

# Cooperative Extension

## Sonoma County 2017 Annual Report



# A Message to the County of Sonoma Board of Supervisors

James Gore | Susan Gorin | Lynda Hopkins |  
David Rabbitt | Shirlee Zane

The University of California Cooperative Extension (UCCE) is excited to present our 2017 Annual Report, demonstrating our commitment to education, research-based information and technical expertise in Sonoma County. Our annual report highlights UCCE's research and education impacts which enhance quality of life and the environmental and economic well-being of the residents of Sonoma County. Our UCCE advisors and County staff continue to bring the highest quality of science to address local issues, especially related to fire recovery.

In addition to our ongoing UCCE programs, in October 2017, immediately following the devastating wildfires, we quickly worked to address the impacts of fire disaster. We worked with affected landowners to address the loss of grazing lands, vineyards and other commodities in the wake of the fires. We provided guidance through science-based information to help landowners secure USDA monies for their losses. Moving forward with disaster planning in mind, we will lead efforts to address fire fuel reductions, and assist with better agriculture preparedness.

To respond to this need for timely science-based fire recovery information, UCCE launched a Citizen Science Research Project in which members of the UC Master Gardener Program of Sonoma County (UCMGSC) and Sonoma County residents collaborated to take over 200 samples of produce from over 25 sites across the region impacted by the fires. The resulting project, Produce Safety After Urban Wildfire: Cumulative Risk Assessment & Community Education on Air Pollution Impact on Produce Safety in the Aftermath of the Sonoma County Fires, conducted a complete comprehensive testing of produce samples taken after the fires. The UCMGSC launched the development and implementation of SAFE (Sustainable And Fire Safe) landscaping education for the home gardener in Sonoma County, leveraging resources developed by UC Cooperative Extension advisors in other counties after wildfires. SAFE landscaping supports creating and maintaining fire-safe and sustainable landscapes in the wildland-urban interface.



UCCE Sonoma staff

Photo by Mary Halasz

From left: Steven Worker, Diego Mariscal, Randi Black, Stephanie Larson, Rhonda Smith, Judy Ludovise, Lucia Varela, Michelle Nozzari, Mimi Enright, Jesenia Mendoza, Julia Van Soelen, Deborah Curle  
Not pictured: Karen Giovannini and Amanda Linnett

Our 4-H youth rallied to lead 22 4-H Clubs to conduct youth-led community service projects to help those affected by the wildfires; projects included working with the food bank, making comfort blankets for children and families, and collaborating with other local non-profit organizations. 4-H Clubs adopted 65 individuals and 13 families and distributed blankets, towels, pillows and food supplies, and any 4-H families affected by the wildfires received all new 4-H hats, ties, club shirts, pins for their hats, and their 4-H enrollment fees were waived. These projects not only helped our community: these projects provided the foundation for 4-H youth in learning interpersonal skills, leadership skills, planning and organizational skills, and changing how youth view their community.

UCCE has the talent on our team to address challenges facing the agricultural industry, expand opportunities for our youth, and develop leaders in our rural and urban communities. With the UCCE and County's continuing partnership, these opportunities will continue for generations to come.

Sincerely,

Stephanie Larson  
County Director

UCCE recently hired Dr. Randi Black from the University of Tennessee. Her research focused on management practices to improve cow health and the importance of exercise during late gestation as a means to improve postpartum health in confined cows. Randi brings her expertise in animal health, animal behavior and well-being, dairy systems management, and milk quality to assist Sonoma County dairy producers. Randi will be active in assisting dairy producers plan and submit applications for the CDFA Alternative Manure Management Program, in an effort to improve air quality through reduced methane emissions. She will also be serving as a technical reviewer for the CDFA Dairy Digester Research and Development Program, another program aiming to reduce methane emissions in California. Her program's focus is on-farm visits, practical and valuable workshops and trainings, and beneficial tools and publications to continually improve the productivity, health, and competitiveness of the Sonoma County dairy industry.

# Dairy Program



**Randi Black, PhD** Dairy Advisor – Sonoma, Marin and Mendocino Counties

# 4-H Youth Development Program

In 2016-2017, the Sonoma 4-H program engaged 1,160 youth (aged 5 to 18) with 325 adult volunteers in 22 4-H Community Clubs, 7 4-H Afterschool Clubs, 2-weeks of summer camp, and other short-term programs. These 4-H learning experiences helped youth reach their fullest potential through science, healthy living, leadership, and civic engagement. In 4-H Clubs, 86% of youth reported that 4-H gives them opportunities to be a part of their community, while 69% reported that 4-H gives them opportunities to plan and do service learning for their community. This focus on the community was exemplified after the wildfires in October 2017. Local 4-H Clubs adopted 65 individuals and 13 families and distributed blankets, towels, pillows and food supplies. They help our community and they supported 4-H youth in learning interpersonal skills, leadership skills, planning and organizational skills, and deepening young people's connections with their community.

Additionally, Sonoma 4-H outreach efforts gained momentum. The 4-H program reached 266 Latino youth with 4-H programming, which increased our Latino youth participation by 102% and brought the total ratio of Latino youth in Sonoma 4-H to 23%. This was accomplished through strong partnerships with the Sonoma County Library, seven elementary schools, and several high schools.



**Judy Ludovise** 4-H Program Representative | **Diego Mariscal** UC 4-H Outreach Coordinator  
**Jesenia Mendoza** 4-H Administrative Aide | **Steven Worker, PhD** 4-H Youth Development Advisor

The Ag Ombudsman works with farmers and ranchers starting new ventures to understand and navigate the permitting process. She also works to help modify regulations that no longer serve the best interests of farmers, ranchers and the public, and to support the growth and sustainability of local agriculture. The Ag Ombudsman has built a website ([ucanr.edu/agombuds](http://ucanr.edu/agombuds)) filled with resources and fact sheets on a wide variety of topics to help farmers and ranchers expand their offerings, including Ag Processing, Dairy & Milk Processing, Agritourism and more. In 2017, she worked on over 90 agricultural projects and continues to work on a variety of local and state ordinances to simplify and streamline processes for agricultural enterprises.

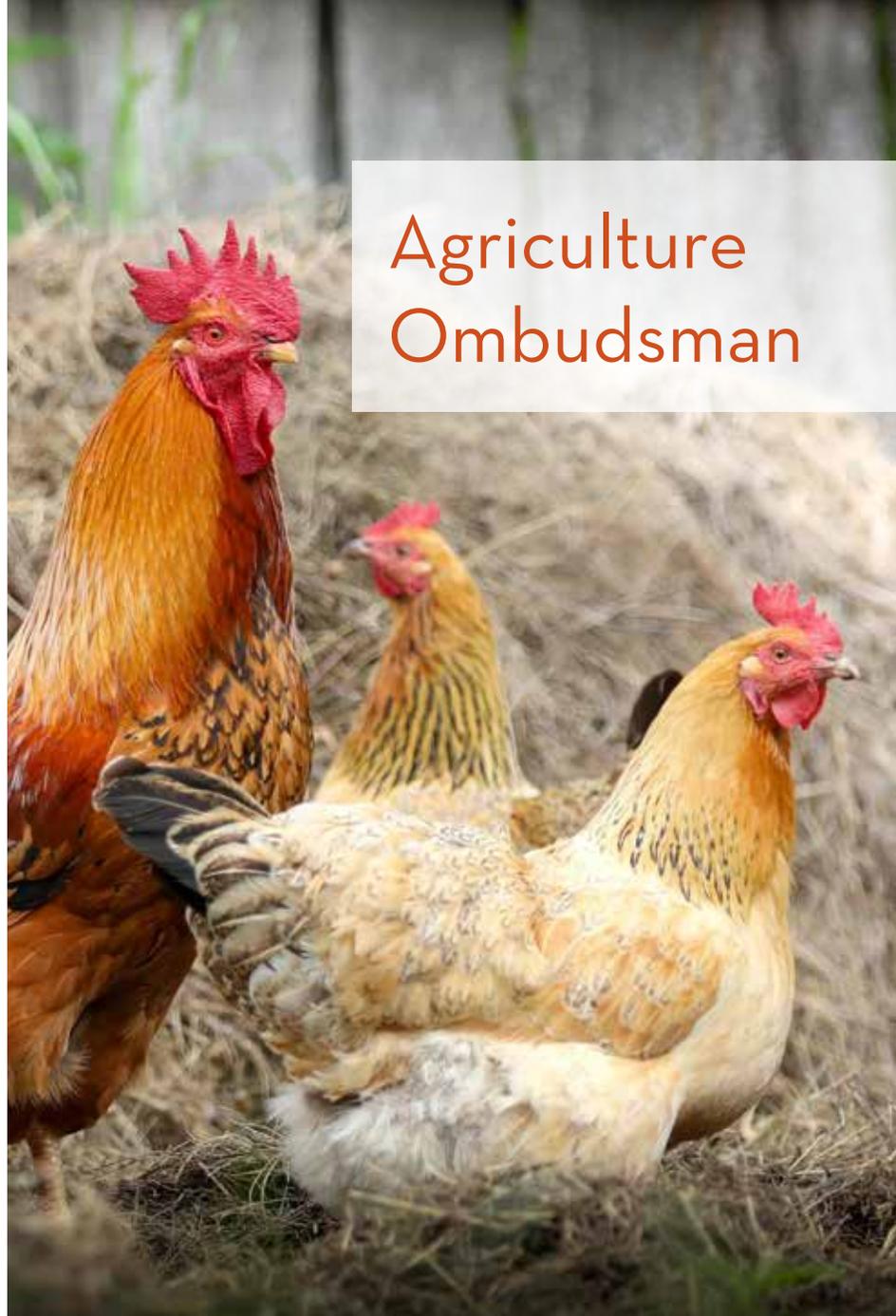
*“Your presentation was so helpful and informative. Although there is a maze of regulations, the way you organized and prioritized what you covered helped me generate a “to do” list for my farm. I appreciate that there is a knowledgeable and approachable advocate for the family farm.”*

*Elaine Carlson,*

*SRJC Sustainable Agriculture student*

Shortly after the onset of the Sonoma Complex fires, a Disaster Resource page was added to our website to help the community recover. Topics include Crop, Livestock, Trees, Fire Wise Landscape, Grants & Loans, Homeowners, Landowners, Retardant and more. ([ucanr.edu/DistasterResources](http://ucanr.edu/DistasterResources))

# Agriculture Ombudsman



# Livestock & Range Management

## Grazing to Reduce Fire

Livestock grazing (primarily by cattle) can effectively reduce the biomass, height, and thatch accumulation produced by non-native annual plants and it has become an essential tool for managing our local grasslands. Grazing has been shown to be a benefit by reducing the risk of a catastrophic wildfire, maintaining and enhancing habitat for many native grassland plants and animals, and maintaining the open character of our iconic grasslands and oak savannas. UCCE advisor uses research-based information to demonstrate and educate about the proper use of grazing as a tool, keeping weed or shrub invasion at bay, enhancing wildflower displays, or maintaining a low grassland canopy height to allow visibility, foraging, and movement of small mammals, as well as decreasing fire hazards. Maintaining rangelands has several benefits associated with water, including increasing water infiltration and increasing the vernal pool inundation period for fairy shrimp and the California tiger salamander. In addition to ecosystems services associated with water, livestock grazing can also improve habitat for native annual forbs & grassland birds, control invasive weeds, reduce fire hazard, etc. UCCE advisor assessed burned rangelands after the fire, documenting that non-grazed lands burned more severely than lands that were grazed. Efforts going forward will involve outreach to landowners on improving management on rangeland and forests to improve the health of systems along with reducing fire potential.





Photo by Roger Praplan

## Trail Project

Grazing can also be a tool for maintaining the open character of our iconic grasslands and oak savannas; however, decision makers and the public have little knowledge of animal agriculture production or the ecosystems services provided by livestock grazing on open space lands. Their lack of knowledge and persistent narrative that production agriculture is destructive puts the use of grazing as a tool to manage natural resources at risk and threatens the ability to manage large-scale landscapes for a variety of conservation values. UCCE advisor, through collaborative efforts with the park interpretative staff, created innovative, accurate and effective methods to educate and engage the public that use regional parks. Through this collaboration unique educational materials were developed that addressed grazing as a tool on “open space - park lands” to manage natural resources. The effort resulted in educational information (factsheets, videos and signage) about why grazing is an important tool to use in managing these types of public lands. Signage, such as shown at right, can be found at Taylor Mountain and Crane Creek Regional Parks.



# Environmental Horticulture

The majority of forestlands in Sonoma County are held by small-parcel landowners, and these landowners often do not have the comparatively large resources of companies or government agencies to manage their lands. Resource and information outreach to these forestland owners is critical to the long-term sustainability of Sonoma County's wildlife, woodland, and water resources. UCCE Sonoma County's Environmental Horticulture program works to support the Sonoma County Forest Conservation Working Group (hereafter: Working Group), a multi-agency collaborative that focuses on sustainable forests within the county, including CalFire, the Open Space District, Sonoma Land Trust, local Resource Conservation Districts, Fire Safe Sonoma, commercial foresters, and private landowners.

Shortly after the Sonoma Complex fires, the Environmental Horticulture Advisor was interviewed as a guest expert on KGO TV, talking about rebuilding after fire, and on the KSRO radio program, "Garden Talk," discussing what to do to help the landscape recover after the fire. He continues to work with landscape contractors to help determine what they can tackle on their own, and when they need a consulting hydrologist to look at slope stability.



# Viticulture



The viticulture advisor visited vineyards inside the areas that were burned to provide a visual assessment of the impact of the fire on grapevines. Although structures, fences, pump houses, and above ground irrigation and drainage systems were damaged or lost, the vast majority of vines were not affected. Vine damage varied considerably and was often limited to the edge of outside blocks. Working with the UC Davis Agriculture Issues Center, information is being collected so that an existing vine replacement cost study can be modified to address the unique damage to infrastructure and loss due to fires.

The Viticulture program addresses how growers can increase the lifespan of their vineyards as well as maintain yields. Vineyard trials are established to evaluate practices that may increase the yields of young vines. The performance of several different rootstocks developed by UC Davis researchers is being investigated so that growers can learn which rootstock may be suitable to the conditions in their vineyards. Many vineyards can be infested with microscopic worms - nematodes - that feed on roots and reduce vine growth or transmit grapevine viruses that cause disease. Once a vineyard site is infested, subsequent plantings must utilize a rootstock that is resistant to nematode feeding and prevents or reduces disease symptoms.



# Integrated Pest Management / Viticulture

The Viticulture Advisor in collaboration with the Integrated Pest Management Advisor addresses pest challenges facing growers by conducting research and extension programs on insect pests and diseases.

## Vine Mealybug

During the past 20 years the North Coast region has had to confront a growing number of introduced invasive pest species and the threat of new introductions. One such species is vine mealybug (VMB) which was first detected in Sonoma County in 2002. It is difficult to control and due to its small size it is easily overlooked when grapevines are inspected. It can transmit leafroll virus that causes grapevine leafroll disease that decreases fruit yield and quality. UCCE advisors have worked to prevent the spread of VMB by educating growers on best management practices. Vine mealybug excretes copious amounts of sugary honeydew which coats leaves, berries, canes and trunks. It is known to be spread on vineyard equipment and clothing that are easily contaminated with lots of tiny young mealybugs on contact with sticky vines. UCCE Advisors have encouraged growers to take sanitation measures to avoid spreading VMB to uninfested

Vine mealybugs at base of grapevine shoot and inside a cluster

**Photos by** Jack K. Clark



Leaf symptoms of Pierce's disease in a white grape variety



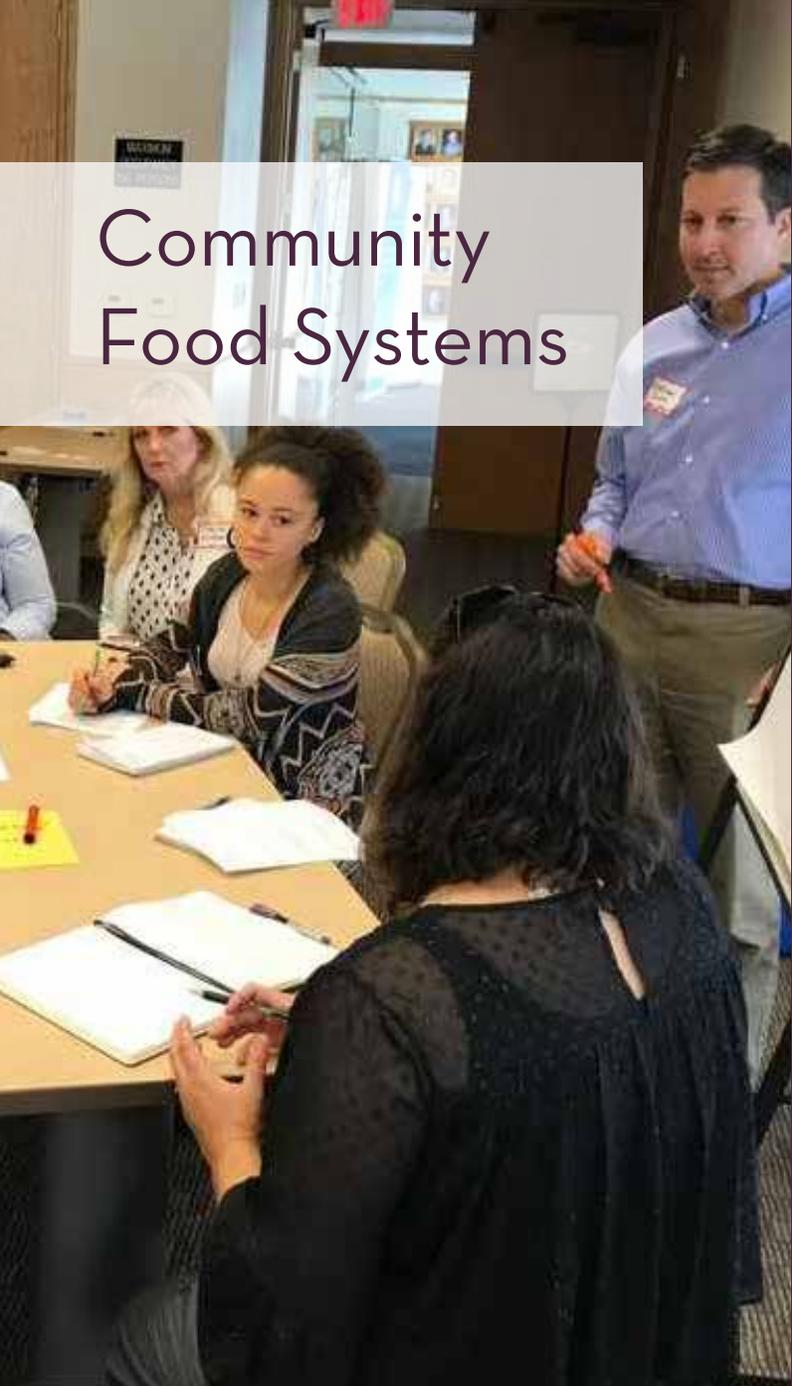
Blue-green sharpshooter transmits the bacterium that causes Pierce's disease

In 2017, nursery shipments of green-growing vines arrived in Sonoma County infested with vine mealybug. The California Department of Food and Agriculture requires nursery stock to be free from vine mealybug. As a first response we urged growers to inspect vines immediately after they arrived from nurseries before they were planted. We published a bilingual pest alert describing how to inspect green-growing vines and posted it on our website. It is essential not to plant infested stock with a pest that will shorten the life of the vineyard.

## **Pierce's Disease**

Pierce's disease (PD) has been recognized as a serious bacterial disease in California since at least the 1880s. It kills grapevines and there is no cure. The bacterium is transmitted into vines by certain insects that are called vectors because they are able to acquire then transmit the bacteria. The bacteria can exist in many different types of plants. The disease is complex and a number of factors are required for it to develop. Historically PD in the North Coast occurred primarily in vineyard edges near riparian vegetation which is the habitat of the native vector blue-green sharpshooter. Since 2014 PD incidence has increased significantly and it is not always limited to vineyards adjacent to riparian plants.

UCCE Advisors teamed up with UC Berkeley and UC Riverside researchers to evaluate the factors driving the current PD epidemic in the North Coast. Thirty-two vineyard blocks in Napa and Sonoma Counties are being monitored year round for all potential vector populations. Pierce's disease incidence for thousands of vines is being surveyed each fall. We are investigating possible causes as to why the current epidemic is different from those in the past.



# Community Food Systems

## Strengthening Community Food System Resiliency in the Wake of Fire

In partnership with local individuals and non-profits, UCCE Sonoma convened the **Emergency Food Response Network** (Feb. 8, 2018) to gather individuals, businesses, organizations, and government agencies involved in the emergency food response efforts in the wake of the fires. Participants learned from each other by sharing expertise across people, place, space and scale, discussed how to prepare for the future, and worked towards aligning efforts for emergency food response across the county while maintaining flexibility for community-level adaptations.

Immediately following the fires, UCCE Sonoma developed a **Citizen Science Research Project on Produce Safety after Urban Wildfire** to provide critical data on a little researched topic. The fires created dangerous air quality conditions for the region that likely included high concentrations of carcinogens including heavy metals, polycyclic aromatic hydrocarbons (PAHs), flame-retardants, dioxins, furans, and more. There is insufficient information on how plant tissues may take up these air pollutants. To respond to the need for timely science-based information, UC Master Gardeners of Sonoma County and community volunteers collected over 200 samples of produce from over 25 sites across the region to be analyzed for contaminants. Next steps are to conduct a cumulative risk assessment to understand the potential hazards in the context of food safety and food security and to develop community education on air pollution's impact on produce safety. This study—led by UCCE's Food System Advisor, Community Food Systems Program Manager, and an environmental health consultant—secured \$25,000 from

**Julia Van Soelen Kim** North Bay Food Systems Advisor  
**Mimi Enright** Community Food Systems Program Manager

the Bay Area Air Quality Management District, \$10,000 from UC ANR, and additional community donations.

UCCE is conducting additional research on post-fire recovery and resiliency studying eggs from backyard chickens in fire affected areas, led by UC Davis Researchers in Veterinary Medicine along with UCCE's Food Systems Advisor and Agriculture Ombudsman. Due to the high density of backyard chickens in fire affected areas and the animal behavior and husbandry practices of chickens that forage outside and ingest material in the soil, targeted surveillance of eggs from backyard chickens in urban areas affected by the recent fires is essential to understanding the potential risk to humans consuming these eggs. This timely study is collecting chicken eggs, conducting free diagnostic testing of these eggs at a UC Davis laboratory, and will be sharing emerging findings.

UCCE Sonoma leads community dialogue and development of solutions for edible food waste in Sonoma County. The **Sonoma County Food Recovery Coalition**, facilitated and hosted by UCCE Sonoma, is partnering with CropMobster to develop a community resource listing, interactive map, and website to connect edible food with local non-profits involved in food recovery and distribution to people in need. UCCE Sonoma serves as a leader in discussions to build our community food system. The Community Food Systems Program Manager and North Bay Food System Advisor serve on the **Sonoma Food System Alliance**, the Advisor leads a **statewide study of food policy councils** investigating the potential of these groups to leverage information and research to inform public policy, and the Advisor organized a **North Bay Food Policy Council Convening** (6/8/2017, Petaluma) with 50 food and agriculture leaders from across the region who came together to network, share promising practices, and gain skills in local public policy advocacy.



# UC Master Gardener Program



In 2017, over three hundred active Master Gardeners volunteered over 20,000 service hours to teach Sonoma County residents about sustainable landscaping, food gardening, composting, integrated pest management, water conservation and other topics, reaching over 12,000 people directly and with nearly 300,000 page views via the UCCE Sonoma MG website. In addition to the traditional UC Master Gardener Program of Sonoma County (UCMGSC) sustainable landscaping educational outreach programs (information desk, information tables, library lectures and workshops and much more), UCMGSC is engaging in development of SAFE (Sustainable And Fire Safe) landscaping education for the home gardener in Sonoma County. SAFE landscaping supports creating and maintaining fire-safe and sustainable landscapes in the wildland-urban interface. UCMGSC is developing a series of workshops for the public on this topic in 2018.

UCMGSC is expanding on their longstanding relationship with the Sonoma County Water Agency (SCWA) via the Garden Sense water conservation program by developing a new project with SCWA to provide open source, easily adaptable sustainable and “fire safer” garden design plans along with associated demonstration gardens at the Santa Rosa Junior College campus. The plans and demo gardens will be open and available to all who are recovering and rebuilding or those residents who want to better prepare their current landscape. UCMGSC also has a longstanding partnership with the Sonoma County Waste Management Agency to offer composting and vermicomposting education to the home gardener, and offered a series of summer & fall workshops on these topics - including 3 in Spanish.

UCMGSC also collaborates with the US Forest Service and UC Berkeley to limit the many impacts of Sudden Oak Death (SOD) through monitoring and education. At public meetings, trained Master Gardener SOD Specialists educate individuals and groups on SOD biology, detection and management. In partnership with the UC Berkeley Forest Pathology Lab, the group coordinates the SOD Blitz for monitoring disease spread by directing the efforts of individuals in the collection and diagnosis of leaf samples in forests and urban landscapes throughout the county.



### **Mimi Enright**

Program Manager, UC Master Gardener Program of Sonoma County & Community Food Systems



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