



**Enology Notes #151**

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**To:** Grape and Wine Producers

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**Subject:**

- 1. Winery Tasting Room Design and On-Site Marketing Meeting – November 14, 2009.**
- 2. White Wine Integration.**
  - a. The power of macromolecules in white wine structure.**

**1. Winery Tasting Room Design and On-Site Marketing Meeting – November 14, 2009, Dobson, NC. Registration and info available at [www.surry.edu](http://www.surry.edu) and at [www.vtwines.info](http://www.vtwines.info).**

As the overall economy continues to lag, an increased burden is placed on small producers to continue to increase on-site sales to maintain their economic sustainability.

Tasting rooms bring profit. The question is, how can that profit be increased? Due to the importance of on-site sales, the tasting room function and layout are critical.

This meeting brings together some of this country's leading experts in on-site wine marketing. Collectively, these West Coast speakers consult and work with hundreds of wineries, including some of the most prestigious in our industry.

This meeting is designed for those who have an existing facility and would like to gain some unique perspectives as to how to increase on-site sales.

The program will include case studies and provide sensory evaluations to illustrate important points. Sensory evaluations will include, for example, methods for re-training tasting room staff to optimize sales, and the impact of temperature, glass type, order of pour, etc., on wine perception and sales. Also included will be a discussion of the economics of various on-site sales components and strategies. This is a unique experience that will provide practical information for all wine industry members.

Speaker and additional details are posted at [www.vtwines.info](http://www.vtwines.info). Registration form available at [www.surry.edu](http://www.surry.edu) (see Events and Announcements on homepage).

The most common winery activities for cultivating visitation include those listed below. If every winery conducts all or most of these activities, how does a producer create a unique experience at his or her facility? This meeting will help to answer that question.

- Wine events
- Passport programs
- Partnerships with tour operators
- Regional websites and brochures
- Self-guided tours
- Wine routes
- Signage
- Regional wine slogans and regional identity branding
- Winery villages
- Experiential programs, such as blending seminars, creative food and wine pairing seminars, winemaking weekends, etc.
- Wine education centers
- Ownership programs, such as buy a barrel, a vine, time with winemaker making wine, etc.
- Renting winery space for customer winemaking

A *Wine Business Monthly* survey of 103 wineries throughout the country noted some interesting features:

- 50 percent of the wineries charge for tasting, and about half of these apply that fee to wine purchases.
- The average tasting fee is within the \$3-\$6 range.
- Not surprisingly, more West Coast wineries charge among the highest tasting fees, at \$10 or more.
- Small wineries and those not located in the west are more dependent on non-wine sales. This trend has certainly increased substantially.
- Tasting rooms account for an average of 68% of all sales from wineries producing less than 5000 cases, vs. 23% from wineries producing more than 500,000 cases.
- 67% of the wineries have a tasting room at the winery, about 20% operate an offsite tasting room, and about 10% have multiple tasting room locations besides the one at the winery.
- Wineries charge \$10-\$30 for salon style or sit-down tasting. These may include estate or premium wines not normally offered, sometimes in the barrel cellar or other unique or special winery location.

**2. White Wine Integration.** In today's highly competitive marketplace, wine consumers expect a well-balanced wine, often one that possesses a symphony of integrated aromas and flavors. To produce such a wine requires an understanding of the grape, and how each processing variable influences the balance of fruit, wood, bacterial, and yeast-derived aromas and flavors.

Structural and textural balance and harmony have been discussed in previous editions of *Enology Notes* (#84, 87, 90, 94, and 108). Unpleasant coarseness, or aftertaste involving bitter taste and/or the tactile sensations of astringency, hotness, or metallic character, can negatively impact wine perception.

Causes of structure and texture coarseness were reviewed by Gawel et al. (2007, 2008), who have worked extensively in this area. These include:

- Phenols, including hydroxycinnamic acids, flavonols, flavanols, and tyrosol
- Oxidative products
- Glycosides
- Wine alcohol and acidity
- Low concentration of macromolecules

Winemakers frequently attribute coarseness to phenolic elements, and attempt to resolve the perceived harmony imbalance by fining. Protein fining agents can impact mouthfeel by binding with phenols. However, the difference in the phenolic concentration before and after fining is often not large. This suggests that the sensory impact may be due, at least in part, to changes in components other than phenols.

Newly-fermented white wines should be settled for 24 hours to remove gross lees. Subsequent racking will remove secondary lees which contain macromolecules such as mannoproteins (see *Enology Notes* #106 and below). Such removal usually goes counter to the optimal integration of structural and textural components.

Additionally, if wines are fined prior to aging, some of the macromolecules are removed. Feuillat et al. (1987) showed that wine clarification can exert a negative influence upon sensory properties when the rate of eliminated macromolecules reaches approximately 30%. This may help to explain why different wines react differently to the same type and concentration of fining agent.

In white wines, the tannin intensity does not strongly correlate with the total concentration of phenols, including those listed above. Tyrosol has been estimated to comprise 10% of the total phenolic content of white wines (Myers and Singleton, 1978), while it was found to be the dominant profile in some white wines. Tyrosol is thought to be formed from the amino acid tyrosine by yeast during fermentation (Singleton and Noble 1976). Concentration depends on yeast strain and on the initial concentration of sugars and tyrosine in the must. Winemaking practices, such as oxidative must handling, may affect tyrosol levels in wine.

Many terpene-rich varieties, such as Muscats, Gewürztraminer, Viognier etc., can have palate coarseness. A correlation between bitterness and terpene glycoside concentration has been reported (Noble et al. 1988). The use of so-called flavor-enhancing enzymes, which contain glycosidic activity, are thought to contribute to the

problem. Glycoside hydrolysis releases volatile terpenes, possibly increasing aroma intensity, but also phenols, possibly increasing coarseness (see *Enology Notes* #29 ).

Alcohol impacts wine mouthfeel, being bitter-sweet and producing palate hotness (Scinska et al. 2000). This is an important feature in wines such as Viognier. A high alcohol level may enhance negative textural characteristics, such as hotness, roughness, bitterness, and metallic character.

**a. The power of macromolecules in white wine structure.** During *sur lie* storage, yeast components are released into the wine. These macromolecules can positively influence structural integration (Escot et al. 2001), phenols (including tannins), body, aroma, oxygen buffering, and wine stability.

Macromolecules can provide a sense of sweetness, as a result of bridging the sensory sensations among phenols, organic acids, and alcohol, aiding in the harmony of a wine's structural elements.

There are three general sources of the macromolecules in wine (Feuillat 1998):

- Grape – polysaccharides and proteins
- *Botrytis* – glucans
- Yeast – mannoproteins

Mannoproteins in the yeast cell wall are bound to glucans, and exist in wines as polysaccharide and protein moieties. They are released from the yeast cell wall by the action of an enzyme,  $\beta$ -1,3-glucanase.  $\beta$ -1,3-glucanase is active during yeast growth (fermentation), and in wine during aging in the presence of non-multiplying yeast cells.

Mannoproteins can impact the following:

- Integration of mouthfeel elements by interaction of structural/textural features
- Reduction in the perception of astringency and bitterness
- Increase wine body
- Encourage the growth of malolactic bacteria and, possibly, yeasts
- Contribute to protein and bitartrate stability of white wines
- Interact with aroma

The amount of mannoprotein released during fermentation is dependent upon several factors, including:

- Yeast strain. Large differences are noted among yeasts, in the amount produced during fermentation and released during autolysis.
- Must turbidity. The more turbid the must, generally, the lower the concentration. Mannoproteins released during fermentation are more reactive than those released during the yeast autolysis process in modifying astringency. This helps provide additional justification for measuring the non-soluble solids of juice pre-fermentation.

The protein component of the mannoprotein fraction is important for overall aroma stabilization (Lubbers and Violley 1994). Such interactions between macromolecules and aromatic compounds can lead to modifications of volatility and aromatic intensity of wines.

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