

## UC MASTER GARDENER PROGRAM

The Tuolumne Master Gardeners hosted six workshops, two school field trips, and a plant sale at the Demonstration Garden, focusing on sustainable gardening for over 300 clients. Workshop evaluations reveal that 50%-73% of participants plan to expand their edible plant varieties, donate produce, reduce food waste, or grow edibles, while 44% aim to spend more time outdoors.

Offering individual gardening advice at various events and through the Master Gardener Hotline, Helpline, and Facebook Page, which features wildfire preparation tips. Instruction is also provided to youth at Bellview Elementary and the Mother Lode Regional Juvenile Detention Facility, using garden work as a behavior reward.

Contributions include articles to local news sources and the production of weekly radio shows and YouTube videos. Facing challenges like food deserts, droughts, and wildfires, a variety of methods are used to educate and support the community.

## FORESTRY & NATURAL RESOURCES

### Building climate-resilient ecosystems and communities

Innovative use of biomass-derived products enhances community resilience against forest wildfires in a changing climate. Raising public awareness on alternative biomass technologies promotes engagement and policy changes supporting fuel reduction goals. UCCE academics address community knowledge gaps through outreach efforts like publications and workshops. Woody Biomass and Forest Products Advisor, Cindy Chen, conducted surveys showing Central Sierra communities' interest in woody biomass utilization, funding opportunities, and wildfire prevention through fuel reduction.

Chen collaborates with Resource Conservation Districts to develop targeted programs launching in Spring 2025 with industry, non-profit, government, and academic speakers. Research indicates educational programs increase community awareness, correct misconceptions, encourage engagement, and offer economic and environmental benefits. For instance, Monroe and Oxarart (2011) found wood-to-energy outreach participants likely apply gained knowledge and networks. Such programs equip communities to support biomass utilization, enhancing resilience, preparedness, and local economic development.

UC Advisors Scott Oneto, Tom Getts (Plumas, Sierra, and Modoc), and Chris McDonald (San Bernardino, Riverside, Imperial and San Diego), partnered with the California Invasive Plant Council and the California Department of Pesticide Regulation to create a new field course for pesticide applicators working in natural resource, wildland and other non-crop areas. A total of 128 people completed the in-person trainings. The training sessions focused on herbicide calibration and techniques for spot and broadcast spraying with backpacks, and woody plant treatments (stump cut, basal bark, drill and fill) in wildland and non-row crop settings. Calibration math, nozzles, and herbicide application basics were also covered. This collaborative project between Cal-IPC, UCIPM, UCANR, and Dept of Pesticide Regulation will protect human health and the environment through the proper use of herbicide use and will result in safer, more sustainable pest management as it aims to reduce the overapplication of pesticides, increase the precision of applications to reduce offsite impacts, and increase the effectiveness of herbicide treatments on invasive plants in wildlands by educating wildland IPM practitioners on herbicide calibration.



## COMMUNITY HEALTH & NUTRITION

### Improved Health For All

During FFY24, CFHL, UCCE educators in Tuolumne County provided nutrition lessons to 598 participants over 135 sessions, totaling 98 hours of direct education lessons. In addition to hands-on nutrition lessons, CFHL UCCE staff were able to reach nearly 6,000 community members with indirect education resources such as newsletters, educational videos, food tastings, and nutrition education reinforcement items (e.g. cooking tools and water bottles).

89% of CFHL, UCCE direct educational contacts in Tuolumne County occurred in schools or after-school programs. These nutrition lessons, often enhanced with cooking and gardening components, offer critical opportunities for students to learn about healthy eating behaviors, food groups, nutritional labels, and the importance of physical activity. In particular, the cooking component of these lessons allows students to create positive experiences around whole foods and increases their ability to provide healthy meals for themselves.

### Improved Food Security/Food Safety

In addition to supporting gardening projects at the Tuolumne County Human Services Enrichment Center, educators CFHL UCCE educators partnered with the ATCAA Homeless Shelter and Enrichment Center to provide nutrition education, food resource management, and cooking lessons to the unhoused population in Tuolumne County. Cooking demonstrations incorporated ingredients the participants had available to them through commodity distribution at these sites. In total, these lessons reached 33 participants over 13 separate sessions. (Cooke, N.)

## 4-H YOUTH DEVELOPMENT PROGRAM

### Developing a qualified workforce in California

In 2024, Tuolumne County 4-H hosted key events like the Fall for 4-H open house, a Teen Leadership Retreat for 4-H teens, and a county presentation event with youth advancing to regionals and state. The County Council awarded a high school scholarship to a 4-H member, and youth attended the 4-H State Leadership Conference. The Ambassador Team volunteered for various events and led educational workshops for Tuolumne County youth.

Scholarship-winning high school seniors were supported in furthering their education. Attendees of the State Leadership Conference expanded their knowledge through workshops on diverse topics. Adult volunteers gained leadership training, facilitation skills, and an understanding of positive youth development principles, enhancing their ability to support 4-H programming and contributing to their personal and professional growth.

Project skills learned, including economics and money management, will aid California's economic prosperity. The Ambassador Team's work teaching STEM and robotics engages youth and develops teaching skills, fostering a qualified workforce for California.



## AGRICULTURE

### Promoting economic prosperity in California

Small-scale farmers in the Central Sierra face significant challenges in accessing reliable information on plant production and pest management due to a lack of local professional agronomy and pest control services. To address this, the UCCE Local Food Systems advisor conducted 29 one-on-one consultations with both existing and new farmers, covering topics such as starting new farms, pest management, cultivar selection, irrigation, and permaculture. These efforts led to nineteen individuals planning to adopt recommended practices, with five growers improving their understanding and another five changing their practices based on the advice received. This dissemination of research-based information by the UCCE Advisor is enhancing agricultural efficiency and profitability, fostering economic prosperity in California.



### Improving water-use efficiency

Water availability is a pressing concern in the Central Sierra, where some farms resort to dry farming due to limited water access and costly groundwater extraction. In response, the UCCE Local Food Systems Advisor is advocating for efficient water use and conservation practices. At the "Healthy Soils: Restoring Water on Working Lands" event, the UC Cooperative Extension Advisor presented on water management and effective irrigation scheduling. The presentation was well-received, with all attendees gaining new insights and the majority planning to apply this knowledge. Attendees appreciated the science-based approach and practical tips on irrigation and soil management, highlighting the impact of research-based talks in promoting water efficiency, conservation of natural resources, and economic prosperity in California.

## LIVESTOCK & RANGELAND

In 2023, UCCE received nearly \$300,000 in grant funds to test VF technology. Our research has shown that VF can be effectively used to intensively graze and control medusahead grass, a nonnative invasive grass that can reduce rangeland grazing capacity by up to 80%. VF can be used to strategically graze medusahead and other noxious weeds by concentrating livestock to graze on them before the plants make viable seed. In one experiment, 25 cattle wearing VF collars grazed a 3 acre patch of medusahead. Cattle stayed within the VF boundary 99% of the time, reducing viable seed by 96%.

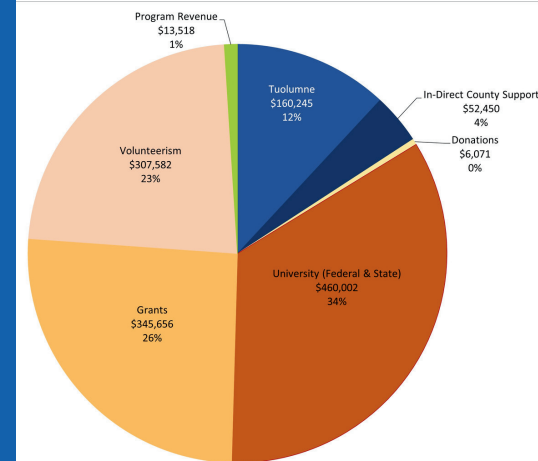


Livestock grazing is an essential component of California's range and forestland management, but traditional fencing systems can be costly, inflexible, and relatively permanent once installed. Virtual fencing (VF) while not a replacement for secure perimeter fencing, offers a versatile alternative to cross fencing. VF uses audio cues and mild electrical pulses to guide and contain livestock without physical barriers allowing animals to be precisely where they are needed in a flexible and targeted manner, all while providing real-time location tracking for each animal. UC Cooperative Extension (UCCE) Advisors, Specialists and UC Davis Faculty are investigating how this new technology can be effectively applied across California's diverse range and forested landscapes.

# UC CE

# Central Sierra

## Annual Snapshot | 2024 Tuolumne County



### UCCE Funding

**\$2,305,006**

University

**\$861,881**

County

**\$1,352,748**

Advisor-Generated  
Gifts and Grants



**14**  
activities  
bringing  
research  
to policy



**161**  
volunteers  
donated  
**9,050**  
hours public  
service –  
estimated  
value of  
**\$ 337,737**



**2,794**  
total  
educational  
interactions  
with the  
public



**24**  
peer-  
reviewed/  
audience-  
requested  
publications



**47**  
academic-led  
workshops, field  
days, and  
classes with  
**577**  
participants



**9**  
news  
media  
programs/  
mentions



**576**  
residents  
reached by UC  
Master Gardener  
volunteers



**8**  
new certified  
Environmental  
Stewards



**580**  
youth in  
UC 4-H Youth  
Development  
Program

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