

2021 Annual Report

Sutter-Yuba Counties



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.

Our Cooperative Extension (UCCE) county-based advisors, community education specialists, and campus-based academics work as 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.

We are a partnership between Sutter and Yuba Counties and the University of California, who all support our work with funding and resources. We bring science-based research and programming to everyone in the community through a variety of different programs. We are one of the oldest of the 64 Cooperative Extension offices located across California, established in 1918 — we turned 103 in 2021!



443
volunteers donated
25,463
hours public service
(estimated value)
\$802,331



115
peer-reviewed and audience-requested publications



15,604
total educational interactions with the public



56
academic-led workshops, field days, and classes with
767
participants



25
news media programs/mentions



1,661
youth in UC 4-H Youth Development Program



UC Master Gardener volunteers reached
1,075
residents



140
people reached by healthy food and/or physical activity changes (CFHL, UC)

2020 Funding



\$1,218,502
University



\$712,986
County



\$613,833
Advisor generated (grants, gifts, other, etc.)

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Livestock & Natural Resources

Commercial livestock production in Sutter and Yuba County is largely rangeland-based (beef cattle, sheep, and goats), but also includes small-scale commercial poultry and hog production. In addition to serving these producers, UCCE also serves local, state, federal, and NGO land and resource managers who focus on rangeland resources. Our 2020-21 research and extension programs focused on the intersection between climate change adaptation, livestock production systems, and agricultural business viability.



Dan Macon
Livestock and
Natural Resources
Advisor

Through workshops, webinars, and a newly created podcast, we provide research-based information on sheep, goat, and cattle husbandry practices, irrigated pasture and rangeland management, and the utilization of new technology (including electronic identification and remote sensing). We have also developed several economic analysis tools for producers, focused on pasture and drought management. In addition, we have worked with producers to develop a locally led Livestock Access Program (Yuba County), designed to provide safe access for ranchers who need to care for livestock in evacuation zones.

Conflicts between livestock production and predator management in the foothills and Sierra continue to be challenging. We are leading a regional effort to provide livestock producers with science-based information about a variety of nonlethal livestock protection tools to protect livestock from gray wolves, mountain lions, and other predators.



Program Highlights 2020-21:

- More than 850 producers, agency staff, and land managers attended 19 virtual and in-person workshops on topics ranging from beef cattle nutrition to prescribed fire.
- Our virtual outreach efforts (webinars and podcasts) have reached more than 1,000 people since the COVID-19 shelter-at-home orders were issued.
- Our newsletter, IGTV Channels on Instagram (@flyingmule), the Sheep Stuff Ewe Should Know Podcast, and the Ranching in the Sierra Foothills YouTube channel reached more than 16,000 viewers/listeners.
- Our Ranching in the Sierra Foothills blog (<https://ucanr.edu/blogs/RanchingintheFoothills/>) featured 27 posts and more than 14,300 page views.

Dairy

The dairy program serves producers and allied industry by conducting research activities to guide on-farm management decisions. Research projects include evaluating the effects of milk quality on shelf life, housing practices for dairy calves, managing manure and compost for environmental quality & regulatory compliance, and researching antimicrobial use and stewardship practices and protocols. Extension activities include serving as co-chair of the Golden State Dairy Management Conference and providing virtual presentations to share research results with dairy clientele. The implementation of a patent pending risk assessment tool to prevent respiratory disease in dairy calves has been a focus in 2021.



Betsy Karle
Dairy
Advisor

Rice Program



**Whitney
Brim-
Deforest**
Rice Advisor

Rice Variety Testing:

The UCCE Rice Team, in cooperation with the Rice Experiment Station, places variety trials at fields throughout the rice-growing region on a yearly basis, including one in Yuba County and one in Sutter County. The varieties are those still in development by the Rice Experiment Station breeding team. We evaluate their tolerance to differing growing conditions across our rice-growing region, including yields, heading date, and stand establishment. The results are written up every year in a report which is available to all growers and members of the public, and is available on the rice.ucanr.edu website. The data helps us give growers the best possible variety recommendations for their region.

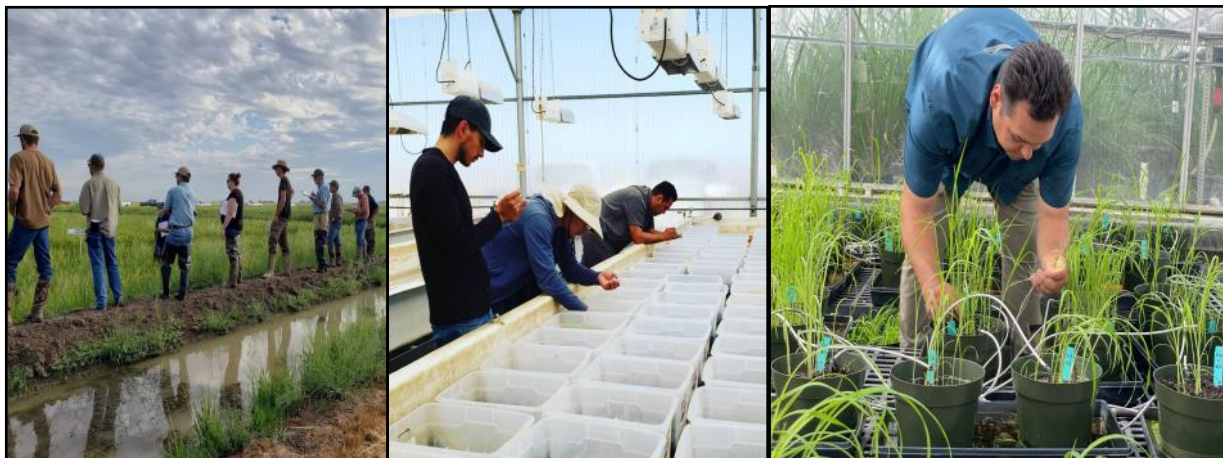
Weed Management in Rice:

Weedy Rice

Weedy rice is an important weed of rice, due to its potentially devastating effects on rice yields (reductions of up to 70%) and quality. As it is the same species as our rice varieties, it is difficult to control using chemical methods. In 2020, we conducted a survey of 10,000 acres previously infested with weedy rice, across the rice-growing counties, to assess infestation levels and spread. We found that approximately 80% of the previously-infested fields were no longer infested, in part due to more precise surveying techniques, and in part due to growers following recommendations for control, including hand-pulling, use of certified seed, and other cultural controls. We surveyed again this past year, to include new fields found in 2020, and found another approximately 1500 acres infested, to bring the total current infestation level to approximately 4000 acres. We held several trainings this past year, including two field days, two workshops, and a booth at Rice Field Day, with roughly 500 attendees, to better train growers and PCAs in identification and control methods.

Watergrass species

Watergrass continues to be our worst weed in terms of both acres infested, and difficulty with control. In 2020, 64 samples were collected from grower fields across the rice-growing region, and preliminary control measures were released this year, from a smaller survey conducted in 2018. Findings were disseminated to growers and PCAs through newsletter articles, workshops (in-person and via zoom), and reached about 150 people in total. Current research in this area includes field trials (testing of new products), identification work with the UC Davis Herbarium, and ongoing herbicide screenings with the larger 64-sample set, to determine better control strategies.



4-H Youth Program

The Sutter-Yuba 4-H Youth Development Program delivered a training event which provided 4-H Community Club youth members with leadership skills. The 4-H Officer Training focused on teaching parliamentary procedure, building understanding of officer duties and confidence in executing those duties, and building a sense of belonging amongst 4-H youth. With approximately 25 officers attending, Dave Dillabo, Yuba-Sutter Fair CEO, started the event with an engaging and charismatic discussion about what it means to be a leader. Marysville Future Farmers of America (FFA) FFA students led a session on parliamentary procedure and conducting a formal business meeting. 4-H volunteers and youth with experience in specific officer roles facilitated officer breakout sessions so youth could learn about their officer duties and roles.



Nicole Marshall-Wheeler
4-H Advisor

Prior to 4-H Officer Training, only 49% of youth participants reported understanding the officer duties which they were expected to perform. Following the training, 79% of participants said they understand their duties. Additionally, 84% of youth reported feeling prepared to successfully complete their officer duties after attending the training, compared to the 32% who felt prepared prior to attending the training. Youth also felt more connected to their officer teams following the event with 74% of participants reporting they “definitely” felt more connected to their peers.



4-H Water Wizards

4-H Water Wizards is one of the most popular Sutter-Yuba school enrichment programs. The Sutter-Yuba 4-H Youth Development Program trained educators in Marysville to implement 4-H Water Wizards, a 12-week science education program teaching 6th grade students about water education, conservation, and community action.

Students who participated in 4-H Water Wizards had hands-on water education that significantly increased their knowledge about water and the environment through science experiences such as water tastings. Based on scores from a program pre and post test, 67% of students reported they were using less water following the program! Of the youth who reported using less water, 25% stated they were taking shorter showers and 15% stated turning off the water while brushing their teeth. Additionally, the educators who delivered the program reported 4-H Water Wizards to be an effective way to engage students in community service and action, as well as teach national science standards principles in a hands-on way.

With support from Yuba Water Agency and Marysville Rotary, 4-H was able to provide 5 educators and 221 youth with the 4-H Water Wizards program.

Nutrient Management

Sarah Light has been collaborating for several years with the UCCE statewide small grains team to work with growers to optimize nitrogen application. The general idea is to take the nitrogen budget for your wheat field for the year and only apply 1/3 prior to planting. The remaining 2/3 will be held back. A future nitrogen application can be made in season, at tillering, if monitoring indicates that the crop needs more nitrogen. This management practice provides an opportunity to save money on nitrogen application in good and bad years. In a good year, total nitrogen application for the field may be reduced while yield and protein remain high. In a challenging year like last year, money isn't spent up front on a crop that won't do well. For example, last winter, geese damaged many fields in the Sacramento Valley and yields were often limited by water stress due to the drought. If it was estimated that higher yields could occur with in-season nitrogen, it could still be applied. However, it was estimated that other factors were limiting yield, the money from the fertilizer had not yet been spent. Thus, you have more flexibility for both managing your crop and the input costs throughout the season. Interactive web tools and extension resources about the project, including case studies from multiple years in the Sacramento Valley have been published on the UC Small Grains Website.



Sarah Light
Agronomy
Advisor

Prune Research

To help prune growers stay competitive in the world market in the face of rising production cost, Franz Niederholzer is working with other UCCE advisors and staff in the Sacramento Valley on four key projects.

- Prune rootstock evaluation - We are evaluating a range of rootstocks to see if there are better choices for growers than the current selections.
- Prune thinning timing trial - When is it too late to thin prunes? We are working on that question to see if there is more or less time than previously believed.
- Bloom conditions affecting crop set - The weather is getting warmer and weirder. What weather conditions in March impact prune fruit set and crop? We're finding out that warm weather (80°F or more) right after bloom can ruin a crop. Next step, what to do about it.



Franz Niederholzer
Orchard Crops
Advisor



- Mechanical hedging of prunes - Hand pruning is expensive and good pruners are difficult to find. Mechanical hedging is a tool that growers are starting to use to supplement or eliminate hand pruning. What techniques and timings are best? This work is led by Dr. Rich Rosecrance at Chico State with support from Franz and Luke Milliron, UCCE Farm Advisor
- Bark disease in prunes - Cytospora canker is caused by a wind-blown spread of spores from infected tissue. It can infect pruning wounds, but growers can spray protective fungicides or biological agents ("good" fungi) after pruning but ahead of rain. Franz is supporting this work in several orchards in the region.

Results from this work are delivered to growers and PCAs through a quarterly newsletter, grower meetings, blog posts and podcasts. The newsletter articles have recently been picked up by the CA Prune Board who push this information to all prune growers, not just those who subscribe to the UCCE newsletter.

Vegetable Crops

The Vegetable Crops program visited over 20 processing tomato fields and 9 cucurbit (cucumber, squash, melon) fields to diagnose pest issues during the 2021 season. On-farm research trials were also conducted to determine processing tomato variety tolerance and susceptibility to the emerging vine decline/crown rot disease, *Fusarium falciforme*, and to better understand the disease complex of *Fusarium* spp. with root-knot nematode infections. Both research projects were funded by the California Tomato Research Institute and done in collaboration with UC Davis and industry partners. In addition to soilborne fungal diseases as major disease issues for tomatoes, beet curly top virus (BCTV) was much more prevalent during the 2021 season for both tomato and cucurbit growers. Historically, this disease, vectored by the beet leafhopper, is not a concern in Northern CA and an informational meeting for growers was held in late fall 2021. In-row cultivators were evaluated for a second year to help manage weeds and mitigate rising labor costs/shortages in conventional processing tomatoes.

The Vegetable Crops program continued evaluating insecticide efficacy against cucumber beetles (#1 pest of muskmelons in the Sacramento Valley) in honeydew production and non-crop habitat locations of the western striped cucumber beetle, with funding from the California Melon Research Board and collaboration with UC Davis.



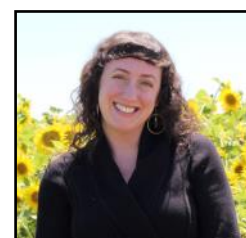
**Amber
Vinchesi-Vahl**
Vegetable
Crops Advisor

Cover Crop Management

Between 2018 and 2020, Sarah Light and Amber Vinchesi-Vahl organized two successful field days on soil health and cover cropping and were a few days away from a third when the COVID-19 shelter-in-place ordinance went into effect. On the first field day, a survey assessed what information growers needed to incorporate cover cropping into their management practices. One concern that emerged was the need for more information around what equipment could be used. The second field day was a grower-led equipment showcase at which local growers brought tractor implements and shared knowledge about successes and challenges. Subsequently, a newsletter article was published with a local grower cover crop champion and Southwest Committee of the Western Cover Crop Council member about equipment to manage cover crops.



**Amber
Vinchesi-Vahl**
Vegetable
Crops Advisor



Sarah Light
Agronomy
Advisor

Master Gardener Program

The Master Gardeners of Sutter-Yuba Counties are a group of trained, dedicated volunteers whose primary responsibility is to disseminate horticultural information to the home gardeners in the community. -volunteer program of 37 dedicated master gardeners. Janine Hasey continues to be the MG advisor as a volunteer. Despite Covid causing many activities to be cancelled, curtailed or virtual, our 37 volunteers participated in the following programs/activities for the Sutter-Yuba community:



- Office help desk for answering gardening questions
- Fair booth on MG programs and information including water-wise gardening
- Farmer's Market in Yuba City
- Tomato plant sale
- Virtual Farm Day
- YES charter school gardening
- Be Prepared Yuba County fire safety defensible space information
- Collaborating with our CalFresh nutrition educator on school gardens for the Farm to School program

The Master Gardener program help desk is open to home gardeners in Sutter and Yuba Counties: if you have a gardening questions or problem, give us a call or drop a sample off at our office identification!



Nutrition Program

The CalFresh Healthy Living, UC Program and the Expanded Food and Nutrition Education Program are reaching school-age students and adults in-person and virtually. This year UCCE Sutter-Yuba nutrition staff will be engaging teachers and students in school-wide Carrot Walks, a healthy version of the beloved Cake Walk at elementary school playgrounds throughout Sutter-Yuba Counties.

Other outdoor activities will include reinvigorating and building new edible school garden in Sutter County and physical activity events in Yuba County. Over summer, Yuba City Unified School District Expanded Learning Program partnered with CalFresh Healthy Living, UC to implement six weeks of garden education at twelve sites during their Summer Program. Continuing our partnership into the new school year, we are working to bring new garden beds to each site, train their staff to facilitate our garden education, and support through lesson demonstrations. This school year, we rekindled our partnership with Marysville Joint Unified School District Expanded Learning Program and will be supporting their efforts in physical education during and outside classroom through monthly lessons and hosting physical activity events at all fourteen sites.



Armyworm Trapping

The rice project manages an armyworm trapping network across the Sacramento Valley. The network consists of pheromone traps set up in 15 rice fields, three of which are in Sutter and Yuba Counties. The traps, which catch moths, the adult stage of the armyworms, are checked weekly. The counts are shared with growers and pest control advisers via email and websites so they can intensify monitoring of armyworms in the field. Data from the traps indicate that larval populations in the field peak a week or two after the number of moths in the traps peak.



Invasive Insect Trapping

Yuba-Sutter Cooperative Extension has opted to participate in an invasive insect trapping and monitoring program within Yuba County. As part of a State-wide effort to monitor the Invasive Shot Hole Borer (ISHB) led by University of California Integrated Pest Management (UC IPM), our office has partnered with farmers/ranchers, private property owners, and the Sierra Foothills Research and Extension Center, as well as utilizing public access points to place traps across Yuba County. Areas of interest include urban/wildlife interface, field borders or loadout areas, riparian corridors, public parks, or private property with more than a few deciduous trees. This project is part of a statewide effort to trap in every county across California. The ISHB pest has only been found in Southern California to date and it is known to target host species native to California. These host species include oaks, willows, sycamores, and alders just to name a few. This pest, which is the size of a sesame seed, bores into host species and cultivates a strain of Fusarium fungus. This fungus then feeds up to millions of progeny and eventually causes the dieback and death of the host. The ISHB is a different species than the borer that infests fruit and nut trees.

Our monitoring efforts have included setting up traps, (which use a pheromone lure to attract the pest) and monitoring those traps monthly from April - November 2021. Our office installed 24 traps across Yuba County in the spring and fall of 2021. The chosen locations represent a wide range of native and landscaping flora and these traps are spread across several habitat types, moisture regimes and topography. Sutter County Agricultural Commissioner's office is conducting the same trapping protocol in Sutter County.



Whitney Brim-Deforest
Rice Advisor



Troy Clark Jr.
Specialist



Update: As of October 2021 our office has finished the spring trapping session and is in the middle of our fall trapping session. For the spring trapping session we have sent in 15 boring beetles to be DNA sequenced. We are, however, confident that these beetles are natural to this area and pose no threat to the deciduous trees of Yuba County. To our knowledge the Invasive Shot Hole Borer has not been found in the northern part of the state. The fall trapping will continue until mid December at which time we will assess any insects found and submit samples of any suspect borer beetles.

Agronomic Crops Needs Assessment

In conjunction with other researchers across the state, Whitney Brim-DeForest and Sarah Light surveyed growers of the following crops: rice, alfalfa, beans, sunflower, corn, wheat, and others. The purpose of the survey was to assess the most important needs of agronomic crop growers across the state, in relation to delivery of UCCE research and extension programs. Key findings are:

- Water-related issues are of greatest concern while weed control is top challenge for agronomic crops in California.
- Availability of water, profitability, and land stewardship were the highest priorities in management decisions.
- Crop rotation benefits and profitability were the primary reasons for growing agronomic crops.
- Extension must balance immediate needs with long-term education to adapt to future challenges

The full article can be found at: "Top management challenges and concerns for agronomic crop production in California: Identifying critical issues for extension through needs assessment" (Kanter et al.) <http://doi.org/10.1002/ajqj2.20897>



**Whitney
Brim-
DeForest**
Rice Advisor



**Sarah
Light**
Agronomy
Advisor

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)

Tree Crops

As a farm advisor emeritus, Janine Hasey continues to contribute her expertise as follows:



Janine Hasey
Emeritus
Tree Crops
& Master Gardener
Advisor

- Contributing to the regional quarterly Sacramento Valley Walnut newsletter which is distributed to local walnut growers and industry.
- Advising/assisting on research projects including a CDFR funded cover crops in walnut study, local walnut variety selection blocks, no prune training systems, and on whole walnut orchard recycling. Data from local selection blocks over the years, was used to evaluate the newest walnut variety released earlier this year, 'UC Wolfskill', with excellent, Chandler-like color and well filled kernels.
- Writing chapters for the Walnut Production Manual revision
- Serving on the CA Walnut Board Production Research Advisory Council and as the UC ANR liaison with the CA Cling Peach Board advising on research proposals.

As an independent contractor with the USDA-ARS, Janine is the statewide clonal walnut rootstock field trial coordinator. These trials are funded by a federal Specialty Crop Research Initiative grant through NIFA and the California Walnut Board. The ongoing rootstock trials and planning for the 2022 trials with new genotypes are coordinated with other advisors and researchers. She oversees three local trials and is expecting to have field meetings next year at their respective locations.





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 Sutter and Yuba Counties:

- ◆ AgSeeds Unlimited
- ◆ Andros Karperos Elementary School
- ◆ Barry Elementary School
- ◆ Bear River Supply PCAs
- ◆ Big Valley Ag PCAs
- ◆ Bob Amarel, Jr., Reason Farms
- ◆ Burchell Nursery, Inc
- ◆ CALFIRE
- ◆ California Alfalfa and Forage Research Foundation
- ◆ California Almond Board
- ◆ California Canning Peach Association
- ◆ California Crop Improvement Association
- ◆ California Dry Bean Advisory Board
- ◆ California Melon Research Board
- ◆ California Prune Board
- ◆ California Rice Commission
- ◆ California Rice Experiment Station
- ◆ California Rice Research Board
- ◆ California State University, Chico
- ◆ California Tomato Research Institute
- ◆ California Walnut Board
- ◆ California Wild Rice Advisory Board
- ◆ Camptonville Elementary School
- ◆ CDFA - Fertilizer Research and Education Program
- ◆ CDFA - Healthy Soils Program
- ◆ Cedar Lane Elementary School
- ◆ Colusa County Farm Supply
- ◆ Colusa County Resource Conservation District
- ◆ Conant Orchards
- ◆ Ella Elementary School
- ◆ Erdman Farms
- ◆ Furlan Farms
- ◆ Gilbert Orchards
- ◆ Golden Gate Hop Ranch
- ◆ Grow West Supply
- ◆ Gurj Thakar
- ◆ Healthy YOUba Coalition
- ◆ Jaw GP
- ◆ Joe Conant, Grower
- ◆ Joe Serger, Miki Farms
- ◆ John Amarel, Reason Farms
- ◆ Johnson Park Elementary School
- ◆ King Avenue Elementary School
- ◆ Kuldip Atwall
- ◆ Lincoln Elementary School
- ◆ Lundberg Family Farms
- ◆ Marysville Joint Unified School District
- ◆ Marysville Rotary
- ◆ Matt Bozzo, Yuba County Ag Dept
- ◆ Matt Lagorio, Grow West
- ◆ Miki Farms
- ◆ Norene Ranches Inc.
- ◆ Oryza Partnership
- ◆ Park Avenue Elementary School
- ◆ Park Farming Organics
- ◆ Pleasant Grove Farms
- ◆ Richter Ag
- ◆ Richter Bros.
- ◆ River Garden Farms
- ◆ Sarb Atwall
- ◆ Sierra Gold Nurseries
- ◆ Sutter County Agricultural Department
- ◆ Sutter County Resource Conservation District
- ◆ Tahoe National Forest
- ◆ UC Cooperative Extension colleagues
- ◆ UC Davis Agricultural Experiment Station
- ◆ UC Integrated Pest Management Program
- ◆ UC Sierra Foothills Research and Extension Center
- ◆ UC Weed Research and Information Center
- ◆ USDA - Agricultural Research Service
- ◆ USDA - Natural Resource Conservation Service
- ◆ USDA - Wildlife Services
- ◆ Wallace Brothers
- ◆ Yuba City Unified School District
- ◆ Yuba County Agriculture Department
- ◆ Yuba County Office of Emergency Services
- ◆ Yuba County School Readiness Program
- ◆ Yuba County Sheriff's Department
- ◆ Yuba River Endowment
- ◆ Yuba Water Agency
- ◆ Yuba Watershed Protection and Fire Safe Council
- ◆ Yuba-Sutter Cattlemen's Association
- ◆ Yuba-Sutter Fairgrounds
- ◆ Yuba-Sutter Farm Bureau

UCCE Advisors

Whitney Brim-DeForest, County Director and Area Rice Advisor
Sarah Light, Area Agronomy Advisor
Janine Hasey, Emeritus Tree Crops and Master Gardener Advisor
Vacant, Forestry/Fire Science and Natural Resources Advisor

Franz Niederholzer, Orchard Systems Advisor
Amber Vinchesi-Vahl, Area Vegetable Crops Advisor
Nicole Marshall-Wheeler, 4-H Youth Development Advisor
Dan Macon, Livestock and Natural Resources Advisor

UCCE Staff

Melissa Ussery, Nutrition Education Supervisor
Conner Thomson, Nutrition Education Specialist
Ryan Cleland, 4-H Community Education Specialist
Taiyu Guan, Assistant Specialist
Troy Clark, Jr. Specialist
Marco Giron, Jr. Specialist
Kayla Minehan, Student Assistant II
Angelita Cisneros-Aguilar, Agricultural Technician
Amelia Zepeda, Agricultural Technician

County Staff

Michele Searcy, Executive Secretary/Office Manager
Rene McCrory, 4-H Secretary/Office Assistant

