

**Viticulture Advisor, Karl Lund**—My primary research effort continues to be looking at the viticultural characteristics of new nematode resistant rootstocks. Nematodes are a root pest that can directly damage grapevine root systems, or act as virus vectors moving diseases throughout a vineyard. Several breeding programs have produced new rootstocks with advanced nematode resistance. While the nematode resistance of these new rootstocks has been studied, much of their viticultural traits remain unknown. My current research is focused on understanding the strength and weaknesses of these new nematode resistant rootstocks. The hope is that they can be adapted into the local viticultural landscape. A major advance over the past couple of years is in the understanding of the nutritional and water uptake of several of the new nematode resistant rootstocks. Different rootstocks have differing ability to uptake both water and nutrients from the soil. These differences effect the fertilization requirements for individual mineral nutrients, and the pattern of irrigation that should be practiced. Another advancement made was the trimming down of rootstocks from the Dr. Peter Cousins breeding program. When Dr. Cousins left his breeding program in 2012, he left behind 752 potential new rootstocks to be tested. Evaluations run on those rootstocks allowed for the removal of low-quality plant material. This has left the project with 309 potential rootstocks for further testing. This allowed for the project to contract its footprint from over 2 acres to below 1 acre, saving on care and maintenance fees. Future work will continue to work on the understanding of the quality of nematode resistant rootstocks, and the addition of a salt tolerance rootstock trial. In addition, projects looking at the use of water within vineyards, along with the health, IPM, and nutritional effect of using vineyards for groundwater recharge are planned to be undertaken. I am located out of the UC Cooperative Extension office in Madera.

**4-H Youth Development Program Advisor, Russell Hill**—During the 2019 program year Mariposa County 4-H expanded its efforts in the Club program and our Ag in the Classroom school enrichment programs to include afterschool programs at Mariposa Elementary School, El Portal, and now to Greely Hill. Well over 670 school-age youth, 15 teachers and 9 schools participated in short term projects including embryology, entomology (eg. butterflies, honeybees, praying mantis) and gardening projects. Students at MES, Greely Hill, and El Portal afterschool programs were treated to 4-H gardening, nutrition and cooking projects. 4-H projects, events and activities are developed to help explore and improve skills in citizenship, leadership, science literacy and healthy living. Our 4-H youth are learning leadership and goal-setting skills and how to become community-minded adults through youth / adult partnerships.

Mariposa County 4-H youth participated in service-learning opportunities, including a Veteran's Day tribute called the Field of Service. Through its pledge of "hands to larger service," 4-H has historically given back to the community by encouraging young people and adults to volunteer. Service to the community – through food drives, raking the yard of an elderly neighbor, adopt-a-highway programs, teens teaching younger youth, teens mentoring children or youth determining community needs and helping solve community problems – helps young people learn caring, leadership and citizenship.



Mariposa County 4-H is, as our motto states, striving "To Make the Best, Better". We have been challenged to do better and to improve service to our clientele under the recently adopted 5 year business plan that is a roadmap to increased participation, volunteer enrollment and expand our reach into the school system.

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## UCCE Mariposa County 2019 Annual Report Issued April 2020

**Livestock & Natural Resources Advisor, Fadzayi Mashiri**—I have been working to:

- Strengthen the relationship between UCCE, the county and the community, and promote a better understanding of the UCCE programs within the community.
- Disseminate relevant, science-based information to address identified community needs and promote environmental sustainability
- Develop new, and expand current extension and research programs in livestock and natural resources, field crops, horticultural crops, home gardens and orchards, and 4-H youth development program.
- Increase UCCE programs by applying for grants to funds strategic positions and programs.

**Livestock and Natural Resources program**—Organized and hosted several workshops covering topics ranging from economics of ranching operations, animal health, weed management, and fire ecology. The program developed and ran the first comprehensive rangeland ecology and management 101 short course for rangeland managers. Secured funding for research including assessing effects of rangeland conversion on the ecosystems e.g. water infiltration, species diversity and soil health and encouraging use of prescribed fire. Started research assessing squirrel impact on forage availability for livestock; assessing grazing as a tool for fire risk reduction; best timing for using fire for medusahead; and exploring ecosystem services payment options for ranchers.



*Our funding is from "cooperative sources". The University of California, Mariposa County, and the USDA.*

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## Encouraging Prescribed Fire in the Southern Sierra Nevada

Responding to the needs of the Southern Sierra Nevada foothills, UCCE Mariposa is building support for the expanded use of prescribed fire on public lands, empowering landowners to use more prescribed fire on private lands, and supporting and sustaining tribal fuel reduction and cultural burning programs on and outside of federal trust lands. Utilizing grant funding from Cal Fire, UCCE Mariposa is addressing strategies to increase capacity, shared knowledge and collaborative efforts to reduce the risk of increasingly catastrophic wildfires.

**Fire Ecology and Prescribed Fire Education for Fire Adapted Communities**—

Through a series of workshops utilizing university and local experts, our team promotes the use of prescribed fire to manage private forest and rangelands in Mariposa, Merced, Madera and Fresno counties while promoting an integrated fire management approach that also includes thinning, grazing, mowing, etc. We are connecting landowners to the best locally based expertise and resources for fire mitigation issues including defensible space, home hardening, and vegetation management.



Workshops incorporate classroom presentations as well as practical field components on actual prescribed or cultural burns being conducted in the area. In addition to giving participants experience participating in a burn, experiential learning is provided with such field training as "Measuring Fire Weather" and "Cutting and Repairing Fire Lines."

**Fireworks Youth Fire Ecology Education Program**—Utilizing the Sierra Nevada and Oak Woodlands editions of the US Forest Service curriculum, Fireworks, our team is developing Train-the-Trainer events for teachers as well as demonstrations to educate K-12 youth. The curriculum integrates fire ecology into place-based learning and includes lessons on fire regimes, landscape management, and prescribed fire along with educational activities that reinforce the concepts being taught. Train-the-Trainer programs are being offered to formal and non-formal educators in a four-county area: Mariposa, Merced, Madera and Fresno with particular focus on educators in very high hazard communities like Pinehurst, Shaver Lake, Prather, Coarsegold, Oakhurst, Fish Camp, Ponderosa Basin, Lushmeadows, Jerseydale, Midpines, Mariposa and Coulterville. We will also include local volunteers of the University of California including 4-H Leaders, Master Gardeners and California Naturalists in the Fireworks curriculum training.



**Southern Sierra Prescribed Fire Council**—By providing coordination for the Southern Sierra Prescribed Fire Council, our team can support existing members including federal, state, and local land management organizations, tribes, researchers and academics, non-governmental organizations, utilities, air quality districts, local and county supervisors, private contractors and residents. Our efforts will focus on the primary strategic goal of the council—to communicate our message to the public. Our team will organize bi-monthly steering committee calls, put on an annual meeting and field trip, monitor email and mail, and expand communication by formatting the council website, sending press releases, publish blogs and expand into social media.



### 2019 4-H Program Expansion

**Mariposa Elementary 4-H Afterschool SPIN club:** Mariposa Elementary School has a new Afterschool 4-H SPIN Club. It began last spring and continued until the end of the school. In the spring they began planting seeds such as melons, pumpkins, beans and squashes. It came up beautifully.



**Greeley Hill/Coulterville 4-H Afterschool SPIN Club** at Coulterville/Greeley Hill Elementary School received their 4-H charter in October 2019 to promote the 4-H program to their students in a variety of projects.

**Camp Tweety:** This weekend camp held at the Camp Sugar Pine is for 4-H members and also an outreach camp for non-4-H members in grades 4<sup>th</sup>-8<sup>th</sup>. Workshops and activities this past year were BB guns, archery, paddleboards, canoeing, tie-dyeing, campfire & more. This camp was established in 2001 and has been going strong ever since.



**Ironstone Concours d'Elegance:** Ironstone Foundation is a 4-H fundraiser where 4-Hers from the five foothill counties; Amador, Calaveras, El Dorado, Mariposa, Tuolumne, and also San Joaquin County did presentations, impromptu speeches, and handed out awards to the car winners. Mariposa County 4-H has been involved with this fabulous car show for over 15 years.



**School Enrichment Program:** "Ag in the Classroom" is a 4-H program coordinated with school personnel with use of selected 4-H learning materials as well as some California Ag in the Classroom materials as part of the school curriculum during school hours. In 2019, over 600+ students were able to have a 'hands-on' learning experience with projects such as butterfly pavilion, ladybug land, embryology and more. This program has been sponsored by Mariposa County Farm Bureau and Mariposa County since 2001.

**Field of Service:** Mariposa County's 5th Annual Field of Service was proudly coordinated by Jack Bertram, a 7<sup>th</sup> year 4-H member and in the 4-H Citizenship Project. Hornitos 4-H, and Hornitos Patrons Clubs also helped with the coordination of this event. This event honors all those who've served, and all those we love-paying tribute to all military, law enforcement, fire personnel, first responders, and special people in our lives.

**4-H Area Presentation Day** was hosted by Mariposa County 4-H. This event was held at the Mariposa High School with over 80+ 4-H members from the surrounding counties presenting their 4-H presentations, demonstrations, public speaking, and more. Members receiving a gold medal at this event had the opportunity to attend the Statewide Presentation Day at UC Davis.



**Garden Clean-up at Mariposa County Senior Center:** Mariposa County 4-H Ambassador, Raegan Broomfield along with other 4-H members and leaders took on the challenge of pulling weeds, raking, and planting new plants as a community service project in October.



**70<sup>th</sup> Year Anniversary Dinner** and auction took place in November which was sponsored by the Mariposa County Lions Club. Since 1949 Mariposa County 4-H has been in this county providing 'hands-on' projects to our community youth. We provide meaningful opportunities



for youth and adults to work together to create sustainable community change in areas of:

- Civic Engagement
- Leadership
- Healthy Living
- STEM (Science, Technology, Engineering and Math)

**UC Master Gardeners** are trained and certified University of California (UC) volunteers whose mission is to provide high quality, science-based information to home gardeners. The UC Master Gardener Program of Mariposa County has been extending sustainable home gardening and technical assistance since 1995.



**Community Gardens:** Master Gardeners have designed a series of fire-wise, drought-tolerant demonstration beds at the Cal Fire MMU in Mariposa. These beds display good choices for foothill gardens based on a variety of themes. Master Gardeners have partnered with Sierra Quest Boys Home to revitalize an institutional garden on site and to give monthly lessons on gardens to teen boys in the transitional home.

**School Gardens:** Master Gardeners run a Special Interest Garden Club in collaboration with Mariposa 4-H. Highlighting different schools, the program has been piloted at Wasuma and Mariposa Elementary. In addition, Master Gardeners work with the 7-8<sup>th</sup> grade environmental science class at Woodland School to address water management needs and solutions.

**Demonstration Gardens:** Mariposa County boasts two Master Gardener Demonstration Gardens—a native plant garden along the Mariposa Creek Parkway and a Firehouse garden in Coulterville with a mixture of foothill friendly landscaping varieties.

**Seed Exchange:** Housed at the Mariposa Library, Master Gardeners manage a seed exchange for local residents.

**Educational Outreach:** Master Gardeners attend 8 festivals and events to offer garden-themed booths that educate the public on relevant topics: "Native Uses of Native Plants" for the Mariposa Pow Wow, "Pollinator Gardens" at the Butterfly Festival, etc. Earth Day themes vary at Yosemite National Park, based on current ecological efforts in the Sierra Nevada.

**Farmer's Market:** During the summer months, Master Gardeners attend a weekly Farmer's Market. They answer gardening questions and hand out local gardening information.



**Helpline:** Master Gardeners staff a helpline desk at the UCCE office to respond to phone calls, emails and walk-in requests for horticultural information. We answer questions, identify plants and pests, offer integrated pest management advice and refer clients to other university sources of information based on their needs.

**Plant Sale and Propagation:** Our propagation team uses stem, seed and division propagation to offer over 3,000



plants per year for sale at our two annual plant sales. These plants are available to the community at a reduced cost to promote gardening and provide access to varieties that do well in foothill gardens.

**Publicity:** Our publicity project publishes two educational articles per month in six local publications. We offer a weekly radio show, Facebook, and an informative website.

**Trials and Research:** In 2019, the Master Gardeners began a series of trials studying the effect of microclimate on vegetable gardening. We have now added tomato trials to determine good foothill varieties and a research group focusing the history and propagation of heritage roses from the Gold Rush era.

#### Program Highlights

25 Years of Service to Mariposa County  
Active Members: 65  
Residents Served: 17,569  
Volunteer Hours: 69,202  
Continuing Education Hours: 12,960

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Find detailed information on the programs that we offer and upcoming events, as well as technical resources.

**Donna Wice**  
4-H Youth Development Coordinator  
*Retired December 27, 2019*

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