



UC Cooperative Extension Santa Clara County 2020

University of California Agriculture and Natural Resources (UC ANR) brings the power of UC research in agriculture, natural resources, nutrition and youth development to local communities to improve the lives of all Californians.

University of California Cooperative Extension (UCCE) county-based advisors, community education specialists, and campus-based academics work in teams to bring practical, trusted, science-based solutions to our state. We are problem solvers, catalysts, collaborators, educators, and stewards of the land, living in the communities we serve.



592

volunteers donated
55,199
hours public service
— estimated value
of
\$1,739,328



17,918

total educational
interactions with the
public



14

peer-reviewed and
audience-requested
publications



6

activities bringing
research to policy



190

academic-led
workshops, field
days, and classes
with
2,047
participants



7

news media
programs/
mentions



1,936

youth in
UC 4-H Youth
Development
Program



UC Master
Gardener

volunteers reached
8,182
residents



5,759

people reached by
healthy food and/or
physical activity
changes (CFHL,
UC)



16

new certified
California
Naturalists
stewarding the
environment



UCCE Santa Clara

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Partnering for Change

UC ANR builds partnerships based on deep and long-lasting relationships with local, state and federal governments, community-based organizations, schools, nonprofits and private industry.

Here are the many organizations that UC Cooperative Extension partners with to serve the residents of Santa Clara County:

- Alameda County Resource Conservation District
- Ann Sobrato High School
- Calfire
- California Alliance for Community Composting (CACC)
- California Association of Pest Control Advisers
- California Department of Consumer Affairs (DCA)
- California Department of Forestry and Fire Protection
- California Department of Pesticide Regulation (DPR)
- California Rangeland Conservation Coalition
- Catholic Charities
- Central Coast Rangeland Coalition
- City of Campbell
- City of Cupertino
- City of San José
- City of San José Prusch Park
- Dairy Council of California
- East Bay Regional Park District
- East Side Union High School District
- Escuela Popular Bilingual Academy
- Farm Bureau
- Friends of Master Gardeners of Santa Clara County (FOMSCC)
- Fresh Approach
- Gilroy Grange Hall
- Gilroy High School
- Mid-Peninsula Open Space District
- Milpitas Unified School District
- Morgan Hill School District
- Palo Alto Medical Foundation
- Pest Control Operators of California (PCOC)
- Pesticide Applicators Professional Association (PAPA)
- Region 5 Expanded Learning Division
- Sacred Heart Community Services – La Mesa Verde Program
- San Jose Conservation Corps (SJCC)
- San Martin Lion's Club
- Santa Clara County Agricultural Department
- Santa Clara County Board of Supervisors
- Santa Clara County Cattleman's Association
- Santa Clara County Parks and Recreation
- Santa Clara County Public Health Department
- Santa Clara Unified School District
- Santa Clara University
- Santa Clara Valley Water District
- Second Harvest Food Bank
- Sunnyvale Middle School
- Target Specialty Products
- Tech Museum of Innovation
- Technical Advisory Committee of the Recycling and Waste Reduction Commission of Santa Clara County
- UC Institute for Water Resources
- Univar Solutions
- University of California Cooperative Extension colleagues
- USDA
- USDA Forest Service
- Valley Verde
- Veggielution Community Farm
- Western Chapter of the International Society of Arboriculture
- Westhope Presbyterian Church

UCCE Santa Clara Funding



\$1,635,125
University



\$813,273
County



\$1,127,405
Advisor generated
(grants, gifts, other,
etc.)



Volunteers raised
\$34,300
to support local
programs

It is estimated that for every

\$1

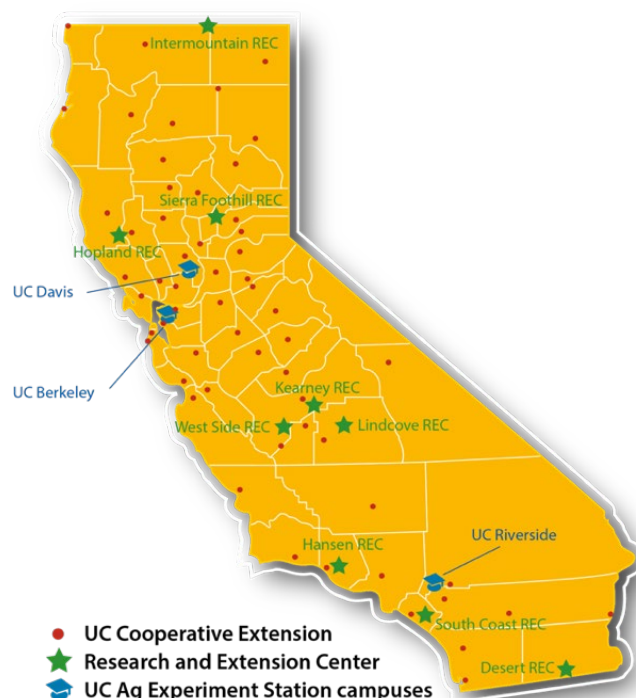
invested in agricultural
research and extension
there is a return of

\$20

to the community.

Alston, Anderson et al (2010)

Leveraging the Power of the UC System



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UCCE SANTA CLARA FOCUS ON UC ANR PUBLIC VALUE STATEMENTS

- **Promoting Economic Prosperity in California**
 - Enhanced community economic development
 - Improved animal management, productivity and efficiency
 - Increased agricultural and forestry efficiency and profitability
 - Improved water quality
 - Improved water-use efficiency
 - Increased ecological sustainability of agriculture, landscapes and forestry
- **Safeguarding Sufficient, Safe and Healthy Food for All Californians**
 - Improved food security
 - Improved food safety
- **Promoting Healthy People and Communities**
 - Improved health for all
 - Improved community health and wellness
- **Protecting California's Natural Resources**
 - Improved management and protection of natural resources
 - Improved management and use of land
 - Protected and conserved soil quality
- **Building Climate-Resilient Communities and Ecosystems**
 - Increased preparedness and resilience to extreme weather and climate change
- **Developing a Qualified Workforce for California**
 - Increasing workforce retention and competency
 - Increasing effective public leaders
 - Increased civic engagement
- **Developing an Inclusive and Equitable Society**
 - Improved living and working conditions for California's food system and farm workers



UCCE Santa Clara

Promoting Economic Prosperity in California

UC ANR partners with public, nonprofit, and private groups to create and extend new knowledge. Participants change agricultural practices that result in increased yield and efficiency as well as reduced inputs, thus increasing economic return. UC ANR also conducts research and education leading to improvements in individual and household financial management practices. These changes improve individual and business financial stability, increasing the viability of California's economy and maintaining our role as a global leader.

The estimated annual value of adoption of the UC Integrated Pest Management Program recommendations is **\$323-500M** to California agriculture
Giannini Foundation of Agricultural Economics (2016)
Enhanced community economic development

Enhanced community economic development

Participants implemented innovation and entrepreneurial strategies.

The Small Farms Program helped farmers from socially disadvantaged communities apply for COVID-19 grant applications through the American Farmland Trust-Farmer Relief Fund, CA Family Farmer Emergency Fund, and USDA-FSA-Coronavirus Food Assistance Program.

The technical assistance provided by UCCE in Santa Clara County to 185 farmers from socially disadvantaged communities who may face language and culture barriers resulted in 155 individuals getting funding for a total amount of over \$3.1 million in emergency relief during the COVID-19 pandemic. (Qi Zhou, Ph.D, non-CE Assistant Specialist, Aparna Gazula, Ph.D, Small Farms and Specialty Crops Advisor)

Science-based information supports urban agriculture's triple bottom line: social, environmental, and economic.

The Urban Agriculture and Food Systems Program collaborated with the Santa Clara County Agriculture Department to feature urban agriculture in their 2019 crop report. Data from urban farms and gardens were collected, and the goals and challenges of urban agriculture locally were described. In response to COVID-19, the crop report included a section on "Resilience During Times of Crisis," which collated ways that urban agriculture organizations have responded to the pandemic.

The Santa Clara County Crop Report section on urban agriculture raised public awareness and knowledge of the multiple benefits of urban agriculture. The Agricultural Commissioner states the annual crop report is the most widely read document on the Department's website, and is distributed to county, state, and federal elected officials. As one urban garden manager wrote, "This document is incredibly useful as a resource for my courses and other courses I work with. I have been looking for content around the impact of the COVID-19 pandemic on our food system and how urban farms can be a resource during times of crisis. It is especially helpful to have all the local work that everyone is doing in one place." (Lucy Diekmann Ph.D, Urban Agriculture and Food Systems Advisor)

Improved animal management, productivity, and efficiency



Participants learned practices for more productive and sustainable poultry production.

Extension efforts included workshops on backyard and pastured poultry for 29 participants in the San Jose Bay Area. At the backyard and pastured poultry workshop, 100% of participants increased their knowledge of pastured poultry, 91% increased their knowledge of egg handling and food safety, and 82% increased their knowledge of bird health and diseases, bird behavior and welfare, and managing poultry during disasters. (Lucy Diekmann, Aparna Gazula)

Science-based information was applied to livestock production systems policy and decision-making.

Livestock and Natural Resources Advisors worked on a collaborative research project, funded by California Cattle Council, to analyze how much forage/fine fuels cattle consume and how that affects fire behavior and fire safety. The findings were extended through an article published in four news outlets, a virtual workshop, and a recorded workshop on YouTube. This work was also highlighted in the Fire Webinar series produced by the Public Lands Council and National Cattlemen's Beef Association. Additional research questions will be explored in the future related to how grazing and fire influence particulate matter and greenhouse gases.



Conducting research on grazing and fire fuels management.

As a result of the project that studied and promoted grazing for fuel reduction, the National Cattlemen's Beef Association said this research could become part of their "greater national sustainability science communication effort, in addition to the national life cycle analyses that were completed this year." (Livestock and Natural Resources Advisors: Sheila Barry, Devii Rao, Matthew Shapero, Larry Forero, Royce Larsen Watershed Advisor, Felix Ratcliff, Ph.D, Rangeland Scientist, Luke Macaulay, CE Specialist, Shane Dewees Ph.D student, Max Moritz CE Specialist in Fire, Rowan Peterson Research Consultant)

Increased agricultural and forestry efficiency and profitability

Participants gained knowledge of detection and control practices for invasive and endemic pests and diseases.



UCCE Small Farm Program delivered presentations at the Bay Area Chrysanthemum Growers Association Continuing Education Meeting about insect pest management in Asian vegetables. A majority of the Asian vegetables grown by farmers in the area are considered minor crops and lack pesticide use registration, especially for some of the newer and improved pesticide products currently available. The presentations included information on laws and regulatory updates, managing pesticide drift, regulations and responsibilities, and how assessments are conducted on farming properties. The workshop had 59 attendees, primarily growers, who may face language and cultural barriers to understanding federal and state pesticide safety and legal compliance

requirements. The goal of these presentations was to extend research-based information on the safe handling and use of pesticides labeled for application on these crops to farmers to address disease pressures and economic concerns.

Small-scale growers of Asian vegetables who attended the Small Farm Program's presentations responded to a survey (n=38). All attendees reported increasing their knowledge of insect management, pesticide regulations, and strategies to reduce pesticide drift. Additionally, all attendees reported intending to apply recommended practices that will reduce pesticide drift. (Aparna Gazula, Qi Zhou)

Participants gained knowledge of effective management practices for orchard production.

Fruit and nut crops in the county were valued at \$3.93 million in 2019. UCCE Santa Clara coordinated a workshop on Orchard Production Management that was attended by 30 growers in the region. All 30 attendees increased their knowledge of nutrient management, irrigation management, and weed management practices. They also increased their knowledge about the role of compost application and cover crops in orchard systems. All the workshop attendees that answered the workshop evaluation survey indicated that they would adopt crop management practices presented in the workshop. (Aparna Gazula, Lucy Diekmann)





UCCE Santa Clara

Safeguarding Sufficient, Safe, and Healthy Food for all Californians

Given one out of every 8 Californians does not know where their next meal will come from, UC ANR educational programs enable individuals and households to improve their food budgets and food management practices.

Enhancing food assistance programs such as school food programs, food banks, and CalFresh acceptance at farmers markets increases access to fruits and vegetables.
County Health Rankings

Expanded Food and Nutrition Education Program (EFNEP) graduates reported an average of **\$58.10** monthly food cost savings. In one year California EFNEP families collectively saved over **\$1.5M** on food costs.
EFNEP

Improved food security

Participants learn healthy eating behaviors through nutrition education.

The CalFresh Healthy Living program (CFHL) educates adults and youth in nutrition, physical activity and resource management.



Nutrition education was provided to 985 Santa Clara County youths and 166 adults. CFHL Program educators trained and supported teachers and afterschool leaders to implement nutrition curricula in schools where over 50% of the children receive free and reduced-price meals. The CFHL program implemented, supported, or planned policy, system, and environmental changes at 25 schools, pre-schools, and job training sites, all serving low income eligible populations, primarily located in San Jose, Santa Clara, and Campbell. (Laura Vollmer, MPH, RD Nutrition, Family & Consumer Sciences Advisor)

Let's Eat Healthy Video series: developed in partnership with SCC Public Health and the Dairy Council. Pre-recorded videos and workbooks could be used asynchronously or synchronously.

Improved food safety



Participants learned and intended to adopt farm food safety behaviors.

UCCE Small Farms Program conducted six small group meetings to educate farmers from socially disadvantaged communities on food safety and conducted 60 on-farm assessments to help growers get ready for the CDFA food safety inspection. Four Food Safety Modernization Act (FSMA) record-keeping templates were created, translated, and shared with growers. Additional FSMA informational materials were translated and distributed.

Workshop evaluations showed that participants increased their understanding of food safety and FSMA produce safety rules. Intended actions resulting from this program include: start record-keeping, conduct water testing, and write a farm food safety plan. These strategies can help farmers comply with the FSMA produce safety rules, improve food safety, and reduce potential fines and shut-down of sales for growers due to noncompliance. (Qi Zhou, Aparna Gazula)



Promoting Healthy People and Communities

UC ANR produces tools, programs, and policy-relevant research that result in healthy living for individuals and communities. Program participants adopt healthier lifestyles and communities gain improved access to green spaces and healthy foods. Benefits also include safe drinking water, clean air, and reduced exposure to pesticides. In this way, UC ANR promotes public health for people and the communities where they live, learn, work, and play.

Studies show that for every **\$1** invested in EFNEP, more than **\$8** is saved in current and future healthcare costs.

Pradhan and Goldman (2006)

UC Master Gardener participants improved green spaces on **3.8 million** square feet of home, school, and community gardens across California.
UC Master Gardener Program

Improved health for all

Educating participants to adopt integrated pest management strategies to maintain public health.

The Integrated Pest Management (IPM) Program evaluates efficacy and cost of IPM strategies and develops new techniques to manage bed bugs, cockroaches, fleas, rodents, ants, and other urban pests. Research indicates decreased pest infestations when applying these strategies in multi-unit housing environments and schools and child care environments. Recommendations are shared with the pest control industry to address pests that cause physical and emotional harm to humans, threaten homes and other structures, and pose nuisances.

Pest management professionals who attended the bed bug or cockroach workshops increased their monitoring and preventive or nonchemical control services. These changes increase control efficacy, decrease unnecessary pesticide applications, reduce pesticide exposure, and improve the quality of community health and well-being. (Andrew M. Sutherland, Ph.D, BCE, San Francisco Bay Area IPM Advisor)



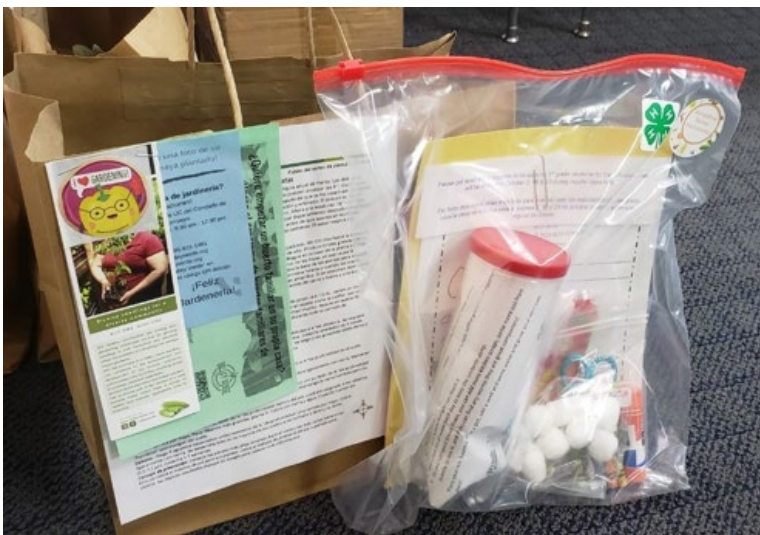
Dr. Sutherland works from home during COVID-19 shelter-in-place orders, to serve pest management professionals by providing pest identification and pest management guidance via telephone and video conference

Improved community health and wellness

Participants learn healthy physical activity and healthy eating.

CalFresh Healthy Living program adapted to the Covid-19 pandemic environment by working with community and school partners to provide virtual nutrition education for all ages, distribute seedlings and garden kits and support school meal pickups with our Café Promo Flyers.

The “[Let's Eat Healthy Video Series](#)” was created in partnership with Santa Clara County Public Health Department and the Dairy Council of California, for use by 4th and 5th graders. This curriculum includes pre-recorded video lessons and an interactive work-book and can be used in-person, for virtual learning, or in a hybrid environment. (Laura Vollmer)





Protecting California's Natural Resources

UC ANR translates research into actionable management strategies to protect our farming, ranching, forestry, and urban environments. Through outreach and education, participants learn to adopt recommended practices, such as grazing and rangeland management, sustainable use of forest and wildland resources, protection against fire, and water conservation. These measures contribute to improving air, soil, and water quality while also protecting wildlife and plant habitat.

Adoption of California Irrigation Management Information Systems (CIMIS) weather station data can save California nearly **147 billion** gallons of water annually
Zilberman, et al. (2019)

UC Master Gardener participants improved **4 million** square feet pollinator habitat statewide



Improved management and protection of natural resources

Participants learned strategies and techniques to reduce conflict with wildlife.

The UCCE Human-Wildlife Interactions Program conducted research on livestock guardian dogs and carnivore use of cattle grazing pastures. A presentation on rodent management for cities and towns in Santa Clara County was attended by 117 participants. Outreach education was conducted with managers and private landowners to address their concerns over coexisting with urban coyotes and other wildlife species. (Carolyn Whitesell, Ph.D, Human-Wildlife Interactions Advisor)

Improved management and use of land

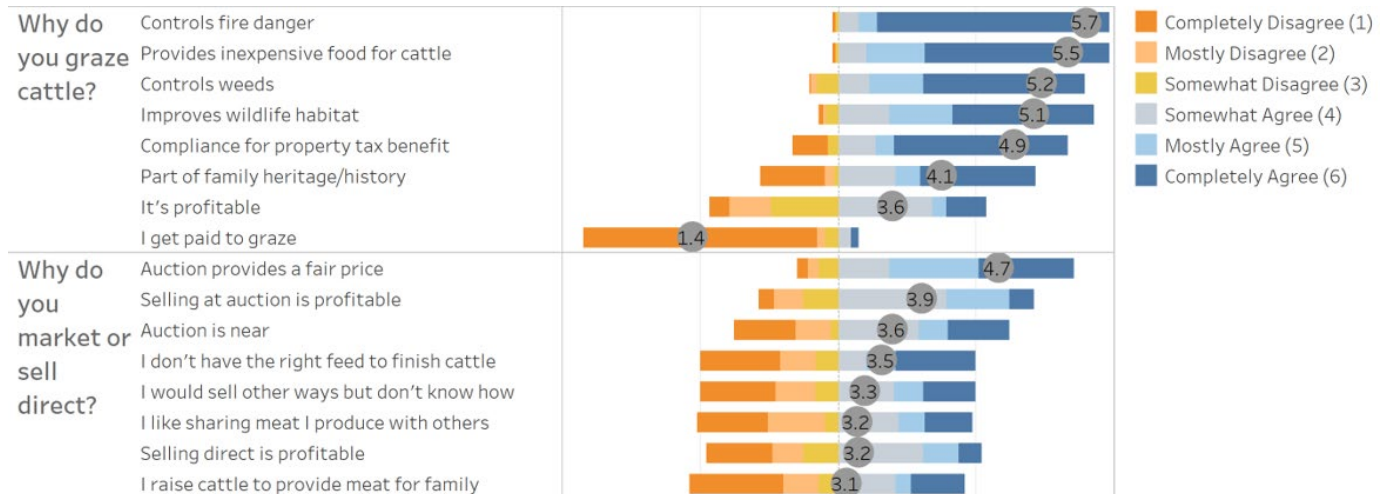
Strategies and techniques for sustaining oak woodlands.

UCCE Livestock & Natural Resources program provided current research to inform regional conservation strategies for oak woodlands. This expertise informed oak planting plans, enabling two landowners to work with public agencies to access assistance and mitigation funds to plant and maintain oaks on over 300 acres. (Sheila Barry)

Participants learned about and intended to use strategies and techniques for managing open space.

A collaborative effort between San Francisco Bay Area Livestock and Natural Resources programs extended science-based information to public land managers, decision-makers, and the public regarding the costs and benefits of livestock grazing and beef production in California. This also promoted positive interactions between park users and cattle and wildlife.

Evaluations from educational group meetings and one-to-one contacts indicated an increased overall understanding of livestock grazing issues as a natural resource management tool. (Sheila Barry, Stephanie Larson)



Over 40% of Santa Clara County is grazing land. Research on grazing conservation revealed why ranchers graze and market cattle.

Science-based information was applied to enhance the local food system.

The Urban Agriculture and Food Systems Program worked on the Santa Clara County Food System Alliance's report on small farm viability, *Small Farms, Big Potential: Growing a Resilient Local Food System*. The report made recommendations for increasing the number and viability of small farms in the county. Report content was extended through Alliance members' presentations to County and City officials, nonprofit organizations, and the public.

The *Small Farms, Big Potential* report has been referenced by local direct-market farmers to explain their challenges with secure land tenure and by the Santa Clara County Planning Department in support of their efforts preserve agricultural land on the fringes of San Jose. (Lucy Diekmann)

Protected and conserved soil quality

Participants learned about composting practices.

UCCE Santa Clara Composting Education Program focuses on diverting waste and truck trips to landfills, potentially reducing air pollution. The program targets residential areas by providing free workshops throughout Santa Clara County to educate and promote home composting. In light of the COVID-19 pandemic, the program swiftly transitioned from in-person to digital outreach and led over 30 online workshops reaching a total of 742 residents in Santa Clara County. The program provided virtual tutorials and live demonstrations explaining the process of home composting as they were unable to demonstrate the process in person. This digital transition resulted in an increase of reach for The Compost Education Program, setting an attendance record for most attendees in a single workshop at 112. Based on the positive response, the program plans to incorporate a virtual component to many of their future events regardless of restrictions on in-person gatherings moving forward.

Composting Education Program participants reported in pre-post surveys that they increased knowledge of home composting methods as a result of participating in workshops led by Master Composters (n = 92). Specifically, 77% learned the basics of the composting process, 85% learned how to compost food waste, 60% learned about household organic waste diversion, and 71% learned about composting using worms. (Sheila Barry, Cole Smith, Research Associate, Ariana Reyes, Community Educator)

Participants adopted composting practices.

Composting Education Program participants reported in a three-month follow-up survey that their participation resulted in their households starting or improving their home composting method (73% of 109 respondents). Survey respondents averaged 7.5 lbs/week of food waste and 4.2 tons of yard waste diverted from landfills. Using this rate to extrapolate among all participants, an estimated 375 tons of organic waste were diverted



annually. These measured outcomes demonstrate how the Composting Education Program diverts organic waste from the landfill and impacts the state's waste reduction. A 2011 BioCycle study of 16 households found that residential composting diverted 5.8 tons from curbside pickup over ten months. BioCycle extrapolates that for every 10,000 households composting at home, between 1,400 and 5,000 tons/year could be diverted from curbside collection, with potential savings in disposal costs alone ranging from \$72,000 to \$250,000 in Vancouver, Canada. Tons diverted from the landfill can also reduce the number of truck trips to the landfill, contributing to improved air quality (Andersen et al., 2012). (Sheila Barry, Cole Smith, Ariana Reyes)

Science-based information was applied to soil decision-making.

UCCE delivered training and technical assistance to support farmers in understanding the requirements of and submitting Healthy Soils Program grant applications to receive financial resources for implementing conservation management practices that sequester carbon and improve soil health. In Santa Clara County, this included two Healthy Soils Program workshops in different languages, Mandarin and English, with 57 small-scale and limited resource farmers.

As a result of technical assistance, growers and ranchers throughout the state were able to submit and receive Healthy Soils Program funds, demonstrating how UCCE supports state agencies' priorities for healthy soils. Ten small growers in Santa Clara County were awarded Healthy Soils Program funds totaling \$86,729.87, affecting over 70 acres of farmland. (Aparna Gazula, Qi Zhou)

Increased ecological sustainability of agriculture, landscapes, and forestry

Participants learned and adopted Integrated Pest Management strategies.

The Small Farm Program successfully developed three publications related to pest management and distributed pest management information in multiple languages via educational factsheets, workshops, social media (WeChat, Facebook, Instagram), and one-on-one or small group technical assistance meetings. A pest management workshop was attended by 59 small-scale farmers from socially disadvantaged communities.

They increased their knowledge and skills on rules and regulations of pesticide applications, proper application of pesticides, and IPM techniques. Attendees showed interest in planting insectary plants to attract beneficial species and control aphids in Asian vegetable crop production. (Qi Zhou, Aparna Gazula)

Nineteen orchard growers attended a workshop on IPM practices for orchards. All nineteen attendees increased their knowledge about managing plum bud gall mites, walnut blight, Spotted Wing Drosophila fruit flies, apricot pests, diseases and beneficial insects, phytophthora disease management in stone fruits (Aparna Gazula, Lucy Diekmann).

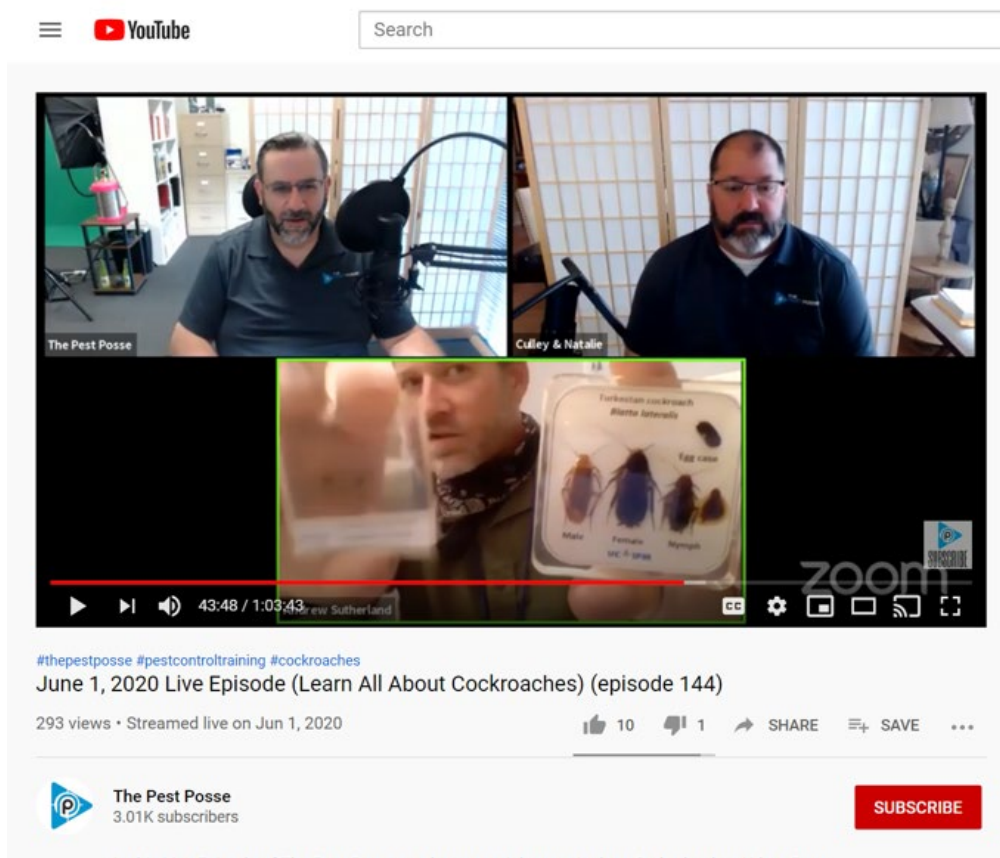
IPM Program outreach on indoor and outdoor pests that affect schools and child care environments increases the awareness of IPM services, strategies and practices. Recommendations are provided online and in-person to staff within school and child care environments, professional landscape managers, school districts, and pest management professionals.

Professional landscape managers, school district staff, and child care providers reported increased knowledge about pest biology and ecology, pest prevention tactics, monitoring and detection techniques, the Healthy Schools Act, and the legal roles and responsibilities associated with providing IPM services. (Andrew Sutherland)

Participants adopted recommended pest management techniques.

The IPM Program evaluates efficacy and cost of IPM strategies and develops new techniques to manage wood-destroying organisms, including drywood and subterranean termites. These pests cause significant and costly structural damage in California and are usually targeted with pest control programs reliant upon whole-structure treatments, fumigants, or potentially hazardous liquid insecticides. Research on alternative strategies may reduce risk to the environment and communities and findings are shared with pest management professionals within California's structural pest control industry.

Pest management professionals participating in IPM educational programs about termite control have increased monitoring and detection, and have increased offering non-chemical control services. These behaviors may lead to decreases in unnecessary pesticide applications, contributing to potential decreases in environmental contamination. (Andrew Sutherland)



Dr. Andrew Sutherland extends information about cockroach management to pest management professionals during a live broadcast in June 2020

Improved water quality

Participants learned about recommended management practices for preserving water quality.

UCCE Environmental Horticulture and Urban Forestry Program completed a multistate, street-side bioswales project in the San Francisco Bay Area, examining green infrastructure for stormwater management. This project uniquely connects water quality issues with tree management to prevent contaminated runoff from reaching the creeks of the Bay. The findings were shared with urban water managers, city planners, and public works personnel.

As measured in pre/post self-reported questionnaires, attendees increased their knowledge and understanding of issues presented related to the bioswales project in the San Francisco Bay Area. Additionally, clients reported that they would change some of their practices, such as reducing algacides and monitoring soil water content, to better use and manage water and stormwater. (Igor Lacan)

Participants adopted recommended management practices for preserving water quality.

UCCE Small Farms Program conducts several nitrogen-related research and extension projects. New groundwater regulations, including the Irrigated Lands Regulatory Program (ILRP), aim to protect groundwater quality and require farmers to report Total Nitrogen Applications (TNA) and other data to regional water quality coalitions. Growers and ranchers must report the volume of irrigation water applied, the nitrate concentration of the irrigation water applied, list the crop types and acres harvested, pounds of nitrogen applied from fertilizers to each crop type, and pounds of nitrogen content of compost or amendments applied to the soil or land. Compliance with current ILRP reporting requirements is extremely difficult for small-scale diversified farming systems with crops, such as Asian specialty vegetables, and may also have economic consequences. However, the farmers growing Asian leafy vegetables lack the information needed to complete this form accurately, as there are no nitrogen fertilizer recommendations or nitrogen uptake data for most of their crops. Also, complying with the proposed ILRP regulations is challenging for these growers due to language and cultural barriers. UCCE provided one-on-one technical assistance with nitrogen reporting requirements to help farmers comply with regulations.

In Santa Clara County, 36 small farmers who received one-on-one technical assistance from UCCE to test soil nitrogen content and irrigation water nitrate concentration submitted their TNA Report. Most of these farmers grow Asian leafy vegetables in greenhouses, such as amaranth, bok choy, gai choy, gai lan, a choy, Chinese celery, edible chrysanthemum, yam leaves, garlic chives, and pea tips. The whole project included over 200 acres of farmland, with approximately 25,820 pounds of nitrogen application and 457,033,950 gallons of water application in total. Furthermore, these farmers were able to avoid costly fines. Farmers shared that they are more willing to adopt agricultural practices that could reduce fertilizer application, which can ultimately benefit the agricultural system and our environment. (Qi Zhou, Aparna Gazula)



Improved water-use efficiency

Participants learned about recommended irrigation practices.

UCCE Small Farm Program provides training and technical assistance to growers about the State Water Efficiency and Enhancement Program (SWEET). The Small Farm Program organized three SWEET workshops with 51 attendees in Santa Clara County.

Evaluation from UCCE workshops showed that 100% of 40 farmers increased their knowledge of SWEET grants and their knowledge and skills of using and maintaining overhead sprinkler irrigation systems, variable frequency drives, soil quick nitrate tests, and soil moisture sensors. Attendees also shared the intent to adopt the quick nitrate tests to assist in nutrient management. (Qi Zhou, Aparna Gazula)



Monitoring irrigation water application and soil moisture levels for efficient irrigation management

Science-based information was applied to water use policy and decision-making.

As a result of UCCE technical assistance, 13 Santa Clara small-scale growers applied what they learned to submit SWEET grant applications. Furthermore, 12 out of the 13 growers were awarded the grants, totaling \$337,000, affecting over 50 acres of farmland. The growers now have the resources to apply practices that preserve water and conserve natural resources. This includes strategies such as replacing inefficient pumps, replacing leaking pipes and sprinklers, installing water monitoring tools (such as a flow meter) to assist with irrigation scheduling. (Qi Zhou, Aparna Gazula)



Building Climate-Resilient Communities and Ecosystems

UC ANR conducts research to understand and develop solutions to increase the resilience of agriculture, communities, and natural ecosystems to extreme weather and climate change. Our programs assist communities, farmers, and ranchers in implementing climate-smart soil and water management practices, reducing greenhouse gas emissions in forested and working landscapes, and expanding public awareness of climate risks and effective adaptation strategies.

UC Climate Smart Agriculture Educators helped growers statewide reduce greenhouse gas emissions equivalent to removing 7,000 cars from the road
Based on CDFA calculators (SWEEP and HSP)

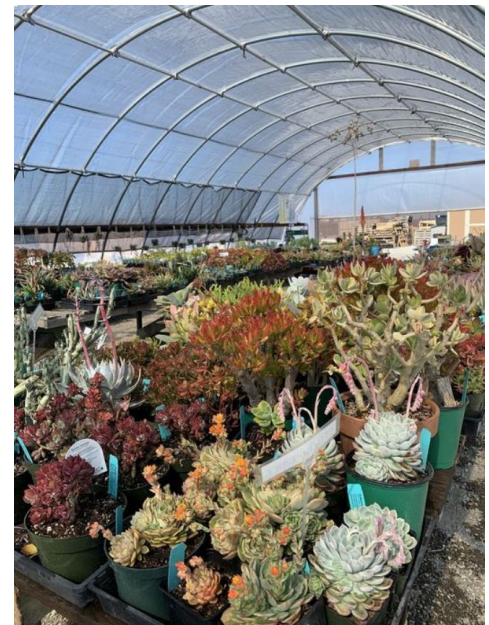
Increased preparedness and resilience to extreme weather and climate change

Participants adopted recommended climate smart soil and water management practices



Master Gardener hoop house for drought tolerant succulent plants

UCCE Master Gardener volunteer program consists of 303 volunteers who provide research-based horticultural information and educational programs in the areas of home gardening, landscaping and integrated pest management to county residents. The total volunteer time logged, even during the Covid-19 pandemic restrictions was 29,190 hours of outreach through 100+ zoom workshops, talks and virtual tours, including 76 online library talks to residents of Santa Clara County reaching over 12,500 people. Topics included integrated pest management; soil health and water conservation; sustainable low-water landscaping; native



gardens and lawn alternatives; and vegetable and fruit tree production. (Lucy Diekmann, Katherine Uhde, Community Education Supervisor)



Developing a Qualified Workforce for California

UC ANR’s youth and community development programs equip the next generation for college, successful careers, and to be active participants in their communities. Growers and land managers learn cutting edge skills that increase workforce competency and advance innovation. UC ANR helps develop a qualified workforce to increase opportunities for individuals to ensure a robust and thriving state economy.

4-H youth exposed to hands-on science projects early are **5x** more likely to build a career in math or science

4-H participants are **4x** more likely to complete a 4-yr degree

Lerner, et al. (2013)

Increasing workforce retention and competency

Participants gained landscape management competencies

The UCCE Santa Clara Environmental Horticulture and Urban Forestry Program supports the Landscape Supervisors Forum, a local professional association established 54 years ago by UCCE as a crucial local resource for staff-level municipal employees. The forum provides the opportunity to learn about new issues from academic experts, as well as for UCCE to hear about new needs and developments from the field. Given the COVID-19 pandemic, the 2020 forum transitioned to using a webcast format to ensure continuity and provide opportunities for arborists to get continuing education units.

Arborists received 92 hours of continuing education units to retain and renew their certification, granted by the International Society of Arboriculture. Not all municipal employees, especially the junior ones, have funds available to attend conferences; thus, the Bay Area Landscape Supervisors Forum has played a critical role in reaching these employees for many years. (Dr. Igor Lacan, Environmental Horticulture and Urban Forestry Advisor)

Youth learned about and taught computer science.

The 4-H Computer Science Pathway team in Santa Clara County trained staff, 4-H volunteers (adults and youth), and staff from partner organizations to use Ozobots, Sphero, virtual reality tours (Google Expeditions), unplugged Computer Science, and Scratch activities to reach 10,255 youth in Riverside, Marin, Mendocino, Santa Barbara, and Santa Clara counties. In addition to building the capacity of professionals and volunteers to implement computer science, team members also taught youth directly. (Fe Moncloa, Ph.D, 4-H Youth Development Advisor)



Learning computer science with 4-H Youth Development Advisor Fe Moncloa, Ph.D

Science-based information was adopted for Food System Programs.

In Santa Clara and San Mateo Counties, the Urban Agriculture and Food Systems Program works with local partners to create more collaborative spaces for organizations to work on issues related to food justice. The program partnered with Santa Clara University, La Mesa Verde, Fresh Approach, Veggielution, and Valley Verde to design and

host a half-day workshop on Food Justice in the South Bay to address this need. Approximately 70 people representing 38 organizations attended the March 2020 workshop. After the workshop, interested organizations began to meet as the South Bay Food Justice Collaborative.

Participants in the South Bay Food Justice Collaborative found that the group helped them identify strategic partners, share information, build relationships, and fostered additional collaborations. The forum has served as a means for exchanging information and ideas that have been particularly valuable during the COVID-19 pandemic, helping participating organizations pivot their operations and develop new programs to respond to community needs. (Lucy Diekmann)

Increasing effective public leaders

Participants adopted leadership skills and extended evidence-based information to their peers and decision-makers.

UC ANR developed, evaluated, and delivered educational programs that provided youth with leadership skills. UCCE academics provided oversight, leadership, and guidance for the statewide implementation of the 4-H Youth Development Program. Youth who attended “Our Wild California” Virtual 4-H camp worked and learned together through breakout rooms and group sharing sessions. They reported feeling connected to other youth and that 4-H is an important part of who they are. (Fe Moncloa, Russell Hill, Associate 4-H Youth Development Advisor)

Increased civic engagement

Participants conducted community service projects.

During COVID-19, a 4-H Ambassador in Santa Clara County organized a team of more than 15 youth and 12 adults to make, gather, and distribute over 2,000 masks and shields to community health centers and doctors and to families who participate in UCCE nutrition programming. (Fe Moncloa)



Health care worker at the Indian Health Center of Santa Clara County using 4-H made face shield.



UCCE Santa Clara

Developing an Inclusive and Equitable Society

UC ANR is committed to reaching all segments of the state's population. Our academics live and work in all California communities, building trust and credibility to solve local problems together. We build cultural competency skills, complement community-centered programs, and develop proactive policies to increase diversity and inclusiveness. UC ANR is recognized as a nationwide leader in researching and addressing inclusion and diversity in youth-serving programs.

19,000+
volunteers statewide
donated time
to local UC programs.

UC ANR led efforts to
increase inclusiveness,
which is shown to
increase volunteer
commitment to programs.
Studer and von Schnurbein (2013)

Improved living and working conditions for California's food system and farm workers

Participants adopted practices that lead to improved farm worker safety.

UCCE responded to the COVID-19 pandemic to help keep small farms and farm workers safe. UCCE in Santa Clara County also distributed over 200 kits with worker safety information, required signage for posting, masks, gloves, and hand sanitizers to farmers from socially disadvantaged communities to ensure worker safety.

Through observations during farm visits, we saw that farmworkers started wearing masks when working, and through interviews, we learned they were washing their hands more often. These practices ensure a safer working environment for farmworkers, protect workers' health, and limit/slow the spread of COVID-19. (Qi Zhou, Aparna Gazula)



Small farmers adopt posting of required signage about social distancing and health checks before entering farming facilities.