Our mission is to sustain a vital agriculture, environment and community in Sonoma County by providing University of California research-based information in agriculture, natural resource management and youth development.

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Cover photos, clockwise from upper left: Master Gardener demonstration garden at 2014 County Fair; Virginia creeper leafhopper nymph; Aspiring ranchers touring a local water buffalo dairy; Red blotch virus symptoms on Chardonnay grapevine.
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Dear Supervisors Susan Gorin, Chair, Efren Carrillo, James Gore, David Rabbitt and Shirlee Zane:

As we move into the next 100 years of Cooperative Extension, we continue to value the public/private partnerships that have been the foundation of our organization, raising the bar by supporting the County of Sonoma Initiatives on local agriculture and healthy communities. UCCE advisors are critical partners with local farmers and ranchers, providing scientific-based information on techniques that can be used to increase production and thus increase economic stability, while addressing environmental concerns. Our programs focus on viticulture and integrated pest management, livestock and range management, specialty crops, sudden oak death, value added agriculture, beginning farmers and ranchers, Coho monitoring, agritourism and ecosystem services. Our Master Gardener coordinator trains volunteers to provide education and outreach to Sonoma County residents on water conservation, home food production and pesticide reduction. We also have one of the largest 4-H youth programs in California, focused on leadership, science and technology, with a commitment to reach as many young minds as possible. Our 4-H staff is spearheading a major outreach campaign focused on increasing Latino enrollment and participation. The results are that more Latino children have access to opportunities provided by the County of Sonoma.

This past year, UCCE conducted research and provided educational programs to help commercial row crop farmers and livestock producers in Sonoma County deal with drought and climate change. Our frost tower research in vineyards evaluated methods for making the most of local water resources through increased irrigation efficiency. Water conservation programs are also focused on the urban gardener, partnering with the Sonoma County Water Agency to educate the public on how to use less water; and with the Agricultural Preservation and Open Space District to develop an evaluation tool for documenting ecosystem services that have been maintained or increased through implementing conservation easements and proper rangeland management.

We partnered with other county departments to increase access to healthy, local, sustainable food. One outcome was the County Land for Food Production (CLFP) project; which allowed UCCE to work on creating an incubator farm on county land. These efforts are aimed at increasing access to land for food production, and the number of farmers and ranchers growing local food, respectively. The goals align with the Sonoma County Healthy and Sustainable Food Action Plan. Our Agricultural Ombudsman played a critical role in assisting individuals who want to create or expand their farming and ranching enterprises, and is currently working with PRMD to address local poultry processing.

I thank you, as the leaders of Sonoma County, for your continued support of UCCE. With your help, we will “boldly go” into the next century, strengthened by this partnership.

Sincerely,

Stephanie Larson, Ph.D.
GOAL

Conduct research in Sonoma County wine grape vineyards addressing issues focused on improved vine health, fruit quality and yield, and share what is learned with growers so they can decide on farming practices that will further their business objectives. Research trials we conduct in local vineyards are often long term field projects that involve data collection to determine impact of insect and disease occurrence on fruit quality and vine growth. Yield components are evaluated in new rootstocks developed to tolerate soil pests.

VITICULTURE

ACCOMPLISHMENTS

Leveraging the expertise within UCCE to address the use of water for frost protection in vineyards, Sonoma and San Luis Obispo viticulture advisors partnered with NOAA to improve spring frost forecasting in the Russian River watershed, as well as provide growers with valuable summaries of temperature inversion data to assist them in deciding upon active frost protection methods.

Continued field research evaluations in Sonoma and Napa on the effect of red blotch disease on fruit ripening and growth in Chardonnay, Cabernet Sauvignon and Zinfandel vines. Red blotch is caused by a recently discovered grapevine virus.

Organized the annual Sonoma County Grape Day seminar, and nearly 200 growers and vintners attended. Experts delivered research updates on grapevine virus disease, measuring vineyard water use on a landscape basis, and vine growth disorders.

Co-organized nine meetings of the Sonoma County Vineyard Technical Group reaching 370 vineyard owners, managers and SRJC viticulture students in seminars presented by researchers covering topics such as how to accurately monitor vine water use, identify vineyard health issues utilizing hyperspectral imagery, and improve efficacy of foliar fertilizers.

Organized a workshop with two UC Davis scientists who discussed vegetation management practices that will help prevent weed resistance to herbicides commonly used in vineyards.

“This work [done by UC] makes me realize that blocks that are slower to ripen in my vineyard most likely have red blotch, so I should probably revise my replanting plan – once we know how to keep it from spreading.” –Comment from grower at 2014 Sonoma County Grape Day
**Integrated Pest Management**

**Accomplishments**

While the exotic European grapevine moth has been declared eradicated from most of Sonoma County, continued vigilance is imperative. Virginia creeper leafhopper is a potential new threat for which we are developing a response plan.

**Aquaculture**

**Goal**

To develop protocols to successfully spawn native purple-hinge rock scallops and produce sufficient numbers of juvenile scallops to provide shellfish growers with another viable crop.

**Accomplishments**

Successfully spawned scallops and reared juveniles at the Bodega Marine Laboratory.

Worked with collaborators at Taylor Shellfish Company and the University of Washington to create triploid scallops.

Attended the Industry Advisory Council and Technology Advisory Committee meeting of the Western Regional Aquaculture Center to provide an annual report of accomplishments.

_The purple-hinge rock scallop supports a highly popular sport fishery from Baja California to Southeast Alaska. Researchers with UCCE, California Sea Grant and Bodega Marine Laboratory are working to spawn these animals in captivity to create a highly valued new product for shellfish farmers._
Livestock &
Range Management

**Goal**

Enhancement ecosystem services on rangelands and to become a model for practices that mitigate climate change. Sonoma County is comprised of 50% range and forest lands which can contribute to sequestering carbon, capturing water, and other ecosystem services for public benefit. Proper grazing systems can assist with improving ecosystem services provided on range and forest lands.

Market-based approaches, such as carbon credits, are increasingly being encouraged as tools for achieving conservation. In order for ecosystem services to continue to be effective at capturing water and sequestering carbon, for example, public policies need to be developed supporting the viability of rangelands.

**Accomplishments**

Prioritized projects to improve ecosystem services on conservation lands, open space, agriculture and working lands, and important watersheds to address climate change.

Developed interpretative trails and curriculum to tell the public the story of working rangelands, the importance of their conservation, and their benefits to society.

Partnered with the Sonoma County Agricultural Preservation and Open Space District to develop an evaluation tool documenting ecosystem services increased through conservation easements and proper rangeland management.
Paul Vossen trains Master Gardeners and farmers how to prune fruit trees.

**Specialty Crops**

**Goal**

Provide science-based information to commercial specialty tree fruit, berry, and vegetable growers on new crops and cultural practices to help them maximize profits while protecting the ecology of the farm and surrounding natural environment.

**Accomplishments**

Helped 768 specialty crops growers last year through 22 group meetings and 78 one-on-one consultations on various production topics such as: land feasibility evaluation, selection of new crop varieties and rootstocks, pruning, irrigation timing, drought management, soil fertility, sustainable and organic pest management techniques, and marketing practices.

2,942 people were reached through the UCCE specialty crops website.

Wrote technical articles on olive fruit fly control, food safety for fresh produce, fruit tree pruning, and UC pest management guidelines for apples and olives in various scientific and popular press publications.

“Great to bask in your accumulated wisdom! We definitely need your ongoing help and presence. Thanks for your help.” —from a farmer after a farm visit.

Paul Vossen has worked for 34 years with farmers in Sonoma County who grow fruit trees, berries, vegetables, Christmas trees, and cut flowers. As a UC researcher he worked on the scientific evaluation of organic production practices for various crops including apples and olives, primarily in the control of apple scab, codling moth, and olive fruit fly. He coordinated UC short courses and seminars on specialty crops production and pest control. He has broad expertise in olive oil production, processing, and sensory evaluation, and is currently working with new varieties of figs, pomegranates and cider apples.
In 2014, UCCE’s Agropreneur program supported and trained 21 aspiring farmers and ranchers in their quest to have successful farm/ranch businesses; bringing our total to 92% of target. We exceeded our target to reach disadvantaged farmers and ranchers, with over 50% minorities, women and low-income. Seventy percent of students completed their business plans.

Farm and ranch positions Agropreneur graduates have achieved in 2014 include farm hand, livestock producers raising rabbit, turkey, chicken, grass fed beef, goats, and sheep, beekeeping, and diverse specialty crop producers.

As in years one and two, Agropreneurs had access to a wide range of experienced local farmers and ranchers, lenders, potential buyers, Small Business Development Center counselors, and the SRJC business and agriculture instructors who supported their efforts to create business and crop/livestock plans, helping them become successful agriculturalists. All Agropreneurs had access to Shone Farm land to work on an enterprise project – from seed to market; and were mentored by graduates of previous years.

Our 2014 “crop” of Agropreneurs got a full tour of Santa Rosa Junior College’s 365-acre Shone Farm. They were our partner for the three-year USDA Beginning Farmer & Rancher Training program, providing Ag and Business instructors, classroom space, and access to land.

“I believe the Beginning Farmers and Ranchers program [Agropreneurs] and its underlying premise, that farmers need to think of themselves as entrepreneurs, is absolutely essential to preserving small-scale agriculture in Sonoma County and transforming our food system as a whole. I would love to help in any way that I can to make it even better for future participants.”

—BFR graduate, now staff at SRJC Shone Farm
CoUnty land for food prodUCtion / inCUbator farM

GOAL
To provide access to county-owned land for farming and ranching that creates links between food production, the environment, public health, and economic resilience. To support aspiring farmers and ranchers with hands-on farming experience and farming mentors, and to increase food access in Sonoma County.

ACCOMPLISHMENTS
Partnered with Go-Local Cooperative in a program to keep 10% more “food” dollars in our county.
Partnered with Department of Health Services and Sonoma County Ag Preservation & Open Space District in 2013 to design an incubator farm that could be on county-owned land.
Along with other county departments, developed the County Land for Food Production (CLFP) project in 2012 to increase land availability for food production, and the potential for more farmers and ranchers to grow local food.

THE INCUBATOR FARM CONCEPT
An incubator farm provides support for the next generation of farmers and ranchers to grow their businesses, thus increasing access to healthy local food for their community. An incubator farm typically provides shared infrastructure, equipment, and land at a below-market rate for a limited period of time. That, and a strong mentoring program help reduce the risks for new farmers.

Benefits and outcomes include:
Farmers on incubator farmland will “Grow a row” for donation to a food bank.
Connects farmers to their community and thus creates consumer awareness. Access to marketing channels for diverse profit centers makes for a more resilient farm business.
**Endangered Coho Salmon Monitoring Program**

**Goal**

Monitor the accomplishments of the multi-agency partnership working on recovery of endangered coho salmon to ensure that a healthy run of wild coho salmon returns annually to spawn in tributaries of the Russian River.

**Accomplishments**

Continued to monitor trends in the presence, abundance, and distribution of endangered coho salmon and threatened steelhead throughout the southern portion of the Russian River watershed.

Hired three new biologists to assist with monitoring activities, field work and data analysis.

Continued partnership with the AmeriCorps Watershed Stewards Program and recruited two new watershed Stewards to gain experience from, and contribute to, our coho recovery efforts.

Cultivated relationships with local colleges and universities to expand our new internship program and enlisted nine interns from Santa Rosa Junior College, Sonoma State University, Humboldt State and UCLA to learn through hands-on experience with our program.

Maintained productive collaborations with the California Department of Fish and Wildlife, NOAA’s National Marine Fisheries Service and the Sonoma County Water Agency working together towards coho salmon recovery.

Operated 69 PIT tag antennas at 20 sites on eight streams throughout the Russian River watershed to document the movement of PIT-tagged coho salmon at all life stages.

Documented the return of an estimated 313 endangered coho salmon adults to the Russian River watershed over the winter of 2013-14.

Counted and measured several thousand coho salmon and steelhead smolts at traps on two stream systems in order to estimate numbers of smolts out-migrating to the ocean, over-season survival, and growth.

Conducted snorkel surveys on 62 reaches of 32 separate streams to document the presence and abundance of an estimated 426 wild coho salmon juveniles. (This number was lower than in any year since 2009 due to poor spawning success related to drought conditions.)

Documented over-summer survival of coho juveniles in relation to flow and environmental conditions on five study reaches in collaboration with the Russian River Coho Salmon Water Resources Partnership.

Assessed juvenile coho habitat use and stream flow at an off-channel stream habitat enhancement project site before and after project implementation.

Maintained access agreements and positive relations with more than 800 private landowners throughout the watershed.
Juvenile Coho Salmon

A juvenile coho salmon spends the first year of its life in the freshwater streams of Sonoma County. In spring, the one-year-old smolts are captured in instream traps and size, weight and other data are collected in order to determine how many survived the winter, how much they’ve grown and to estimate abundance. These seasonal traps on Mill, Willow and Green Valley Creeks are used in conjunction with instream antennas that detect movement of individual coho at all life stages by the unique tags that have been implanted in each fish. In summer, snorkel surveys are used to document spawning success in streams where juvenile coho have been released, map the distribution of naturally-spawned juvenile coho, and to calculate the abundance of wild coho juveniles.

Releasing Coho

Intern Brandon Stevens carefully releases endangered coho fry (young coho) into Green Valley Creek in Graton. These fish were raised at the Warm Springs Hatchery as part of the Russian River Coho Salmon Captive Broodstock Program. Stevens is part of a growing internship program that UCCE’s Russian River Coho Monitoring Program started in order to teach skills to college students through hands-on experience with scientific field data collection methods. A total of 18 interns from Santa Rosa Junior College, Sonoma State University, Humboldt State University and UCLA have participated in the program. Many of them have gone on to pursue further schooling and/or careers in fisheries science and natural resource management.
Lisa Bell  
Sudden Oak Death Program Coordinator

**Goal**
To limit the impacts of Sudden Oak Death (SOD) in Sonoma County, save valuable landscape trees, and create healthier forests through public education on disease recognition and effective management practices.

**Sudden Oak Death**

This outreach and education program is conducted with Master Gardener volunteers and funded by a grant from the USDA Forest Service.

**Accomplishments**

Worked with USDA Forest Health personnel to aerially map new areas in Sonoma County affected by sudden oak death.

Conducted a citizen-science project in four location in the County. This project—SOD Blitz—is an annual weekend of indoor and outdoor trainings. Participants learned to recognize symptoms of SOD on its main host plant, California bay laurel. Symptomatic leaves were collected, then diagnosed by a UC Berkeley forest pathology lab. The result is a more informed public, better able to make management decisions about their forests and trees.

Presented 11 public meetings to educate homeowners and land managers on SOD biology, how to recognize disease symptoms, disease prevention, and techniques to reduce the spread of SOD into non-infested areas of Sonoma County.

Conducted 27 field visits with individual land managers, parks personnel, and professional arborists to identify SOD infected trees and to provide guidance with management decisions.

“This meeting and other similar meetings are relied upon for authoritative information relating to SOD preventive treatments and management practices. Thanks for this valuable service!”

—from a landowner attending a SOD management meeting
**Watershed Management**

**Accomplishments**

Participated in PRMD’s Riparian Corridor Working Group and shared the latest research regarding the conservation benefits of conservation practices in rangeland watersheds.

Partnering with the Laguna Foundation, we provided assistance setting conservation priorities, and technical support, to standardize monitoring of restoration project sites and ecosystem services in riparian areas.

Our partners have used UCCE watershed research to plan future conservation and restoration approaches; balance tradeoffs to avoid undesired consequences, thus increasing project success to meet multiple objectives for improving ranch/farm productivity, water quality, wildlife habitat, carbon sequestration and groundwater infiltration. Stay tuned, our results from examining previous riparian restoration projects for carbon in the soil will be available in 2015.

**Goal**

The UCCE Watershed Program applies lessons learned from previously completed restoration projects and conservation practices to assist landowners in prioritizing stewardship plans on Sonoma County ranches, farms and parks.

*Measuring the length of a stream where riparian restoration occurred 40 years ago.*

*This stream is being evaluated 20 years after control fencing, revegetation and erosion control work was completed. This restoration project improved wildlife habitat, water quality, riparian forest diversity, carbon sequestration and farm viability.*
Goal

To help preserve agriculture in Sonoma County, the Ag Ombudsman supports agricultural producers as they navigate the permitting process, and facilitates meetings between different county, state and federal agencies.

Accomplishments

Partnered with Permit & Resource Management Department to create a code change that reduced permitting requirements for small-scale agricultural processing and on-farm retail sales. This code change encourages farmers and ranchers to diversify operations by reducing the level and cost of permitting required to start-up new enterprises. The code change was approved by the Board of Supervisors in July.

To encourage value-add production for ag operations, the Ombudsman teamed up with our Food Systems Advisor and the Department of Health Services to produce a one day workshop. “Taste the Possibilities: Adding Value to your Ag Business” brought together expert agency reps and local food entrepreneurs to demystify the permit process for value-add operations. Eighty people participated including farmers, cottage food operators, and on-farm processors.

Presented at four separate workshops on regulatory requirements to over 170 participants.

Provided assistance to county residents on 52 agricultural projects from startups to expanding sales, and value-add products.

As a member of Permit & Resource Management Department’s Directors Advisory Group, brought issues forward and provided feedback on PRMD proposals in order to support agricultural producers.

Managed social media across five platforms to bring attention to the important work that UCCE Sonoma is doing, and upcoming meetings and events. Follow us!
North Bay Food Systems

Accomplishments

Co-organized an all-day workshop in November 2014, “Taste the Possibilities: Adding Value to Your Ag Business” at the Sonoma County Fairgrounds. Eighty farmers, food artisans, agricultural support organizations, and representatives from Sonoma County agencies attended. Participants learned about how to create small-batch and artisanal “value-added” products with local fruits and vegetables. Sonoma County Supervisors David Rabbitt and Shirlee Zane opened the workshop.

Co-presented on Permits, Licenses, and Regulations at the Farmers Guild’s Entrepreneurial Farm Business Intensive in December 2014. Over 35 small and beginning farmers attended to learn the basics about permits, licenses, and regulations for small farms, ranches, and value-added production.

Became a member of the Sonoma County Food System Alliance, to collaborate and supporting the Food Action Plan (FAP). Participated in one of the four FAP committees—Healthy Eating—that focuses on fostering healthy retail options in Sonoma County.

As a new UCCE advisor, built the foundation for a regional extension, education, and applied-research program in food systems. Conducted a needs assessment to inform future efforts. Researched small- and mid-scale diversified agricultural producers, residents’ access to affordable local food, and connections between farmers and consumers. Networked with food and agriculture partners across the North Bay and built an understanding of the current state of local food system issues, challenges, and opportunities in the region.

Goal

Support the economic viability, environmental sustainability, and social equity of regional food systems in Sonoma, Marin, Mendocino and Napa Counties.

“Goal”

Support the economic viability, environmental sustainability, and social equity of regional food systems in Sonoma, Marin, Mendocino and Napa Counties.

The event was much more than I anticipated. I didn’t know if I would get any new information. I did and was very glad I attended.”

“The overall picture of how to make products at home, in a permitted commercial kitchen, or working with a co-packer was so helpful. Now I understand the stepping stones I need...to be able to do large-scale retail sales.”

—feedback from “Taste the Possibilities” workshop
GOAL
Provide science-based information for home gardeners that enhances the well-being of our local environment and the residents of Sonoma County.

“We couldn’t have done it without them... their advice and expertise was essential to our successfully creating a low water-use landscape. Thank you so much!”

—from a home gardener who took out their lawn, thanks to the Master Gardeners and the Garden Sense Program

Accomplishments
303 active Master Gardeners (MGs) provided 25,644 volunteer service hours on topics of ornamentals, food gardening, composting, integrated pest management, and water conservation reaching over 24,000 people directly and 137,000 via the UCCE-Sonoma website.

Diverted an estimated 17,128 tons of organic materials (kitchen scraps and yard waste) from the Sonoma County landfill through the MG Home Compost Education Program.

Educated hundreds of people about alternatives to toxic garden pesticides and the benefits of selecting plants that have few or no pest problems through the Integrated Pest Management Program.

Helped gardeners grow more of their own food at schools, community centers, and individual back yard gardens through the MG Food Garden Specialists Program.

Partnered with the Sonoma County Water Agency to develop the “Garden Sense Program,” conducting 283 consultations helping home gardeners save an estimated six acre-feet of water in their home landscapes.
**4-H Youth Development**

**ACCOMPLISHMENTS**

Twenty-seven clubs, including 450 adult volunteers, worked with 1100 Sonoma County youth on community projects from livestock to leadership development, science, quilting and more.

In 2014, five Sonoma County teens received state medals in the statewide 4-H Record Book Competition. Record Books give members an opportunity to document their skill development, measure their achievements, and reflect on their yearly work.

In 2014, over 6,000 people attended the 53rd annual 4-H Chicken Barbecue and Open House. They viewed project demonstrations on topics ranging from rabbits to robots.

Sonoma County 4-Hers gather every year for summer camp in Las Posadas State Forest. With adult guidance, more than 80 4-H teen staffers develop and implement an environmental education curriculum. Two hundred fifty youth attended in 2014.

Latino outreach is making a dent in just six weeks of 2015: Nine schools have hosted presentations, two new 4-H clubs will start in February 2015, each serving up to 75 students. Ten more presentations are scheduled in the first two months of 2015.

"**My kids** don’t have a lot available to them after school and I would love to see them have 4-H activities to help them be more active and learn new useful skills. It’s very necessary to have programs like 4-H.”

—from a Latina parent and future Monroe Club Leader

![Judy Ludovise](image)  
**Judy Ludovise**  
4-H Program Representative

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4-H youth learn about engineering and tornados at 4-H Science Fair.
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**GOAL**

The program’s goal is to develop and conduct effective outreach to engage our youth in reaching their fullest potential, with a specific target of 20% increase in Latino participation by the end of 2015. 4-H Program Rep, Judy Ludovise, is working with Diego Mariscal, our bilingual Senior Office Assistant, on strategies for getting the word out to members of the Latino community, explaining 4-H program benefits.

4-H youth engage in a variety of enrichment activities in partnership with parent volunteers; giving them skills needed to be productive citizens in our communities. The essential elements of youth development are: belonging, mastery, independence, and generosity.

![Diego Mariscal](image)  
**Diego Mariscal**  
conducts 4-H outreach to Sonoma County's Latino community.
It is the policy of the University of California (UC) and the UC Division of Agriculture & Natural Resources not to engage in discrimination against or harassment of any person in any of its programs or activities (Complete nondiscrimination policy statement can be found at http://ucanr.edu/sites/anrstaff/files/187680.pdf).

Inquiries regarding ANR's nondiscrimination policies may be directed to Linda Marie Manton, Affirmative Action Contact, University of California, Agriculture and Natural Resources, 2801 Second Street, Davis, CA 95618, (530) 750-1318.