UC CE | UNIVERSITY OF CALIFORNIA Agriculture and Natural Resources | Cooperative Extension

UCCE Regenerative Agriculture Newsletter

Issue 3
7/23/2026

Summer is half way over and harvest is almost upon us for many of our nut tree crops. Our small foothill farms have been in the summer push supplying local farmers markets and Community Supported Agriculture boxes (CSAs).

This year has been an extraordinary time of growth for the UCCE Regenerative Agriculture program. We welcomed new employees and interns and jump started new projects with many amazing partners! In this newsletter you will find updates on major research and extension efforts centered in the San Joaquin Valley and Mariposa County.

Some notable projects highlighted include an exciting and timely project with Sustainable Conservation and Farmer Ag Network- **Evaluating Water Use in San Joaquin Valley**, a field trial funded by the Pistachio Research Board- **Evaluating Ground Cover and Grazing Implications in Pistachio Orchards**, and a **Community Composting Workshop** in Mariposa.

The rapid growth experienced over the last year is inexplicably due to the amazing partner organizations, growers, and communities I get to work along side. I have been incredibly grateful to all the wonderful partnerships and friendships built, and look forward to future collaborations.

Sincerely,
Sara Rosenberg
Regenerative Agriculture Advisor
Mariposa, Merced, Stanislaus Counties

Regenerative Agriculture Needs Assessment

The Regenerative Agriculture Needs Assessment report is now available. The report outlines how farming communities perceive and understand regenerative agriculture and provides insight into research and extension priorities for the communities my program serves. This report is quite long. Summaries of the report are also being developed. You can read summary outcomes specific to the San Joaquin Valley. and we are working on translating this report into a story board with support from Priyanka Vyas, PhD GIS Analyst and Star Beltmen, UC Davis.

Link Here

Summer Employees

This summer we welcome new employees and interns to our team

Aryan Virdi
UC Merced F3i TerraTech Intern

Aryan Virdi is a Computer Science & Engineering student and home gardener at the University of California, Merced currently exploring the fields of agriculture and AgTech. During this summer, Aryan is working as a F3i TerraTech summer internship program. He has participated in collecting field data and leveraged custom-built software to perform data verification and analysis for his internship at UCCE Mariposa Regenerative Agriculture. His current interests explore the expanding field of AgTech and how software can help facilitate grower operations.

Ellie Coon
Staff Research Associate

Hi, I'm Ellie Coon — a graduate student at UC Davis researching the social infrastructure behind Central Valley growers and how a deeper understanding of farmer-led networks can facilitate the shift toward regenerative agriculture.
This summer, I'm continuing my core research while building grower reports from work completed in the Gaudin Agroecology Lab, and partnering with Cooperative Extension on a comprehensive review of current agroforestry research and real-world implementation outcomes. This work supports my overall goal of creating outreach materials that bridge the gap between science and on-farm practice.

Want to get involved or share insights? I'd love to hear from you! Feel free to email me: **eacoon@ucdavis.edu**

Marzieh Goudarzi
Staff Research Associate

After graduating from Occidental College with a degree in Diplomacy and World Affairs, Marzieh moved to Jordan as a Fulbright scholar and worked for over 12 years in humanitarian and development aid. She applied skills in project management, research, and advocacy to programs in education, economic development, and refugee crisis response and built meaningful

experience working with local communities, the private sector, as well as government and U.N. agencies. Working in aid also drew clear connections between social and political issues and environmental crises, which led to her interest in sustainable agriculture. This work also fueled her passion for strengthening local systems and supporting locally-designed, locally-owned initiatives that account for holistic wellbeing of people and environment.

As a master's student in UC Davis's International Agricultural Development program, she is building on her experience in public service and project management with skills in applied agricultural sciences and environmentally sustainable practices. For her graduate research, she is conducting an economic analysis of regenerative practices in California almond orchards in partnership with UCCE and alongside a broader project assessing biophysical impacts of regenerative agriculture. This summer, in addition to gathering data on almonds, she will work on adapting the study for pistachio orchards. She is also working with UCCE, Sustainable Conservation, and the Farmer Ag Network on a study evaluating grower experiences with water use in orchard systems, comparing industry-standard practices with soil health-promoting practices. Water use is not only a key component of economic feasibility in California's agricultural sector, but also a critical issue for the state in the midst of water scarcity and SGMA policy. Marzieh is eager to work with California growers, learn from their experience, and support food security, economic, and environmental goals both in California and globally.

Star Beltman
Summer Immersion Program Fellowship

Star is an M.S. student in International Agricultural Development at UC Davis, where she works in Ryan Galt's lab. She received her B.S. from UC Berkeley, where she double majored in Society and Environment and Conservation and Resource Studies. Before enrolling at UC Davis, she worked in sustainable agriculture, environmental law, and organic land management.

Her research, conducted as part of the larger California Organic, Agroecological, and Regenerative (COAR) Transitions project and in collaboration with UCCE advisors and local Resource Conservation Districts, focuses on understanding the barriers to and sources of support for small-

scale growers practicing ecological management in California's Central Sierra Foothills.

This summer, she is primarily conducting farmer interviews throughout the region as part of her data collection. She is also working with UCCE to develop an online StoryMap that will make the results of the Regenerative Agriculture Needs Assessment for the Northern San Joaquin Counties and Central Sierra Foothills more accessible.

San Joaquin Valley Updates

Ground Cover and Grazing Research in Pistachios

The California Pistachio Research Board has funded a new research project, **Evaluating ground cover and grazing in pistachio orchards**. This project is taking place at two orchards: One in West Madera and the other in Lost Hills, Kern County. We have many great collaborators on this project, including Phoebe Gordon, Orchard Systems Advisor; Elizabeth Fichtner, Orchard Systems Advisor; Amelie Gaudin, Professor of Agroecology, University of California Davis, and Idongesit Mokwunye IPM Entomology Advisor. Our grower partners include a Wonderful Company Orchard in Lost Hills, Borges Orchard in Western Madera, and BTV Grazing CO, who will be our contract grazer.

Further research is needed to understand how seeded cover crops are more beneficial to growers compared to volunteer vegetation; related to how they contribute to nutrient provisions in the soil, water use, how grazing and non-grazing treatments may change these outcomes, and if there are any agronomic tradeoffs with productivity.

Importantly, these conservation practices need to be evaluated at the regional level to interpret findings meaningfully to producers. Growers in Southern San Joaquin Valley experience significantly lower rainfall compared to Northern San Joaquin counties, which may have different implications on ground cover management. Differences in precipitation and temperature can have a significant impact on the growth potential of cover crops and ground cover which may impact outcomes.

Associated to this trial we will also investigate an economic lens, using the Regenerative Almond economic analysis as a framework and adapting it to pistachio operations.

This research will be a three year project, starting this fall. If you have questions about this research you can reach out to Srosenberg@ucanr.edu.

Do you use cover crops or maintain ground cover in your orchards? We are seeking growers to participate in a research project on water use in the San Joaquin Valley!!

EVALUATING GROWER EXPERIENCES
with Water Use in Orchards

Sustainable Conservation | UC CE | Farmer Ag Network

Investigators and Partners: Sara Rosenberg, UCCE Regenerative Agriculture Advisor & Sarah Carter, Senior Scientist, Sustainable Conservation, Farmer Ag Network

You are being invited to join a research study to help us better understand how orchards that use soil health practices, in San Joaquin Valley, are using water differently than industry standard orchards.

We are looking for growers to participate in a survey and interview and provide information about water use and water benefits!

This research will provide information and guidance to Ground Water Agencies and growers on how soil health practices may support water sustainability goals.

WHAT YOU WILL RECEIVE:

- An amount of $200 will be provided as a token of appreciation for participation
- You may also use this money towards a soil health test on your farm.
- At the end of the study, the research findings will be shared with you in addition to a farm report summarizing your farm's data in the context of the broader research outcomes.

SCAN HERE
to fill out intake form

WHAT WE ARE EVALUATING:

- Using Open ET, evaluating consumptive water use differences across fields under different conservation management.
- Collecting farm data regarding applied water to understand how this differs from consumptive use (ET).
- Data from Phytech, Verdi, HotSpot, Water Informatics, and Wisecom, for those growers who are clients and willing to share their information.
- Other data such as soil moisture, tree stress, or infiltration data to help us understand differences related to how soils store and move water.
- Interviews to learn about experiences with water use, and how irrigation practices may have changed since implementing soil health practices
- **We will be collecting coordinates of your farm, but there will be no identification associated with these coordinates, or to any data collected to ensure anonymity.**

FOR PARTICIPATING GROWERS

Sustainable Conservation | UC CE | Farmer Ag Network

REQUIRED CRITERIA

- Operating on pistachio, almond, or citrus farm
- Located across the following San Joaquin Valleys: San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, Kern
- Have been implementing cover crops or vegetative resident cover practices for at least 2 years.
- Has shareable information on applied water
- Must be 18 years or older

PREFERENTIAL CRITERIA

- May also be using other conservation practices such as but not limited to compost, grazing, biochar, whole orchard recycling etc.
- Operating both conventional and fields using soil health practices which can be used as comparisons in the study.
- Willing to share data about multiple orchard sites.
- Uses automation irrigation system from Phytech, Verdi, HotSpot or Wisecom

A CLOSER LOOK AT WHAT IS EXPECTED IF YOU WANT TO PARTICIPATE IN THIS STUDY:

A draft of the survey can be found here.

We recommend you review the survey and note the questions that require you to reference records in advance. Examples of specific data required include:

- Cost of irrigation infrastructure and labor
- Yield and quality information from 2021-2025
- Yield per acre or for whole orchard (kernel meat or "crackout" weight for almonds and pistachios, packed weight for citrus)
- Rejection percentage for almonds and pistachios, "packout" percentage for citrus
- Applied irrigation water, ET/used water, and irrigation schedules from 2021-2026
- Management practice information (see survey draft for specifics)
- Amount of water applied for on farm ground water recharge, if any, from 2021-2026

Taking part in research is completely voluntary. You are free to decline to take part in the project or you can stop taking part in the project at any time.

SCAN HERE
to fill out intake form

QUESTIONS?

Contact Debbie:
559-309-2022
deborah@farmersgnetwork.org

or Hannah
559-779-1190
hannah@hannahjohnson.co

Click here to see a draft of the Survey

Click here to fill out the intake form

UC Merced Smart Farm Regenerative Almond Orchard Demonstration

This collaborative demonstration project showcases a regeneratively designed almond orchard adjacent to an industry standard almond orchard. The project is located at the UC Merced Experimental Smart Farm and it is funded by the Almond Board of California. At this site we demonstrate a newly planted orchard that is planted using several soil health and ecologically based practices: Reduced tillage during land preparation, compost and biochar applications, planted cover crops, berm to berm ground

cover, hedge row installation, and biological pest control applications. As the orchard ages, other practices will likely be implemented such as, grazing, other IPM techniques, and further diversification practices. The purpose is to showcase a scenario of "agroecological redesign" since regenerative farms are not prescriptive, rather based on foundational principles that guide growers management practice decisions.

The site has a team to over see the development, including Danny Royer, UC Merced Smart Farm Coordinator and Field Manager; Barbara Dos Santos, UC Merced Smart Farm Coordinator; Cameron Zuber, Orchards Systems Advisor; Abdelmoneim Z. Mohamed (Moneim), Irrigations and soils advisor; Srabani Das, regenerative Agriculture Extension Specialist; Jhalendra Rijal IPM Advisor; Rebecca Ryles, Professor of Agroecology UC Merced and myself, Sara Rosenberg Regenerative Agriculture Advisor.

We will be using this site as an education space through organizing field days and workshops as well as monitoring soil health and productivity changes over time. We held our first field day in spring 2026 which showcased the orchard development process and held multiple learning stations on different topics related to regenerative agriculture including: **Whole orchard recycling opportunities, ground water recharge and irrigation, what traits to consider when selecting cover crops, how and why to plant a hedgerow, biological controls for mites, a review of current research in mature regenerative almond orchards on soil health differences, and CDFA funding resources to support practice implementation.** For more information on resources from this event click the link bellow.

Link to field day resources

UC MERCED SMART FARM REGENERATIVE ALMOND ORCHARD DESIGN

UC CE

An integrated approach to farming rooted in principles of ecology and soil health, leading to improved conservation outcomes. Principles govern land management and practice considerations: Reduce disturbance, optimize photosynthesis, maximize biodiversity, support animal integration, integrate recycling, know your context

Fall 2025-Winter 2026

1. LAND PREPARATION

Field was tilled, deep ripped to 6 ft down tree rows

2. SOIL AMENDMENTS

Mixture of compost and biochar trenched 2-3 ft in berm of tree rows and surface applied

3. TREES PLANTED

Planted November
Variety- Independence
Rootstock is Hansen 536
Spacing: 15 x 21 ft

4. COVER CROP MIX

Chiquito mix: Triticale, Barley, Bell beans, Dundale Peas, VNS Peas, Common Vetch, Canola, Daikon Radish, Crimson Clover.
Seeding rate 50 lbs./acre.
Planting method: light tillage followed by broadcast

Spring 2026

5. IRRIGATION AND FERTIGATION

Single line hanging on trellis with button emitters. 20 gal organic grow fish, 10 gal organic 3-1-1, 2 gal Pacific MultiMix Lignin+, 5lbs/ac ProStim NF 15-0-0

6. WEEDING AND GRAZING

Manually around young trees
Option for grazing in young orchards with chickens/ poultry

7. HEDGE ROW PLANTING

180 ft. Chosen species for pollinator, pest control, soil health, and wind control

8. HEDGE ROW PLANTING

livestock grazing in orchards and vineyards overview on carbon and nitrogen response

Authors: Ellie Coon, Sara Rosenberg, Amelie Gaudin

Integrating livestock into agriculture systems, known as Integrative Crop Livestock Systems (ICLS), is becoming ever more popular in orchard systems and vineyards in California. Particularly in nut tree crops, in San Joaquin Counties. Much of our understanding about how grazing supports soil health and affects tree and vine health can be in part due to UC Davis Gaudin Agroecology Lab (Brewer et al.,2023; Brewer & Gaudin, 2020; Marshall et al., 2025; Fenster et al., Ji et al.; Peterson et al., 2020). This article attempts to summarize some of the knowledge we have accumulated to date about how livestock grazing in orchards and vineyards can support carbon and nitrogen dynamics in the soil and the agronomic benefits experienced by growers.

Click here to read to full article

MARIPOSA COUNTY UPDATES

2026 Agrinature Tour Update

MARIPOSA COUNTY, CALIFORNIA — 14TH ANNUAL TOUR · 2026

SAVE THE DATE

Mariposa Farm & Ranch Tour

An educational day exploring working agricultural lands — in conversation with the owner-growers themselves.

MARIPOSA FARMS & RANCHES

SATURDAY	HOURS	WHERE
Oct 10, 2026	10 AM – 5 PM	Five locations across Mariposa County

HOSTED BY

The **Mariposa Agri-Nature Association** together with **University of California Agriculture and Natural Resources**, presenting the 14th annual tour.

WHAT TO EXPECT

- Personal tours with owner-growers
- Nature workshops
- Art in action
- Lunch available on-site
- Freshly grown vegetables to purchase
- Children's activities
- Handmade gifts from natural materials
- … and much more

FRIDAY EVE

Mariposa Farm-to-Fork Dinner

Begin the weekend Friday evening with a seasonal dinner sourced from the very farms you'll visit.

We hope you'll save the date for an experience that helps you learn best practices, get excited about growing your own garden, and discover more about the nature that surrounds us.

FOLLOW US
Facebook & Instagram
Farms and Ranch of Mariposa County

CONTACT
Kris Casto · 209-810-7154
UC Extension · 209-966-2417

UC Cooperative Extension | Agriculture & Natural Resources

If you are interested in being a site, or a vendor for this event this year, you can fill out the survey linked below. Vendors can be selling art, produce, anything related to nature. Organizations are also welcome to table and provide information on their organizations and projects. Or you may sgn up to provide a workshop or demonstration as well!

Link to Agrinature Tour Survey

JULY 27, 2026
5:30 PM
The Local Grape — Mariposa, CA
5021 CA-140, MARIPOSA

Agroecology transitions in California

Agroecology is both a movement and a science. As a movement, it goes beyond farming and ecology; it's what emerges when communities come together to create real change. At this Science on Tap we will discuss a wide range of topics to understand what agroecological transitions look like in California, and the role science, policy, and community involvement plays in that transition. We will review the concepts and principles of agroecology, discuss agroecology in the climate, history, and policy perspective, discuss regional barriers for transitions across the Sierra Foothills and the San Joaquin Valley, understand bioregional practices in relation to these two regions, and explore the soil-plant-animal interactions when we reintroduce livestock into cropping systems.

Science on Tap brings regional scientists together with Mariposa community members to share the joy and urgency of recent discoveries—from the outermost reaches of space and time to the everyday laboratory in our backyards.

Master Gardener — Mariposa County — Cooperative Extension

Mariposa Composting Workshop

We will be holding a composting workshop in collaboration between UC Merced, UCCE, Master Gardeners, Happy Goat Farm and Mariposa County Public Health Department this fall. **Date TBA**. Come learn about the foundations of home composting and get an idea of different kinds of composting techniques that can be used at home, from composting bins to bear resistant composting containers. We are also exploring the possibility of community composting in Mariposa. To do so, we are learning about common composting practices in mariposa, and how people manage there home organic waste. Please take a moment to fill out this brief survey.

Composting survey

Assessing Legacy Effect of No-till in California Sierra Foothills; Bridging Science & Implementation

This year we are working with Raw Roots Farm and Kern Family Farm to understand more deeply how sierra foothill soils respond over time to no-till permanent bed systems.

Raw Roots Farm is a 5-acre no-till, regenerative and certified organic farm that focuses on diverse vegetable and fruit production. They grow over one hundred varieties of crops and rely on intense planting, fostering biodiverse ecosystems and soil health management systems to sustain our operation. They have been farming our land for 13. UCCE is evaluating how their soil health has changed over time related to chemical physical and biological properties.

Kern Family farm is a neighboring small diversified farm near North Fork on 8 acres. They are also a Certified Organic, No-Till farm and are involved in the ecological farming movement. Similar to raw roots, they have been practicing no till for well over 10 years. We will be comparing soil health outcomes to evaluate how differences in climate, elevation, soil type and management may effect outcomes.

Through this project we will also work with them to organize a **No Till Market Garden Workshop (TBA)**, showcasing there management techniques We will discuss the research outcomes, and have practicums on not ill permanent bed management from forming beds, planting, managing a high yielding nursery, and harvesting.

Other Resources

Sustainable Conservation has published new resources and reports on cover cropping
These new fact sheets bring cover crop guidance for California growers

WHAT IS EXTENDED COVER CROPPING?
Intentionally maintaining winter cover through the cropping season

Check out their blog

Mariposa County Cooperative Extension | 5009 Fairgrounds Rd | Mariposa, CA 95338 US

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