

Enology Notes #136

October 8, 2007

To: Regional Wine Producers

From: Bruce Zoecklein, Head, Enology-Grape Chemistry Group, Virginia Tech

Subjects Discussed in *Enology Notes #136*:

French Wine Study Tour and Visit to SITEVI

Juice and Wine Analysis Short Course, January 9 & 10, 2008

Issues in Winery Layout and Design Workshop, March 7, 2008

Sustainable Winery Design Considerations

1. French Wine Study Tour and Visit to SITEVI. A wine study tour is planned for November 26 to December 5, 2007.

This study tour has a maximum limit of 20 people. We still have a few spots for Virginia industry members, which will be held until October 15, 2007. After that date, open slots can be filled by industry members from any region.

The itinerary is as follows.

- Leave the US on Monday, November 26, 2007 for Montpellier, France (we hope to have all participants depart together from Washington-Dulles).
- Arrive at Montpellier airport Tuesday morning – *to Hotel*.
- Tuesday afternoon, November 27 and Wednesday, November 28 – Western Languedoc: *Focus on new styles of Languedoc wines (varieties, techniques) with stops at Skalli-Sète (Fortant de France), Institut Coopératif du Vin (experimental labs), Coop-Florensac (new blends) and Mas-de-Saporta (South of France Wine Alliance).*
- Thursday, November 29 – SITEVI at Montpellier: *Focus on new equipment for small wineries. In the afternoon, stop at Listel-Vin des Sables along the sea.*
- Friday, November 30 - Eastern Languedoc: *Focus on successful wines of the Southern East Bank of the river Rhône at Beaucaire and Tavel. Stop at Arles.*
- Saturday, December 1 - The Left Bank: gate of Provence: *Matching Mediterranean food and wines in the foothills of Alpilles and Luberon, from the antique city of Les Baux to Aix en Provence, along the olive trees. Stop at Château de Beaulieu, a key player in the new Provence styles.*
- Sunday, December 2 – The Appellations of Provence 1: *A diversity of "terroirs". Visit two wineries along the beaches at Bandol and Lalonde Les Maures producing whites (Rolle, Ugni blanc, Clairette, Grenache blanc, Sauvignon blanc, Semillon and Marsanne), rosés (Tiburen) and reds (Mourvedre, Grenache, Syrah, Cinsault, Carignan and Cabernet franc).*

- Monday, December 3 – The Appellations of Provence 2: *Focus on the rosé phenomenon. Day with the Association of Producers of Provence, visit and tasting at the new Experiment Center and at Château St Martin. Last tasting late afternoon at St Tropez, the hotspot for the European jetset.*
- Tuesday, December 4 – Back to the origin: *At St Honorat, tour of the first vineyards settled by the Greeks twenty-five hundred years ago, nestled along a monastery since the Middle Ages. Relax or some shopping in the afternoon. Goodbye dinner at a winery (Folle Noire and Braquet) around Nice. End of the tour.*
- Wednesday, December 5 – Depart from Nice airport (*or additional tour on your own along the French Riviera*).

For added insight to the nature of these study tours, go to www.vtwines.info, check On-Line Publications, France Study Tour 2002, or click Enology Notes Index, France.

For additional information see *Enology Notes* #135 or write bzoeckle@vt.edu

2. Juice and Wine Analysis Short Course, January 9 & 10, 2008. The Enology-Grape Chemistry Group will offer a two-day juice and wine analysis short course January 9-10, 2008.

This program will be a hands-on, practically-oriented laboratory course conducted in the Food Science and Technology Building at Virginia Tech, Blacksburg, VA.

Registration is restricted to 16. This two-day program will include the following areas, with emphasis on hands-on analysis.

- The winery laboratory
- Good laboratory practices
- Fruit processing basics
- Maturity indices
- pH basics
- Titration and titratable acidity
- Fermentable nitrogen
- Sugars
- Alcohol
- Protein stability
- Bitartrate stability
- Organic acids
- Volatile acidity
- Sulfur dioxide
- Sulfur-like off odor compound recognition and treatment

- Measuring dissolved oxygen
- Sensory evaluation exercises
- Visit and tour of the Enology Service Laboratory

The course includes a 100-page course manual with procedures and relevant discussions. Lunch is provided both days.

Copies of *Wine Analysis and Production* (Zoecklein et al., 1999) will be available to registrants for purchase at a 30% discount. This book is not required for the course, but represents a source of supplemental information.

Registration:

Registration is limited to 16 commercial wine industry members.

To register, send a check for \$475, made payable to Virginia Tech Foundation. Write "Wine Analysis Short Course" on the memo line.

Mail payment to: Terry Rakestraw, Department of Food Science and Technology (0418), Virginia Tech, Blacksburg, Virginia 24061.

Provide full contact information, including winery name, your name, email address, mailing address and day-time phone number.

Space is not reserved until the check is received.

3. Issues in Winery Layout and Design Workshop, March 7, 2008. Dr. Bruce Zoecklein will coordinate a one-day workshop on Issues in Winery Layout and Design, as part of the 2008 Wineries Unlimited program, just outside of Philadelphia, Pennsylvania.

The program will cover practical topics of interest to those establishing a new winery, or expanding an existing facility, and will include the following: winery design considerations, examples of winery designs, integration of winery processing equipment, winery energy efficiencies, and green winery design components including caves, solar energy, and other sustainable features.

4. Sustainable Winery Design Considerations. The following discussion on aspects of sustainable winery design is adapted from *Winery Planning and Design*, Zoecklein (2007), a 200-plus page review, available in CD format from *Practical Winery and Vineyard* magazine. Additional details regarding the CD are available at www.vtwines.info.

In designing a winery or winery expansion for the 21st century, it should be acknowledged that the fundamentals of winemaking have not changed over the centuries, however, technologies utilized and functional winery designs have both changed dramatically. Today, most wineries are more than processing facilities, and certainly should have architectural merit if tourism is involved. Additionally, today's wineries must be efficient in terms of energy and resources, must be environmentally responsible, and must support the brand image desired.

Objectives of Winery Design Expansion Usually Include the Following:

- Establish a positive image
- Have a desirable location
- Produce wines of high and uniform quality
- Efficiently use raw materials, manpower, and energy
- Create a functional and expandable design
- Have low construction costs
- Optimize a desirable working environment
- Achieve acceptable environmental impact

It is now understood that there is not a dichotomy between sound environmental practices and economic enrichment, they are linked. 'Green' construction has become a trend, as Mother Nature's resources have been stretched beyond the limits of sustainability.

The long-term operational savings from sustainable designs and expansion may help to offset some of the initial costs. 'Green' or sustainable construction involves site planning, design, and construction, including the sustainability of the site, water usage, energy usage, environmental quality, and materials. The following sustainable winery considerations, adapted in part from Chauncey (2006), should be carefully evaluated in the initial phase of winery planning or winery expansion programs.

❖ Use cool-build materials:

- If metal roofs are utilized, use materials developed or painted with infrared reflecting pigments to lower the amount of heat-absorption from sunlight. This can create a cool roof.
- Cool roofs reduce heat absorption and cooling costs.

❖ Reduce heat loss or gain:

- Have portions of buildings underground or partially underground to take advantage of the earth's constant temperature.
- Have barrel storage areas where walls are in contact with the earth, which can eliminate the need for cooling. Air movement from fan coil units, cooling an above-ground barrel room, dries out the barrels and increases evaporation. To help control this problem, winemakers humidify this space, adding cost and some additional potential problems.
- Barrel rooms that do not need cooling will promote less evaporation.

- ❖ Consider geothermal heating and cooling:
 - Water circulates in a sealed loop that extends well into the earth.
 - In the winter, the water absorbs heat from the earth and carries it to a compressor which raises the temperature.
 - In the summer, the water takes heat away from the building and transfers it to the earth.
- ❖ Use regional materials and local fabricators:
 - This helps to reduce transportation impacts and stimulates the local economy
- ❖ Use building and construction materials with a high percentage of recycled content:
 - Straw construction buildings are becoming more popular. Straw is the inedible stock of grains such as wheat, rice and rye.
- ❖ Orient buildings to take advantage of solar energy or maximize shading
- ❖ Optimize the use of shading:
 - Blocking sunlight that would fall on building surfaces can dramatically reduce cooling loads.
 - Plant trees along the south and west faces of the buildings.
 - Install wall trellises, and grow vines or shrubs to shade walls.
 - Design sunscreens that shade and ventilate heat away from the wall surfaces.
- ❖ Consider low emissivity insulation on windows:
 - Metal oxide glazing can allow the sun's heat and light to pass through glass while blocking the heat from leaving the building, thus reducing winter heat loss.
- ❖ Increase daylight levels and outside views:
 - Add skylights or upper windows (clerestories), while avoiding direct sunlight on barrels or tanks.
 - Design additional windows and skylights in subterranean spaces to expand views to the outdoors from as many occupied spaces as possible.
- ❖ Design natural ventilation:
 - Design windows or louvers at or near the floor level of the winery to bring in cool night air that blankets the ground. By also opening a louver in the upper part of the winery, a passive ventilation system is created. Hot air that has been accumulated during the day can be exhausted through a louver in the clerestory area. The hot air leaving the winery pulls cool night air in the lower louver. Such purging can be done without mechanical equipment.

- ❖ Water usage:
 - Reduce water use by collecting wash-down water, settling/filtering, adjusting the pH, and using for irrigation of winery grounds.
 - Consider rainwater collection systems for landscape irrigation, etc.
- ❖ Sustainable site planning:
 - Use native and adaptive plants, and landscaping that will require minimum irrigation and helps to promote biodiversity.
- ❖ Use minimal exterior lighting and computerized cut-off fixtures, motion sensors, and/or timers for both interior and exterior lighting:
 - Use environmentally-sound lighting.
- ❖ Create a building with mass:
 - A thin-walled building with a metal skin and batt insulation allows heat (and cold) to penetrate more quickly than a thick-walled building.
 - Build with concrete, masonry, or stone, and sandwiched insulation.
 - Thick-walled buildings absorb heat all day long, and release it at night with little impact on the interior temperature.
- ❖ Consider the use of biodiesel and wind energy
- ❖ Consider solar:
 - About 30 California wineries have installed photovoltaic panels to provide some or all of their electrical needs.
- ❖ Establish a recycling program

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All past *Enology Notes* newsjournals are posted on the Wine/Enology – Grape Chemistry Group’s website at: <http://www.vtwines.info>

To be added to (or removed from) the *Enology Notes* listserv, send an email message to rakestra@vt.edu with the word ADD or REMOVE in the subject line.

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