BETA

FORBES > LIFESTYLE > SPIRITS

Sonoma County Winegrowers Use New Technologies To Reduce Carbon Footprint

Liz Thach, MW Contributor

Dr. Liz Thach writes about wine business and wine lifestyle.

Follow

0

Sep 26, 2024, 07:00am EDT

Updated Sep 26, 2024, 06:26pm EDT

Using smart farming technologies in the vineyard GETTY

What does the future of grape farming look like? Well, it appears that it may be a combination of AI technologies, Mother Nature, and humans working in concert to grow higher quality grapes

while reducing their carbon footprint at the same time.

BETA

According to Karissa Kruse, President & CEO of Sonoma County Winegrowers, "*Our Farm of the Future Initiative* is an open invitation to collaborate with our forward-thinking farmers in creating a 'living lab' for proof of concept of technology, practices, and equipment specifically for high value, specialty crops."

Given that the value of Sonoma County's winegrapes were $716.8 million in 2023, and with over 1,800 grape growers who provide jobs for thousands of local workers, it is important that vineyard owners continue to find ways to ensure a high-quality harvest and protect the environment.

Recently, Sonoma County Winegrowers tested three new technologies in the vineyard, which are not only helping them to grow high quality grapes – resulting in higher quality and more complex wines - but also reducing farming costs.

These three technologies include: 1) SmartApply® Intelligent Spray Control System from John Deere; 2) Arbiter Carbon Monitoring System by Agrology, and 3) the Wilbur-Ellis SoilOptix Soil Mapping process.

Each technology is described in more detail below, along with implementation results. In addition, I was able to conduct an email interview

with some of the participating grape growers, who provided feedback on results.

BETA

Karissa Kruse, President and CEO of Sonoma County WineGrowers SONOMA COUNTY WINEGROWERS

#1) SmartApply® Intelligent Spray Control System from John Deere

The technology works by using light detection and ranging technology (LIDAR) to analyze each individual grapevine. Then it automatically adjusts spray volume based on foliage density and needs.

Given that Sonoma County vineyards are 99% sustainably certified, many of the sprays are

organic or softer in nature, and are used to manage issues such as powdery mildew.

BETA

The results to date, on 2,200 acres of vineyards, show that the SmartApply® Intelligent Spray Control System used 30% less spray than is normally used. This resulted in substantial cost savings for spray products.

Grape grower, Steve Sangiacomo, a 3rd generation farmer with Sangiacomo Family Vineyards and Sangiacomo Family Wines, was pleased with the results. “Preserving and protecting farming is at the forefront for us and John Deere,” he stated. “Smart Apply is a great example of a technology that allows us to operate more efficiently and conserve resources.”

Tyler Klick, Co-Owner and Viticulturist with Redwood Empire Vineyard Management, also saw positive benefits. “John Deere is using and developing new technology, and if we as growers can work with them on this, it advances our expertise and sustainability efforts and really helps integrate technology into farming which can be hard to do efficiently.”

“The business and environmental impact that we both can achieve through programs like this is enormous,” stated Sean Sundberg, HVC Business Integration Manager with John Deere.

BETA

Smart Apply Intelligent System in Vineyard SMART APPLY

#2) Arbiter Carbon Monitoring System by Agrology

Another interesting technology, the Arbiter Carbon Monitoring system, created by Agrology, allows grape growers to track the amount of carbon that is sequestered in their vineyard soil, as well as the overall health of the soil.

Obviously, the more a vineyard can sequester carbon, the fewer carbon emissions are released into the atmosphere, which will allow them to lower their carbon footprint. Healthy soils are those that have more soil microbial life, organic matter and water holding capacity (which is especially important during a drought cycle).

Some of the methods to increase carbon sequestering and create more healthy soils include cover crops, no or low tilling of soil, compost application, and increasing soil organic matter. Farmers involved in this test implemented these methods in specific vineyard blocks and then

measurements were taken using Agrology's Arbiter Carbon Monitoring System.

BETA

The result showed that the untreated vineyard areas stayed constant at about 1 gram of CO_2 per square meter per day throughout the growing season, but the treated blocks showed an average of 4.8 grams of CO_2 per square meter per day by harvest. This shows that sustainable/regenerative farming practices led to higher levels of CO_2 sequestration.

Furthermore, Agrology was able to measure 3.3 times higher soil respiration on average in the treated vineyard area compared to the untreated control area. This suggests higher soil biological activity, which can lead to improve grape quality, yield, carbon-sequestration, and water holding capacity.

"Increasing water holding capacity can lead to less water stress, water conservation and cost savings which are all important in farming," stated Karissa Kruse. "For example, if the extra water holding capacity in the soil can lead to one less vineyard irrigation cycle a season, that would equate to about an $80 per acre cost savings - if you used the average cost of water in Santa Rosa, CA right now, the closest city to our vineyard sites."

Mark Sanchietti, Owner and Founder of Sanchietti Farming Inc., was excited about the results of this technology in his vineyards. "I think

BETA

it is great that we are trying to quantify and learn more about our vineyards, especially looking for measurables. It's like adding a new tool to our toolbelt that we've never had before."

Healthy Vineyard in Sonoma County With Cover Crop Between Rows SONOMA COUNTY WINEGROWERS

#3) Wilbur-Ellis SoilOptix Mapping process

The third technology is the Wilbur-Ellis Soil Mapping process, which can be used with Agrology's carbon monitoring system. Wilbur-Ellis has created a new SoilOptix gamma ray technology that collects 335 data points per acre to map soil variability. From this they can take soil samples to analyze deficiencies, and then prescribe amendments to build the soil up, such as adding compost, gypsum, potassium and cover crops.

Steve Dutton, President and Co-Owner of Dutton Ranch, is a 5th Generation Sonoma County Farmer, and he is impressed with the results to date.

BETA

"The goal of our pilot program with Wilbur-Ellis is to increase the soil organic matter which supports carbon sequestration and increases the water holding capacity in the soil. This is important for climate stewardship and overall soil health," stated Steve.

Based on implementing the mapping recommendations, Steve was "able to realize a large increase in soil organic matter (O.M.) levels across multiple soil types, from an average of 0.76% at the start to an average of 2.14% after treatments. A 1% increase in soil O.M. equals an additional acre inch water holding capacity-about 27,000 gal per acre."

However, in the end, Steve believes there is still a need for people in the vineyard. "There is no replacement for boots walking the vineyard, but these partnerships and being able to incorporate technology, better data, and best practices are helping us be better farmers," he reported.

Graduates of the 2023 Sonoma County Fundación de la Voz de los Viñedos Leadership Academy. SONOMA COUNTY WINEGROWERS

Keeping People in the 'Farm of the Future'

BETA

Despite the benefits of the new technologies in the vineyard, Sonoma County Winegrowers is also investing in it's vineyard workers with the *Sonoma County Fundación de la Voz de los Viñedos Leadership Academy*.

In the Academy they are not teaching farming skills, but are introducing vineyard workers to topics such as finance, human resources, healthcare, wine appreciation, conflict resolution, and other important topics so they can become the leaders of the future.

So even with advanced technologies and AI applications in the vineyards, employees and Mother Nature still have an important role in creating world-class grapes and wine.

Indeed, according to Karissa Kruse, the benefits of the technologies and the Academy go far beyond Sonoma County, and can be shared across regions. "This is critical for the long-term preservation of agriculture and our multi-generational family farms in Sonoma County and far beyond," she concluded.

Follow me on Twitter or LinkedIn. Check out my website or some of my other work here.

Liz Thach, MW

Follow

Dr. Liz Thach, MW, is a wine writer based in Napa and Sonoma, California. Her writing focuses on global wine business strategy, marketing and wine lifestyle stories. She covers wine... **Read More**

BETA

Editorial Standards Forbes Accolades

One Community. Many Voices. Create a free account to share your thoughts. Read our community guidelines here.

Log in

Be the first to comment...

No one seems to have shared their thoughts on this topic yet

Leave a comment so your voice will be heard first.

Powered by OpenWeb Terms | Privacy | Feedback