southern California. An invited presentation was made at the U.S. Biostimulant Summit in North Carolina, which led to contacts and information about multiple biostimulants, and opportunity to test them under local agricultural productions conditions, Several Progressive Farmers meetings for local growers were organized.

**Project/Trials:** In addition to coaching the national championship California 4-H horticulture team, multiple field projects/trials during this period included 4 alfalfa insecticide trials, 5 trials on cotton evaluating 10+ treatments to mitigate heat stress and improve yields, and 7 biostimulant/ biological product seed treatment trials initiated on onions and alfalfa to later document growth responses, yields and economics. Several other trials involving hormone based plant growth regulators are being tested on alfalfa (1) as well as cowpeas (4 treatments).

Granulate cutworms were very severe during fall 2025, resulting in several fields being kept brown for several weeks after cutting due to feeding by the cutworms. This provided an opportunity to compare multiple insecticides for their efficacy as well as crop responses.



Crop Production and Entomology



While multiple insecticides reduced numbers of granulate cutworm caterpillars, only one insecticide active ingredient resulted in green alfalfa at one-week post treatment. The rest of the alfalfa continued to be eaten by the caterpillars which caused much economic loss.

The data set from this trial is valuable in defining treatment thresholds (#/sq. ft.) for this insect in low desert alfalfa as well as providing new control data.

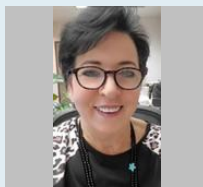
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## Integrated Pest Management

Have you ever dealt with urban pests such as bed bugs, mosquitoes, cockroaches, ants, or termites? If so, you already know how challenging they can be to manage. That’s why the University of California has invested in hiring pest control scientists to help Californians combat these pests collectively.

At UCCE-Riverside, the Integrated Pest Management (IPM) program educates both pest management professionals and the public about environmentally friendly methods and tools for controlling pests. Our program also conducts research to identify the most effective management strategies and shares this knowledge widely for public benefit.

Dr. Taravati, our IPM Advisor at UCCE-Riverside, has over 14 years of experience in pest control and applied entomology. He holds a Ph.D. in Entomology from the University of Florida and is licensed by the California Structural Pest Control Board (SPCB) as both a Qualified Applicator and a Field Representative (Branch II).

### Projects that benefit the Riverside County

#### Protecting Riverside Structures:

Project: North American Termite Survey (NATS) multi-state collaborative initiative

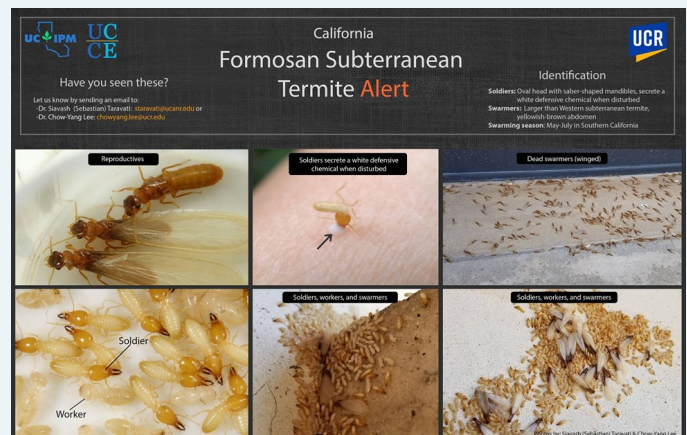
**Start Date:** February 1, 2024-present

**Description:** The North American Termite Survey (NATS) is a working group supported by the Southern IPM Center, composed of extension and research structural entomologists from academia, government, and the pest management industry across 12 US states with over 40 collaborators. Established in 2024, NATS focuses on promoting the preventative management of subterranean termites by developing training materials and by updated distribution maps.

**Role(s): Collaborator - ANR Collaborators:** Andrew Sutherland - **Non-ANR Collaborators: Some of the collaborators:** Aaron Ashbrook @ Louisiana State University AgCenter, Brian Forschler @ University

of Georgia, Christopher Hayes @ North Carolina State University, Siavash Taravati @ University of California Agriculture and Natural Resources, Claudia Riegel @ City of New Orleans, Carrie Cottone @ City of New Orleans, Mark Janowiecki @ City of New Orleans, Santos Portugal @ Mississippi State University.

#### Formosan subterranean termite alert





**Integrated Pest Management**

**Projects that benefit the Riverside County**

**Protecting Riverside pest control industry:**

**Project:** Surveying SoCal pest management operators and technicians about a new proposed rule that required commercial pest control companies to add a 9-gal eye-wash stations to every pest control truck.

**Description:** Coordinated a survey and worked with ANR and non-ANR collaborators to gather necessary data to help California Department of Pesticide Regulation with decision-making related to new proposed regulation on which the CDPR needed feedback from the industry. In short, the proposed amendments will require ANSI-Z358.1 compliant eyewash stations for all operations, including non-agricultural operations, when the product(s) label(s) requires mixer/loaders to wear protective eyewear, when using a closed mixing system or when handling a liquid fumigant that requires protective eyewear by label.

**Role(s):** PI

**ANR Collaborators:** Karey Windbiel-Rojas, Andrew Sutherland, Niamh Quinn

**Non-ANR Collaborators:** Emily Bryson @ California Department of Pesticide Regulation, 4 Environmental Scientists from CDPR @ CDPR, Chaz Estrada @ Nisus, Robert Willis @ Rentokil-Terminix, Ryan Pena @ Craig & Sons Termite & Pest Control, Inc

**Support Amount:** unsponsored

**Duration:** Sat Jul 1, 2023 - Sat Dec 30, 2023

**Support Source:** Conference money, program donations

**Project:** Formosan subterranean termite research

**Start Date:** Friday, October 1, 2021 - Ongoing

**Description:** Formosan subterranean termite is a very destructive invasive species that was first detected in California in the San Diego metro area in late 1990s. This project involved checking new sites with suspicious Formosan termite activity and helping pest management professionals, homeowners and property managers controlling the infestation using in-ground and above ground bait stations containing various Insect Growth Regulators (IGRs). For managing this termite, we used several products including Sentricon, ATBS (Trelona), Isophtor systems, and an experimental bait manufactured by Corteva.

**Role(s):** Co-PI

**Non-ANR Collaborators:** Chow-Yang Lee & Greg Kund @ UC-Riverside, Eric Veronik @ Pinpoint Pest Control, Josh Shoemaker @ Bayer

**Support Amount / Duration:** unsponsored

**Support Source:**



**Integrated Pest Management**

**Projects that benefit the Riverside County**

**Protecting Riverside communities against pests and environmental problems**

**Project:** Studying the efficacy of granular baits for managing the tropical house cricket *Gryllobates sigillatus*

**Start Date:** Tuesday, August 1, 2023

**Description:** The tropical house cricket (*Gryllobates sigillatus*) is a major nuisance pest, especially in low desert areas of the SoCal. Managing them is a local need for my territory and the results from this study have helped pest management professionals and applicators choose the right formulation and product. Perimeter spraying helps to manage them to some extent by repelling and killing some of these crickets,

but liquid insecticide application to the hardscape can easily contribute to surface water pollution. Baits, on the other hand, have shown to be very effective in controlling insects such as cockroaches, and rarely contribute to water pollution when used properly. Preliminary field tests using 5% orthoboric acid granules (Niban) didn't show promising results. However, a 0.22% indoxacarb granular bait treatment (Advion Insect Bait) was shown to be very effective.

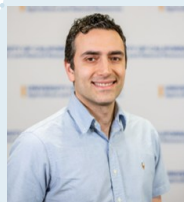
**Role(s):** PI

**Support Amount / Duration:** unsponsored

**Support Source:** UC IPM general funds, County Advisor's fund



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## Master Gardener Program

The mission of the UC Master Gardener Program of Riverside County is *to extend research-based knowledge and information on home horticulture, pest management, and sustainable landscape practices to California residents*. In support of this mission, UC Master Gardeners engage residents throughout the county through a variety of outreach efforts. These include hosting information tables at community events, providing educational programs for both adults and children in community and school gardens, delivering presentations to public and private organizations, responding to questions through the Helpline, and offering Home Gardening Basics classes..

### Home Gardening Basics

A series of *Home Gardening Basics 101* classes was held in September, focusing on essential gardening topics including water and irrigation, soil health, mulching, planting, tool safety, landscape plants, kitchen gardening, wildfire preparedness, garden design, and problem-solving. Participants were invited to submit gardening questions with photos, which were featured in the final session during a fun and interactive “Stump the Master Gardener” activity. An expert team of Master Gardeners provided solutions to seven real-life gardening challenges, creating an engaging and educational experience.

In October, the team met to review participant evaluations and plan the upcoming spring sessions. The spring *Home Gardening Basics* classes will be offered in two sessions in March and will focus on kitchen vegetable gardening, garden design, soil and composting, what to plant in spring, and how to care for vegetable and herb gardens. The classes will include interactive demonstrations, particularly during the composting session, to enhance hands-on learning.



*UC Home Gardening Basics Team*

*(front row) Rebecca Levers, Lynn Coffman, (back row): Kathy Steckman, Susan , Laura Simpson, Georgia Renne*



## Master Gardener Program

### Continuing Education

Continuing Education is an important component to the Master Gardener Program. All Master Gardeners are required to complete a minimum of 12 hours of continuing education to remain in compliance with UC Master Gardener Program guidelines. This year, additional opportunities were expanded to better support Master Gardener volunteers. A variety of educational sessions were offered throughout the year, covering diverse horticultural topics.

Some of the most well-attended classes were held at the California Citrus State Historic Park, focusing on citrus-related topics and featuring guest speakers with specialized expertise.

A variety of continuing education classes and tours were offered to Master Gardeners during this reporting period, including the following:

- Vermicomposting, Master Composters
- Argentine Ants: The Biology and Management: Dr. Siavash Taravati
- Bonsai: Jack Edwards.
- Gardening for Monarch Butterflies: Michell Felix-Derbarmdiker
- Attracting Pollinators for Farms: Adriana Murguia
- Habitat Gardening and Native Plant Care: George Spilitois
- Oriental Fruit Fly and other Citrus Questions: Tom Spellman and Dr. Tracy Kahn
- Climate Change and How Plants Adapt (or Don't): Dr. Don Merhaut
- Fire scaping: Protecting Your Home with Fire Smart Techniques in Zone 0, Lynn Coffman
- Know Your Water: Where Does It Come From? Dr. Esther Lofton
- The Fiery Debate: Do I Need to Install Defensible Space, Lynn Coffman
- Performing Genetic Analysis on the Citrus Variety Collection's Leaf Morphology: Ryan Traband
- Common Diseases of Urban Trees: Dr. Kim Doan
- Tour: Sims Tree learning Center
- Tour: Olive Harvesting

Continuing education workshops are regularly held at the California Citrus State Historic Park and other venues to ensure that Master Gardeners remain informed about the latest developments in horticulture. These sessions provide valuable opportunities for volunteers to deepen their knowledge, learn new techniques, and stay current with research-based practices. By offering a variety of topics and accessible locations, the program supports ongoing learning and helps Master Gardeners maintain a high level of expertise in serving their communities.



*Teaching UC Master Gardeners at the California Citrus State Historic Park, Tom Spellman.*



**Master Gardener Program**

**Outreach Efforts**

During this six-month reporting period, a key goal was to expand outreach efforts into the Coachella Valley. From July through December, Master Gardeners actively engaged in educating community members. Outreach efforts included participation at local farmers markets in La Quinta, Palm Springs, and Rancho Mirage, providing valuable opportunities to connect directly with the public. The program also hosted two information tables at Lowe’s in La Quinta, where staff expressed enthusiasm about hosting additional events in the spring. The program participated in the Desert Horticultural Society event in November and the Blue Zone event held in the Coachella Valley. At the Blue Zone event, the Master Gardeners hosted a “Kiddie Corner,” offering hands-on, engaging activities designed to introduce children to gardening in a fun and interactive way.



*Coachella Valley Farmers Market*



*Hands-on workshops by Tom Spellman*



*California Citrus State Historic Park*

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Riverside County:  
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## Plant Pathology

The Plant Pathology Advisor works to support farmers, pest control advisers, and agricultural professionals in Imperial, Riverside, and San Diego counties by providing research-based solutions for managing plant diseases. Through education, research, and technical assistance, the advisor helps diagnose, prevent, and control plant diseases in various crops, improving agricultural productivity and sustainability. She also collaborates with industry and regulatory agencies to address emerging disease threats and develop effective management strategies.

### Extension and Outreach Activities

In August, the Plant Pathology Advisor participated in the Rockwood Agronomy Seminar in Imperial County, delivering continuing education to pest control advisers (PCAs) and growers throughout Southern California's desert agricultural regions. Her presentation addressed carrot diseases, persistent challenges that significantly impact regional agricultural productivity. She provided comprehensive coverage of key fungal pathogens, essential diagnostic techniques, and integrated pest management (IPM) strategies to minimize economic losses and optimize disease control.

In October, at the California Nursery Conference in Ventura, the advisor engaged with nursery and greenhouse industry professionals, emphasizing the critical importance of managing waterborne pathogens in controlled growing environments. She presented findings from her ongoing survey research project, providing attendees with current data on pathogen prevalence and emerging threats to ornamental crop production systems.

In November, the advisor organized a half-day winegrape workshop in San Diego County, successfully bringing together established winegrape producers from the Temecula region alongside emerging small-scale growers from San Diego areas. This diverse audience facilitated valuable peer-to-peer knowledge exchange between experienced and beginning viticulturists. During the event, she presented results from a comprehensive fungicide efficacy trial targeting powdery mildew in winegrapes, demonstrated practical symptom recognition techniques, and shared evidence-based management strategies proven to reduce disease impact and improve crop quality (Figure 1).

In December, the Plant Pathology Advisor presented at the Fall Desert Workshop in Imperial County, where she provided critical education on distinguishing between powdery and downy mildew in lettuce production. Her presentation focused on diagnostic differentiation techniques and tailored management strategies for desert production systems, addressing the unique environmental challenges and opportunities in Imperial and Riverside desert agricultural operations.



*Figure 1. Plant Pathology Advisor Ana M. Pastrana giving a presentation at the 2025 Winegrape Workshop at the San Diego Farm Bureau on November 5, 2025.*



**Plant Pathology**

**Extension and Outreach Activities**

**Research**

In terms of research, the advisor conducted fungicide trials to assess the efficacy of conventional and organic compounds against winegrape powdery mildew (Figure 2, left), and the results were shared through the UCCE San Diego Newsletter. Another project focused on monitoring lettuce downy mildew through a trap nursery in the low desert to support resistance breeding using locally relevant pathogen isolates. In collaboration with UC Davis, we also initiated a project to evaluate improvements in soil and crop health through biosolarization with various soil amendments (Figure 2, right).



*Figure 2. Fungicide efficacy trial for winegrape powdery mildew in Valley Center, San Diego during summer 2026 (left) and biosolarization trial in El Centro, CA (summer 2026).*



*The advisor also continues to provide diagnostic support and expert guidance to PCAs and growers across Southern California, helping them accurately identify plant diseases, interpret results, and implement effective management strategies to protect crop health and productivity.*

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## Vegetable Crops

Riverside County is comprised of four districts including Coachella Valley, Palo Verde Valley, Riverside/Corona, and San Jacinto/Temecula Valley. These districts collectively account for vegetable production valued \$378,351,000 in 2023 (15.3% increase from 2022) of which bell peppers, carrots, head lettuce, broccoli, and oriental vegetables are the top 5 commodities valuing \$77.6 M, \$39.7 M, \$30.3, \$26.6 M, and \$26.2 M, respectively (Riverside County Agricultural Production Report, 2023).

Coachella Valley is considered a ‘Winter Salad Bowl’ of California and even the country, where most cool-season leafy greens are produced. Cool season, winter and early spring vegetable crops include broccoli, Brussels sprouts, cauliflower, cabbage, lettuce, carrot, celery, and artichoke among others. Warm season fruiting vegetables include bell pepper, okra, tomato, watermelon, cantaloupes, and eggplant. Our research and extension efforts are directed at addressing vegetable production challenges with an emphasis on managing pests and diseases, soil health, and soil fertility.

In addition, we continue to work with Native American Tribes and other marginalized communities to support food sovereignty and improve access to healthy food through backyard and tribal senior community gardening. In the past 6 months, Vegetable Crops Program conducted seven research field experiments, responded to more than fifteen grower field calls, co-hosted 35<sup>th</sup> Fall Desert Crops Workshop, and hosted Torres Martinez Tribal Senior Garden Planting Event. I attended American Phytopathological Society’s Annual Plant Health Meeting in Hawaii to present a research poster and attended and delivered a 30-minute research presentation at National Association of County Agricultural Agents’ Western Regional Meeting in Washington.

I published an extension newsletter article entitled ‘Understanding the impacts of nematicide treatments on rhizosphere microbiome and nutrient cycling in melons’ in Imperial Agricultural Briefs. I also published a research poster presented at the Plant Health Meeting.





## Vegetable Crops

### Research Projects



We continue to work with Torres Martinez Desert Cahuilla Indian Tribe in Coachella Valley on backyard gardening. We organized a planting event where seniors gathered to plant vegetables that now grew up (Figure 1).



*Figure 1. Torres Martinez Desert Cahuilla Indians Senior Garden at the Tribal Reservation in Coachella Valley established in collaboration with UCCE Riverside CalFresh Team.*

We established short-day onion or sweet onion trial for its third-year funded by USDA/NIFA to assess bulb firmness on mechanical harvestability; conducted three trials (two on romaine lettuces and one on watermelon) testing efficacy of Skeepon on drought and heat stress tolerance; conducted biofumigant nematicide for root-knot nematode control on okra; planted okra for CDFA funded Healthy Soil Demonstration Project; and established cover crops for another CDFA project I am collaborating on at heirloom tomato grower's field in San Diego.



*Figure 2. Biofumigant nematicide trial evaluating the efficacy on root-knot nematodes. Figure 2A shows healthy roots free of infection by the nematode and Figure 2B shows infected roots exhibiting characteristic galling on the roots. Excessive galling interferes with nutrient and water uptake resulting in stunted plant growth as shown.*



**Figure 3. Okra harvest at CDFA funded trial evaluating cover crops (Sudangrass, sun hemp, cowpea, and brown mustard), compost, and biochar soil treatments for soil health benefits at the Coachella Valley Agricultural Research Station**



## Vegetable Crops

### Publications

I published an extension newsletter article entitled ‘Understanding the impacts of nematicide treatments on rhizosphere microbiome and nutrient cycling in melons’ in Imperial Agricultural Briefs ([https://ucanr.edu/sites/default/files/2025-09/Ag%20Briefs%20%20Sept%202025\\_Final.pdf](https://ucanr.edu/sites/default/files/2025-09/Ag%20Briefs%20%20Sept%202025_Final.pdf)). I also published a research poster presented at the Plant Health Meeting (<https://www.conferenceharvester.com/uploads/harvester/presentations/UMPCPAEX/UMPCPAEX-PDF-3173123-2752194-1-PDF.pdf>).

### Meetings and Talks

*Meetings and Talks:* I co-hosted 35<sup>th</sup> Fall Desert Crops Workshop, and hosted Torres Martinez Tribal Senior Garden Planting Event. In addition, I attended American Phytopathological Society’s Annual Plant Health Meeting in Hawaii to present a research poster and attended and delivered a 30-minute research presentation at National Association of County Agricultural Agents’ Western Regional Meeting in Washington.



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## Woody Biomass and Bioenergy

Woody Biomass and Bioenergy encompasses innovative extension education programs and applied research associated with the use of forest resources and biomass and bioenergy development in Riverside and San Bernardino Counties. The program investigates opportunities and strategies for increasing the use of woody biomass through development of biofuels and bioenergy as well as other products. The programs also aim to integrate efforts to enhance biomass management and natural resources manufacturing for reducing community risk from wildfires. The goal of the biomass and bioenergy program is to develop and extend research-based information on converting woody biomass into fuels for transportation and other products consistent with the California Forest Carbon Plan.

### Summit on Bio-Based Products (Aug 5-6, 2025)

In August, UCANR academics and leaders actively contributed to the Summit on Bio-Based Products held in Sacramento, bringing together stakeholders from across industry, academia, and government. Led by Glenda Humiston, Haris Gilani, Dan Sanchez, Gabriel Youtsey, Anne Megaro, and Cindy Chen, UCANR helped shape the dialogue around California’s growing bioeconomy. The summit focused on scaling innovation, advancing bioproduct commercialization, and developing infrastructure to support sustainable biomass utilization across the state.

UCANR’s engagement emphasized the critical role of biomass, organic material sourced from agriculture, forestry, and municipal waste, as a cornerstone of California’s renewable energy strategy. The team shared insights on opportunities to convert biomass into clean energy (biofuels, RNG, electricity), reduce waste, and boost rural economic development. In addition, discussions centered on the expansion of bio-based materials, including bioplastics, biochar, and sustainable composites that support a circular economy. As California continues to invest in decarbonization, wildfire resilience, and sustainable industry, UCANR remains a key driver in advancing science-backed solutions and fostering cross-sector collaboration.



*UCANR academics and leaders shared expertise at the Summit on Bio-Based Products in Sacramento.*



## Woody Biomass and Bioenergy

### UC Assistant Specialist in Biomass and Bioenergy – New Hire Announcement

#### Welcome

Woody Biomass and Bioenergy Program welcomed  
Md Sahadat Hossain,  
Assistant Specialist  
Started August 1, 2025

We are pleased to announce that the new UC Assistant Specialist in Biomass and Bioenergy officially started on August 1, 2025. This position is a key addition to UCANR’s efforts in advancing research, outreach, and innovation in biomass utilization, renewable energy, and the circular bioeconomy.

The hire follows a successful search led by Dr. Haris Gilani (Chair of the Search Committee), with committee members Dr. Dan Sanchez (UC Berkeley), Dr. Cindy Chen (UC ANR), and Dr. Rick Brenner (ATIP Foundation). The position was widely advertised and attracted a strong pool of applicants. We look forward to the new specialist’s contributions to applied research, cross-sector partnerships, and support for California’s low-carbon and sustainable development goals.

#### California Economic Summit (Oct 20-23, 2025)

During October, key progress was made across several project areas, including continued engagement with partners to advance California’s bioeconomy initiatives and data collection efforts for the biochar market development strategy. Outreach activities included meetings with regional stakeholders and participation in the California Economic Summit, where discussions centered on sustainable economic growth, workforce development, and innovation in the state’s emerging bio-based sectors. Attendance at the Summit provided valuable opportunities to connect with industry leaders, policymakers, and researchers, fostering potential collaborations that support the broader goals of advancing climate-smart materials and circular economy initiatives in California.

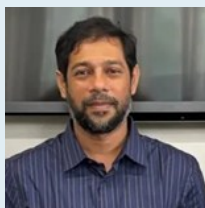


*Regional tours to bioeconomy facilities in San Joaquin Valley*

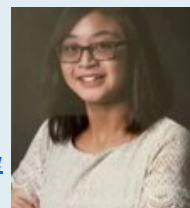
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