

WINE

Regenerative Viticulture: Trendy Buzz Word or Revolutionary Farming Philosophy?

A new certification program aims to define this carbon-capturing farming practice, which some believe could transform vineyards and combat climate change

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published
January 25, 2021



Paul Dolan's 160 acre certified biodynamic Dark Horse Ranch in Mendocino County is up for Regenerative Organics Certification this year. Illustration courtesy of Truett Hurst.

Tom Gamble, the proprietor of [Gamble Family Vineyards](#), says his family has been practicing regenerative agriculture at their 100-year old Napa Valley estate since they made the transition from farming and ranching to planting vineyards in the 1960s—long before the term even existed.

What makes the regenerative philosophy unique—and superior—to sustainable viticulture, Gamble says, is that “it requires one to consider the entire ecosystem under one’s stewardship—not just what happens on the piece of land directly farmed.” Like regenerative farming expert Robert Rodale, who’s [credited with coining the term in the 1980s](#), Gamble believes that sustainability doesn’t go far enough, or in the words of Rodale, it’s “not a challenging enough goal.”

“Like Rodale, I’m also not against organics and biodynamics,” says Gamble. “Both approaches make us think more deeply about what we are doing. But regenerative agriculture takes the thinking a step further.”



Regenerative viticulture has become a buzz word in the wine world recently, yet there's still some confusion as to what specific practices set the philosophy apart from organic or sustainable grape growing. A new [certification program](#) launched by the [Regenerative Organic Alliance \(ROA\)](#) aims to change that. Founded in 2017 to create specific standards on how to implement regenerative farming into various agricultural industries worldwide, the ROA offers certifications in numerous sectors of the industry, from commodity crops to textiles. Globally recognized businesses such as [Patagonia](#), [Nature's Path](#), and [Guayaki](#) are [certified members](#).

Grape growing for wine production is a new frontier for the ROA. In November 2019, the organization certified its first winery, [Tablas Creek Vineyard](#) in Paso Robles, California, and six wineries in the application process.



Eyrie Vineyard. Photo courtesy of Eyrie Vineyard.

What Makes Regenerative Different?

Paul Dolan, a fourth-generation winemaker (most famously at Fetzer) and cofounder of [Truett-Hurst Inc.](#), is widely regarded as a founding father of organic and biodynamic viticulture. He sits on the board of the ROA and offers his definition of regenerative agriculture: “Farming that uses natural processes to build restorative elements in the space in which we farm. Farming in service of life.”

What exactly does that mean? The major distinguishing factor of the regenerative farming philosophy is the emphasis on restoration, which translates to a hyper-focus on topsoil and cover crops. Gamble explains that by increasing biodiversity, improving the water cycle, enhancing the ecosystem, and supporting biosequestration—capturing and storing greenhouse-gas carbon dioxide (CO₂ emissions)—the regenerative farm strengthens the health of its own soil *and* increases the earth’s resilience to climate change.

Permanent cover crops not only sequester up to two additional tons of carbon per acre, but they also improve underground microbe and vertebrate diversity, and increase water absorption and retention, explains Tom Gamble.

The ROA protocol is based upon the most basic organic farming methods as defined by the [National Organic Program \(NOP\)](#), then builds from there to include specific protocols to improve soil health, animal welfare, and social justice. “To truly be regenerative, one must go above and beyond current mainstream agricultural production certifications,” says the ROA’s executive director, Elizabeth Whitlow. In Whitlow’s experience, these more “mainstream” certifications separate the core elements that define regenerative organics into singularly focused programs, while the ROA certifications encompass them all.



Tom Gamble. Photo by Alan Campbell Photography.

How Carbon Sequestering Works

By using petrochemicals and fuel for equipment and employing certain processing procedures, a conventionally farmed vineyard emits more carbon than the plants can consume during photosynthesis.

The goal of regenerative organics is to simultaneously decrease carbon emissions and increase carbon uptake and storage, primarily through the use of cover crops. Permanent cover crops not only sequester up to two additional tons of carbon per acre, Gamble explains, but they also improve underground microbe and vertebrate diversity, and increase water absorption and retention.

“If you can build a ‘sink’ to capture moisture *and* you have a natural resource for nutrients, the vines basically have everything they need right there,” Dolan says. “The fungal activity promoted by cover crops, the mycelium that grows in the soil, has a wide-reaching effect,” he explains. In other words, the cover crops slough off the carbon processed through the root system during photosynthesis so that the soil is able to store even more carbon.

Jason Haas, the proprietor and general manager of Tablas Creek, the ROA’s first certified producer, points out that vines, which serve as permanent cover crops, are well set up for carbon sequestering. “Vines are a crop that lives for 100-plus years and builds root systems the entire time,” he says. “Furthermore, as grape growers, we also have the opportunity in the winter [during dormancy] to focus on what we can do when the vines aren’t photosynthesizing,” Haas adds, referring to seasonal cover crop rotation. “Basically, what you’re trying to do, year-round, is make sure the farm has a role in pulling carbon dioxide out of the atmosphere and turning it into something useful for the soil and vines.”

Although most organic programs permit tillage, regenerative agriculture strongly discourages its use, Gamble says. “Tillage in vineyards is a mechanical means of

sterilization, arguably more so than chemical weed spray,” he explains. “The bulk of the life cycle of the vine is conducive to no till.”



Sheep in a Tablas Creek vineyard; livestock as natural grazers and fertilizers reduce carbon emissions. Photo courtesy of Tablas Creek.

Considering Animals and Social Justice

According to Dr. Yichao Rui, Ph.D., a soil scientist for the [Rodale Institute](#), farms that use livestock as natural grazers and fertilizers can further aid carbon reduction . Research at the Rodale Institute, which partners with the ROA, has proven that pasture-based livestock farming practices, used in combination with low/no-till cover cropping, sequester the most carbon. “Soil fertility comes not just from the crops, but also from the animal manure. It’s an organic source with a very low carbon-to-nitrogen ratio,” Dr. Rui says. “[The manure] acts as a readily available nutrient source for the microorganisms. In turn, they can store and stabilize carbon and keep improving the soil.”

The ROA's Whitlow calls the process "holistic grazing," and adds that "It's a beautiful harmonization that these animals rotate through the vineyard to help graze down cover crops between vine rows, add manure, and stir up the soil, so you don't have to mow or till. It benefits the animals, the vines, and the soil."

As part of the ROA program, farms must also provide livestock with what Whitlow says are "internationally recognized keystones" of animal welfare. The ROA refers to these practices as the "five freedoms": freedom from discomfort, stress, hunger, pain, and to express behaviors natural to their species.

Modeled after respected social certifications in the world, including [Fair for Life](#) and [Fair Trade International](#), the ROA also outlines what farmworker fairness looks like. "We may think that we're this developed country and take care of our workers with labor laws," Whitlow says. "But that doesn't always apply—especially if you're a migrant worker."

Haas says it was the farmworker wellness pillar that truly opened his eyes to how regenerative agriculture goes above and beyond the standards of the estate's other certifications. "There were things that we were already doing—paying a living wage, making sure working conditions were safe and good," Haas says. "But the ROA certification also requires that you involve your farming crew in collaborative decision-making."

Tablas Creek now holds roundtable discussions with all crew members, who have a chance to offer suggestions and implement their ideas in the field. "There's a level of engagement and investment that you build with your crew that's different than if you're just providing direction," Haas observes.



Jason Haas in tall grass. Photo courtesy of Tablas Creek.

Tasting the Results in the Glass

Conversion requires a significant investment of time and money. Depending upon the state of a vineyard's soils, it could take many years to build up the necessary organic matter and fertility needed for the farm to become self-sufficient, Rui says. This lag could result in reduced grape yields.

Yet the payoff of conversion extends beyond the benefits of establishing a climate-friendly farm to the quality of the wines, says Jason Lett, the proprietor and winemaker of [Eyrie Vineyards](#) in McMinnville, Oregon. Lett's family has been practicing regenerative viticulture on their estate vineyards since his father first planted vines back in 1965. The fields have never been chemically fertilized, plowed, or irrigated, and a "living carpet" of native plant life grows among the vines. According to Lett, practicing regenerative viticulture for generations results in wines with greater complexity.

"The more diverse mix of plants you have above ground, the more the diverse mix

of soil organisms you have underground, and these integrate with the vines,” he says. It’s these different interactions that Lett believes contributes to the marked differences between his single vineyard wines.

Radio Coteau proprietor Eric Sussman began regenerative restoration on his 42-acre Sonoma County estate back in 2012. Sussman calls his farm an “agroecosystem” that he and his team are always working to make more regenerative in nature. “It’s a dynamic platform and forever changing,” he says.

For him, the work in the field benefits his non-interventional winemaking approach. “There’s a lot of life in the vineyard—on the ground, in the air, and we see it when we bring the fruit in,” Sussman says.

As a result, Sussman can be more hands off in the cellar. Grapes ferment with native yeasts without the need for additional nutrients. Sussman believes that his wines are more restrained in style but have a notable and more pronounced character. “We inherently have wines with energy in them. We’re making refined, natural wines in a natural way,” he says.

There’s evidence to support such claims. According to studies, produce grown in a regenerative environment is more nutrient-dense. “It’s about the plant-microbe interaction,” Rui explains. “Strong roots are very important for nutrient transfer from the soil to the plant to make the plant strong. Now, we’re starting to understand that some of the nutrients in the vegetables and fruits are coming from the soil, synthesized by the healthy fungal community.”



Rudy Marchesi in Montinore estate vineyard. Photo by Andrea Johnson.

Why Some Aren't Convinced

Not everyone is a believer. “Regenerative viticulture is just a new descriptor for what we in the biodynamic and organic world have been doing all along,” says Rudy Marchesi, a partner at [Montinore Vineyards](#) in Oregon’s Willamette Valley, who has been a leader in biodynamics for decades. “The carbon sequestration that is being promoted as a key component of regenerative agriculture occurs in all farming systems that increase the organic matter in soil. It’s just new packaging.”

Marchesi believes that biodynamic certification remains the international gold standard in farming best practices. He argues that biodynamics goes above and beyond regenerative standards and benefits “from its international network of farmers, producers, and researchers that continue to use and improve the farming standards.... and provide a more evolved and relevant set of guidelines that lead us further along the path of quality.”

Hal Hinkle, the owner of Sei Querce in California's Alexander Valley, wants to see the regenerative movement produce more evidence behind its carbon-sequestering claims. "For us, the reach needs to get to science-based carbon sequestration," he says. "I'm not sure how many farms will take this approach to climate because it is not trivial. Without consumer buy-in that leads to commercial differentiation, it could be hard to grow ROA significantly."

As a result of the climate crisis, Hinkle has chosen to partner with Cool Effect, a company fighting carbon pollution with offsets. "As farmers, we want to do everything we can in our farming and winemaking practices to limit carbon emissions, but we recognize we will still fall short," he says. "By working with Cool Effect, we are real time offsetting our current shortfall and not delaying and hoping to catch up later."

Yet even skeptics and naysayers see the value in the nascent regenerative viticulture movement. "The evolving regenerative movement is a positive thing in that it brings attention to farming practices and the effect on our food, environment, society, and culture," says Marchesi. Hinkle agrees: "The ROA program is another good step in a world of proliferating standards, and the key to restoring natural systems is to go beyond the wine industry. We need to be globally effective across all crops."

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