

BY DEBORAH PARKER WONG

Berry Sensory Analysis



A common language for describing maturity

If everyone on your winegrowing and wine-making teams shares a common language, there's less risk involved when it comes to making crucial decisions. Few would argue that the most crucial decision a winemaker faces is when to pick. Beyond establishing intentions for the style and quality of the finished wine, making confident, proactive picking decisions relies on accurately assessing levels of ripeness. This acquired skill is one that vineyard managers and winemakers typically master through trial and error as they learn to speak the same language when describing degrees of fruit maturity and other sought-after qualities.

Using the analytical method of Berry Sensory Analysis (BSA), a technique to describe the characteristics of grape maturity developed by Jacques Rousseau at the Institut Coopératif du Vin in Montpellier, France, and introduced in Northern California by Enartis Vinquiry in 2006, winemakers can confidently assess fruit quality for specific wine styles and, in turn, gain more control over harvest timing decisions and production methods.

Such is the case for Calistoga grower Gabriella Paoletti of Paoletti Vineyards, who has been making maturity decisions for 20 years. BSA has helped Paoletti quantify what was largely an intuitive and anecdotal process and she now

AT A GLANCE

- + Berry Sensory Analysis (BSA) provides a common language for describing the characteristics of grape maturity.
- + BSA is an accurate, rigorous method of sensory evaluation that limits personal variability and reduces risk.
- + It is used in conjunction with chemical analysis to provide winemakers with a precise assessment of maturity.
- + The technique guides winegrowers in making informed picking and winemaking process decisions.

tracks sensory data along with her chemical analysis. "After all of the years I've spent sampling, BSA made it easy to transfer those skills to my staff by breaking down the process so they could grasp it very quickly," she said.



Eglantine Chauffour of Enartis Vinquiry leads training sessions for growers and winemakers on the use of BSA.

At the onset of harvest last August, Eglantine Chauffour, technical winemaker for Enartis Vinquiry, led a morning-long training session on the use of BSA at Paoletti Vineyards. The parallels between the BSA technique that Chauffour was teaching and the analytical sensory evaluation of finished wine, a skill that is commonly taught and often debated, reinforce the benefits of using an accurate, rigorous method of sensory evaluation that limits personal variability and allows for the deeper analysis of a single sample and of a vineyard over time.

A SYSTEMATIC APPROACH

According to Chauffour, by combining a systematic approach to sampling and tasting berries in conjunction with chemical analysis, winemakers can improve wine quality and further reduce risk. "When producers are making fine, high-quality wine, they're always chasing quality," she said. "With the addition of this tool we can



RAYNOX, PERFECTING QUALITY TANKS FOR OVER A DECADE TO OUR CUSTOMERS REQUIREMENTS



QUALITY STAINLESS STEEL TANKS FOR THE WINE, BEER AND FOOD INDUSTRIES.

Fabricating stainless steel tanks for the winery, brewery and agri-food sectors is our core business. From well-designed standard models, to carefully crafted custom tanks, to complex on-site fabrications, we have assisted North American clients of all sizes. We build every tank we sell, ensuring their quality and craftsmanship meet our high standards. Our post-sales service is especially valued by our many repeat customers.



GET A QUOTE ONLINE
www.raynoxinc.com



**sales@raynoxinc.com | St-Cesaire, Quebec, Canada, J0L 1T0
 Phone: 450 469-4822 | Toll Free: 1 866 469-4181 | Fax: 450 469-2112**

increase quality by timing the decision to pick and we can manage less-than-ideal fruit by adapting the winemaking process to optimize the quality of the finished wine.”

When introducing the technique, Chauffour first explained the ripening process of the pulp, seeds and skins of the berry and summarized the characteristics of maturity. She emphasized the odorless flavor and aroma precursors that can only be released by enzymatic actions like that of saliva or yeast during fermentation: terpenes, thiols and norisoprenoides for fruity/floral flavors, hexanol, hexanal and C6 compounds for herbaceous aromas.

BERRY SAMPLING

Rousseau developed two levels of analysis, both of which are widely used in southern France, South America and to some extent, Aus-



Berry sampling should begin at the end of veraison. Photo: Randy Caparoso

A REVOLUTION IN RECEPTION TECHNOLOGY



*Delta Oscillys 100
Destemmer*



*Bucher Vaslin JLB 20
Basket Press*

FULL LINE OF WINERY EQUIPMENT

Receiving Hoppers, Conveyors, Destemmers, Presses, Pumps, Sorting Tables and Vistalys, our highly accurate optical sorter.

Call or email today for a customized quote. Leasing available.

Bucher Vaslin North America
sales.northamerica@buchervaslin.com
www.bvnorthamerica.com
(707) 823-2883

BUCHER
vaslin

tralia: a deep, quantitative method suited for lab trials and experimentation, and a practical method for use in the field. The sampling technique is the same for both methods.

Sampling typically begins once a week at the end of veraison and jumps to twice a week as the crop nears maturity. Sampling should always take place at the same time of the day and not immediately after rain. Each sample requires 200 berries with stems taken from representative rows. Alternating from the left to the right, sample five berries from the same points on each cluster: right wing, left wing, central shadow, central sunny and tip.

Growers such as Paoletti and Molly Scott, assistant grower relations manager at Justin Vineyards & Winery in Paso Robles, sample many different varieties and clones. At Justin, Scott uses BSA to create a picking map by marking rows with tall, PVC poles when the canopies are tall. Paoletti finds that virus will express itself differently each year, so she tags those vines for a later picking date. “Using this technique, we’re furthering wine quality by pre-sorting the fruit on the vine,” she said.

PRACTICAL BERRY SENSORY ANALYSIS

In-the-field analysis looks at four parameters – technological ripeness, pulp aromatic ripeness, skin ripeness and seed ripeness – and scores the maturity level for each using a scale of whole numbers from 1 to 4.

From the representative sample of 200 berries, randomly choose four to eight berries for each tasting and repeat the tasting three to five times, depending on the size and variability of the vineyard. "The first year requires more effort to become proficient with the tool but it's easy to streamline the technique once you've mastered it," said Chauffour.

The method for analyzing pulp requires some practice in separating the pulp from the skins and seeds in your mouth. Extract the pulp from the skins by crushing

each berry between your tongue and your palate. Isolate the skins and seeds in your mouth or spit them into your hand and then finish extracting the juice from the pulp.

Assess the texture of the pulp from 1) gelatinous, very acidic; 2) gelatinous, more acidic than sweet, adheres to skin and seeds; 3) more sweet than acidic, juicy, little adherence to skins; to 4) very sweet, very low acid, juicy, no pulp adhering to the skin. Then score the maturity level for technological pulp ripeness. "People have had trouble evaluating fruit because it's so sweet," said Paoletti. "This kind of analysis helps people taste through the sugar."

Aromatic pulp ripeness is scored as 1) herbaceous, 2) neutral/slightly green, 3) evident fruitiness or 4) intense fruity/jammy notes. Take note of any moldy, acetic acid, overcooked or abnormal fruit aromas.

Next, chew the skins 10-20

times using the same number of chews to evaluate skin ripeness by gauging the texture, softness and astringency of tannins and herbaceous/fruity aromas from 1) hard to chew, acid and herbaceous; 2) hard, green aromas dominate with some fruit, strong astringency; 3) soft, fruity aroma dominates with some astringency, color well developed; to 4) easy to chew, fruit aromas only, soft tannins and evenly colored berries.

Spit out the chewed skins and turn your attention to the seeds; lick them or crush them between your front teeth to assess tannin and astringency and gauge the color from 1) green, soft, astringent when licked; 2) brown and green, astringency during chewing, herbaceous; 3) brown with little green, most are crunchy, slightly herbaceous, grilled notes; to 4) dark brown, crunchy, crack easily, low astringency and toasted aromas.



T24 with sealed door

THE NEW EUROPRESS TANK PRESS 1-320 hl

Decades of experience, know-how and innovation are evident in the quality construction of all of our presses, resulting in many years of reliable performance. Open and Dual Presses also available.

Your advantages of a closed press system:

- Sealed door (option)
- Gentle pressing
- Large dejuicing area, unique channel design
- Juice outlet fittings can be closed for fermentation or maceration time
- Easy cleaning of the interior press drum and the removable drain channels

FOR THE LOVE OF WINE


Euro-Machines
Vineyard and Winery Equipment

West: 707-864-5800
East: 540-825-5700
info@euromachinesusa.com
www.euromachinesusa.com

OPTIMIZING WINE QUALITY

When you've finished, each sample will have a maturity profile that can point to a suitable wine style and production methods that would optimize wine quality. For example, a sample that receives "4s" across all categories indicates high-quality grapes at full maturity that are suited for big, concentrated red wines or full-bodied white wines, with barrel-aging potential. Production techniques could include long maceration and high levels of extraction, resulting in super-premium wines. During the training session, which was held on Aug. 20, 2014, berry samples of Three Palms Vineyard Merlot demonstrated this maturity profile. "In terms of sensory analysis, the BSA score cards are an amazing tool," said Scott, who evaluates fruit with Justin winemaker Scott Shirley and trains student interns who collect the berry samples in the technique.

Maturity profiles for no-defect commercial wines will score 2s for seed and skin ripeness, 3 for pulp aroma and 4 for pulp ripeness, while samples that score 1s, 2s and 3s for pulp ripeness, as did a berry sample of Oak Knoll Cabernet Franc, point to a sparkling wine style or still wines that will most likely require corrections during production.

The quantitative BSA method further expands on the practical method to include the texture of the berry and uses 19 descriptors to taste pulp, skin and seeds separately and scores them similarly. "By analyzing the fruit instead of waiting to analyze the must, you're one step ahead," Chauffour said. "With BSA, you can be proactive and adapt your process."

OTHER USES FOR BSA

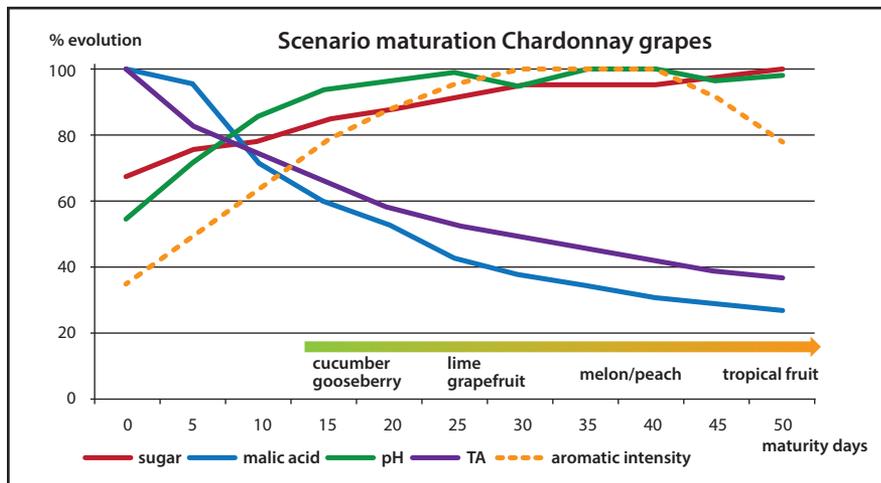
In addition to assessing maturity, Chauffour sees growers using BSA

we're using it as a vineyard management tool."

In cases when a winemaker is tasked with assessing fruit for the first time as it arrives on the crush pad, experience using BSA is more likely to result in winemaking decisions that optimize the overall quality of the finished wine. "If you've got fruit with less tannins and color, you can adjust during crush," Chauffour said. "Any corrections are better made as soon as possible for integration in the wine, effectiveness and for the winemaker."

.....
Deborah Parker Wong is the Northern California editor for *The Tasting Panel* magazine, and a long-time contributor to *Vineyard & Winery Management*. She earned her WSET Diploma in 2009.

.....
 Comments? Please e-mail us at feedback@vwmmmedia.com



BSA data and chemical analysis mapped against the flavor evolution in Chardonnay illustrate the optimal picking decision for any given wine style.

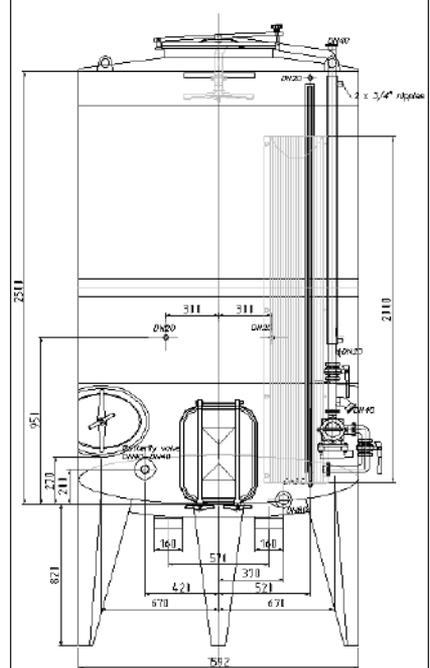
Samples that score 4s and 3s can indicate grapes at pulp maturity that haven't achieved complete phenolic maturity. They're suitable for use in good-quality red wine with less maceration and extraction and high-quality white wines with barrel-aging potential. A sample of Oakville Chardonnay from a shaded cluster was assessed at this level of maturity.

data to compare the results of different vineyard practices on fruit quality. "It can help you better manage your vineyards," she said.

Paoletti, who grows 100 tons of fruit, said: "Each little microclimate of each block has an individual weather pattern. BSA allows us to go into an area that's ahead and compare it to how ripening is progressing in other blocks;

Mio Vigneto Products

Custom Tanks & Fermentors
 Slovenian Oak Barrels & Casks
 Horizontal Membrane Presses



miovigneto.com
dwightb@miovigneto.com
(415) 531-6450