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Solutions for a changing world!

Exploring Water Solutions for a Better Future

Scientists Introduce an Online Tool for Water Managers



Agronomist Jim Smart and Mexican farmers Miguel Morales Beltran and Hector Rodriguez Mediola discuss the 1996 drought that caused this irrigation ditch near Rio Bravo, Mexico, to dry up.

Photo by Jack Dykinga.

Scientists at the United States Department of Agriculture (USDA) Southwest Climate Hub and California Climate Hub have developed a browsable map-based tool that addresses water scarcity in the U.S. Southwest.

The Water Adaptation Techniques Atlas (WATA) consolidates over 200 case studies on research and practices that water managers and producers can use to find location-specific and topical information to make informed decisions regarding water management.

Over the years, urban areas and agriculture have expanded in the Southwest region. For the past century, water use in the Southwest has been sustained through the capture, storage, and distribution of surface water, aided by dams, canals, and associated infrastructure, while extraction of groundwater has also intensified. However, water scarcity has become a pressing issue with extremely hot temperatures and severe prolonged droughts in a region already challenged by its arid and semi-arid conditions. As reservoir and aquifer levels drop, information about strategies to adapt to this new reality is urgently needed.

WATA provides information based on research from USDA's Agricultural Research Service (USDA-ARS) and other sources about practices for lessening

the gap between water demand and available supply, with an emphasis on cropping and irrigation practices across the Southwest, including Arizona, California, Nevada, New Mexico, and Utah.

The solutions documented in WATA include centuries-old techniques employed by the indigenous peoples of the Southwest region to grow crops in arid lands, as well as novel technologies such as aquaponics (integrating fish and plant crop production) and agrivoltaics (integrating solar energy and crop production). Several cases highlight tools and technologies for matching irrigation application to plant water needs using soil moisture sensors, remote sensing, or weather data.

Dissemination of information about adaptation options is critical, as individuals, organizations, and communities look to take proactive measures to adapt to climate change. Managers, researchers, and educators can use the case studies, research outcomes, and practices available in WATA to identify new strategies to help mitigate the effects of temporary water shortage and expected longer-term water scarcity.

The development of WATA is an ongoing collaborative project that started in 2020 among USDA-ARS, USDA Southwest Climate Hub, USDA California Climate Hub, UC Davis Center for Watershed Sciences, and USDA's Economic Research Service. Scientists will continue to incorporate new research findings and feedback from agricultural experts and others concerned with water scarcity in the Southwest.

A recent article published in the journal PLOS Water titled "The water adaptation techniques atlas: A new geospatial library of solutions to water scarcity in the U.S. Southwest" provides additional details on the project.

The Agricultural Research Service is the U.S. Department of Agriculture's chief scientific in-house research agency. Daily, ARS focuses on solutions to agricultural problems affecting America. Each dollar invested in U.S. agricultural research results in \$20 of economic impact.

Paper highlights how climate change challenges, transforms agriculture



Of the farmers surveyed, roughly two-thirds agree climate change is occurring and requires action. Farmers said they are managing water resources, maintaining soil health and using renewable energy sources to adapt to the changing climate.

As the climate continues to change, the risks to farming are only going to increase.

By Patty Guerra, UC Merced

That's the key takeaway from a recent paper published by a team that included UC Merced and UC Agriculture and Natural Resources researchers. The paper dives into what those challenges are, how farmers are working to address them and what should come next.

"Climate Smart Agriculture: Assessing Needs and Perceptions of California's Farmers" was first authored by Samuel Ikendi, academic coordinator, with Tapan Pathak, UC Cooperative Extension climate adaptation in agriculture specialist, as a corresponding author. Both are based at UC Merced. Pathak is also a project director of National Institute of Food and Agriculture-funded project "Multifaceted Pathways to Climate-Smart Agriculture through Participator Program Development and Delivery," which supported this study. The study appeared in the open access journal *Frontiers in Sustainable Food Systems*.

The needs assessment was designed to understand farmers' perceptions and experiences with climate change exposures; the risk management practices they currently use; and what tools and resources would assist them in making strategic decisions.

Of the farmers surveyed, roughly two-thirds agree climate change is occurring and requires action. Even more said they are interested in learning more about the impacts of climate

change on the agricultural industry. Most respondents said they experience greater climate change impacts on their farms today compared with 10 years ago.

Farmers were very concerned with water-related issues, with those in the San Joaquin Valley, Central Coast and Inland Empire areas particularly worried about a reduction in the availability of groundwater. Increased drought severity was a very significant concern among farmers in the Inland Empire, Central Coast and Southern regions. Farmers in the North Coast and Southern regions were concerned about increased damage to crops due to wildfire.

Closely related were temperature-related issues, including crop damage due to extreme heat.

Those who farm vegetables were more concerned about

water availability for irrigation, while fruit farmers were more concerned about increased crop/water stress and increased crop damage due to extreme heat.

Many respondents said they are implementing climate adaptation practices including managing water resources, maintaining soil health and making more use of renewable energy sources. They are seeking insurance and government help to pay for these adaptations and increase their agricultural resilience, the researchers wrote.

The farmers expressed interest in learning more about measures they might take to mitigate climate change. But they cited significant barriers to this work, including government regulations, high implementation cost, labor access/cost, access to water and the availability of money to pay for it.

"Climate change is significantly altering California's highly diverse agricultural landscape, posing challenges such as increased water stress, heat stress, and shifting growing seasons," Pathak said. "Climate-smart agriculture practices can alleviate some of those stresses."

But, he said, research and UC Cooperative Extension efforts only have value if they lead to enhanced climate-informed decision-making at the local level.

"Assessing their level of knowledge, perception and needs will help in tailoring research and extension activities that are most relevant to farmers on the ground," Pathak said. "Results from this study could also provide important policy insights on financial incentives and technical assistance."

CDFA Accepting Grant Applications For Proactive IPM Solutions

The California Department of Food and Agriculture (CDFA) is now accepting grant applications for its Proactive Integrated Pest Management (IPM) Solutions Program administered by the Office of Pesticide Consultation and Analysis. A total of \$1.1 million is available in this grant cycle.

This program proactively addresses the threat of invasive pests in California by identifying and researching effective management strategies before the pests' arrival.

CDFA strives to use IPM methods in all pest management activities, and the Proactive IPM Solutions program prioritizes low impact solutions, such as biological control and lower-risk chemicals. Once developed and tested, these IPM solutions can be rapidly used by CDFA and others when the target pest arrives in California.

"This program is extremely forward leaning and is making a tremendous difference in our ability to combat invasive pests that threaten California before they invade the state," said Dr. Mark Hoddle, a past recipient of Proactive IPM Solutions awards and an Extension Specialist in Biological Control at University of California, Riverside.

Dr. Hoddle's proactive efforts focus on developing and implementing low-impact management strategies for several invasive pests, including the South American palm weevil, the cotton seed bug, the spotted lantern fly, and the avocado seed weevils.

Applications are due by 5:00 pm, August 30, 2024. Public or private colleges and universities, local, State, and federal government entities including tribal governments, non-profit organizations, and commodity groups are eligible to apply. The project lead(s) and their institutions must be based in California. Detailed information, including the application process and requirements, is available at: cdfa.ca.gov/oefi/opca/proactive-ipm.html



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A wide-angle photograph of the World Ag Expo event in Tulare, California. The scene is filled with numerous white tents of various sizes, some with colorful banners. People are seen walking through the aisles between the tents. In the background, there are trees and a clear sky. The overall atmosphere is that of a large-scale outdoor trade show or exhibition.

Real California Cow's Milk Cheeses Bring Home 31 Awards at American Cheese Society Meeting in Buffalo, New York

California Cheese and Dairy Producers Win a total of 53 Awards in Annual Celebration of North American Makers

Cow's milk cheese and dairy processors that use the Real California Milk seal brought home 31 awards during the 2024 annual cheese competition held by the American Cheese Society (ACS) in Buffalo, New York.

The American Cheese Society recognizes the finest cheeses and dairy products made in the Americas. A total of 1,596 cheese and cultured dairy products were entered into the competition. Cheeses made with California cow's milk had a strong showing this year in a field of 142 organizations representing North America.

California cheesemakers won a total of 53 awards – with Real California cow's milk cheeses bringing home 31 prizes: 8 first place, 11 second place and 12 third place awards in this year's judging. Highlights from these wins include:

Central Valley Cheese/Karoun, Turlock – 6 awards, 1st place each for Smoked String Cheese and Honey Yogurt; 2nd each for Labne, Whole Milk Yogurt and Yogurt Thirumala; and 3rd for Marinated String Cheese.

Marquez Brothers International, San Jose – 5 awards, 1st place each for Mango Drinkable Yogurt and Guava Drinkable Yogurt; 2nd place for Strawberry Drinkable Yogurt; and 3rd place each for Strawberry Banana Drinkable Yogurt and Piña Colada Drinkable Yogurt.

Point Reyes Farmstead Cheese Co., Pt. Reyes – 4 awards, 1st place for Toma Truffle; 2nd place for Truffle Brie; and 3rd place each for Bay Blue and Fennel Blue.

Marin French Cheese, Petaluma – 3 awards, 2nd place each for Camembert and Petite Breakfast; 3rd place for Petite Truffle.

Sierra Nevada Cheese Company, Willows – 3 awards, 1st place for Gina Marie Cream Cheese; 3rd place each for Organic Unsalted Butter and Plain Yogurt.

Fiscalini Farmstead, Modesto – 2 awards, 2nd place each for Old World

Cheddar and Truffle Cheddar.

Rumiano Cheese Company, Crescent City – 2 awards, 2nd place for Dry Jack; 3rd place for Organic Original Ghee.

Belfiore Cheese Company, Berkeley – 1 award, 3rd place for Farmer's Cheese.

Bellwether Farmers, Petaluma – 1 award, 1st place for Crème Fraîche.

Cheese Bits, Riverbank – 1 award, 3rd place for Wood Smoked Mozzamini Pearls.

Cowgirl Creamery, Petaluma – 1 award, 2nd place for Wagon Wheel.

Joseph Farms, Atwater – 1 award, 1st place for Monterey Jack.

Nicasio Valley Cheese Company, Nicasio – 1 award, 3rd place for Halleck Creek.

In total, 13 Real California cow's milk cheese and dairy companies won awards for products made with Real California Milk from the state's more than 1,100 family dairy farms using some of the most sustainable dairy practices in the world. Sierra Nevada Cheese Company and Bellwether Farms also received awards, four and one respectively, for non-cow's milk cheeses that do not carry the Real California Milk seal.

Non cow's milk California cheesemakers had a strong showing with Laura Chenel picking up seven awards, Cypress Grove and Shooting Star Creamery each winning three, and Central Coast Creamery and Pennyroyal Farm winning two each.

California is the second largest cheese producing state in the nation, responsible for more than 2.4 billion pounds of cheese. Real California cheeses and dairy products are available at retailers throughout the U.S., Mexico, and Asia. For more information, visit: RealCaliforniaMilk.com. For more information on ACS competition winners and the ACS Conference, go to cheesesociety.org.

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Diagnosing herbicide problems takes detective work



Kassim Al-Khatib, right, of the Department of Plant Sciences, explains symptoms from the group of herbicides that work by mimicking plant hormones and the synthesis of fatty acids, demonstrated on rows of annual crops. Photos by Trina Kleist, UC Davis

Field day offers examples, tips for solving the mystery

By Trina Kleist, UC Davis

A grower applies an herbicide to his tomato plants, or thinks a neighbor's treatment is drifting over her almond trees. A short time later, the leaves start to bleach or shrivel. Was it the herbicide? Or maybe water stress? Soil nutrients? Perhaps an insect?

Figuring out the causes of crop problems takes detective work, and like solving any mystery, it starts with knowing the signs, gathering evidence and asking questions.

The Diagnosing Herbicide Symptoms field day at UC Davis was an opportunity to see, up close, the shriveled cotton, scorched corn and dying sunflowers that can result when herbicides are applied incorrectly. Using the right herbicide – in the right proportion, at the right time and in the right field – can make the difference between a thriving crop and a financial loss.

A top take-away to avoid problems: "Don't do stuff at night!" laughed Becky Wheeler-Dykes, a UC Cooperative Extension farm advisor attending the June 26 event to better serve growers in Glenn, Tehama and Colusa counties. "The packages look the same. People grab the wrong jug." And then, disaster.

Instructors were Brad Hanson, professor of Cooperative Extension; and Kassim Al-Khatib, the Melvin D. Androus endowed professor for weed science; both in the Department of Plant Sciences. They were joined by John Roncoroni, a Cooperative Extension emeritus farm advisor rooted in the department's weed science program. Attendees were a mixture of people from agriculture, industry, government officials, university researchers and Cooperative Extension advisors.

The event was hosted by the Weed Research and Information Center, based in the Department of Plant Sciences.

Out in a field west of campus, visitors could see the progression of damage, from control plots with green and healthy crops to plants that looked sadder as herbicide concentrations increased. Visitors could see the patterns of damage for common foliar chemicals such as glyphosate, paraquat, and 2,4-D, as well as soil-applied herbicides from several chemical classes.

"There's a lot of detective work," said Stephen Chang, a master's student in Hanson's lab aiming for a career in Cooperative Extension. "For example, the company that makes the herbicide says there shouldn't be a problem, but the grower says, there is a problem. This course helps with developing the skills to figure out what happened."

It might not be the herbicide at all

Detective work and problem-solving frame the approach, Hanson explained. The cause of crop damage can be simple or complex. Like a good mystery, what appears to be a clue can turn

out to be a red herring. Professionals need to draw on their inner Sherlock Holmes to observe and document symptoms, look for patterns in the plants and in the field, ask questions, gather information about the larger environment and collect samples.

An herbicidal Agatha Christie would then suggest: What if it's not herbicide damage at all? Participants learned to consider the possibility of insects, pathogens and viruses, as well as problems with water, nutrients, soil condition and even root damage from cultivation practices.

Hanson recalled puzzling over symptoms he found in an orchard. The culprit? "A leaking natural gas line," he said.

More resources for herbicide issues

Participants also heard from Molly Mathews, deputy agriculture commissioner from Yolo County, on how a field investigation is conducted. Lawyer Robert Davies, of Donahue Davies LLP in Folsom, outlined the basics of what happens when there are lawsuits related to crop damage from herbicide drift.

The Diagnosing Herbicide Symptoms field day is part of a larger program of education and outreach offered through the Weed RIC, said director Julia Stover-Blackburn. It was the first time the event has been offered since the COVID-19 pandemic, she added.

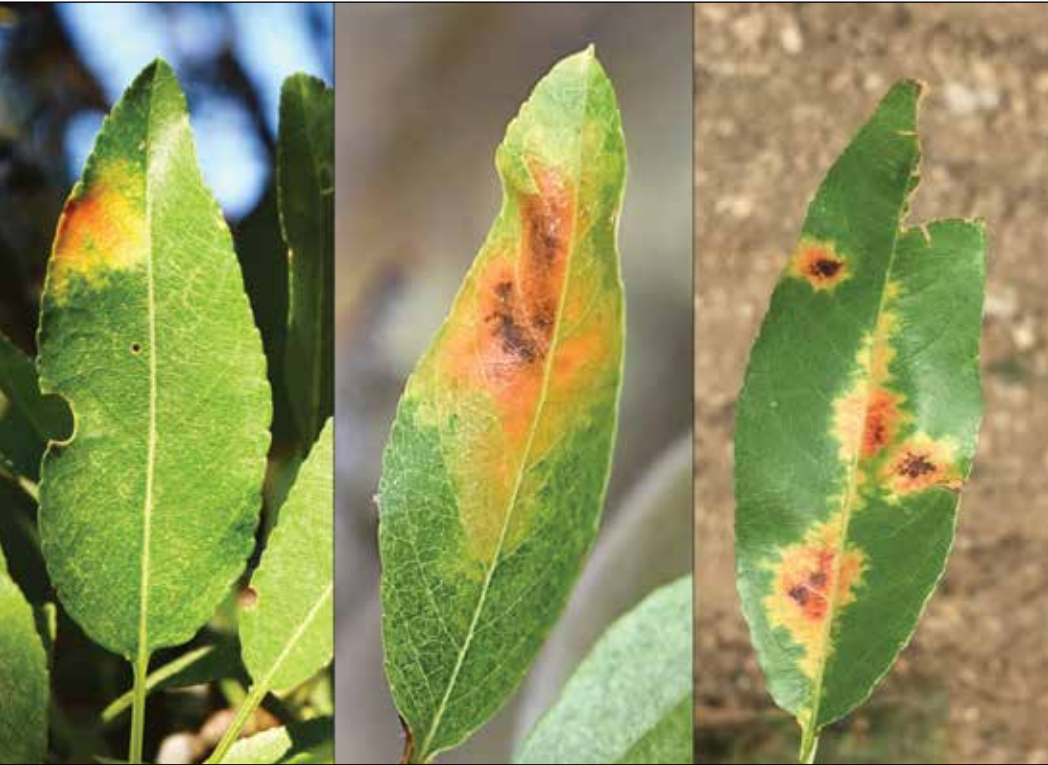
For more information about field days and resources, visit the Weed RIC webpage.

For a thorough discussion of herbicide symptoms, visit the page overseen by Al-Khatib and sponsored by University of California Agriculture and Natural Resources.

This online course follows an earlier version of the Diagnosing Herbicide Symptoms field program.

This story was originally published on the UC Davis Department of Plant Sciences website.

Almond crop yields threatened by disease new to California



Advanced symptoms of red leaf blotch (RLB) include large, yellow-orange blotches (roughly 1/2") that turn reddish-brown in their center. Photo credit: Alejandro Hernandez and Florent Trouillas

Detection of fungus causing red leaf blotch spurs call for grower vigilance

By Michael Hsu *Senior Public Information Representative*

Symptoms of red leaf blotch (RLB), a plant disease caused by the fungus *Polystigma amygdalinum*, have been observed for the first time in California across the Northern San Joaquin Valley.

Molecular DNA testing by the laboratory of Florent Trouillas, University of California Cooperative Extension fruit and nut crop pathology specialist, has detected *P. amygdalinum*. Pest identification was confirmed by the California Department of Food and Agriculture and U.S. Department of Agriculture.

The disease, named for the characteristic orange-to-dark red blotches that appear on infected leaves, is typically nonlethal for trees but has been a long-standing problem for almond-growing regions across the Mediterranean. Causing trees to lose their leaves prematurely, the fungal pathogen can significantly diminish crop yields in the current year and the next.

"It is one of the most severe diseases of almonds for Spain and the Middle East," said Trouillas, an associate professor in the UC Davis Department of Plant Pathology. He recently co-authored an explanatory article on the UCCE San Joaquin Valley Trees and Vines blog.

With symptomatic trees seen in multiple orchards across Madera, Merced, San Joaquin and Stanislaus counties, Trouillas

said RLB is already "somewhat widespread."

"From the first observations so far, it seems like it affects some of the most-planted cultivars, like Nonpareil and Monterey," he added. "We've observed it in a diversity of cultivars already."

UC Cooperative Extension specialist urges taking preventive measures

According to Trouillas, RLB caused by *P. amygdalinum* is "highly specific" to almond trees, and generally only affects their leaves. Infection typically happens at petal fall, when small leaflets are first emerging and most susceptible to disease. After the pathogen's latent period of about 35 to 40 days, the first symptoms appear – small, pale-yellow spots on both sides of the leaves.

Those blotches become yellow-orange and then reddish-brown in the advanced stages of the disease during June and July. Now, with RLB symptoms becoming more prominent, Trouillas and UC Cooperative Extension

advisors across the Central Valley have seen an uptick in calls.

"PCAs [pest control advisers] have been confused because they've never seen anything like this," said Trouillas, noting that the yellow-orange-red blotches are symptoms unique to RLB and cannot be confused with other known almond diseases.

Applying fungicides after RLB symptoms appear is ineffective, Trouillas said. The best thing growers can do at this point is to report symptomatic trees to researchers so they can track the prevalence and distribution of the disease.

Growers who see signs of this new disease in their orchard should contact their local UC Cooperative Extension farm advisor.

Preventive measures are the best way to manage RLB, Trouillas said. He urges concerned growers to think ahead to next winter/spring and plan for fungicide applications at petal fall and – if rains persist – also at two weeks and five weeks after petal fall. Fortunately, those are the same three key timings for managing other diseases, like shot hole and almond anthracnose.

"Because RLB is something that is introduced and potentially aggressive, it will be important for growers to keep that in mind next year and be on schedule for next year's spraying program," Trouillas said.

Additional information on RLB can be found at <https://www.sjvtandv.com/blog/first-detection-of-red-leaf-blotch-a-new-disease-of-almond-in-california>.

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A High-Quality Pectin That “Gels With” Low Sugar Products

U.S. Department of Agriculture (USDA)'s Agricultural Research Service (ARS) scientists developed a high quality and inexpensive pectin that can successfully gel in low sugar products and still be scalable for commercial production.

Pectin, a soluble fiber used mainly for gelling food products like jams and jellies, is naturally found in fruits and vegetables. Most commercial pectins are from citrus fruit peels and are extracted into a powder to act as a gelling agent in foods.

“Most commercially-available pectins successfully gel only when combined with high sugar products and acid,” said Wei Zhao, a research chemist from the U.S. Horticultural Research Laboratory in Fort Pierce, Florida.

“For people seeking low sugar foods, most commercial pectins will not gel properly since a lot of sugar is needed for the gelling process. There are some commercial pectins that can gel in low sugar foods, but these alternatives tend to be low quality, are quite expensive to produce, and may contain undesirable residues.”

In a recent study, Zhao and other ARS researchers found that they can pre-treat a fresh orange peel in a simple high-pressure processing (HPP) treatment and then extract pectin from that orange peel using a standard commercial method. The extracted pectin has desirable structural properties needed for gelling low sugar products without leaving undesirable residues.

According to Zhao, the global market for pectin recently surpassed one billion dollars per year and is expected to reach over two billion dollars by 2025. The increasing demand for low sugar food products makes Zhao and her team's pectin a desirable option for consumers.

“Our research findings reveal the great potential of producing low-cost, high-quality pectins with increased gelling capacity by adding a simple HPP pre-treatment of fresh source material for pectin extraction,” said Zhao.

The research findings were published in two journal papers in Food Hydrocolloids.

In addition to the U.S. Horticultural Research Laboratory, researchers from the ARS Western Regional Research Center in Albany, California, and ARS Eastern Regional Research Center in Wyndmoor, Pennsylvania, collaborated in the study.

“This work catalyzes research engagement and demonstrates the first-class teamwork and collaborative partnership between ARS researchers,” said Jonn Foulk, an ARS National Program Leader for Nutrition, Food Safety, and Quality.

“This work expanded and leveraged multidisciplinary expertise and resources between multiple geographically diverse (Florida, California, and Pennsylvania) locations to maximize research impact and expedite development of biobased innovations to address the evolving needs of the agricultural industry.”

New project aims to use farm waste to fuel bioeconomy



The BioCircular Valley project will build a publicly accessible database of available feedstocks from forest, farm and food processing byproducts to guide farmers, biomanufacturers and community leaders in the Northern San Joaquin Valley in building up a bioeconomy.

UC ANR to help create database, support technology for sustainable bioproducts and biofuels

By Lauren Biron, Lawrence Berkeley National Laboratory
By Pamela S Kan-Rice, Assistant Director, News and Information Outreach

In California's Northern San Joaquin Valley, crop leftovers such as almond shells, fruit peels and orchard trimmings can potentially be converted into sustainable bioproducts and biofuels – with the right technology. The philanthropy Schmidt Sciences' Virtual Institute on Feedstocks of the Future, which supports replacing fossil feedstocks with renewable biomass sources, has awarded new funding to a group investigating how to make better use of the diverse agricultural waste in the region.

"This is an important project for California as it quantifies the diverse 'ingredients' in the North San Joaquin Valley available to fuel the emerging biomanufacturing industry in the state," said Gabe Youtsey, chief innovation officer for the University of California Agriculture and Natural Resources. "This foundational work will kickstart a completely new innovation bioeconomy in the Central Valley that will create new high-paying jobs for our communities and support a resilient food and agriculture industry through circular biomanufacturing."

Circular biomanufacturing is a process that uses waste streams as raw materials to create new products.

"Circular means taking waste streams from agriculture such as almond shells or grape pomace, forest waste or food processing waste and using that material as the 'feedstock' in a fermentation tank to create new bioproducts," Youtsey explained.

The group, "Building the Circular Bioeconomy in the North San Joaquin Valley" or BioCircular Valley, is co-led by the Department of Energy's Lawrence Berkeley National Laboratory (Berkeley Lab), UC Berkeley, and BEAM Circular, with partners at UC Merced, UC Agriculture and Natural Resources, the Almond Board of California and USDA Agricultural Research Station in Albany.

"California has this incredible diversity of materials, but they aren't well understood – and this makes it difficult to know how to extract the most

value out of them," said Corinne Scown, a senior scientist at Berkeley Lab and UC Berkeley and one of the project leads. "We want to characterize them and make that information available so companies can more easily figure out which feedstock is a good match for them, and then use that agricultural residue to make everything from bio-based polymers and chemicals to sustainable materials and aviation fuels."

One of the group's goals is to build a publicly accessible database and user-friendly map full of information about different feedstocks, the raw plant materials and biomass that can be broken down and used to make bioproducts. That includes where feedstocks are located, when they are available, how they are currently disposed of, how they perform in different bioreactors, how much sugar or lignin they contain, whether they can be processed with other feedstocks, their greenhouse gas footprint, the potential cost, and much more.

UC ANR's role is to collect data on available feedstocks from forest, agricultural and food processing byproducts, as well as municipal waste streams through sampling and observation.

"We will do this through the extensive knowledge and relationships we have with the California agriculture industry in the North San Joaquin Valley," Youtsey said. "UC ANR will also support industry outreach as new 'conversion' technology."

Farm waste to fuel continued next page

Farm waste to fuel

continued from previous page

gies are developed, to pilot them with California growers and processors.”

The project will also test ways to improve the flexibility of the conversion process, which breaks down feedstocks to prepare them to make bioproducts. Researchers will apply artificial intelligence to their lab-generated data to improve predictions of how feedstocks can be processed most efficiently or blended together. Being able to use the same technique on different (or mixed) kinds of plant matter would open up ways for companies to make bioproducts more easily.

“Our region has a fantastic combination of diverse and large-scale agricultural activities alongside manufacturing expertise, making this a great place to scale up bioeconomy innovation,” said Karen Warner, CEO of BEAM Circular. “This project will allow us to reduce barriers to using our region’s abundant waste streams in more sustainable and valuable ways, so that we can create the products that people need with renewable inputs that are better for the planet.”

The project builds on ongoing efforts to establish biomanufacturing capabilities in the northern San Joaquin Valley, which includes San Joaquin, Stanislaus and Merced counties. Providing better data on how to convert the valley’s millions of tons of agricultural waste into valuable products may spur biomanufacturing companies to build facilities nearby, minimizing how far the raw materials have to be moved and generating new jobs.

“This project is designed to benefit a region that has massive potential, but so far has been economically left behind, and to develop a new industry that can provide improvements in air quality, water quality and greenhouse gas emissions as well as significant opportunities in economic equity and the creation of new jobs,” said Blake Simmons, director of Berkeley Lab’s Biological Systems and Engineering Division and the BioCircular Valley project lead.

“This kind of research started as basic science, and now we’re bringing information and solutions to people who can use them. And the knowledge generated through this project will advance not only the ability of the NSJV to make use of its own regionally available future feedstocks, but will also accelerate the understanding of feedstocks relevant across California and across the U.S.”

The new funds for the project come from the Virtual Institute on Feedstocks of the Future, a partnership between Schmidt Sciences and the Foundation for Food & Agriculture that supports collaboration on research to transform biomass into alternative feedstocks for biomanufacturing. The award is one of five announced today, which total \$47.3 million over five years. It is expected that the five teams will collaborate to share best practices and knowledge to boost the bioeconomy at the national level.

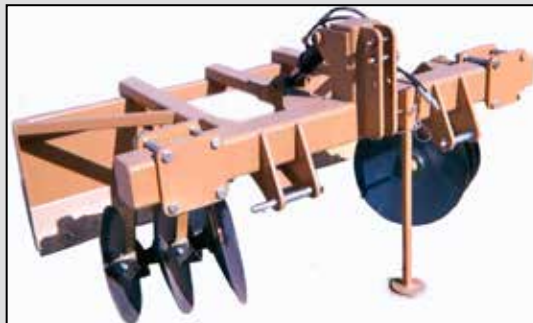
“We are grateful for Schmidt’s generous support that will help deploy advanced technologies on the ground,” said Alicia Chang, interim president of Berkeley Lab Foundation. “The foundational research and expertise developed through work for the Department of Energy sets the stage for this team to apply their capabilities to bring jobs and lift the community and the economy in the Northern San Joaquin Valley.”

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Report: Making homes more resistant to wildfire can be affordable

Priorities include removing objects within five feet of a house, upgrading vents



Steve Quarles demonstrates how embers can ignite dry leaf debris and melt plastic gutters.

Photo by Evett Kilmartin

By Pamela S Kan-Rice *Assistant Director, News and Information Outreach*
Wildfire losses cost taxpayers and communities hundreds of billions of dollars each year, and preparing communities before a disaster occurs is the best way to avoid damage to homes and neighborhoods. Retrofitting existing homes can make communities safer while avoiding billions in disaster costs.

As Californians learn to live with wildfire, scientists encourage improving the structure and design of houses and other buildings to help them survive wildfire. A new report shows that even inexpensive changes can increase wildfire resistance.

"Retrofitting a Home for Wildfire Resistance" suggests that some of the most effective strategies to reduce the vulnerability of homes and neighborhoods to wildfire can be done affordably.

"This report is a practical tool that helps evaluate the relative costs and benefits of fire-hardening retrofits," said Yana Valachovic, a University of California Cooperative Extension forest advisor, who reviewed the study. "These retrofits can substantially improve the odds that a home or building will withstand wildfire exposures to embers, radiant heat or flame contact."

The report is co-authored by Kimiko Barrett, wildfire

research and policy analyst for Headwaters Economics, a non-partisan research organization based in Bozeman, Montana, and Stephen L. Quarles, UC Cooperative Extension advisor emeritus, who has studied the vulnerability of the built environment to wildfire exposures and potential mitigation strategies.

In partnership with California's Department of Forestry and Fire Protection, or CAL FIRE, Barrett and Quarles examined the costs for improving the structure and design of existing homes to increase their wildfire resistance.

"This tool can also help homeowners build a budget and prioritize tasks that often feel overwhelming," Valachovic said. "Everyone should prioritize removing combustible vegetation, mulch, and stored materials

within the first five feet of a structure and upgrading vents to resist embers."

Steve Quarles, wearing an orange hard hat, peers into a shattered window of a garage. The exterior of the pistachio green one-story building is gray around the broken window.

Simple actions can reduce a home's vulnerability to wildfire

The report's conclusions are derived from a detailed examination of the latest available science on mitigation strategies and construction costs. The authors identified costs for retrofitting structures to meet and exceed California's building code (Chapter 7A) for wildfire resistance, but the general principles and conclusions can be applied in other states, adjusting for local economic and supply conditions.

For a typical 2,000-square-foot home in California, retrofitting costs can range from \$2,000 to upwards of \$100,000 for the highest level of protection.

"When we looked at the latest building techniques and cost data, we found some effective retrofitting strategies can be done for between \$2,000 to \$10,000," said Barrett. "While the highest level of protection can cost more, it is often not necessary. Simple actions such as removing flammable materials from near the home and removing debris from the roof

See Resistant to wildfire continued page 16



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California trials Australian tech for forecasting water quality of San Joaquin River Delta



CSIRO AquaWatch_Alex Held-Erin Hestir-Wade Crowfoot

A new partnership between California and Australia will test specialized sensors to monitor water quality in the Sacramento-San Joaquin River Delta, a crucial agricultural and ecological water body near the Bay Area.

Developed by CSIRO, Australia's national science agency, AquaWatch Australia will be a world-first system which combines data from water sensors and satellites to provide near-real-time water quality monitoring and forecasts.

University of California (UC) Davis, UC Merced and United States Geological Survey (USGS) will work with CSIRO to pilot test AquaWatch, which has the potential to help protect the Delta's natural ecosystem - including the endangered Delta smelt - and the agricultural sector reliant on it.

Secretary Wade Crowfoot of California Natural Resource Agency said the landmark partnership between California and Australia was game changing.

"This will benefit California and our communities who rely on water quality moving through the Delta. It will also protect fish and wildlife," Mr Crowfoot said.

UC Merced's Dr Erin Hestir said one of CSIRO's specialized water quality sensors has been installed near where the Sacramento and San Joaquin Rivers merge to monitor water delivered for agriculture and protect the delta's natural ecosystems.

"Using the sensor, we can estimate turbidity, an important water quality measurement for the critically endangered fish, the Delta smelt," Dr Hestir said.

"It can also be used to give insight into where contam-

inants of concern, such as mercury, may travel."

CSIRO's Dr Alex Held said testing AquaWatch in a variety of waterways and ecosystems is helping CSIRO to build and improve the system for use globally.

"AquaWatch will be a world first in many ways, including the ability to forecast water quality, providing crucial early warning. It contributes to our joint climate and sustainable development goals on the global stage," Dr Held said.

The project contributes to a Memorandum of Understanding to support climate adaption signed between the Australian Government and the Californian State Government in 2023.

Australian Consul-General in Los Angeles, Tanya Bennett, said it was fantastic to see the

AquaWatch test site in Sacramento reach this significant milestone, as a key activity under the Australia-California agreement on climate action.

"This test site highlights the importance of global collaborations and technology advancements to monitor the impacts of water quality, improve our natural environments and safeguard our future water supply," said Ms Bennett.

The Californian test site joins already established AquaWatch sites in Australia, Italy, Malaysia and the UK, with more global sites currently in development.

Additional quotes:

Dr Susan Ustin, UC Davis: "They have worked on monitoring water quality in the delta using airborne and satellite remote sensing systems for many years, especially in relation to the growth and distribution of aquatic weeds that take advantage of the nutrient rich waters flowing through the delta. This study complements past work with CSIRO on remote detection of invasive plant species and other applications of remote sensing data."

Dr Dulcinea Avouris, USGS: "The collaboration between the USGS California Water Science Center and CSIRO AquaWatch not only furthers development of new sensor technology, but it also enables further exploration of integrated sensor networks that combine in situ measurements and satellite based remote sensing for water quality assessment and monitoring."

For more information about AquaWatch Australia, visit www.csiro.au/AquaWatch

Monarch Tractor Announces \$133M Series C Funding—Marking Largest-Ever Raise in Agricultural Robotics

With this latest raise, the company behind the world's first fully electric, driver-optional, smart tractor cements its position as a leader in the space



Monarch Tractor, creator of the MK-V, the world's first fully electric, driver-optional smart tractor and Wingspan Ag Intelligence (WingspanAI) farm management platform, has today announced a history-making \$133 million Series C, making it the largest funding raising round in agricultural robotics history.

Monarch has quickly become a powerhouse within the agricultural space as an off-road electric vehicles (EV) and autonomous vehicles (AV) category leader. To date, the company has raised over \$220 million to enable clean, efficient, and economically viable solutions as well as expanded into various agricultural markets such as vineyards, dairy, berries, orchards, and land management across 12 states and three countries. Furthermore, in just the last two years alone they have been recognized as an influential force in farming at national and international levels via accolades, including Forbes Next Billion-Dollar Startups, CNBC Disruptor 50, TIME Best Inventions, and Fast Company World's Most Innovative Companies.

The Series C funds will support the further development of Monarch's cutting-edge AI product offering, expansion of their operational footprint domestically and globally, while enabling the company's path to profitability.

Funding was co-led by global impact investor Astanor and HH-CTBC Partnership, L.P., with additional support from prominent investors, including At One Ventures, PMV and The Welvaartsfonds.

Monarch's mission with farmer success at the center

Founded on the belief that food security only exists with planet sustainability and farmer profitability, Monarch has

been at the forefront of the critical transition to renewably powered and more profitable farming ecosystems, which ultimately empowers farmers worldwide.

In the United States, farm profitability has steadily declined over the past decade, with the sharpest decline in industry history occurring in 2023. Given the nascent nature of technology in agriculture, the sector is ripe with untapped growth potential across automation, digital technologies and AI efficiencies, with Monarch at the forefront of this disruption and technological advancement.

"Driven by artificial intelligence (AI) and electrification, agriculture has arrived as the next frontier for the energy transition and sustainability movement," said Praveen Penmetsa, CEO and co-founder of Monarch Tractor. "Agriculture is our planet's most important and overlooked sector, and those

in the industry have faced significant challenges, including farm profitability, labor shortages, worker safety, government headwinds, data availability, and scrutiny for sustainability demands. Monarch's application of AI and introduction of a smart, electric platform will deliver robust social, economic, and environmental returns to farmers."

AI continues to revolutionize farming machinery

Tractors have been the center of all farm operations for several decades. Yet, they've been underutilized as a hub for robotics innovation and farmer payback.

In December 2022, Monarch released the world's first fully electric, driver-optional, smart tractor, the MK-V, to combat profit challenges, address sustainability demands, and revive agriculture innovation. Since then, the deployment of more than 400 MK-V's have helped; resulting in more than 850 tonnes of harmful CO2 emissions offset across 42,000 hours of tractor operations.

Monarch's WingspanAI app is equipping farmers with unprecedented access to on-farm data, integrating a farm management system, vehicle position tracking, crop image collection, and automated operations planning into one platform. The continual development of product solutions, including the introduction of new AI capabilities, will be the driving force in closing the industry's profit gap.

This funding round will support the expansion of Monarch's digital solutions and AI applications, including the development of Autodrive, Monarch's autonomous operations feature, for new global markets and crop sectors.

For more information on Monarch Tractor, visit: www.monarchtractor.com/

2024 California Fresh Fig Season Gets Early Start



Hot summer temperatures means good news for fresh fig lovers. Due to the extreme heat, the main harvest of the California Fresh Fig started a couple weeks earlier than usual, according to the California Fresh Fig Growers Association, and the fruit will be beautiful and plentiful well into the fall.

"After years of drought and fires, California fig orchards are the healthiest they've been in years," says Karla Stockli, Chief Executive Officer of the California Fresh Fig Growers Association. "This promises to be one of the best California Fresh Fig seasons we've ever seen!"

This year's first crop, known as the breba crop, delivered the first Mission figs of the season May-June. The main crop, now underway, is delivering plump and delicious varieties, such as Brown Turkeys, Missions and Sierras. Additional varieties will continue to become available through November.

In California, there are four primary varieties of fresh figs offering unique flavor notes:

- Mission. Purple and black skin with deep earthy flavor.
- Brown Turkey. Light purple to black skin with robust flavor.
- Sierra. Light-colored skin with a fresh, sweet flavor.
- Tiger. Light yellow color with unique dark green stripes and a bright red-purple interior fruit with fruity, raspberry, citrus flavor.

California's fig growers continue to plant additional acres to meet consumer demand. From increased menu offerings in the restaurant industry to sampling and displays at grocery retailers, a comparable size crop to last year's nearly 10 million pounds will be harvested in 2024. This is good news following the pandemic and decline in foodservice sales.

While California Fresh Figs are available seasonally, California Dried Figs are a year-round staple, offering the same nutrition and taste benefits. Substitute dried figs for fresh in salads, sandwiches, pizzas, sauces, and more, to enjoy California Figs throughout the year.

For recipes and more information, visit CaliforniaFigs.com.

About the California Fig Advisory Board and the California Fresh Fig Growers Association

The California Fig Advisory Board and California Fresh Fig Growers Association promote awareness and the use of California-produced dried and fresh figs domestically and internationally. California fig growers, processors and marketers fund the activities of the industry.



Resistant to wildfire

continued from page 12

can be done at little to no cost."

The authors also incorporated effective mitigation strategies that could reduce risk without requiring costly upgrades over the entire home, such as replacing siding only on the side of a home that is close to another building, such as neighbor's home or a detached garage, or replacing combustible deck boards next to the home with a noncombustible deck board or metal grate.

They also incorporated a systems approach, where the vulnerability of adjacent components are considered, and recommend steps such as placing noncombustible surfaces at the intersection between two components.

For example, Quarles said: "Adding a gutter cover and ensuring the adjacent edge of roof is not vulnerable by incorporating a metal drip edge and, if necessary, a noncombustible bird stop at the edge of the roof. Or, replacing a combustible deck board next to the house and, if necessary, adding metal flashing at the base of the exterior wall."

Cost estimates in the report include those for upgrading a home's exterior walls, roof, deck, windows, doors, eaves, gutters and near-home landscaping – all areas likely to be exposed to embers, direct flames and radiant heat.

"The graphics detailing specific elements of the retrofitting process are very useful," Valachovic said.

Charts, architectural renderings and a detailed appendix of cost estimates provide a basis for a general understanding of the methods and budgets that homeowners might consider when retrofitting their home for wildfire resistance.

The downloadable report offers cost estimates for home improvements that can offer enhanced wildfire resistance, such as at wall-to-deck intersections.

Retrofitting for wildfire can make communities safer

Contractors and others seeking information about building wildfire-resistant homes can gain valuable insights from this analysis, along with retrofit costs generated by the California Wildfire Mitigation Program.

"This analysis demonstrates that investing in wildfire-resistant retrofitting for homes is a cost-effective strategy to protect communities that could save billions in disaster costs," said Barrett. "As more people live in fire-prone areas, we must also take a closer look at retrofitting homes to be stronger and more durable."

While the authors hope Californians use the information to protect their homes, people who work in construction, development, design and policy also can use the information to show that retrofitting homes for wildfire resistance is an effective way to protect communities.

This 58-page report received funding from CAL FIRE and the U.S. Forest Service and can be downloaded for free at https://headwaterseconomics.org/wp-content/uploads/2024/06/Wildfire_Retrofit_Report_20240624.pdf.



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LS Tractor Adds a 74 HP Tractor to Their MT7 Series

LS Tractor launches a brand-new tractor with an all-new horsepower, the MT7 with 74 horsepower and state of the art features.

LS Tractor USA launches the all-new MT774. This tractor has been reengineered to maximize field-proven utility, which usually would require a larger frame tractor. From tilling expansive fields to hauling heavy loads, the MT774 can tackle the most challenging chores on the farm.

Beyond raw strength, the MT774 showcases a new look and feel, carrying on the new LS family look that originally launched with the MT2 series earlier this year. The new look comes with additional efficiency and comfort features, all offered at the unbeatable prices that LS Tractor is known for.

Paramount Performance

- New 74 HP offering in the MT7 series, utilizing the FPT F24 engine with allows you to do more work than ever before without needing DEF (diesel exhaust fluid)
- 5% increase in fuel efficiency
- Increased PTO efficiency relative to competitive models

Fresh Look and Feel

- A deeper blue paint color and silver rims showcasing a polished and dominating new design
- Redesigned hood that improves engine performance and serviceability
- New LED headlights

Enhanced Comfort

- Revamped interior dashboard and controls to enhance usability
- Quieter engine
- Less vibration felt inside cab

"The new MT774 is a truly compelling new product for us that we think a lot of people are going to be excited to use. It offers the heavy duty, high performance required for jobs like hay baling in a smaller but premium package, allowing our customers to do their important tasks in comfort and style with ease," explains LS Tractor's Product Manager, Robert Cenzone.

LS Tractor recognizes their customers agricultural needs and that is why they released the 74-horsepower addition to their MT7 tractor line. This powerful machine increases the options available to customers, offering them greater flexibility to select the tractor best suited for their land. With its array of capabilities and versatility, the new MT774 enhances the LS Tractor's lineup, ensuring that customers have access to a range of features.



Axial-Flow 260 series combine features simplified, integrated technology

Case IH is incorporating industry-leading technology with the heritage of Axial-Flow® combines as the perfect harvesting partner for a wide variety of growers and custom harvesters with the new Axial-Flow 260 series. Purposefully designed for unparalleled productivity, growers can access subscription-free, integrated technology to meet the unique needs of their operations.

The premium technology built within the Axial-Flow 260 series combine sets a new standard for operator experience, while also maximizing throughput and grain handling with single-rotor Case IH harvesting technology.

"The Axial-Flow 260 series combine represents a significant leap forward in integrated technology throughout the harvesting process for growers," says Leo Bose, harvesting segment lead at

Case IH. "We purposefully bundled precision technologies so there are no subscriptions or activations required to run the machine. The subscription-free connectivity gives customers the ability to remotely view machine and agronomic data via the new Case IH FieldOps™ platform, which will launch later in 2024. The technology stays for the lifetime of the hardware, boosting resale value."

The Axial-Flow 260 series is equipped with Harvest Command™ combine automation, which automatically optimizes settings to maximize throughput and grain quality, and features high-resolution Pro 1200 Dual Displays, giving operators easy access to machine metrics, field performance and grain quality in real-time. Additionally, growers can experience improved on-row accuracy, minimized header losses and less operator fatigue with the all new RowGuide Pro™ and AccuGuide™ autoguidance systems to maintain on-row accuracy even when stalks aren't present. These tech solutions, including AccuSync™ with in-field data sharing between multiple machines, are all provided with no subscription required.

"The Pro 1200 Dual Displays give me complete visibility with all my combine data on one monitor and coverage maps on the other, so I'm no longer flipping back and forth between screens," says Paul Paplow, farmer, custom harvester and vice president at U.S. Custom Harvesters, Inc. "Within just five minutes of using the Axial-Flow 260 series, with its real-time grain quality imaging feature, I could see the difference in superior grain quality."

Building upon an enhanced operator experience, the Axial-Flow 260 series offers the new ActiveTrac four-roller hydraulic suspended track system. With a larger footprint, the ActiveTrac system reduces compaction and increases flotation by 14% compared to fixed track offerings. Operators will find a new level of comfort with luxury seating that includes massage, heating, and new air conditioning technology, along with simple seat controls, to easily optimize the operator's comfort level during long harvest days.

"We engineered this new track system to reduce the machine's footprint because minimizing soil compaction is important to us and our customers," adds Bose. "With a new track system, integrated tech and improved accuracy, the Axial-Flow 260 series combine is an operator's trusted partner for one of the busiest times of year."



Tesseract Ventures Re-Imagines Precision Agriculture with Advanced Ag Drone Technology

Tesseract Ventures is pleased to announce the dual use application of its cutting-edge military technology and specialized robotics platform in the agricultural sector, specifically tailored for American farmers.

The Tesseract Ag Drone is a cutting-edge tool made in the USA to help farmers manage their crops and data more accurately. Using advanced computer vision and optics, this drone gives farmers detailed, real-time information about their fields. When integrated with the Tesseract Synthesis Software, the drone transforms raw data into actionable insights, enabling farmers to make informed decisions with use of 21st century AI tools and easy to use software interfaces.

With the Tesseract Ag Drone, farmers can identify pests, monitor weed growth, assess crop and soil health, track weather impacts, and observe crop development. The drone delivers real-time data and intelligent recommendations, significantly enhancing efficiency, yield, and sustainability. Its American-made quality and reliability set it apart in the industry.

Tesseract Synthesis Integration

Pairing the Tesseract Ag Drone with the Tesseract Synthesis Software simplifies precision farming. This powerful combination collects real-time data and leverages AI to analyze it, offering immediate insights into crop health, pest issues, weed pressure, and weather effects. This centralized data management system streamlines decision-making and fosters collaboration on the farm. Designed for user-friendliness, even those less tech-savvy can harness this technology to enhance crop management, increase yields, and promote sustainable farming practices. This robust yet easy-to-use solution is essential for modern farmers aiming to optimize productivity and sustainability.

"With the Ag Drone and Synthesis Integration, Tesseract Ventures is not just launching a new American-made drone product; we are ushering in a new era of precision agriculture," stated John Boucard, CEO of Tesseract Ventures. "This technology is a game-changer for US farmers, providing technological advantages previously unavailable on a single platform. Our commitment to agricultural innovation is both military-proven and farmer-led, offering enhanced capabilities and strategic benefits to our national farmers and co-op partners."

Tesseract recently partnered with Iowa-based Landus Farm Cooperative under a unique initiative born from a Department of Defense program. This collaboration allowed Tesseract to soft launch its Synthesis technology through innovation connector events, reimaging agricultural software, data integration, and visualization to benefit farmers with an intuitive and user-friendly approach.

For more information, visit <http://www.tesseractventures.io>



New Holland and Bluewhite to Bolster Autonomous Capabilities and Offering with Strategic Partnership

New Holland, a brand of CNH (NYSE: CNH), and Bluewhite, a leading autonomous technology company enabling AI-driven autonomous farming, announced a multi-phase partnership to collaborate on distribution, manufacturing and integration of Bluewhite's autonomous solutions for New Holland tractors in North America. This partnership will enable New Holland tractors to operate fully autonomously in orchards, vineyards and other specialty crop operations.

"Bluewhite has proven to be the leader in terms of implementing autonomy in the specialty crops space, a market in great demand for this type of innovation. The integration of Bluewhite into our technology stack allows our customers to access much-needed autonomous technology in an attainable aftermarket solution," said Carlo Lambro, Brand President of New Holland. "With our leadership position in specialty crops, the partnership with Bluewhite complements our mission to continue to better serve our customers, elevate their capabilities and bring more autonomy to their operations."

Bluewhite, formerly Blue White Robotics, drives the growth of resilient farms by bringing sustainable autonomous innovation to permanent crop growers worldwide. The company's AI-driven autonomous farm solution leverages AI, sensor fusion, advanced vehicle integration and precision implements control to help growers manage their fleets and data — and, ultimately, produce more with less. Bluewhite works with over 20 leading permanent crop growers, enabling autonomous farming on multiple crops and tractor models across 150,000 acres in the U.S. Founded in 2017 by Ben Alfi, Yair Shahar and Aviram Shmueli, Bluewhite is headquartered in Tel Aviv with offices in Fresno, California.

"We're incredibly excited about collaborating with CNH and New Holland to accelerate the adoption of autonomous technologies in the field that not only improve productivity and profitability for growers but also promote safe and sustainable methods of producing food," said Ben Alfi, Chief Executive Officer, Bluewhite. "Our long-term partnership with CNH and New Holland combining leading autonomous technology with the best tractors and harvesters in the orchards and vineyards sector is a milestone in achieving our mission of making cutting-edge innovation accessible to the agriculture sector. We have an exciting journey ahead of us and we look forward to working with partners like CNH and New Holland to continue bringing value to our customers and growers everywhere."

The proven capabilities of Bluewhite in orchards and vineyards bolsters New Holland's strategy to bring autonomous solutions across all segments it serves, especially in the specialty crop market. Building on its parent company CNH's acquisitions of Raven, Augmenta, and Hemisphere, which are driving New Holland's autonomy offerings for row crop and broad acre farmers, Bluewhite's unique technology helps New Holland customers address immediate challenges, such as labor shortages and rising operational costs in the specialty crop market. Depending on the specific use case, Bluewhite technology has proven to reduce operational costs by up to 85% through a combination of savings in inputs, labor and maintenance costs.

Early Wildfire Detection Advanced by Expanding Use of Satellites as Part of Investing in America agenda

A collaborative agreement for use of NOAA satellites will help the Interior and Agriculture Departments detect wildfires early, track wildfires in real time, and provide data for public safety and air quality modeling

The Biden-Harris administration today announced it is taking additional steps to safeguard western communities in the face of increasingly dangerous and intense wildland fires by building advanced wildfire detection capabilities using satellite technology. The Department of the Interior and U.S. Department of Agriculture (USDA)'s Forest Service have signed an agreement with the Department of Commerce's National Oceanic and Atmospheric Administration (NOAA) to use the NOAA Geostationary Operational Environmental Satellite — R series (GOES-R) data to rapidly detect and report wildfire starts. Supported by a \$20 million investment from the President's Bipartisan Infrastructure Law—\$10 million each from Interior and Agriculture— this new agreement will use advanced remote sensing capabilities to improve the speed and accuracy of wildfire detection.

President Biden's Investing in America agenda, through the Bipartisan Infrastructure Law, is bringing much-needed assistance to communities across the country — deploying innovative tools to tackle wildfires, increasing the resilience of lands facing the threat of wildland fires, and better supporting federal wildland firefighters. The law includes \$5 billion for these Departments over five years to invest in preparedness, fuels management, post-fire restoration, and fire science.

"This partnership is one of the many ways we are investing in technology to improve firefighter and community safety," said Secretary of Agriculture Tom Vilsack. "Wildland firefighting will always require highly skilled individuals working on the ground, but with more real-time information we can reduce the risks to crews and pilots, and improve our response time, reducing the risk to impacted communities."

"This collaborative effort demonstrates how the federal government is deploying resources from President Biden's historic Investing in America agenda to improve its emergency response capabilities and address increasingly frequent and extreme climate-driven wildfires," said Secretary of the Interior Deb Haaland. "By using expanded satellite capacity to pinpoint wildfire ignitions and provide real-time data for wildfire managers, this partnership with NOAA will enable the Interior and Agriculture Departments to respond to wildfires more rapidly and make informed decisions for firefighting operations and public safety."

"Now more than ever, the impacts of climate change are increasing the threat of wildfires across the country and thanks to President Biden's commitment to investing in America, NOAA has been able to significantly improve fire weather forecasts to keep communities safe," said Secretary of Commerce Gina Raimondo. "This new partnership, a result of the most ambitious climate agenda in history, will help expand our ability to detect wildfires, improve response times, and keep families in western communities out of harm's way."

Use of NOAA's GOES-R satellite data will enable the Interior



and Agriculture Departments to detect wildfires early, provide firefighters a more detailed look at wildfire conditions, allow faster hot spot detection, and provide the ability to track wildfire progression in real time. GOES-R series satellites are frequently capable of detecting wildfires before they are spotted on the ground or reported to 911. The satellites can also be used to pinpoint the exact location of a fire after smoke reports occur. These improved capabilities will support interagency efforts to protect people and communities from increasingly devastating wildfires.

GOES-R satellite observations are not only valuable for detecting wildfires but are also critical for observing and monitoring smoke from those fires. The ability to monitor smoke plumes in near real time is particularly useful in directing firefighting efforts from the air. Deploying airplanes and helicopters for wildfire suppression efforts is often hampered by poor visibility. GOES-R satellites can help guide decisions for deploying flights by providing information on the exact location and drift of smoke from a fire. The smoke detection and monitoring information also enable better air quality forecasts to help safeguard public health. These improvements help equip communities with the information they need to assess risks and develop climate solutions—a key objective of the National Climate Resilience Framework.

Today's effort supports recommendations by the Wildland Fire Mitigation and Management Commission, which was established through the Bipartisan Infrastructure Law and charged with making recommendations to improve federal policies related to the mitigation, suppression, and management of wildland fires in the United States. In September 2023, the Commission released a comprehensive report (PDF, 5.3 MB) to Congress outlining 148 recommendations to improve the nation's relationship with wildfire. This collaboration advances recommendations for expanded use of wildfire detection systems and improved collaboration across organizations and jurisdictions.

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National Night Out is August 6th; 41st NNO Will Be Largest Ever National Night Out 2024

Citizens, law enforcement agencies, community groups and local officials in over 17,000 communities from all 50 states, U.S. territories and military bases worldwide will join forces on August 6th to mark the 41st Annual National Night Out (NNO) – a police-community partnership event sponsored by the National Association of Town Watch. NNO 2024 partners are: ADT; Starbucks; Dollar Tree and Family Dollar; 7-Eleven Cares Foundation, supported by 7-Eleven, Inc; Swank Motion Pictures; Associa and L.E.A.D.

Nationally, millions of people are expected to participate in NNO this year.

"There has been a big jump in the number of cities and towns registering this year," said NNO creator, Matt Peskin

"There has been a big jump in the number of cities and towns registering this year," said NNO creator, Matt Peskin, "Local coordinators are anxious to showcase their strong relationships with first responders. National Night Out is a celebration of neighborhoods who work with law enforcement year-round to build safer, more caring communities."

National Night Out will feature thousands of block parties, cookouts, parades, potlucks, festivals, ice cream socials, neighborhood visits by first responders, flashlight walks and neighborhood meetings.



National Night Out is designed to:

- (1) Heighten crime prevention awareness;
- (2) Generate support for, and participation in, local anti-crime programs;
- (3) Strengthen neighborhood spirit and police-community partnerships;
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For more information, visit natw.org.

SOURCE National Association of Town Watch

vHive Enables Self-Operated Inspection of Utility-Scale Solar Farms, Expediting Fault Resolution and Power Production Improvement

vHive, a global leader in Digital Twin software for enterprise asset digitization, announces the release of its latest product designed for autonomous digitization and AI analysis of solar farms. vHive's unique end-to-end solar digitization solution offers a comprehensive view of power anomalies, their root causes, and their impact on power loss. These insights enable solar power producers and O&M service teams to prioritize and expedite repairs, ensuring peak production performance.

The company's patented Auto-Discovery™ and Multi-Drone technology ensure consistent and efficient data capture in a fully autonomous process. This allows for more frequent inhouse periodic inspections, enhancing power production by enabling early identification and resolution of issues. Consequently, customers significantly reduce time spent in the field, as the multi-drone technology slashes on-site inspection times. Moreover, the autonomous use of multiple drones operating in parallel, enhances the quality of data captured by measuring the entire solar field in similar sunlight conditions. This expedites time to insights, ultimately achieving optimal MW output.

The Digital Twin platform, powered by advanced AI analytics, offers both a comprehensive portfolio-wide overview and detailed drill-down capabilities into individual modules and sub-modules. These detailed inspection tools help maintenance teams prioritize repairs and optimize their maintenance cycles. Furthermore, the platform is designed to host various asset types, including both wind turbine and solar inspections, providing a unified solution to manage all your renewable energy resources in one place. This single source of truth enables streamlined operations, efficient management, and maximized performance across your entire wind and solar portfolios.

"Solar farm owners often experience significant losses due to the limitations of manual or annual drone inspections. Our solution offers the most efficient way to perform frequent inspections, providing immediate insights into detected issues and their impact on overall performance," says Tomer Daniel, Co-founder and CTO. "vHive resolves the dependency on third parties to inspect assets, by simplifying the inspection process, enabling our customers to uncover new revenue opportunities, reduce operational costs, and enhance employee safety".



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OCTOBER 2024

8-9: Hispanic, Italian and Mediterranean Cheeses. This practical course will feature international cheese varieties and will take place at the Dairy Products Technology Center, Cal Poly, San Luis Obispo. Registration: <https://dairy.calpoly.edu/short-course-symposia>

NOVEMBER 2024

14-17: American Agri-Women 2024 50th National Convention. Come celebrate our 50th anniversary in Fond du Lac, Wisconsin! Details coming soon, stay tuned! For information visit: www.americanagriwomen.org/events

21: CAWG's 50th Anniversary Celebration. A Half-Century of Advocacy and Achievement. We invite you to join us in commemorating this extraordinary milestone. The celebration will begin with a social reception, featuring wines from throughout the Golden State, followed by a plated dinner and program. The evening promises to be filled with camaraderie, reflection, and celebration as we honor the past, revel in the present, and collectively envision a promising future for California winegrape growers. As we gather to celebrate, we extend a special invitation for your thoughtful consideration in sponsoring this landmark event. We deeply appreciate the enduring partnerships that have shaped CAWG's journey, and your presence would undoubtedly enhance its significance. Kimpton Sawyer Hotel, Sacramento, CA. EVENT CONTACT: Jenny Devine | jenny@cawg.org | 916.432.0133

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New online portal makes it easier to access funding opportunities and other key resources for California Climate Investments

As California Climate Investments celebrates its 10-year anniversary, the revamped portal helps advance equity and greenhouse gas emissions reduction goals by making key resources available to applicants, current project partners and the general public

A newly launched online portal makes key information about California Climate Investments easy to access to learn more about funding opportunities, see funding success stories and provide a one-stop shop for implementation partners. The investments program largely benefits the state's disadvantaged and low-income communities and spurs greenhouse gas emissions reductions.

The release of the new California Climate Investments resource portal comes as the program marks 10 years and more than \$11 billion in investments. The portal features tools that help communities participate in the success and impact of the program, which include:

An up-to-date list of open funding opportunities to see which California Climate Investments programs are currently open to applicants.

A library of over 200 California Climate Investments project profiles that highlight how program funds can be used to make an impact locally and beyond.

Resources to support Tribal communities in accessing California Climate Investments funding.

A Community Connections directory so that aspiring applicants can find other partners to strengthen project applications or learn from success stories.

Resources specifically targeted to state and community partners to assist with designing California Climate Investments programs and projects to support high-quality jobs, perform outreach and community engagement, and deliver meaningful benefits to California's communities.

The California Climate Investments funding and public participation calendar, which provides upcoming funding timelines and displays public participation opportunities such as workshops, public comment periods and listening sessions.

An interactive map of the more than 500,000 projects that have received California Climate Investments funding.

"The California Climate Investments resource portal is a game-changing opportunity for communities and partners that are seeking funding support. This resource portal makes key information readily accessible so that all communities can engage with California Climate Investments, develop competitive applications, and learn about impacts in their area," said Mario Cruz, chief of the California Air Resources Board's (CARB) Climate Investments Branch, which oversees and manages the portfolio of investments.

Alongside the website update, CARB is also releasing updated funding guidelines that provide direction for

agencies that administer California Climate Investments to design and implement their programs in ways that facilitate greenhouse gas emissions reductions, meet statutory requirements and target investments to the state's disadvantaged and low-income communities. The draft 2024 Funding Guidelines for Agencies that Administer California Climate Investments are available for public comment through July 26, and CARB will hold a public workshop on the funding guidelines and resource portal on July 11 at 1:00 p.m. Interested parties can register to attend.

Ease in accessing program information and application resources is key to ensuring that California Climate Investments continues to maximize benefits to the state's disadvantaged and low-income communities that often face barriers in receiving public resources. The California Climate Investments Resource Portal complements the funding guidelines by providing all relevant resources in a single, user-friendly point of access.

California has authorized \$28 billion in climate investments in the last 10 years, already delivering \$11 billion to more than half a million projects that fight climate change and cut pollution. The remaining \$17 billion will fund more projects in the coming years. The investments include a wide range of solutions such as putting affordable housing near job centers, building the nation's first high-speed rail, and adding zero-emission transportation options in underserved communities.

The funding comes from the state's Cap-and-Trade Program, which charges polluters for the carbon emissions they create in the state. The dollars collected then go to California Climate Investments, which deliver the funds to communities statewide.

About 76% of project funds have been spent in underserved and low-income communities that face the greatest environmental burdens from pollution. California Climate Investments projects funded over the last decade have directly supported 30,000 jobs and are expected to reduce 109 million metric tons of greenhouse gas emissions, which is the equivalent of removing 25 million cars off California's roads for one year – representing 80% of the state's total gas-powered cars currently on the roads.

In 2023 alone, California Climate Investments implemented over 17,000 new projects through \$1.7 billion in funding, with 85% of project dollars directly benefiting disadvantaged communities and low-income communities and households.



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USDA Expands Funding Opportunities for Specialty Crop Growers to Help Offset On-Farm Food Safety Expenses for 2024 and 2025

The U.S. Department of Agriculture (USDA) is expanding the Food Safety Certification for Specialty Crops (FSCSC) program to now include medium-sized businesses in addition to small businesses. Eligible specialty crop growers can apply for assistance for expenses related to obtaining or renewing a food safety certification. The program has also been expanded to include assistance for 2024 and 2025 expenses. Producers can apply for assistance on their calendar year 2024 expenses beginning July 1, 2024, through Jan. 31, 2025. For program year 2025, the application period will be Jan. 1, 2025, through Jan. 31, 2026.

"The Food Safety Certification for Specialty Crops program helps producers cover costs of on-farm food safety certification in order to meet regulatory requirements and access additional markets," said Farm Service Agency (FSA) Administrator Zach Ducheneaux. "We recognize the value in supporting specialty crop producers incurring these expenses, so we're not only continuing the program but also improving access by expanding program reach to include medium-sized operations."

Program Details

FSCSC assists specialty crop operations that incurred eligible on-farm food safety certification and expenses related to obtaining or renewing a food safety. FSCSC covers a percentage of the specialty crop operation's cost of obtaining or renewing its certification, as well as a portion of related expenses.

Eligible FSCSC applicants must be a specialty crop operation; meet the definition of a small or medium-size business and have paid eligible expenses related to certification.

A small business has an average annual monetary value of specialty crops sold by the applicant during the three-year period preceding the program year of no more than \$500,000.

A medium size business has an average annual monetary value of specialty crops the applicant sold during the three-year period preceding the program year of at least \$500,001 but no more than \$1,000,000.

Specialty crop operations can receive the following cost assistance:

- Developing a food safety plan for first-time food safety certification.
 - Maintaining or updating an existing food safety plan.
 - Food safety certification.
 - Certification upload fees.
 - Microbiological testing for products, soil amendments and water.
 - Training.
- FSCSC payments are calculated separately for each

eligible cost category. Details about payment rates and limitations are available at farmers.gov/food-safety.

Applying for Assistance

Interested applicants have until Jan. 31, 2025, to apply for assistance for 2024 eligible expenses. FSA will issue payments as applications are processed and approved. For program year 2025, the application period will be January 1, 2025, through January 31, 2026. FSA will issue 50% of the calculated payment for program year 2025 following application approval, with the remaining amount to be paid after the application deadline. If calculated payments exceed the amount of available funding, payments will be prorated.

Specialty crop producers can apply by completing the FSA-888-1, Food Safety Certification for Specialty Crops Program (FSCSC) for Program Years 2024 and 2025 application. The application, along with the AD-2047, Customer Data Worksheet and SF-3881, ACH Vendor/Miscellaneous Payment Enrollment Form, if not already on file with FSA, can be submitted to the FSA office at any USDA Service Center nationwide by mail, fax, hand delivery or via electronic means. Alternatively, producers with an eAuthentication account can apply for FSCSC online. Producers interested in creating an eAuthentication account should visit farmers.gov/sign-in. Specialty crop producers can also call 877-508-8364 to speak directly with a FSA employee ready to assist. Visit farmers.gov/food-safety for additional program details, eligibility information and forms needed to apply.

More Information

To learn more about FSA programs, producers can contact their local USDA Service Center. Producers can also prepare maps for acreage reporting as well as manage farm loans and view other farm records data and customer information by logging into their farmers.gov account. Producers without an account can sign up today.

USDA touches the lives of all Americans each day in so many positive ways. Under the Biden-Harris administration, USDA is transforming America's food system with a greater focus on more resilient local and regional food production, fairer markets for all producers, ensuring access to safe, healthy and nutritious food in all communities, building new markets and streams of income for farmers and producers using climate smart food and forestry practices, making historic investments in infrastructure and clean energy capabilities in rural America, and committing to equity across the Department by removing systemic barriers and building a workforce more representative of America. To learn more, visit usda.gov.

Co-Chairs Confirmed and Program Planning Underway for the 2025 Unified Wine & Grape Symposium

Building out a program for the largest wine and grape show of its kind in the Americas is an undertaking the Program Development Committee for the 2025 Unified Wine & Grape Symposium is embracing with enthusiasm and care. Led by two co-chairs, Devin Parr, founder and managing partner of wine consulting firm Devin Parr & Associates and Susan Owen, Senior Director of Sales at G3 Enterprises, the committee held its first meeting in early June to discuss, develop, and collaborate on what will be the 2025 Unified Symposium sessions in winemaking, grapegrowing, PR and marketing, business and operations, and a Spanish-language program.

The Program Development Committee consists of 40-plus professionals in the wine and grape industry who have been selected for their expertise, intimate knowledge of the wine industry and fresh perspectives on the latest innovations and trends. Devin Parr is a leading personality in the wine industry. Her firm, Devin Parr & Associates, is a PR, marketing and content agency for the beverage, travel, and tourism industry. She holds a Wine and Spirit Education Trust (WSET) diploma as well as a certificate in wine expertise from the Apicus International School of Hospitality in Florence, Italy. She received her bachelor's in political science and economics from the University of California, San Diego. In 2017, she was named one of Wine Enthusiast's Top 40 Under 40 Tastemakers. Parr is a frequent industry speaker and regular contributor to wine and lifestyle publications, including VinePair, WineCountry.com, NapaValley.com, Sonoma.com, and Chowhound. She is the co-founder and editor-in-chief of wine platform "The Vintner Project," and co-founder of Grapeloop, an online community for wine professionals.

Susan Owen fell in love with wine 15 years ago while living in Valparaiso, Chile, near Casablanca Valley. It was there that her passion for combining travel and all things wine began. Today, Susan is the Senior Director of Sales at

G3 Enterprises leading a team of wine packaging experts across North America. Prior to joining G3 she was the general manager of Juclas USA, the California-based subsidiary of the Vason Group headquartered in Italy, specializing in enological ingredients and membrane technology equipment. When not out exploring new wine brands and regions, Susan can be found spending time with her horses, dogs, chickens, and cats. Apart from being an avid animal lover, she is also an active long-time member of Rotary International attempting to embody their slogan of "Service Above Self."

"The caliber of industry leaders who participate – past and present – in developing sessions presented at Unified is both exciting and humbling," said Natalie Collins, member of the LLC Management Committee and president of the California Association of Winegrape Growers. "We're thrilled to have two industry veterans, Devin and Susan, lead the program development committee this year. Their leadership will help move conversations forward in a comprehensive, compelling, and honest manner, which has become a hallmark of the Unified Symposium."

The Unified Symposium will host its conference and trade show January 28-30, 2025, at the SAFE Credit Union Convention Center in Sacramento, California. Registration and housing are scheduled to open in October.

Co-sponsored by the American Society for Enology and Viticulture (ASEV) and the California Association of Winegrape Growers (CAWG), the Unified Symposium is built with the collaborative input of growers, vintners, and allied industry members. The Unified Symposium has served as a clearinghouse of information important to wine and grape industry professionals for 30 years and hosts the industry's largest trade show of its kind, with over 875 booths displaying their products and services. For more information about the 2025 show, visit www.unifiedsymposium.org.

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