



Vineyard View

Measuring Sustainability

The wine community has embraced the concept of sustainability like no other cropping system. Since the early 1990s win growers and winemakers have been committed to moving along the sustainability continuum, from less sustainable to more sustainable. For the most part, progress has been measured by implementing and tracking practices.

Furthermore, all of the existing sustainability certification programs (such as *Lodi Rules for Sustainable Winegrowing*, *Sustainability in Practice*, *Certified California Sustainable Winegrowing Program*, National Organic Program, and Biodynamic® Farming) are practice-based. University and government programs designed to improve environmental and social conditions on and off the farm also are based on implementing what have been labeled best management practices, or BMPs.



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In all cases, the underlying assumption is that the practices being recommended and implemented are improving one's sustainability performance. Once practices are implemented, however, very little if any follow up measurements are made to find out if, in fact, these practices are having the benefits attributed to them.

During the past few years, sustainability proponents have shown increasing interest in measuring the outcomes of practices as a more direct way to gauge sustainability performance. Measurements used to quantify this performance are called perfor-

Highlights

- Vineyard sustainability proponents are interested not just in growers using sustainable practices, but also in measuring the outcomes of those practices.
- To gauge sustainability performance in water use, for example, a grower should measure water use over time in relation to crop yield and quality to verify improvements.
- While California and national systems of performance metrics are being developed, great variability is expected between diverse vineyards. All parties should take care not to put too much value on individual numbers.

mance metrics. Winegrape growers already use some performance metrics, such as yield per acre and cost of production per acre. Wineries track cases of wine produced, the cost of production per case and numbers of cases sold. However, while these are important there are many others that could be used as well.

A change in approach

Measuring performance rather than tracking practices is a change in approach to determining levels of sustainability. For example, if we implement practices to improve water-use ef-

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efficiency, then we should measure water use over time in relation to yield and quality to see if our practices are, in fact, improving water-use efficiency.

The logic in this approach is if we are implementing practices to achieve a desired outcome, then why not measure the outcome directly to gauge success? In this example, water use per unit of production is the performance metric. Other performance metrics are energy use per unit of production, nutrient inputs per unit of production and measures of biodiversity, greenhouse gas production and water and air quality. It is relatively easy to develop metrics and measure outcomes for things such as water use. Metrics to measure the outcomes of practices in other areas, such as human resources and ecosystem management, are much more challenging to develop and measure.

At this point in time, the groups showing the most interest in having growers start using performance metrics in their farming operations are buyers in the supply chain. While this may not be the case for wine, it is certainly true for many food crops. Buyers such as Wal-Mart, Unilever, Sysco and PepsiCo are encouraging their suppliers to use at least some performance metrics to

measure their sustainability. This kind of pressure is causing consternation for some growers. Their concern is that collecting the necessary data required by the metric will increase their farming costs, yet their buyer will not pay them any more for their crops. In other words they are concerned using performance metrics will become a market-access issue rather than adding value to what they grow.

Performance metrics provide buyers with information about how the crop is produced.

Some in the wine community have concluded that performance metrics are not something to be concerned about because wine buyers in the supply chain are not influenced by the same things as buyers of produce and other food crops. While this might be true at the moment, the growing concern and media con-

versation about topics such as climate change, greenhouse gas production and water quality will likely result in wine and winegrape buyers being concerned about performance metrics. Some wineries already are marketing their vineyards and wineries as carbon neutral, indicating a move in this direction.

Incentives for growers?

Why should winegrape growers and wine-makers be interested in learning about and using performance metrics in their operations? Hopefully there will be more incentives than just ensuring market access. It is very likely that using performance metrics over time such as water use, energy use and nutrient inputs will identify areas within the vineyard or wineries where more efficient processes and practices can be implemented.

By measuring and tracking outcomes, it will become evident which practices are resulting in desired outcomes and which are not. Those not having an effect can be discontinued. However, just as there is a lack of economic data to show the benefit of many of the sustainable practices growers implement, there is also a lack of economic data showing



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the benefits of using performance metrics—in part because the concept is quite new for agriculture.

The manufacturing industry has been using performance metrics for quite a while and has completed many case studies of how tracking things like fuel consumption in trucking of products or energy consumption with a manufacturing process has led to redesigning processes and implementing practices that resulted in significant savings.

Other potential benefits of using performance metrics are to provide buyers with data that meets the ever-increasing need for transparency of information about how the crop is produced. We have already heard a great deal about the carbon footprint of a vineyard or winery; it will not be long before people want to know about the water footprint and energy footprint, too. If data from performance metrics can be aggregated for a region or state, it can convey the collective dedication to achieving measurable sustainable outcomes to regulators, the media and consumers.

The California Sustainable Winegrowing Alliance (CSWA) was formed in 2002 to encourage sustainable practices in the



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vineyard and winery. Through its Sustainable Winegrowing Program (SWP), CSWA has had amazing participation from the California wine community. To date, a total of 1,680 distinct winery and vineyard organizations representing more than 65% of California's wine case production and nearly 70% of the winegrape acreage have used CSWA's Code of Sustainable Winegrowing Practices self-assessment workbook to evaluate the sustainability of their operations.¹

CSWA's program has, until now, been focused on implementing practices. However, it is embracing the next step in sustainable winegrowing, which is incorporating some performance metrics into its grower outreach and education program.

Metrics for California

With financial support from the Natural Resource Conservation Service's Conservation Innovation Grant program, CSWA has initiated a project to adapt an initial set of environmental performance metrics for the California wine industry to support individual and industry-wide performance tracking, goal setting and continuous improvement. The metrics are being chosen from those developed

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by the Stewardship Index for Specialty Crops (SISC), a multi-stakeholder project with the goal of developing a common set of performance metrics for use throughout the specialty crop supply chain. I described the SISC program in my May 2009 Vineyard View column, "Introducing the Stewardship Index."

CSWA's sustainable winegrowing program joint committee is recommending the initial set of metrics based on criteria that include economic and environmental impact, data availability from winegrowers and winemakers, ease of use and the state of the science on which the metrics are based. The SWP joint committee is a group of more than 50 growers and vintners from organizations throughout California.


The project will create an online performance metrics sustainability portal that growers and winemakers can use to calculate metrics for their operations and access educational information that will help in using the metrics. The metric results will be transferred confidentially to the SWP online system for storage and reporting, similar to how the self assessment of sustainability practices for vineyards and wineries has

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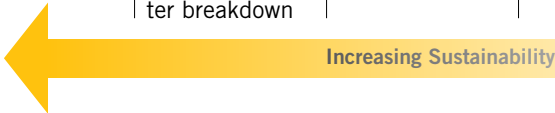
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Continuum of Increasing Sustainability—Soil Management

CRITERIA	CATEGORY 4	CATEGORY 3	CATEGORY 2	CATEGORY 1
4-8 organic matter (Skip if organic matter sufficient for your soil type)	A combination of organic matter is added to the soil annually (e.g. permanent or annual cover crop, compost, and/or manure). <i>And</i> Tillage is reduced or eliminated to lower the rate of organic matter breakdown	Some form of organic matter is added to the soil annually (e.g. annual cover crop, compost, manure or a combination of cover crop and manure or compost).	Resident vegetation is allowed to grow in the winter.	No organic matter is added to the soil other than what the vine produces and resident vegetation is minimized in the winter. <i>And</i> The vineyard is clean tilled.



Source: California Sustainable Winegrowing Alliance

Performance metrics vary from one growing season to the next, from one region to another, from one crop to another and so forth.

been handled in SWP's self-assessment workbook program.

The goal of CSWA's performance metrics project is to incorporate the metrics into the SWP's free online system where growers and winemakers can confidentially store data, track improvements over time and access tools and resources to help minimize operational costs and benchmark their performance relative to their peers. Later this year CSWA will be convening workshops throughout California to pilot test the metrics and the online system with winegrowers and winemakers. I encourage California winegrowers and winemakers to attend one to learn about and pilot test the metrics chosen by CSWA and begin to understand the future direction of sustainable winegrowing.

For those of you outside California, you can participate in the SISC pilot test project, which is available to any winegrower or winery in the United

States. For more information about SISC, visit stewardshipindex.org.

A word of caution

It is important as we move into this new era of measuring sustainability performance that we do not forget about the variability in biological systems. The calculation of one performance metric for a season is one number, but it is important to remember that the calculation from this metric will vary in space and time. Performance metrics vary due to differences from one growing season to the next, from one region to another, from one crop to another and so forth.

The danger I see is that people will focus on a single number from a metric calculation rather than analyze the much more complex variability of numbers over space and time. However, understanding what is causing the variation will be the most valuable information in improving sustainability performance. At this time, because of the variability likely to occur from one region to another, I think performance metrics will be most valuable for a winegrower or winemaker to use within their operations, tracking them over time and making adjustments in practices based on the outcomes. **lv&v**

Dr. Cliff Ohmart is vice president of professional services for SureHarvest. Previously he served as research/IPM director at the Lodi-Woodbridge Winegrape Commission. He has been writing about sustainable winegrowing issues for Wines & Vines since 1998.