

# Working for the Benefit of Sonoma County

## 2020 Annual Report



Photo by Lulu Waks



**UNIVERSITY OF CALIFORNIA**  
Agriculture and Natural Resources

■ UC Cooperative Extension

# UC Cooperative Extension Sonoma 2020

## *A message to the County of Sonoma Board of Supervisors:*

*Lynda Hopkins, Chair; Chris Coursey, James Gore, Susan Gorin, David Rabbitt,*



UCCE is proud to present our 2020 Annual Report, demonstrating how staff, in the face of a pandemic, continued to provide innovative programs to Sonoma County. We pivoted program delivery to address critical issues such as the resiliency of agriculture industries and natural resources. We also focused on climate smart strategies to build a more resilient community food system and on working landscapes -- rangelands, forests, and agricultural lands -- to enhance all the services they provide: food, clean air and water, and carbon sequestration.

UCCE conducted an outreach and education program on post-fire forest health, management, and restoration for landowners and land managers. This effort included research on post-fire survival and regeneration of oak woodlands. UCCE is working with landowners, managers, and community groups to help them better understand forest management and to begin the process of developing forest management plans through programs such as the **Forest Stewardship workshop series**. UCCE advisors conducted research to determine how vegetation management can be used to increase carbon sequestration, fuels reduction, habitat. UCCE advisors worked with various county groups to explore tools and alternative forest products (e.g., biochar, biofuels, bioenergy, poles and other small wood products) to help sequester or prevent the loss of carbon that can occur during forestland management. UCCE Sonoma launched **Match.Graze**, an online database to expand the use of grazing in Sonoma to achieve our collective fuels reduction goals. UCCE developed the **Wildfire Fuel Mapper**, providing Sonoma County landowners, with properties greater than 3 acres, information to better understand fuels and how to reduce them.

UCCE advisor assisted producers with CDFA programs - **Healthy Soils Program (HSP)** and the **Agriculture Manure Management Program (AMMP)**. UCCE advisors provided technical assistance to farmers and ranchers to help them apply for funding to implement climate smart practices; an estimated GHG reduction of 505.1 MTCO<sub>2</sub>e/year.

UCCE provided expertise assisting local livestock producers with startup and work force growth for a **Mobile Slaughter Unit (MSU)** to process beef, sheep, goats, and pigs in the North Bay. Building local ecosystem of meat processing will increase economic opportunities for small scale livestock and poultry producers and bring resilience to our rural economies.

UCCE Sonoma personnel have played a key role in elevating new creative solutions to address emergency food response including direct support to meet food insecurity during the pandemic with the **Community Organizations Active in Disaster (COAD)**. The UC Master Gardener Program of Sonoma County continues to respond to community needs by providing critical educational outreach on climate smart sustainable landscape practices for the home gardener such as fire preparedness, water conservation practices, growing food and minimizing use of pesticides, among many other topics. UCCE also conducts education and outreach on defensible space and structure hardening.

UCCE Master Food Preserver program was reintroduced in Sonoma County, after a 30-year hiatus, and is expanding rapidly with great interest from the community, focusing on research-based home food preservation and food safety topics. Volunteers will be engaging with community partners to deliver education and outreach on food insecurity and food waste reduction, which continues to be a concern related to our changing climate.

As always, UCCE programs are developed and delivered through a social equity lens. We achieve this through our continued county partnerships.

*Stephanie Larson, PhD*  
*County Director / Department Head*

# UC Cooperative Extension Sonoma 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.

Sonoma County Cooperative Extension (UCCE) advisors work as teams with campus-based specialists to bring practical, trusted, science-based answers to our county. We are problem solvers, catalysts, collaborators, educators, and stewards of the land, living in the communities we serve.



**776**

volunteers donated  
**79,460**  
hours public service  
— estimated value  
of  
**\$2,503,785**



**9,775**

total educational  
interactions with the  
public



**19**

peer-reviewed and  
audience-requested  
publications



**12**

activities bringing  
research to policy



**93**

academic-led  
workshops, field  
days, and classes  
with  
**9,284**  
participants



**15**

news media  
programs/  
mentions



**1,285**

youth served in  
UC 4-H Youth  
Development  
Program



**304**

UC Master  
Gardener  
Volunteers



**6**

Master Food  
Preservers (new  
program)

**UC  
CE**

**UCCE Sonoma**

Stephanie Larson  
133 Aviation Blvd, Suite 109  
Santa Rosa, CA 94504  
Phone: (707) 565-2621  
[cesonoma@ucanr.edu](mailto:cesonoma@ucanr.edu)



# 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.

## County Partners

- Ag + Open Space
- Animal Services
- Dept of Agriculture-Weights & Measures
- Dept of Health Services
- Emergency Management
- General Services
- Office of Recovery & Resiliency
- Permit Sonoma
- Sonoma County Office of Education
- Sonoma County Regional Parks

- Sonoma County Sheriff
- Sonoma Water
- Zero Waste Sonoma

## Community partners

- Audubon Canyon Ranch
- CA Dept of Food & Agriculture
- CalFire
- Center for Well Being
- City of Santa Rosa
- Daily Acts
- Farmers Market LIFE
- Fire Safe Sonoma
- Gold Ridge RCD
- Habitat Corridor Project
- Petaluma Bounty
- Pepperwood Preserve
- Rebuild North Bay Foundation
- Roseland Unified School District
- Santa Rosa City Schools
- Sonoma County Community Organizations Active in Disaster
- Sonoma County Food Recovery Coalition
- Sonoma County Forest Conservation

- Sonoma County Library
- Sonoma Ecology Center
- Sonoma Food Systems Alliance
- Sonoma RCD
- Sonoma State Univ Center for Environmental Inquiry
- USDA Forest Service
- USDA Natural Resource Conservation Services
- Windsor Unified School District

## UCCE Sonoma County Funding



**\$1,642,476**  
University



**\$1,302,362**  
County



**\$301,754** Advisor generated (grants, gifts, other, etc.)



Volunteers raised  
**\$263,327**  
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)*

# UCCE Sonoma

## Strengthening Local Food Systems

A strong and connected local food system and a flourishing agricultural sector provide healthy food on a daily basis, help the community respond to and recover from disasters, and provide social, economic, and environmental benefits that act as protective factors for vulnerable communities. Ultimately, a robust local food system is an indicator of a resilient community. UCCE Sonoma is engaged in several initiatives that support community resiliency in the face of climate change impacts.

### Master Gardeners - Food Gardeners & Spanish Language Outreach



*Shooting Spanish language food gardening video.*

The UC Master Gardener Program of Sonoma County (UCMGSC) extends sustainable landscaping educational outreach to our community. During 2020 UCMGSC shifted their normal in person education outreach model to a virtual model by launching a series of lectures and workshops via Zoom. Here are a few examples of ways UCMGSC continued their innovative education outreach to the home gardening community in Sonoma County in 2020:

- In partnership with Zero Waste Sonoma, UCMGSC hosted 2 English and Spanish language videos on composting and vermicomposting; these videos are “evergreen” resources available on the Zero Waste Sonoma and UCMGSC websites.
- In response to the huge surge of interest in growing food at home during the pandemic, UCMGSC began hosting the popular monthly “Veggie Happenings” Zoom workshops where Sonoma County residents could get their food gardening questions answered.
- To help increase access to sustainable landscaping information to a more diverse audience, UCMGSC has developed a variety of food gardening resources that are available in Spanish on our Espanol page: [sonomamg.ucanr.edu/es/](https://sonomamg.ucanr.edu/es/). UCMGSC also developed a series of Spanish language home food gardening videos that will be shared on a statewide UC Master Gardener web page.

### Master Food Preservers

The UC Master Food Preserver volunteer program is new to Sonoma County in 2020. The volunteers extend UC research-based information about home food safety and preservation to the community on topics such as pickling, canning, dehydrating and much more.

2020 saw the certification of six new volunteers in our first training class for Sonoma County. Outreach and education plans have begun, including plans to recruit in early 2021 for the next class of volunteers. A Facebook page is being created as well as a new website where information about our program will be available. We will be making plans for virtual workshops as well as in-person workshops (once it is safe to do so) where we will teach a variety of home food preservation techniques. Additionally, once it is safe to be out in the community, we will be at Farmers Markets and community gardens.

As we begin to expand our presence in Sonoma County, our website will be a great resource: [ucanr.edu/MFPSC](https://ucanr.edu/MFPSC).



**UNIVERSITY OF CALIFORNIA**  
Agriculture and Natural Resources

UC Master Food Preserver Program

## Community-Engaged Research with Local Farmers Market

A UCCE-led study is underway working to make farmers' markets in Sonoma County more welcoming to the whole community and to increase sales for farmers. The study uses community-engaged research to identify obstacles faced by low-income residents and people of color to shop at farmers' markets and is collaboratively devising innovations based on the research findings to make farmers' markets more inclusive. The four-year, nearly \$500,000 study is funded by the USDA Agricultural Marketing Service's Farmers' Market Promotion Program and partners with Petaluma Bounty, the Northern California Center for Well-Being, UC Sustainable Agriculture Research and Education Program (UC SAREP), and Farmers' Market LIFE, a collaboration of four farmers' market associations operating 15 farmers' markets across Sonoma and Marin County.



## Regulatory Support for Farmers and Food Makers



The Agriculture Ombudsman helps farming, ranching and food operators understand the ordinances and regulations that apply to diversification ideas or plans and will help them to navigate the various permits and agency approvals that might be required. Typical activities include: land use, agritourism, milk and meat processing and value-add products.

Fact sheets can be found at [ucanr.edu/AgOmbuds](https://ucanr.edu/AgOmbuds)

*"I'm so grateful to have been able to have your help in this and know that I can count on you if I have any other questions!" - county resident starting a nursery business.*

# UCCE Sonoma

## Building Climate-Resilient Communities

To create climate-resilient communities and ecosystems, UCCE is leading efforts to educate landowners on vegetation management tool(s) to assist with fuels reduction and ecological enhancement on private and public range and forest lands. UCCE is developing a variety of outreach materials for forest, oak woodland, and grassland owners, which addresses the economic and ecological management of vegetation for fire fuel reduction. UCCE also works to strengthen overall community resiliency for further emergencies.

## Addressing Needs During Disasters

### Science-based Information Applied to Policy and Decision Making

In partnership with local individuals and non-profits, UCCE scientists gathered over 30 individuals from local businesses, organizations, and government agencies involved in the emergency food response efforts in the wake of fires in Santa Rosa for an Emergency Food Response Convening. Participants shared expertise, discussed how to prepare for the future, and worked to align efforts for emergency food response. One UCCE advisor coded the data, co-authored a summary report, and shared findings with the County of Sonoma Board of Supervisors. Outcomes from the Emergency Food Response Convening included the inclusion of emergency food response in the County's Recovery and Resiliency Framework. Longer term anticipated outcomes include improved efforts during future disasters.



### Improving Future Emergency Food Response

In order to build a more climate resilient community, improve efforts during future disasters, and minimize the number of community members who transition from short-term emergency food assistance to long-term chronic food insecurity, UCCE Sonoma has partnered with local community-based organizations and the Sonoma Food System Alliance to propose an innovative new model to build better regional food system resiliency in the face of future climate change impacts and improved Countywide emergency food response during disasters.



UCCE Sonoma advanced the topic of emergency food response during disasters, initiated after the October 2017 fires and continued through the Kincadee Fire and Public Safety Power Shutoffs in 2019, and the Walbridge & Glass fires and COVID-19 pandemic in 2020. In 2020, UCCE Sonoma expanded their emergency food response role by stepping up to co-chair the Community Organizations Active in Disaster food access group to help build collaboration to meet the skyrocketing food need during the pandemic and hosted a gathering to build connections between local Community Based food response organizations and our local food producers. UCCE Sonoma also chaired a Farmworker Hunger Task Force focused on addressing barriers to access to food distributions for farmworkers experiencing unemployment or underemployment due to the impact on the grape harvest during the Walbridge fire and the ongoing Pandemic.

# Home Preparedness

## Home landscaping to mitigate fire: Defensible space

While the idea of managing the space around homes to minimize the risk presented by fire may seem simple at first glance, it turns out that just about anything is complicated if you ask enough questions. Home landscaping to mitigate the risk of fire is no exception. Homeowners, local governments, and even fire departments have many questions when it comes to landscaping. UCCE is working to provide answers.



The Environmental Horticulture advisor worked with the Sonoma County Forest Conservation Working Group to assess fire damaged forests and properties after several of the fires that occurred in the past years and presented information thereon to Santa Rosa area residents at a workshop located at Monan's Rill, north of Santa Rosa. He also worked to establish research plots at Pepperwood Preserve, aimed at assessing fire damage to trees, with an aim to develop a quick, portable guide to triage burned oaks and redwoods, among other species. This should help area assessors more accurately figure out which trees are beyond saving, which trees will likely survive; thus allow agencies to focus on borderline cases where the outcome is not clear, and intervention will have the best chance of making a tangible difference in treatment outcomes.

## Fire-wise Landscaping

The UC Master Gardener Program of Sonoma County (UCMGSC) continued to evolve their partnership with Sonoma Ecology Center, Habitat Corridor Project and Fire Safe Sonoma to expand the firewise landscaping content and outreach UCMGSC has been conducting since the October 2017 wildfires. This partnership provides practical education to Sonoma County homeowners via a series of design and maintenance workshops. The workshops provide a thorough interpretation of defensible space requirements and guidelines, along with extensive visual examples of sustainable, fire-wise landscaping and maintenance, encouraging participants to take immediate and proactive steps to improve their properties. The result will be use of plant materials, design, and maintenance practices that reduce fire-prone vegetation, increase well-hydrated, less flammable landscapes, reduce water consumption, and enhance wildlife habitat in the WUI.



## Investigating Post fire soil safety



UCCE Sonoma continued their groundbreaking research and outreach on the impact of ash and smoke on food safety. In response to concerns raised by Sonoma County fire survivors who were moving into their rebuilt homes about the safety of growing food in their home gardens, UCCE Sonoma developed a workshop attended by local and statewide participants on post-fire soil considerations. For more information and to view the study's findings or webinars, visit:

<http://ucanr.edu/Post-FireProduceSafety>.



# Vegetation Management & Livestock Safety

## Match.Graze

### Meet your perfect grazing match!

University of California Cooperative Extension (UCCE) Sonoma launched “Match.Graze” an online database that connects landowners who don’t have grazing animals to livestock owners with animals that can provide vegetation management services. With Match.Graze, UCCE aims to support the expanded use of grazing throughout Sonoma County to achieve collective fuels reduction goals by providing a service that connects landowners with no grazing animals with ranchers that have grazing animals. Other vegetation management tools include prescribed fire, mowing or herbicide treatments. In order to determine the appropriate tool for a specific parcel. UCCE created Match.Graze to assist landowners that choose grazing, on selecting the grazer and right system for their property. UCCE will also assist landowners on their vegetation management goals.



Connect with Your Match at [matchgraze.com](http://matchgraze.com)

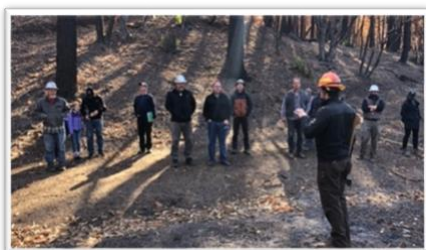
*“Areas that have been grazed, have reduced the spread of dangerous and costly fires. I’ve noticed on several fires, including extreme fires, the fire stopped in areas that were grazed. The one consistent variable, the one difference, was grazing.” Marshall Turbeville, CAL FIRE Battalion Chief*

This project was funded by CalFire and Rebuild NorthBay Foundation.

## Animal Access in Disasters

UCCE’s dairy and livestock programs developed a survey to assist livestock owners to create a plan for evacuation or shelter in place during disasters. In the future, this survey will be integrated into other county services to expedite service connection with livestock owners, particularly access to land and animals, if safe.

## Forest Management Practices



In August, the LNU Complex Fire burned through ~58,000 acres of redwood forests, oak woodlands, and chaparral in western Sonoma County in an area that had not experienced fire for ~100 years. There was an immediate need for Registered Professional Foresters (RPFs) to help landowners and managers better understand the impact of the fires and to begin post-fire management and restoration activities. To help coordinate this response, our Forestry Advisor organized a COVID-safe meeting of Registered Professional Foresters (RPFs) from this region at a site burned in the Walbridge Fire to

disseminate information on redwood fire ecology and to collectively discuss and share experiences and lessons learned from previous wildfires. A summary of the discussion was shared with RPFs and a follow-up meeting is planned for spring 2021 to see how the forests are responding to management activities.

Our Forestry Advisor also conducted site visits and communicated via phone and e-mail to multiple landowners and managers impacted by the LNU Fire Complex and other wildfires that occurred in coastal California to talk about post-fire redwood forest management. The most common concern was that all the fire damaged redwoods were going to die, however redwoods are fire adapted and very resilient.

Sincere thanks for spending so much time with me walking and talking at my place on Friday. I so appreciate you sharing some of your knowledge and approaches with me. I learned so much from you in terms of both stewardship science and philosophy." LNU Complex Fire survivor

# UCCE Sonoma

## Building Climate-Resilient Agriculture & 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. As a result, communities are better prepared and able to deal with the growing risk of fire, droughts, and flood hazards. Our work leads to a safer, more climate-resilient California.

The estimated annual  
value of the UC  
Integrated  
Pest Management Program  
is

**\$323-500**

million  
to California agriculture



## Protecting Agricultural Crops

### Pierce's Disease Research



Pierce's disease on Cabernet Sauvignon

The North Coast IPM Advisor partnered with the Napa county's Viticulture Advisor to conduct long-term regional trapping of the blue-green sharpshooter in Sonoma and Napa counties. The blue-green sharpshooter is the main vector of *Xylella fastidiosa* that causes Pierce's disease in grapevines. Pierce's disease is a major disease of grapevines in California that usually occurs in vineyards at low rates annually but a large increase in disease incidence occurs periodically. A better understanding of this sharpshooter's population fluctuations throughout the season and their association with riparian areas, vineyards and locations with ornamental plants is needed to contribute to our understanding of their relationship with epidemic years in which a high incidence of Pierce's disease occurrence is documented. The goal of this project is to collect long-term baseline data to assist in our

understanding and ability to proactively address Pierce's disease in the future.

## Controlling Grapevine Red Blotch Vector

A stage-structured degree day model was developed to time ground vegetation management that would remove feeding hosts and starve the immature stages of the three-cornered alfalfa hopper (TCAH), an insect vector of Grapevine red blotch virus (GRBV). The North Coast IPM Advisor completed weekly TCAH sampling by sweep net of vineyards in three regions (Geyserville, Healdsburg, and Calistoga) to further validate the model in wine grape growing regions. The next step will be creating an online tool that growers can utilize with their local weather data (CIMIS) to predict the ideal time to till under or remove ground vegetation/cover crops in the vineyard. Future research is needed to confirm that vegetation management successfully reduces the overall TCAH population and results in a reduced incidence of vector-mediated spread of Grapevine red blotch virus in vineyards.



Three cornered alfalfa leaf hopper nymph

## Protecting Olives



Olive fruit fly damage

The North Coast IPM advisor partnered with Bob Van Steenwyk, Cooperative Extension Specialist Emeritus at UC Berkeley, to conduct an IR-4 project on olives. IR-4's mission is to facilitate registration of pesticides on high value but low acreage specialty crops in the United States by funding research that tests a pesticide's efficacy and residue.

Olive fruit fly is an invasive species that affects the quality and value of olive oil produced. Currently, only two insecticides are registered on olives for control of olive fruit fly. Olive growers need alternate insecticide options to be able to rotate modes of action in an IPM program that will help prevent insecticide resistance from

occurring. One insecticide tested yielded statistically significant less damage than the untreated control and may prove to be a good option for future registration.

## Tree & Forest Health

### Educating the Community About Sudden Oak Death

In areas where elevated tree mortality occurs due to forest diseases such as sudden oak death (SOD), UCCE is working to refine fire-smart landscaping recommendations using research-based information, and then helping connect homeowners with state and federal resources to properly and economically manage the landscape. Public education events such as the annual SOD Blitz to collect samples for laboratory testing for *Phytophthora ramorum* (causal pathogen of Sudden Oak Death), pivoted to a virtual and mail-delivery program in 2020, uncovering noteworthy outbreaks on First Nations Land and a 5-fold increase in disease levels in northern parts of the county, and allowing landowners to get their trees tested for free to inform management decisions.



93

SOD Blitz test kits distributed



4,510

Trees visually surveyed during SOD Blitz



392

Samples collected for laboratory testing

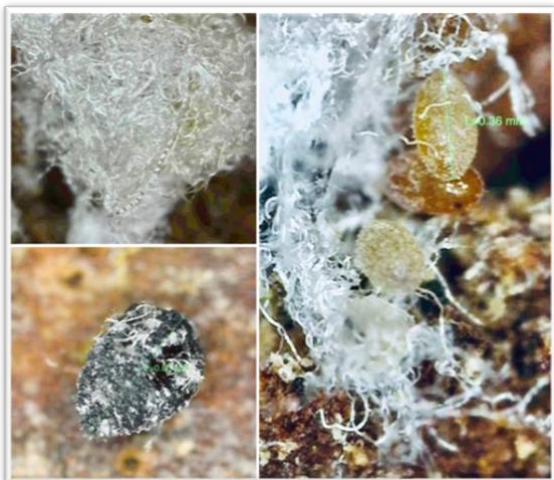


33%

Trees tested came back positive

*"Thanks for all the information, it was very informative and I'm very impressed by the work you do! - this is helpful to me as a property owner with a love for oaks." SOD Blitz participant*

## Research of Balsam Woolly Adelgid



*Balsam woolly adelgid*

Over the last few years there has been a noticeable decline and die-off of grand fir in mixed conifer forests of North Coast California. The cause was attributed to the balsam woolly adelgid (BWA), an invasive insect that was introduced to North America ~100 years ago. To better understand the impact of the insect, the Forestry advisor established a research project in collaboration with Cal Fire to study the extent of the infestation and better understand the infestation characteristics. Preliminary results suggest BWA has likely been established in these coastal mixed-conifer forests for many years, causing minimal grand fir mortality. However, the addition and persistence of other forest health issues (e.g. drought, dense stands, fire suppression, endemic and invasive insects and diseases, etc.) has likely made grand fir populations more vulnerable to BWA. The results of this study will help landowners and managers better understand BWA infestation characteristics and inform grand fir management options. This research will result

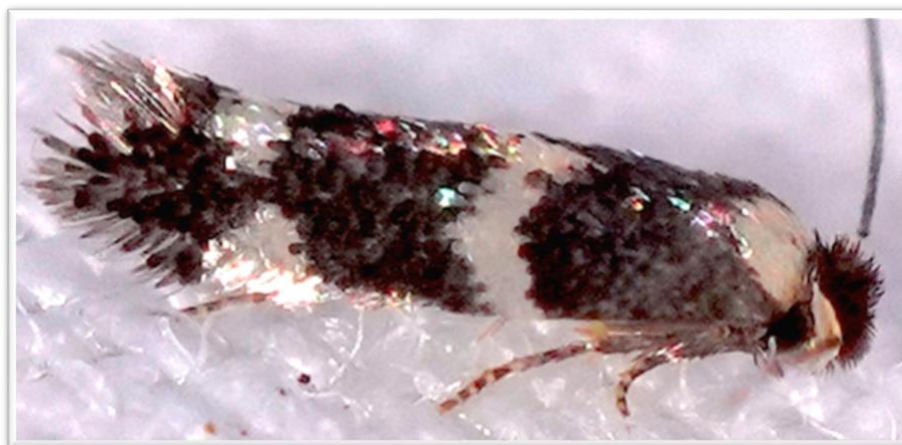
in a publication and several technical guides and may result in future research projects.

## Previously Unknown Species: *Etainia thoraceleuca*

The Environmental Horticulture advisor helped identify a new species of moth. Strawberry tree is a term used to describe a small ornamental tree, *Arbutus unedo* and its hybrids, that resemble manzanitas.

In 2014, we learned of several small strawberry tree hybrids that were dying, apparently from an infestation by a leaf miner. The tiny caterpillars were difficult to extract from leaf and twig tissues. Insects are not classified by their larval forms; adults are required for ID unless there is a close DNA match with known voucher specimens. In this instance, there were no genetic matches, so we had to rear adults.

This moth had an incredibly complex life cycle, which made rearing caterpillars to adults a challenging proposition. It took six years of trial and error to complete the process, but working with CDFA, the Smithsonian, and colleagues in Europe, we were finally able to confirm that this tiny moth (less than 2mm long) is new to science. We are now working to evaluate how prevalent the pest is in the nursery trade, and to document and arrive at the best management practices for it.



*E thoraceleuca* photo by Greg Smith 2018 BugGuide

# Climate Smart Agriculture

## Alternative Manure Management & Health Soils Programs

UCCE continues its efforts to support livestock owners in applying for Climate-Smart Ag (CSA) funding, including CDFAs Alternative Manure Management Program (AMMP) and Healthy Soils Program (HSP). Advisors assisted producers in submitting 7 AMMP applications and 6 HSP applications. Our Community Education Specialists, who work in partnership with CDFA on their CSA programs, have also been developing educational material to inform local producers of the climate and economic benefit of Climate Smart Agriculture practices. This includes case studies for projects already funded and an informational booklet to support them in telling their story to their consumers.



*Dairy Advisor visits local dairy with Assembly Member Rivas.*

## Dairy By-products for Composting

Local landowners and agricultural producers often have by-products from their industry, including diseased grapevines, removed woody vegetation, and hemp stalks, which may be burned to be rid of the unwanted products. However, dairy producers in the area, already common recyclers of many feed by-products, may be able to utilize some of these by-products in composting efforts for soil amendments. UCCE's dairy program has been testing these local by-products for the suitability for composting, potentially developing a by-product system which will put carbon in the soil instead of the atmosphere. This will also alleviate some financial burdens on dairies with cheaper feedstocks for their compost piles.



*Compost bedded pack (CBP) barns are an increasingly popular open barn design for housing dairy cattle*

# UCCE Sonoma

## Building Positive Youth Development

UC ANR's youth and community development programs equip the next generation for college, successful careers, and to be active participants in their communities. UC ANR produces tools, programs, and policy-relevant research that result in healthy living and reduced risk-taking behavior of young people. The 4-H program helps young people on a thriving trajectory towards becoming happy, health, thriving adults.

## 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 are  
**1.9x**  
more likely to get  
better grades in school

4-H youth are  
**1.7x**  
more likely to pursue a career in  
science, engineering or technology



**300**

Sewed masks donated by 4Hers



**125**

3D printed face shields donated by 4Hers



**\$27,580**

Raised by virtual Chicken Que for the County program

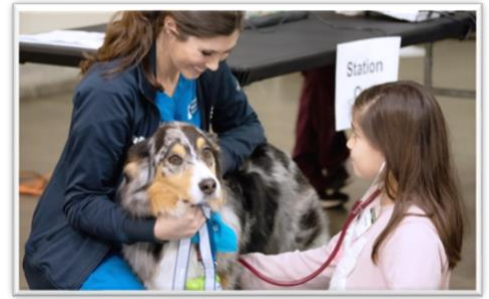
## 4-H Work in Diversity

### Extending the Reach of 4-H

Several school districts partnered with 4-H to offer their students after school education such as virtual science, fitness, mentoring, and research programs for students in 1st – 11th grades.

National Mentoring Program – A mentoring program where cohorts of students and mentors were organized to provide college readiness and academic support for students at Cook Middle School, Roseland Accelerated Middle School, Elsie Allen High School, and Windsor Met Academy.

Youth Participatory Action Research – Students from Elsie Allen High School and Windsor Met Academy are developing research-based plans to help their communities.



*Ag & Animal Science Field Day*

*“I love learning about how to get to college and all the other careers that are out there. I never knew there were so many steps and I definitely enjoyed learning so much with 4-H.” – Juan S, National Mentoring Program participant*

## 4-H Program Goes Virtual



*Drive through 4-H event.*

### Serving Sonoma County Youth

The Sonoma 4-H program served 1,285 youth aged 5 to 18 years old with the support of 267 adult volunteers. Youth served in leadership roles where they set goals, developed plans, completed projects, and reflected on their experiences.

### Adapting to Virtual

Starting in March 2020, professionals and volunteers helped adapt 4-H programs to provide youth with valuable virtual educational content.

Volunteer 4-H Community Club Leaders moved their project meetings

online to teach youth about various subjects from animal science to arts & crafts virtually and through small in-person cohorts.

A combination of real-time group activities and individual learning activities kept youth involved in science, health, animal, public speaking, and civic project experiences. Youth members sewed nearly 300 masks and 3D printed more than 125 face shields donated to health care and essential workers. The 59<sup>th</sup> annual 4-H Open House and ChickenQue fundraiser was hosted by The Bull 93.7 on May 1, 2020 and raised over \$27,580 to support 4-H youth programs!



## Youth Improve their Agricultural Knowledge and Skills



*Dr. Temple Grandin at Ag & Animal Science Field Day*

Over 350 people attended the Agriculture and Animal Science Field Day held on February 8, 2020 co-hosted by UC Cooperative Extension and the Sonoma-Marín Fairgrounds. The purpose was to provide agricultural education to youth (and their adult leaders, teachers, and mentors) who raise, care, breed, show, and market animals; raise, grow, or farm plants or fibers; and/or care about agriculture. A keynote was provided by Dr. Temple Grandin, renowned animal behavior expert, author, and Professor of Animal Science at Colorado State University. Workshops covered a variety of topics including science of wildland fire; building and enhancing the client-veterinarian relationship; communicating the value of agriculture and animal science at public exhibitions; embracing working landscapes: impacts of agriculture on climate change; basic husbandry and disease prevention in backyard poultry; enhancing awareness of agricultural career opportunities; the joys and pains of integrating livestock into vegetable cropping systems; and supporting positive animal welfare practices. Event evaluations were positive; 97% reported that the field day was an effective learning experience; and 98% improved their knowledge of an agricultural-related topic.

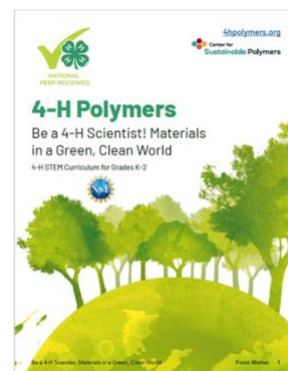
## STEM: Learning about Sustainable Polymers

Youth increase knowledge about the use and impacts of plastic by participating in pilot curricula.

The 4-H Advisor joined a multi-state collaboration to develop, test, and publish three experientially based curricula focused on youth exploration of the impacts of oil-based plastic, emerging work on bioplastic, and environmental sustainability to help advance their understanding of and engagement in the plastic crisis.

Goals were to introduce youth to the prevalence and impacts of plastics in everyday life. Guided inquiry activities help youth learn that plastics are versatile materials that have advantages and disadvantages.

Curricula are available at [shop4-H.org](http://shop4-H.org) and [4hpolymers.org](http://4hpolymers.org).



Research shows that integrating science learning with materials and experiences youth are familiar with helps lead to more meaningful and engaged learning, and thus, youth are more likely to be motivated to help improve their communities. In this way, this project and 4-H's work in the mission areas of science, technology, engineering, and math (STEM) contributes to condition changes of increased college readiness and increased ecological sustainability.



# UCCE Sonoma

## County Director

Stephanie Larson, PhD, Livestock and Range Management Advisor

## Advisors

Randi Black, PhD, Dairy Advisor  
Mike Jones, PhD, Forestry Advisor  
Cindy Kron, PhD, North Coast Area IPM Advisor  
Steven Swain, Environmental Horticulture Advisor  
Julia Van Soelen Kim, North Bay Food Systems Advisor  
Steven Worker, PhD, 4-H Youth Development Advisor

## Staff

Deborah Curle, Department Analyst, Master Food Preserver Program Coordinator  
Mimi Enright, Master Gardener Program Coordinator & Community Food Systems  
Karen Giovannini, Agriculture Ombudsman  
Leslie Hart, Garden Sense Coordinator  
Michelle Nozzari, 4-H Administrative Aide  
Diego Mariscal, 4-H Program Coordinator  
Gianpaolo Solari, Agricultural Program Assistant  
Kerry Winger, Sudden Oak Death Outreach Coordinator

## Emeritus

Linda Garcia, Food & Consumer Science Advisor  
Rhonda Smith, Viticulture Farm Advisor  
Lucia Varela, PhD, North Coast IPM Advisor  
Paul Vossen, Specialty Crops Farm Advisor



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