

# Riverside County Cooperative Extension



## Semi-Annual Report –July 1-Dec 31, 2020

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**UNIVERSITY OF CALIFORNIA**  
Agriculture and Natural Resources

■ UC Cooperative Extension

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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, 2020. 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:*

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## 4-H Youth Development Program

The California 4-H program is a part of the University of California Division of Agriculture and Natural Resources (UC ANR), a statewide network of the University of California. Led by research-driven programming from UC ANR, 4-H is a youth development program for youth ages 5-19 that promotes hands-on, experiential learning. Youth and adult volunteers from all backgrounds and locations in California are welcome. The purpose of a 4-H club is to provide positive youth development opportunities that enable youth to reach their full potential as competent, confident, leaders of character who contribute and are connected to their communities. Our clubs, camps, in school, afterschool and special interest programs encourage leadership and responsibility and teach life skills and community involvement while the youth try new experiences.

### Activities

#### July 2020

Three Riverside county volunteers and ten teen leaders led **Zoom Summer Camp** where 22 youth ages 8-12 participated in healthy living, science, arts, and outdoor education activities. 4-H staff and teen leaders played a leadership role in **“Our Wild California”** online camp and reached over 95 youth across the state.



*County 4-H Ambassador showing youth how to use over-ripe bananas instead of throwing them in the trash.*



Our seven Riverside County 4-H Ambassadors led a **Food Waste workshop** for 40 youth across the state during the 2020 Virtual State Leadership Conference.

Teen leaders started a monthly **Teen Game Night** where 29 youth participated. This event helped Riverside County youth connect to their peers and build their social-emotional skills.

#### August 2020

4-H staff and teen leaders led **4-H Grown at Home camp** where youth had a choice of hands-on activities such as yoga, citizen science, pen pals, and fire safety.

Record-keeping allows youth to reflect on their yearly work by documenting skill development, learning experiences, and growth in 4-H. This year, 4-H volunteers diligently evaluated 28 **record books** using a digital platform.



## 4-H Youth Development Program

### September 2020

The seven Riverside County 4-H Ambassadors planned and executed **Virtual Leadership Day**. They created and led four workshops on mental health topics for 41 youth.

### October 2020

Riverside County youth participated in the **Southern California Fair** online livestock show and **Virtual Jr. Livestock Auction**. Our online **Crazy Hat Awards Gala** was led by our County 4-H Ambassadors and recognized youth for developing skills and knowledge in their project work.



*Youth participating in Crazy Hat Awards Gala.*



*Youth collecting donations.*

### November 2020

**Community Service and Civic Pride** is instilled in 4-H youth through both county and club level service projects. Three Riverside county ambassadors cleaned and organized the 4-H storage container. Murrieta Mustangs 4-H Club began collecting books and arts and crafts supplies for a K-12 school in Uganda at a drop-off donation at their local Tractor Supply.

As with all 4-H programs, the **Shooting Sports** program relies on adult volunteers who are trained in positive youth development and how to deliver curriculum developed by academics. 4-H staff led training to certify leaders to lead archery projects for youth.

### December 2020

The countywide **Coding project** completed an 8-week course teaching computer science concepts through storytelling.

Online **Winter Camp** is being planned to provide fun, educational, hands-on activities for youth, so they have a place to connect with youth their age over the school break.



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## Agricultural Economics/Farm Management

My assignment involves farm management economics in crop production in southern California counties primarily San Luis Obispo, Santa Barbara, Ventura, Riverside, San Diego, and Imperial, as well as the limited crop production in San Bernardino, Orange and Los Angeles. In subtropical horticulture farm management economics, my work spans over to include the statewide industry. My responsibility is research and development of cost of production and profitability analyses and extending farm management knowledge and tools to growers for planning, evaluating and managing crop production to ensure profitably and viability. Allied industries also benefit from my programs such as using cost of production information for assessing property values and for business and financial transactions such as approving loans and determining leases. My program spans over multiple strategic initiatives including Sustainable Food Systems and Sustainable Natural Eco system (as it impacts agricultural production).

**Sabbatical leave from June 1, 2020 to November 30, 2020. Projects worked during this period include:**

An economic viability and feasibility analysis of High Density avocado planting in Southern California showed healthy grower profit. Due to the high cost of water in the southern California region, avocado growers have been struggling to stay viable and sustainable. A high density planting was evaluated from 2012-2017 for irrigation water consumption and yield increases and improvement of grower returns (Bender, 2018). Based on the data and grower interview and references of previous studies, an establishment investment and production cost analyses showed that high density planting would be profitable in 2020 (Takele et. al, 2020) [https://ucanr.edu/sites/Farm\\_Management/files/341279.pdf](https://ucanr.edu/sites/Farm_Management/files/341279.pdf). However, planting of high density may not be feasible in steep slope orchards. This study provides growers investment need for establishment of a high density avocado orchard and producing the crop in San Diego County.



*Picture source: Bender, summer 2014 / From the Grove / 37*

**HASS VARIETY**

The study has benefits for Riverside County as the avocado industry spans over the southwestern side of Riverside County of the Temecula area and the Northern San Diego of Fallbrook area. Production practices and production conditions are similar. The benefit of high density may be even higher in Riverside County as water cost is relatively cheaper than San Diego County.



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## Crop Production and Entomology

The Crop Production and Entomology program area covers education and applied research program in Palo Verde Valley related to crop production issues with emphasis on entomology for field, row and vegetable crops, such as irrigation/water-use efficiency, soil fertility, plant nutrition, fertilizer efficiency, improved varieties, evaluation of new crop species for diversification, risk management and general pest management. Current research focuses on Low Desert Crop Production with foci on control Bio-stimulants and Mitigating Heat Stress.

### Replicated Field Trials

#### Initiated and/or harvested during period of July-December 2020

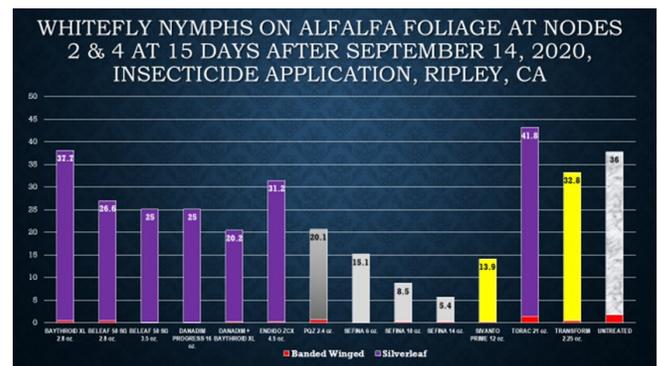
♦ **Plant Growth Regulator Trials to Reduce Teff Lodging:** The teff seed industry continues to expand in the Palo Verde Valley. This fine stemmed grass is highly susceptible to lodging which results in lower yields, more and slower field operations for harvest, and reduced economic returns. Trials were initiated in late summer 2020 to evaluate rates and timings of a product to reduce lodging. Initial successes have resulted in the manufacturer to approach the US EPA to change wording on the federal label to allow usage in California.

♦ **Cotton Heat Stress Mitigation:** (6 trials) Evaluation of STO-1106 was conducted as replicated trials on 6 different cotton varieties during 2020. An overall 45% approximate reduction in numbers of aborted green fruiting structures were noted on ground during the season, regardless of variety and susceptibility to high heat conditions. Yields and quality data after cotton is ginned at end of season will provide economic data and value to growers.

♦ **Late Summer Alfalfa Insecticide Efficacy Comparison Trial:** (focus primarily on whiteflies). An insecticide trial was initiated in September as local growers/Pest Control Advisors were noting two whitefly species being abundant, and control information needed. Thirteen insecticide entries were included, with best whitefly control being noted from Sefina insecticide (Fig. 1). This insecticide recently was registered for usage in Arizona, and it is expected that these data will be extremely valuable for California registration.

♦ **Dehydrator Onion Biostimulants.** Two replicated trials comparing multiple biostimulant products were harvested in July 2020. One trial evaluated treatments applied prior to germination, the other evaluated multiple products applied to foliage. Treatments varied for their effect on yields, as was product and onion growth stages. Best foliar treatment was Vitazyme, which resulted in an almost 2 ton/acre increase over untreated onions, valued at just under \$300/acre. Several treatments that were initiated prior to germination increased yields by almost 1 ton/acre. Several treatments applied at 3<sup>rd</sup> leaf stage were detrimental to yields, but for other products this was the best crop stage for yield increases. Additional testing is expected and needed in the upcoming year.

♦ **Deficit irrigation effects on alfalfa insect abundance:** This project’s purpose was to help document the effects of deficit irrigation on insect abundance and damage to help provide a more complete picture what happens with deficit irrigation. Insects collected this summer are still being counted, but there were visible differences in whitefly initial infestations on regrowth; armyworm differences are also suspected, in part due to differences in natural enemies which provide biological control of pests.





## Crop Production and Entomology

### Replicated Field Trials– Cont;

- ◆ **Alfalfa Response to fertilizer/anti-stress products during summer months:** Trials conducted for over a three cuttings period resulted in no yield increases for the products evaluated. Processing of insects collected during the studies are still ongoing.
- ◆ **Alfalfa Fungicides:** Three fungicides were evaluated for efficacy in alfalfa. Two applications of Top Guard Terra provided excellent control of cotton root rot, which kills alfalfa stems, and resulted a yield increase of almost 1,100 lbs of hay in a single cutting, while a single application was about half this amount. Data are necessary for California registration.

### Non-Replicated

**Seasonality of Parsley insects in the Palo Verde Valley.** This project is documenting insect species and numbers during the growing season for a crop not previously grown locally.

### Presentations (all virtual)

- ◆ Recent Research Results Regarding Alfalfa Insects. **Virtual Desert Ag Conference. July 22, 2020.**
- ◆ Lygus Bug Control: Comparisons of Potentially New and Established Insecticides. **Annual Meeting/ Professional Improvement Conferences. National Association of County Agricultural Agents. Sept. 21, 2020.**
- ◆ Mitigating Heat Stress Effects to Increase Cotton Retention and Yield. **Arizona Cotton Growers Association - October 21, 2020.**
- ◆ Management of Citrus Thrips (*Scirtothrips citri*), a Recently Recognized New Economic Pest of Summer and Fall Low Desert Cotton. **Arizona Cotton Growers Association - October 21, 2020.**
- ◆ Biological Plant Growth Regulators: Experiences, Facts and Future. **UC Biologicals Series - November 18**
- ◆ Update of Low Desert Forage Insects. **Alfalfa/Forage Pest Management Virtual Workshop – December 4, 2020.**
- ◆ Alfalfa Aphids and Recent Results. **UCCE Imperial County Fall Crops workshop - December 10, 2020.**

### Awards

1<sup>st</sup> place (National winner) Applied Research Poster competition (National Association of County Agricultural Agents) – “Dingy Cutworm (*Feltia jaculifera*) Pheromone Lures are Not Highly Effective in Attracting the Closely Related Granulate Cutworm (*Feltia subterranea*)”



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### Posters Developed

- ◆ Old Cucurbit Pest Makes New Appearance in CA Cantaloupes. **Entomological Society of America national meeting (Nov, 2020).**
- ◆ Alfalfa Aphids and Recent Results. **UCCE Imperial County Fall Crops workshop (December 10, 2020).**



## 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 underserved neighborhoods. I also manage the Riverside County Master Gardener program and provide guidance and support to Volunteer Coordinator Rosa Olaiz.

## Education/Training

◆ UC Cooperative Extension (Janet Hartin)/UC Riverside (Don Merhaut, Amir Hagverdi et al.) **Urban Landscape Irrigation Field Day for Master Gardener Volunteers** (held via Zoom) on September 3 provided research-based information on practical ways to save water and reduce water bills. Talks were recorded and available for viewing on Dr. Amir Hagverdi's website:

<http://www.ucrwater.com/presentations.html>



*Urban Landscape Field Day for Master Gardeners (September 3, 2020 via Zoom)*

**UCR Urban Landscape Field Day  
for Master Gardeners**  
September 3, 2020

- Amir Hagverdi (Assistant CE Professor)
- Don Merhaut (Associate CE Professor)
- Janet Hartin (Area Environmental Horticulturist)
- Anish Sapkota (PhD Candidate)
- Amninder Singh (PhD Candidate)





Highlighting Work across the UC ANR Strategic Initiatives

◆ UC Cooperative Extension (Janet Hartin) **'Trees for Tomorrow'** webinar (September 23) for Coachella Valley residents provided research-based information on proper tree selection and care for reducing the impact of urban heat islands and enhancing tree canopies in disadvantaged communities.

◆ UC Cooperative Extension (Rosa Olaiz and Janet Hartin) organized and conducted a **'Diversity, Equity, and Inclusion' (DEI) Listening Session'** to obtain input from Riverside County Master Gardeners on how best to ensure the program maximizes opportunities to recruit and work with underserved individuals, communities, and organizations.

◆ UC Cooperative Extension (Janet Hartin) developed the training syllabus and provided training to the trainees accepted into the 18-week **Riverside County Master Gardener class** conducted via Zoom starting November 4. She also taught classes on soil/water management, arboriculture, and therapeutic horticulture.

◆ UC Cooperative Extension (Janet Hartin) organized a **'Small Scale Organic Farming' workshop** held (via Zoom) on December 15 and obtained co-sponsorships from Riverside, San Bernardino, and Orange County Farm Bureaus and the Inland Empire Resource Conservation Districts.



## Environmental Horticulture

### Research Activities

◆ UC Cooperative Extension (Janet Hartin, Jim Downer, Alison Berry) and US Forest Service (Greg McPherson, Natalie Doorn, et al.) scientists are partnering 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 underplanted species of native and adapted non-native landscape trees. The project is in its fifth year.

◆ UC Cooperative Extension (Amir Haghverdi, Don Merhaut, Janet Hartin) scientists are **measuring the growth, performance and health of several species of groundcovers and turf species** under several levels of irrigation at UC Riverside (third year).



‘Climate-ready Landscape Trees’ plot-UC Riverside showing damage to *Quercus tomentella* (Island Oak) with other species performing well.



Turf water use plots (UC Riverside)



Groundcover water use plots (UC Riverside)



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### Introduction to Small Scale Organic Farming (for Inland Southern California Farmers)



8:00: **Welcome** (Janet Hartin, UCCE Area Advisor and Mandy Parkes, Inland Empire RCD Manager)

8:05: **UC ANR Sustainable Agriculture Research and Extension Program (SAREP) Goals and Resources** (Gail Feenstra, Director)

8:20: **UC ANR Organic Agriculture Institute (OAI) Goals and Resources** (Houston Wilson, Director)

8:35: **Legal Basics: Permits, Licenses, and Regulations** (Rachel Surls, UCCE Sustainable Food Systems Advisor)

9:30: **Soil Health** (Joji Muramoto, UCANR Organic Agriculture Specialist)

10:00: **Nitrogen Management on Organic Farms** (Margaret Lloyd, UCCE Small Farms Advisor)

10:30: **Break**

10:40: **Irrigation Management** (Amir Haghverdi, UCANR Irrigation Specialist)

11:20: **Q and A with Morning Speakers**

11:45: **Lunch**

12:30: **Overview of Integrated Pest Management** (Cheryl Wilen, UCCE Area IPM Advisor)

1:10: **Identifying and Controlling Common Plant Diseases** (Alex Putman, UCANR Plant Pathology Specialist)

1:45: **Marketing and Business Management** (Sonja Brodt/Gail Feenstra, both SAREP)

2:30: **Q and A with Afternoon Speakers**

2:50: **Break**

3:00: **Tips from Local Farmers (TBA)**

3:40: **Resources** (UCANR, IERCD, local Farm Bureau Reps)

4:00: **Adjourn**

**December 15, 2020  
(Tuesday)**

**8:00 AM - 4:00 PM**

**Live (via Zoom)**

**Free!**

**Register Here:**  
<http://ucanr.edu/u.cfm?id=253>  
or Scan the QR Code:



[Questions? Contact Janet Hartin: jshartin@ucanr.edu](mailto:jshartin@ucanr.edu)





## 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.

◆ In spite of the COVID-19 challenges, 55 trainees graduated from the UCCE Master Gardener Volunteer Training Program this year. The Coachella Valley added 29 Master Gardeners (MGs) to the area and West Riverside County has 26 MGs. The pandemic brought a change in the way the training was completed. The Coachella Valley volunteers completed the training, but were unable to present their final project. The West County trainees successfully completed the training virtually.



*West Riverside County Class of 2020*



*Desert Area, Class of 2020*

◆ The UCCE Master Gardeners completed the annual volunteer reinstatement in July, 307 Master Gardeners completed reappointment and committed to the program for the 2020-2021 fiscal year. The challenge these past months has been finding activities MG volunteer can participate in, while keeping social distance and staying safe. Master Gardeners found creative activities to continue to share their knowledge with the residents of Riverside County.





## Master Gardener Program

◆Two series of Virtual Home Gardening Basics Classes were held, one focused on desert landscape and the second focused on Western Riverside County landscape. The series of four classes included information on journaling, proper use of gardening tools, safety in the garden, soil, watering/irrigation, and plant selection. A total of 28 participants were educated and five of whom applied and were accepted



*Home Gardening Basics Classes were a success in Riverside County*



*Master Gardener Jonie Kipling delivered plants and other gardening supplies to schools who are maintaining school gardens.*

◆With the sudden closure of schools in Riverside County, the School and Youth Garden Committee revamped school outreach. The committee created a series of online school garden PowerPoint Lessons for grades K-12, Plant Fact Sheets and educational videos will be available. The curriculum will be posted on the UCCE Master Gardener website available to teachers and students.



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Master Gardener Helpline

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## Natural Resources

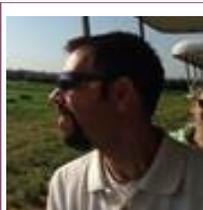
The goal of the Natural Resources program is to promote sound management and conservation of the region's natural resources, through research, educational activities, and building relationships with a broad range of land managers. The program partners with resource management professionals working on private, state, tribal and federal lands. The Natural Resources program works to ensure our lands will provide benefits for generations to come.

### Workshops/Trainings

- ◆ Presented at a statewide workshop on management of weeds in grasslands, where attendees from Riverside County were present (135 total attendees).
- ◆ Presented to Master Gardeners on Planting Safely in Drought Tolerant Landscapes (65 attendees).
- ◆ Presented at the California Invasive Plant Council's (Cal-IPC) statewide (virtual) symposium on managing the highly invasive Stinknet (375 attendees).
- ◆ Presented at the California Invasive Plant Council's (Cal-IPC) statewide (virtual) symposium on chemical weed management and habitat restoration techniques (80 attendees).

### Program Accomplishments

- ◆ Began a partnership with land managers in western Riverside County on managing sensitive habitats for endangered species.
- ◆ Advised land managers in western Riverside County on managing the invasive weed stinknet.
- ◆ Advised land managers in the Coachella Valley on managing dying desert willow trees.
- ◆ Attended the Science Advisory Committee for the Southern California Association of Government's (SCAG) Greenprint development plan.
- ◆ Led the Low Desert Weed Management Area meeting, where land managers discussed weed management issues across the Coachella Valley.
- ◆ Published an article in the journal Desert Plants on the biology and management of the highly invasive weed stinknet.
- ◆ Advised a land manager on the invasion of a new and highly invasive weed, Mediterranean needlegrass, in the Coachella Valley.



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## Nutrition, Family and Consumer Sciences

The Nutrition, Family and Consumer Sciences Program (NFCS) provides research-based education in the areas of nutrition, food safety and consumer economics. NFCS 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. NFCS is one of four 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.

### Partnership with Desert Sands Unified Early Childhood Education during COVID-19 Pandemic

The CFHL, UC Cooperative Extension in Riverside County joined three other counties in the Go, Glow, Grow curriculum workgroup to convert the curriculum to virtual delivery. A set of six interactive presentations were created, along with electronic resources for teachers and a promotional video. GGG is the first UCCE youth curriculum that was converted to virtual delivery, just in time to be included in the new school year by DSUSD ECE teachers.

From July to October 2020, CFHL, UCCE Riverside team worked with **17 DSUSD ECE teachers at 9 ECE/Head Start sites to deliver 24 GGG presentations via Zoom reaching 278 preschoolers.** CFHL, UCCE Educators demonstrated lesson delivery by teaching the handwashing lesson and encouraged children interaction with questions and physical activity breaks.



*"Our teachers indicate that incorporating a nutrition curriculum to their instruction is a positive way to introduce the importance of nutrition to our preschool students and their families. The resources we receive from you are age appropriate and very well received. In addition, having you as a nutrition bilingual educator supports the teachers and their families to adequately implement the program."*

Dr. J. Rallion, DSUSD ECE Principal

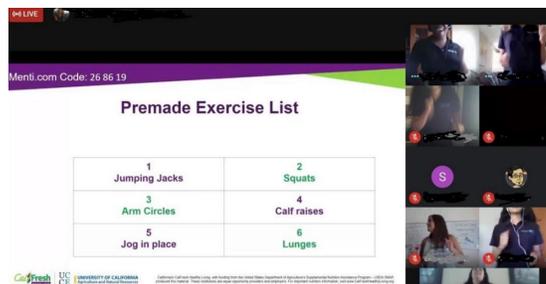
*"Great nutrition/healthy curriculum. The children respond and are engaged with the games, recipes and activities. Thank you for your support in creating a healthier generation."*

Mrs. Alvarez, DSUSD Child Development Center

## Nutrition, Family and Consumer Sciences

#AlvordStillStrong

“Brain Breaks in the Virtual World”



CFHL, UCCE team demonstrates a brain break activity during a virtual class

The CalFresh Healthy Living, UCCE Riverside trained 700 teachers and staff members in physical activity at the August 2020 #AlvordStillStrong Distance Teaching Virtual Summit. The Summit provided virtual professional development training through simultaneous Google Meets and Google Cast. Teacher feedback was overwhelmingly positive: 230 responded to the poll with 88% indicating that they are “very likely” or “likely” to schedule a physical

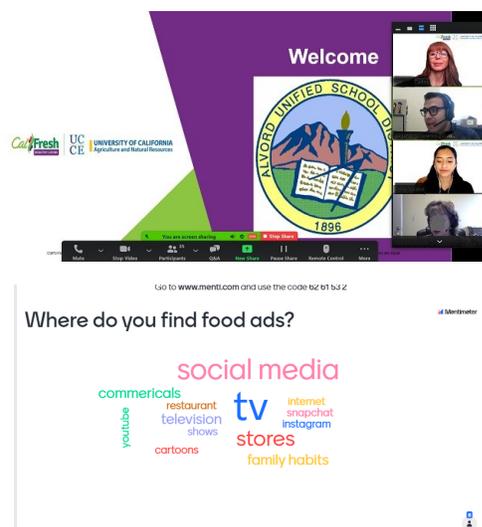
*“We believe that your workshop helped empower and reduce the anxiety of our teachers as they started the school year teaching over 18,000 students remotely using the technology and resources that we introduced during the summit.”*

~AUSD Summit Planning Committee

## Teaching Students and Parents to Make Wise Food Purchasing Decisions

As school teachers in Riverside County were getting ready for remote classroom delivery in response to the coronavirus closures, CalFresh Healthy Living, UC Cooperative Extension offered assistance launching into the virtual world using newly developed online nutrition education lessons.

While the CFHL, UC State Office facilitated several workgroups to convert existing curricula to online presentations, development of interactive online curricula takes time, and materials were not ready at the start of the new school year. To fill the gap, the NFCS Advisor created a virtual presentation to teach Analyzing Food Ads, a lesson from the Nourish: Food + Community curriculum. The CFHL, UCCE Riverside staff and teachers virtually engaged **894 students** from **28 classes** in **7 schools** from **Alvord Unified, Banning Unified and Coachella Valley Unified.**



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## Subtropical Horticulture

The Subtropical Horticulture Program is organized under two themes: Sustainable Subtropical Horticulture and Pest Management. These themes focus on many aspects of two University of California (UC) Initiatives: *Sustainable Food Systems Initiative* and the *Endemic and Invasive Pests and Diseases Initiative*. The goal is to improve grove systems to increase yield, fruit quality, and improve economic returns. Growers face high cost of production especially stemming from high water cost and on the other hand competition with imports from low cost production countries that cut the market prices. Thus, for California growers, it will require more efficient farming strategies and a significant increase in productivity especially with the increase of water cost.

### Avocado Grower Seminars

During this time frame we held 3 free webinars with more than 400 growers participating in the webinar via Zoom. Approximately 73% of the attendees at the Avocado Educational Grower Seminar series reported gaining knowledge on topics they requested to help them remain competitive, including economics, labor, pest management, water quality and usage, soil science, pruning techniques, biocontrol, salinity, and harvesting. Collaborative team that consists of members from the California Avocado Society, California Avocado Commission (CAC), and UCCE.

◆ Clientele include: California avocado growers, industry, pest control advisors and other stakeholders.

◆ A seminar series is developed annually to help the current avocado growers.

◆ Teach growers to new skills and knowledge in cultivation practices to help improve production and returns.

◆ Poll from seminar in September, “Management of weeds in avocado orchards and Bio stimulants”

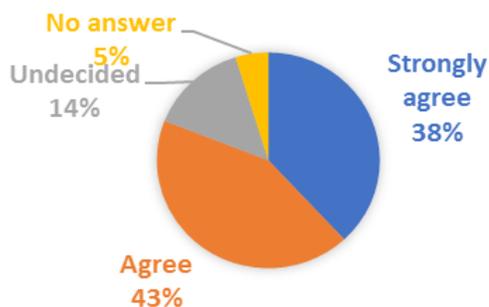
⇒ Presented by UC ANR Farm Advisors,  
Sonia Rios and Ben Faber

⇒ Date: August 12, 2020

⇒ Number of registered: 238

⇒ Number of participants: 168 (7 on cellphone)

#### I GAINED NEW KNOWLEDGE



#### Topics in Subtropics Newsletter/Riverside & San Diego Individual Newsletter

During this time 2 of the 4 annual quarterly newsletters were distributed to subtropical horticulture growers throughout the state. In addition, the second edition of Rios's individual newsletter was released. There are over 800+ recipients in Riverside and San Diego county that receive the newsletter quarterly.

You can retrieve the latest issues here: <https://ucanr.edu/sites/alternativefruits/>



## Subtropical Horticulture

### Citrus Production Course for new growers via Zoom

10- week class (July 7-September 1) was offered to citrus growers from all experience levels.

- ◆ First time in 25 years that UC ANR has offered the class.
- ◆ Had 16 participants, from experienced growers to novice, first time growers.
- ◆ Had 15 UC ANR & UCR Advisors/Specialist, as guest speakers in different topics regarding various topics in citrus cultivation.
- ◆ Anticipate that commodities will result in increased revenue due to better Best Management Practices learned from the learning outreach material.
- ◆ Will increase compliance with laws/regulations, as well as increase new grower's safety awareness & knowledge.
- ◆ Long-term goal is to build a plethora of information that can be used for a lengthy amount of time that can be shared amongst citrus stakeholders to increase the commodities value & preserve the commodity.

**Searching for glyphosate herbicide alternatives in avocado** Completed 1<sup>st</sup> years' worth of data for an herbicide trial funded by CAC. In collaboration with UCR and UCCE Ventura. Currently searching for glyphosate alternatives in avocados.



### Weed management in Citrus

Completed a 2-year study on different formulations of Indaziflam (Alion) and other herbicides not registered in citrus to evaluate for phytotoxicity. The project was also expended in searching for glyphosate alternatives in citrus.

### Determination of Actual Evapotranspiration and Crop Coefficients of California Date Palms Using the Residual of Energy Balance Approach

This study aimed at determining the actual evapotranspiration (ETa) and crop coefficients (Ka) in California date palms. This information addresses the immediate needs of date growers for irrigation management in the region and enables them to more efficiently utilize water and to achieve full economic gains in a sustainable manner, especially as water resources become less available or more expensive. The 2-year project was completed this fall and published in a peer review journal.



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## Viticulture

The Viticulture program is aimed to designing and implementing educational and applied research programs related to table grape and wine industries. The program is focused to two main topics: 1) The development and implementation of cultural practices to increase the production and enhancement of fruit quality, and 2) The development of strategies to protect grapes from pests and diseases.

### Educational Activities

- ◆ Monthly online meetings with wine growers in Temecula, Ramona and San Diego.

Each month, I discussed the main activities growers should focus on throughout the crop development; topics included canopy management, irrigation pest and disease control.

### Research Activities - Pest and Disease Control

- ◆ The area-wide program in the Coachella Valley continues monitoring an invasive insect that carries a bacterium that infects grapevines. Fortunately the insect has not been detected since 2019 when the program re-started.



*Insect that carries the bacterium that causes Pierce's Disease.*



*Infested spur after inoculation with canker disease fungus*

- ◆ A field trial to test the efficacy of pruning protection materials was evaluated. Data showed that the addition of the sealant material tested did not protect the pruning wounds.



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