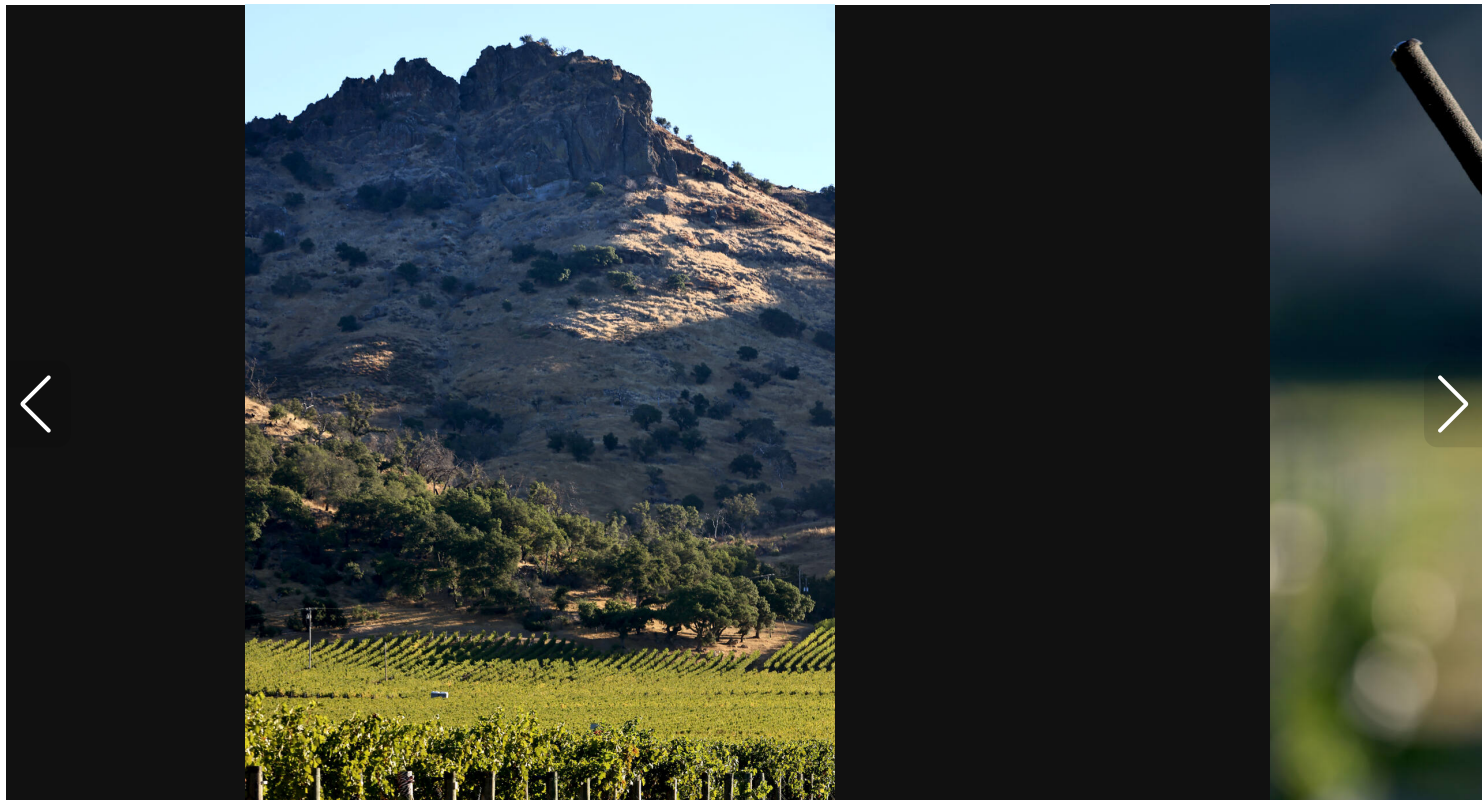


Next-generation agriculture plants seeds of innovation for Wine Country farmers



SLIDE 1 OF 16

The rocky Mayacamas Mountains that border the vineyards at Stag's Leap Wine Cellars near Napa, do not retain as much water, limiting the amount of year round runoff, Tuesday, Oct. 17, 2023. The company is using soil mapping technology called SoilOptix. (Kent Porter / The Press Democrat) 2023

SUSAN WOOD

THE NORTH BAY BUSINESS JOURNAL

October 30, 2023, 10:13AM

[Order Article Reprint](#)

North Bay farmers seeking survival of their crops and vineyards amid drought, weather extremes and other forces may discover their best solutions are grounded in next-generation agriculture.

Area vineyard tenders and produce providers are using the latest technology, from a Canadian manufacturing plant to the work benches of Sonoma and Lake counties. The North Bay Business Journal examined three such next gen agricultural products.

Essentially, healthy ag operations lead to bumper crops for farmers trying to preserve their way of life for their children and their kids. It takes knowledge, willpower and money to run a successful farm and vineyard blocks. But the alternative of doing business as usual is costlier, industry insiders say. A U.S. Department of Agriculture survey in May showed the nation lost about two-thirds of its 6.8 million farms since the peak in 1935.

"In the long run, yes, it's absolutely costlier to do nothing. We're trying to help the family farm and make it so the next generation won't have to reinvest in the vineyards. I'm lucky my kids like the family farm," Dutton Ranch President and co-owner Steve Dutton said. Otherwise, letting the land fallow and starting over may amount to a "\$40,000 to \$50,000 an acre" investment.

Dutton is taking part in a pilot program managed by the Sonoma County Winegrowers that's helping seven farms and vineyard growers maintain soil health.

Within the association's pilot partnership, San Francisco-based Wilbur-Ellis — an international marketer and distributor of agricultural products with a facility in Healdsburg — has combined a modern approach with an old mining technique.

A sensor resembling a cylinder created by Ontario, Canada-based SoilOptix is attached to farm equipment that travels across rows of vines collecting gamma rays emitted from the soil. The electromagnetic radiation measures and maps out soil moisture, nutrients and minerals, such as calcium, magnesium, potassium and sodium, which the device detects up to a foot below the surface.

The goal is to improve the dirt's organic matter — the primary principle of regenerative farming.

"I was surprised it was able to give data about organic matter," Dutton said.

Prior to this method of analyzing the soil, crop farmers and wine grape growers were required to dig pits throughout the property to determine the soil viability.

"It's important to understand the texture of the soils. The information we produce with this technology will help, even if the driest of conditions continue for years," SoilOptix Global Support Manager Zach Harmer said, referring to California's extended drought period.

Joining Dutton Ranch, Sangiacomo Family Vineyards, Redwood Empire Vineyards, Munselle Vineyards, Sanchietti Farming, Vimark Vineyards and Robert Young Vineyards have signed on with the pilot announced by the association in July during its inaugural "Farm of the Future" summit. With the collaboration two years in the making, the pilot is intended to last at least five years.

"These farms are looking for ways to increase the longevity of their investment. With 95% of the vineyards here still family farms, regardless of what happens with Mother Nature, they'll have the ability to pass on the farm to the next generation," Sonoma County Winegrowers CEO Karissa Kruse said.

The grape grower trade group executive added, "It takes time to change the composition of the soil," while standing outside her Guerneville Road office adjacent to Dutton's Sunny View Vineyards in Santa Rosa.

Kruse was overseeing a recent SoilOptix sensor demonstration over the 17-acre site in the Russian River Valley, home to some of the most acclaimed pinot noir on the planet.

Like the temperamental nature of this varietal, soils vary by climate, topography and terroir. Sonoma County, in particular, boasts 19 American Viticulture areas and microclimates — with more soil types than France. The gamma readings represent a history of DNA in the soil — with Sonoma County providing a living lab for agriculture stakeholders from which to learn and make critical changes when tending to the farm.

Going deep with irrigation methods

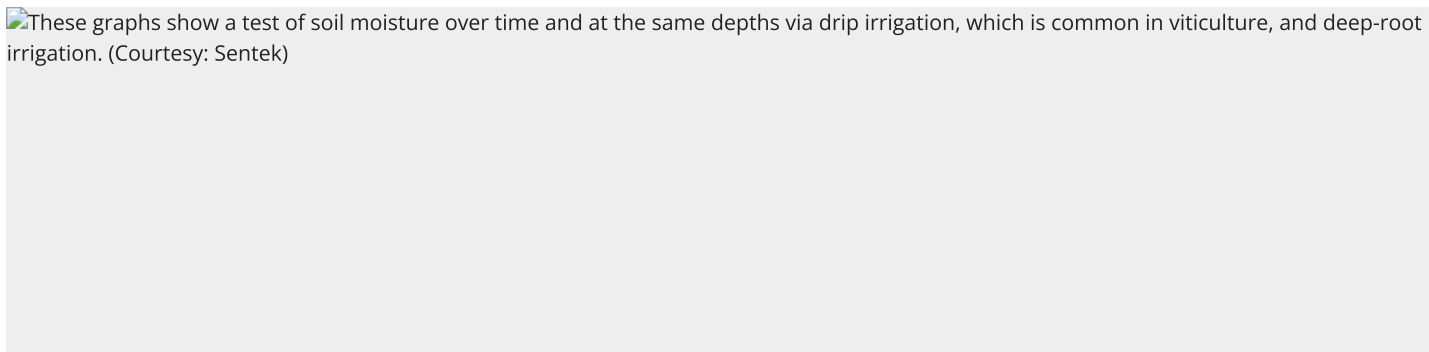
Among other next gen ag innovation is a company collaboration run by two brothers, Jeremiah and Jeff Ciudaj, who grew up in Angwin. Now they run Deep Root Solutions in Middletown out of Lake County and Deep Root Irrigation in Burlington, Iowa, respectively.

Their dual companies manufacture and distribute a device that injects water and fertilizer deep in the root zone. Their findings show using the wand-like device to supply water to the crops cuts usage in half.

Jeff's aha moment came about a decade ago while on the job as a tile and stone contractor working at an estate. He learned how poor of a delivery system surface watering was when it came to keeping plants moisturized over time.

"I'm an inventor, so I thought about how to get the water below. When you put the water in the ground, you create a (pool) that lasts longer," he said.

His 50,000-square-foot warehouse in Iowa assembles the wands. It has grown, doing business with 18 companies that supply more than 2,000 farmers. The average order is 5,000 to 1 million devices.

These graphs show a test of soil moisture over time and at the same depths via drip irrigation, which is common in viticulture, and deep-root irrigation. (Courtesy: Sentek)



These graphs show a test of soil moisture over time and at the same depths via drip irrigation, which is common in viticulture, and deep-root irrigation. (Courtesy: Sentek)

"I can tell you the available market is \$10 billion," Jeff said, while declining to disclose current revenue of the company.

His brother, Jeremiah, of Deep Root Solutions, represents one in four companies supplying services for the companies. The Napa native has seen the effects of drought firsthand in Wine Country.

"Because there's been so much drought, everyone's depleted the water supply. There's an urgency for water not there," he said.

One of the company's clients, Stag's Leap Wine Cellars, uses the device in its young planting section on 140 acres in the Napa Valley.

"We're able to irrigate less with it and are happy with the water savings," said Kirk Grace, the renowned winery's director of vineyard operations.

Grace, who considers himself a steward of the land beyond serving as a vineyard tender, knows the Ciudad brothers and said he is happy about their success.

Making the savings count

An Occidental ag tech company that has developed an anti-leak irrigation valve helps farmers reduce water use and cut labor costs. The valve detects leaks and sends signals to an app indicating how and where the leaks are occurring.

"We can look at the diagnostics and tell if the water is flowing," said Lumo founder and CEO Devon Wright.

He has determined the average labor savings from fixing a faulty valve system adds up to \$350 per acre annually, while water savings amount to 53,361 gallons in a year per acre. The company also claims to reduce energy costs.

Lumo's irrigation valves, which launched last year, are designed to replace antiquated analog technology. The company has raised \$3.9 million in venture capital and landed 17 customers over 42 farms, ranging from Wente Vineyards in Livermore to Clos du Val in Napa Valley. It took in \$100,000 in revenue for its first year and plans to make 10 times that amount in a year, Wright said.

The entrepreneur calls the science "climate adaptation" and the innovation "irrigation on the go," since farmers may read an app to receive readings on their crops' water usage.

"While the wine industry has been quick to adopt smart irrigation technology, there are so many opportunities for other agricultural sectors to follow suit," Wright said. "I'm realizing now these growers want this technology, especially since drought is not going away."

Susan Wood covers law, cannabis, production, tech, energy, transportation, agriculture as well as banking and finance. She can be reached at 530-545-8662 or susan.wood@busjrn.com

WINE INDUSTRY REPORT NEWSLETTER

LAST WEDNESDAY OF THE MONTH

Subscribe to the Business Journal's monthly Wine Industry Report newsletter.

Subscribe Now

Hide Reader Comments



Sponsored

Early Signs & Symptoms Of Alzheimer Seniors Should Look Out For

FavoriteSearches

Warning: 14 Products To Never Buy At Costco

Financial 10

New Policy In Ontario Helps Canadians (With No Life Insurance) See If You Qualify

Covered For Life

Canadians: Doctors Stunned - Do This Every Evening & Lose Your Weight

Burn Belly Fat

Elderly Canadians say it's like having a new pair of knees

Healthy Tips

Puppy Refuses To Leave Railway Police Turns Pale When They Realize What He Is Hiding

Housediver


0 Comments

 Login ▾

G

Start the discussion...

LOG IN WITH

OR SIGN UP WITH DISQUS 

Name



Share

Best Newest Oldest

Be the first to comment.

Subscribe

Privacy

Do Not Sell My Data

Sponsored

Puppy Refuses To Leave Railway Police Turns Pale When They Realize What He Is Hiding

Housediver

Canadians: Doctors Stunned - Do This Every Evening & Lose Your Weight

Burn Belly Fat

[Watch Now](#)

Warning: 14 Products To Never Buy At Costco

Financial 10

Early Signs & Symptoms Of Alzheimer Seniors Should Look Out For

FavoriteSearches

Elderly Canadians say it's like having a new pair of knees

Healthy Tips

New Policy In Ontario Helps Canadians (With No Life Insurance) See If You Qualify

Covered For Life

[Learn More](#)