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CASE STUDY

Robust and reliable, an automated analyzer increases efficiency at a Napa Valley winery

Merryvale Family of Wines

Merryvale Family of Wines includes the brand names Starmont, Brown Ranch, and Profile. One of the buildings they currently occupy on Main St. in St. Helena, California was the first winery constructed in 1933 shortly after the Repeal of Prohibition in the United States and is considered a favorite among tourists visiting Napa Valley.

Starmont Winery and Vineyards, a member of Merryvale Family of Wines, is situated at the crossroads of Carneros and Napa Valley, two major wine growing regions in Northern California. Occupying a portion of historic Stanly Ranch, this region has been growing grapes for over 150 years and is renowned for its Chardonnay and Pinot Noir varietals. The Starmont name became an integral part of the Merryvale family about fifteen years ago for the purpose of delivering high quality wines at approachable prices. At that time, fifty acres of Stanly Ranch property were acquired and they constructed a state-of-the-art “green” facility on the site capable of recycling 100% of the winery’s process water, diverting 98% of production waste away from local landfills, and generating electricity to power 250 homes each day. Their current wine portfolio includes Pinot Noir and Chardonnay, as well as Cabernet Sauvignon, Merlot, Sauvignon Blanc, and Rose.

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Close to one year ago the laboratory at Starmont hired a new Enologist, Tommy Jimenez, who was quickly appointed to Associate Winemaker overseeing both the Merryvale & Starmont facilities for bottling, Lab, QA/QC, and experimentation. He updated their ailing equipment to include a Thermo Scientific™ Gallery™ Plus discrete analyzer. In the past they had used an old model plate reader which had many mechanical and software related issues leading to excessive time consumption and inefficiencies. In addition, its analytical process required manual rinsing, mixing, stirring, and shaking as part of the methodology forcing the former enologist to dedicate all her attention to the testing of samples.

The Starmont facility currently bottles about 200,000 cases per year and will soon grow to a capacity of 300,000 cases. In the past, one person would focus 12 hours per day, six days a week during harvest to complete all the required testing. They needed an automated solution to be able to do more tests using less manpower. For this year's harvest, an enologist and a new laboratory technician will complete the testing with oversight from Jimenez who also serves as "master troubleshooter" for all laboratory equipment.

Jimenez shared enthusiastically, "The benefits of using the Gallery Plus analyzer include its versatility, ease of use, and the real time saved."

Methods can be modified or altered for their specific needs and technicians can be quickly trained to use the instrument. In fact, they plan to train a few additional people from the manufacturing line as back-up to run some of the tests during the busy harvest season.

Jimenez said, "Now a person can multi-task. And, the Gallery is a very robust instrument. If it breaks down, it can easily be fixed."

Because wine is one of the more troublesome samples to analyze—with proteins and tartrates which adhere to equipment and low pH and phenolics which may interfere with analysis methods—most instruments used for testing tend to break down and will need to be replaced over time. Having a reliable, repairable unit allows the lab to run smoothly and reduce delays.

The lab at Starmont runs tests for D-glucose + fructose and both glucose and fructose individually. Other parameters measured include L-malic acid, acetic acid, and acetaldehyde as well as free and total sulfur dioxide, potassium, and color. In the near future, they plan to add tests for total polyphenol, copper, and iron. During harvest, the lab typically analyzes 50–100 samples per day. However, if they are doing a special run, they could test samples from 300 barrels for sugars (glucose + fructose) and acetic acid. Yeast likes glucose better so if the results indicate more fructose, the fermentation process is recognized as sluggish and as a result, a fructophilic yeast may be added. The presence of acetic acid will indicate microbial issues.

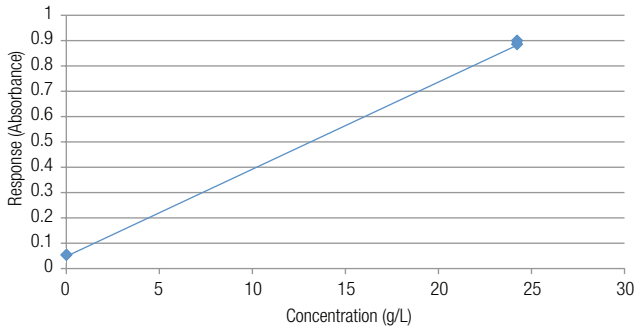

Figure 1. Glucose calibration

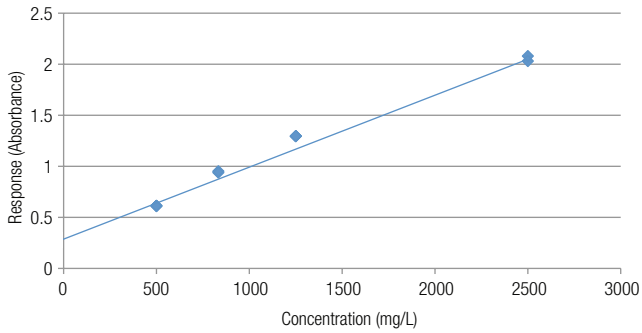

Figure 2. Potassium calibration

Jimenez selected a robust, reliable, repairable instrument in order to automate their testing procedures. As a result, Starmont winery reduced the amount of time consumed for testing and gained the ability to attend to other vital tasks, especially during the busy harvest season. Wine samples are typically measured for sugars, acids, potassium, color, and sulfur dioxide at various harvest and production stages.

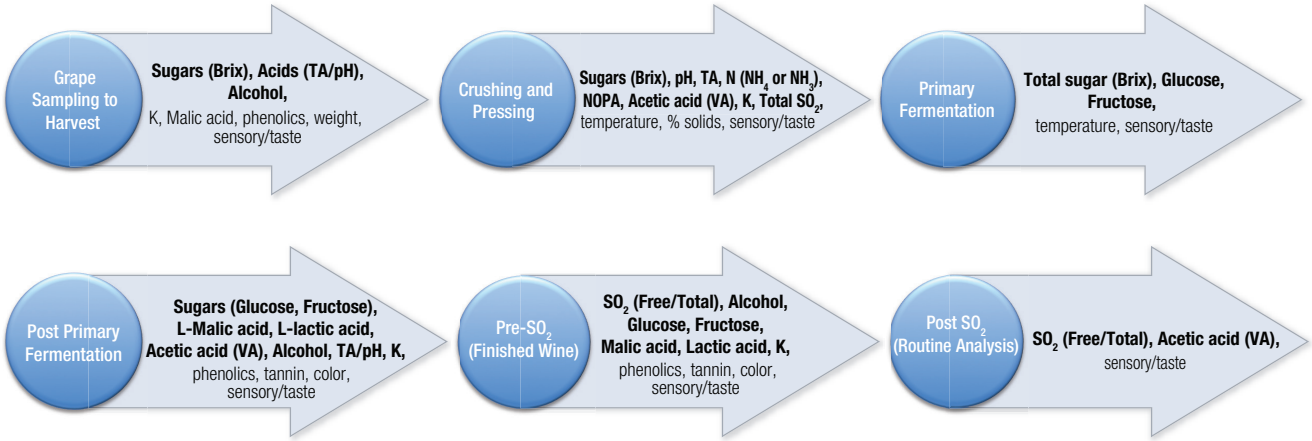

Figure 3. Typical analysis timeline*

* Adapted from: http://www.winemonthclub.com/the-wine-making-process.htm.

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