



SOIL HEALTH BOTTOM LINE PROGRAM

MARCH 2021

A Farmer Profile in Sustainability

Ken Kupperman, Jackson Family Wines

Introduction

Ken Kupperman manages the Gran Moraine Winery Estate vineyard in Yamhill County, Oregon, for Jackson Family Wines. As Vice President of Vineyard Operations Oregon, Ken implements sustainable farming practices such as cover cropping, minimum tillage, nutrient management, and low-input pesticide use. Located in the northern Willamette Valley, the vineyard consists of 35 acres of Pinot Noir with marine sedimentary loam soils atop rolling hills. Ken’s educational background includes an undergraduate degree in Environmental Studies and a graduate degree in Horticulture. During Ken’s career, he studied drip irrigation overseas, developed apple orchards in Washington State, and managed large vineyard operations in California.



The Gran Moraine vineyard was originally planted in 2009. In 2013, Jackson Family Wines took over the vineyard from prior management and established the Gran Moraine Winery Estate. Ken implemented practices to meet the LIVE standards, including nutrient management, minimal tillage, judicious use of pesticides, and enhanced Ecological Compensation Areas. Soil health challenges in the vineyard include erosion and compaction, associated with prior practices of full tillage and minimal volunteer cover. The region, in the Yamhill-Carlton AVA, receives relatively high amounts of rainfall, averaging 43 inches per year, of which 6 to 8 inches per year occurs during the growing season. The vineyard

is not irrigated. In 2014, Ken introduced cover cropping as part of vineyard floor management to control vine vigor and minimize erosion and compaction. Additional steps to improve vine balance and optimize crop levels were taken, such as intensive pruning, thinning, and cluster positioning. Ken reports greater soil stabilization, less runoff, improved nutrient availability, better overall soil health, and improved fruit-wine quality.

“My approach to sustainability is through whole-farm management, being detail-oriented with vineyard operations and

inputs, and being a steward of the land,” says Ken.

He strives to benefit the environment, support biodiversity, and maintain worker satisfaction. Ken participates with the Salud Program for worker health care, in support of the vineyard and winery’s employees. Inside the vineyard, his objectives are to improve soil health, minimize pesticide and fertilizer use, optimize vine balance and fruit quality, and produce ultra-premium wines. The vineyard is LIVE Certified, which documents sustainable practice adoption through third-party certification. Ken’s commitment to sustainability is spurred through his participation with numerous wine industry organizations. Ken co-chairs the Willamette Valley Viticulture Technical Group Research Committee of the Oregon Wine Board and participates with Oregon State University in on-farm research studies. A forward thinker, Ken says “My goal is to keep learning and improving. Fortunately here in

Key Facts

COUNTY: Yamhill, Oregon

WATERSHED: Greater Yamhill Watershed

CROPS: Wine grapes

FARM SIZE: 650 acres

STUDY AREA: 35-acre Gran Moraine Winery Estates

SOILS: Marine sedimentary loam

SOIL HEALTH PRACTICES: Cover cropping, nutrient management, minimum tillage, Integrated Pest Management (IPM), minimized off-site inputs, LIVE Certified

American Farmland Trust aims to elevate the role of farmers and farmland to adapt to and mitigate the effects of climate change. From policy and training to on-the-ground demonstration projects, we are working to scale up the adoption of climate-smart agriculture practices and ensure a resilient future for the land that sustains us. Our **SOIL HEALTH BOTTOM LINE** program supports on-farm research that showcases the economic and environmental benefits of using soil health practices.

the Willamette Valley there is a strong group of like-minded people who work collaboratively towards common goals.”

Cover Crop Practices

Ken plants two distinct seed mixes that serve as cover crops. A soil-builder blend is planted in every other row of the alleyways, and a perennial grass seed mix is planted in the alternate rows. The soil-builder blend is planted annually each September before harvest and consists of triticale, peas, oats, vetch, crimson clover, and annual ryegrass. It serves to add organic matter and reduce water use for vine balance, important under dry farmed conditions. It is re-planted in the same row during the following year.

The perennial grass seed mix is planted in the alternate rows and includes ryegrass and fescues. The grasses serve as resident vegetation and may have a lifespan of several years. It is replanted as needed, typically every two or three years. In order to reduce compaction and maximize cover crop development, all tractor operations occur in the grass rows. This includes two mowing passes and a pass to mulch prunings. With the likeliness of rain during harvest, the grass vegetation in the tractor rows greatly decreases erosion. The presence of clover and peas serve to fix nitrogen, improve nutrient availability, and potentially allow Ken to reduce fertilizer applications. Tillage is used under the trellis and vine rows for weed control.

Economic, Water Quality, and Climate Benefits

Since 2014, the vineyard has seen improvements in soil health and fruit quality due to the cover crop plantings, improved vineyard floor management, and highly intensive vine management. Ken reports “Crop load and vine growth is in better balance, fruit profiles have improved, and we are reaching our yield and quality goals.”

Cover cropping costs a total of \$80 per acre per year, of which the seeds cost \$40 per acre and planting costs (equipment and



labor) another \$40 per acre. The vegetative growth from the cover allows Ken to reduce tillage, at a savings of \$50 per acre, resulting in a net increase in costs of \$30 per acre. There were no significant changes in fertilizer or pesticide costs between 2013 and 2020.

Although he found an increase in production costs from adopting sustainable practices, Ken states that the cover crop benefit is an integral part of long-term sustainability and far outweighs the nominal costs. Ken cites multiple advantages that are difficult to quantify and vary each season. “Cover crops reduce dust and insect pressure, provide plant nutrients, and allow earlier access to the vineyard after rains. The benefits are real but somewhat intangible. Cover cropping is well worth it and is a major part of our operations.”

Water Quality and Carbon Sequestration

The USDA’s Nutrient Tracking Tool (NTT) was used to calculate the water quality benefit due to Ken’s sustainable farming practices. Soil and farm input data, such as fertilizer, tillage, and cover crops, were collected. The NTT found a 5% reduction in nitrogen losses and a 34% reduction in sediment losses, when comparing 2013 farm inputs with 2019 inputs. These values

show a significant benefit to soil and water quality, documenting potential decreases in leaching, runoff, and soil erosion, and improvements in nutrient availability.

USDA’s COMET-Planner tool estimates carbon sequestration and the reduction in greenhouse emissions associated with sustainable farming practices. Farm data from cover cropping, nutrient management, tillage, mulching, soil type, and location were entered into the tool. COMET-Planner found a reduction in greenhouse gases and the sequestering of carbon equal to 15 metric tons CO₂-equivalent per year, or equal to the carbon sequestered by 20 acres of forests grown in one year.

Closing Thoughts

Ken’s thoughtful, visionary approach to viticulture is centered on his philosophy towards stewardship and long-term viability. He is a strong advocate for sustainable practices that enhance the environment, sequester carbon, and reduce greenhouse gas emissions. “I’m both a farmer and a student of farming. My goal is to reduce inputs, improve soil conditions, and grow the highest quality grapes possible. I believe that my vineyard management is on the right course, but I’m always researching and learning about the best ways to be sustainable.”

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