winemaking

Product Review: Yeast for Sauvignon Blanc

Selecting the yeast that best suits your style

Curtis Phillips

Curtis Phillips, an editor for Wine Business Monthly since 2000, is a graduate of UC Davis, and has been a winemaker since 1984 and an agricultural consultant since 1979.

THE HISTORY OF Sauvignon Blanc in the U.S. has been a fairly interesting one. According to received wisdom, the varietal was introduced into California in the 1880s by the Cresta Blanca Winery in the Livermore Valley. Since the vineyard was planted from cuttings from Château d'Yquem, Sauvignon Blanc appears to have formed the basis of the wine with which Cresta Blanca won the Grand Prix at the 1889 Paris Exposition. It is fair to say that, 90 years before Steven Spurrier's now famous Paris Wine Tasting of 1976, Sauvignon Blanc was the varietal that first demonstrated that Californian wines can be the best in the world.

SAUVIGNON BLANC STYLES

Sauvignon Blanc is often described using terms like "grassy, cat pee, gooseberry, tropical," etc. These terms may be descriptive, but I have been unsatisfied with their application to actual styles of making Sauvignon Blanc. It seems to me that the terminology, while properly defined in a formal sensory analytical sense, tends to be misused to the point of being pejorative. One taster's "cat pee" is another's "gooseberry." When someone describes a Sauvignon Blanc as an inherently derogatory term as "cat pee" or "tom cat," what they are really saying is, "I don't like Sauvignon Blancs that smell like Sauvignon Blanc." This is a perfectly valid viewpoint, but it doesn't really help us define any wine styles until these terms are related to the conditions under which the grapes were grown and the wine was made.

We've known for some time that methoxypyrazines, mainly 2-methoxy-3-(2-methylpropyl) pyrazine and near analogs, contribute to the "vegetal" aroma of Sauvignon Blanc (Allen, *et al.* "Contribution of Methoxypyrazines to Sauvignon Blanc Wine Aroma," *AJEV* 42:2, p. 109-112). If described with more specific adjectives than "vegetal," these aromas are described as bell pepper or green pepper.

Sauvignon Blanc grown under cool conditions tends to have higher levels of methoxypyrazines in their grapes than Sauvignon Blanc grown under hot conditions. The level of methoxypyrazines in the grapes is relatively high at veraison and decreases as the grapes ripen (Lacey, *et al.* "Methoxypyrazines in Sauvignon Blanc Grapes and Wines," *AJEV* 42:2, p.103-108, 1991).

Of course, methoxypyrazines aren't the whole story when it comes to Sauvignon Blanc. More recent research



has begun to look at the role of several volatile thiols in the characteristic aromas of Sauvignon Blanc. Thiols, by the way, are the sulfur analogs of alcohols. In the specific case of Sauvignon Blanc, it has been shown that the characteristic "box-tree," "grapefruit" and "passionfruit" aromas are mainly caused by three volatile thiols: 4-mercapto-4-methylpentan-2-one (4MMP), 3-mercaptohexan-1-ol (3MH) and 4-mercapto-4-metylpentan-2-ol

(4MMPOH). Interestingly, these thiols are all formed from non-volatile cysteinylated precursors during fermentation.

As a result, I've tried to approach the problem of making Sauvignon Blanc from a fresh viewpoint by asking: What are we trying to accomplish? Are we trying to accentuate the character of the grapes, transforming it, suppressing it? In this context, I think Sauvignon Blancs tend to fall into a small number of wine-styles: Varietal, Anti-Varietal, Oak-Influence and Botrytized.

I have one caveat I'd like to stress before proceeding. Although I'll be discussing individual wine styles and yeast characteristics, it is important to realize that there is not a one-to-one relation between Sauvignon Blanc wine styles

Sauvignon Blanc Yeast Manufacturers						
Yeast Manufacturers	Location*	Telephone	Web	Brand(s)	Vendor(s)	Strains Recommended for SB by manufacturer
AB Mauri	San Francisco, CA	415-477-2800	www.maurivin.com	Maurivin	GW Kent, Pacific Coast Chemicals	AWRI 796, AWRI R2, Elegance, PDM, Sauvignon L3
AEB Group	San Francisco, CA	415-824-1525	www.aeb-group.com	Fermol, Zymasil	American Tartaric Products	Fermol Sauvignon
Begerow	Reston, VA	703-673-1160	www.begerow.com	SIHA	AO Wilson, Vintners Supply Company	SIHA Active Yeast 7 (Riesling Yeast)
Chr. Hansen	Fresno, CA	559-485-2692	www.chr-hansen.com	Chr. Hansen	Gusmer Wine Lab	SYMPHONY.nsac
DSM	Parsippany, NJ	800-662-4478	www.dsm.com	Collection Cépage, Fermicru, Fe	rmivin	KLR Machines, Gusmer Wine Lab Collection Cepage Sauvignon
Erbslöh Geisenheim AG	Geisenheim, Germany	+49 (6722) 7080	www.erbsloeh.com	Oenoferm, Hefix,	IDL Consulting	Oenoferm Riesling
Esseco	Santa Rosa, CA	707-542-2719	www.enartis.com, www.essecousa.com	Enartis	Esseco USA	Challenge Aromawhite
Laffort	Napa, CA	707-815-0225	www.laffort.com	Actiflore, Zymaflore	Scott Labs	X5
Lallemand	Petaluma, CA	707-526-9809	www.lallemandwine.com	Anchor, Enoferm, Lallemand, Lavin, Uvaferm, Vitilevure	Scott Labs, Vinquiry; Lavin brand widely available.	Enoferm QA23
Lesaffre	France	707-838-6840	www.fermentis.com	Bio-Springer, Red Star	American Tartaric Products	CK \$102
MiTech **	San Francisco, CA	415-474-1588	www.winerystuff.com	MiTech	Pickering Winery Supply	MI-24
Oenofrance	Santa Rosa, CA	707-484-4378	www.oenofrance.com	Ceres, Levuline	Scott Labs	Levuline ALS
Phyterra	Napa	707-258-8333	www.phyterra.com	Phyterra	Phyterra	Phy-02
White Labs	San Diego	858-693-3441	www.whitelabs.com	White Labs	White Labs	WPL730 (Chardonnay)
Wyeast Laboratories	Odell, OR	888-WYEAST-1	www.wyeastlab.com	Vintner's Choice	Napa Fermentation Supply	4028 - Chateau Red, 4267 - Bordeaux
* Location of US subsidiary, if any: otherwise, location listed is main corporate location. ** Contact info for MiTech is Pickering Winery Supply.						

and yeast strain selection. There is no such thing as the perfect combination. Even the styles I note should not be considered immiscible groups. Rather, they should be considered as nothing more than convenient markers along a continuous spectrum of winemaking styles. My intent is to provide winemakers with nothing more than an outline or starting point from which they can conduct their own experiments.

In addition, I would like to note that, to my thinking, wines are very much determined by the vinevard. The vineyard climate, geology and cultural practices really determine most of the final wine's character. A cooler site and trellis that shades the fruit will maximize the potential for retaining the methoxypyrazines through to harvest. A trellis that exposes the fruit to more sunlight on the same site is likely to produce fruit with lower levels of methoxypyrazines while retaining the volatile thiol precursors that lead to more tropical fruit aromas. On a warm site, a trellis that shades the fruit may be needed in order to prevent sunburning the grapes.

Once the grapes get to the crush pad, heavy, manipulative winemaking tends toward mediocrity. As more "acts of winemaking" are inflicted on a must, the more likely the final wine will be in the middle of the quality bell-curve. This may be a good thing if the fruit isn't very good, which is why those of us that have made wine on a very large scale do it—but it's a tragedy if the fruit is superlative. Since I just don't have room to discuss vineyard practices in detail here, I am assuming that all the appropriate viticultural decisions have been made. More importantly, I have to assume that the winemaker is attempting to make the Sauvignon Blanc in a wine style that is appropriate for the fruit she's receiving.

VARIETAL SAUVIGNON BLANC Defining the Style

The style I'm labeling as "Varietal Sauvignon Blanc" could have been called "Maximum Sauvignon Blanc." The goal of this style is to try to maximize the potential SB-ish-ness, to coin an ugly term, and get it into the bottle. The stereotypical SBs in this style are those from the Marlborough Valley on the South Island of New Zealand, which are noted for their grassy and/or gooseberry flavors. However, I believe this stereotype focuses on a single climate a bit too much. The spectrum characteristic varietal flavors of Sauvignon Blanc can range from grassy and gooseberry to more tropical fruit flavors like passion fruit and grapefruit as we move from a cool vineyard to a warmer one.

The vineyard site and practices pretty much determine the levels of methoxypyrazines, so yeast selection and fermentation practices don't go very far in changing the "grassiness" of SB. According to some fairly recent research, the volatile thiols, which are responsible for the tropical fruit and boxwood characters, aren't produced until fermentation.

Important Yeast Attributes for Varietal Sauvignon Blanc

The key attribute for yeast used in this style of SB is to have the ability to convert thiol-precursors to volatile thiols. This attribute is labeled "Release Thiols" on the accompanying chart, but goes by various other terms like ß-lyase or ß-glycosidase activity depending on the specific yeast manufacturer. These strains are usually prominently labeled as being for Sauvignon Blanc. Examples include AEB Fermol Sauvignon, DSM Collection Cépage Sauvignon and Enartis Challenge Aromawhite.

Flora Springs winemaker **Paul Steinauer** doesn't rely upon ß-glycosidase yeast strains to produce a "Varietal" Sauvignon Blanc, however. He noted that, "[The] characteristics I'm looking for [are] a yeast strain that is very strong in low fermentation temperatures for one, also something that has high esters with fruit forward characteristics. Historically we have been using two Lallemand products: EC-1118 and ICV-K1."

A note about skin contact

I'm seeing a fair number of SB wines that are spending anywhere from an hour to a day on their skins before pressing. Having experimented with this practice myself off and on for the past (almost) 30 years, I've come to the conclusion that, when it comes to the fruit I've been able to work with, the practice doesn't really accomplish what some of its advocates say it should. My experience is that any increase in texture and aromatics is outweighed by an overall increase in bitterness in midand back-palate. Likewise, I have not experienced an increase in the terpenedriven tropical aromas in Sauvignon Blanc wines that are left on their skins.

ANTI-VARIETAL SAUVIGNON BLANC

If the goal of the previous style was to maximize the expression of SB's varietal aromas, especially the volatile thiols and methoxypyrazines, this style is all about minimizing these aromas. This is probably the most common SB style in California although the oakinfluenced style described below runs a close second.

The classic exemplar for an "antivarietal" Sauvignon Blanc would be those from the Loire Valley in France. These wines are often noted as having a mineral character and are frequently described in terms of texture rather than aroma and bouquet. The New World version of this style tends to be much more focused on fruity ester aromas rather than the terroir-driven mineral characters found in the Loire SBs. The main difference between typical Loire and U.S. winemaking is that the fermentation temperatures tend to be cooler in the U.S. This maximizes the amount of the volatile fruity fermentation esters that are kept in the final wine. Both versions of this style

may be aged *sûr lie* (on the lees) for some time after primary fermentation. Malolactic fermentation tends not to be the rule.

Important Yeast Attributes for Anti-Varietal Sauvignon Blanc

If one is trying to minimize the SB aromas, then one wants to avoid the thiol-producing strains described above. Similarly one would also want to avoid strains that release terpenes, that is, strains selected for Riesling and Muscat. The best choices tend to be those yeast described as neutral and vigorous, like PDM or EC-1118, or those strains most often associated with barrel-fermented *sûr lie* Chardonnay like the ubiquitous CY3079. Wineries trying to maximize the esters may end up using cold-tolerant yeast strains like ICV-K1 or BA-11.

When asked about his preferred yeast selections for Sauvignon Blanc, **Sonoma Wine Company** winemaker **David Elliot** stated, "I like Lalvin BA11 for SB, I get a good clean fermentation at low temperatures."

OAK-INFLUENCED SAUVIGNON BLANC

The oak-influenced SB style is often called the Fume Blanc style. The term was coined by the **Robert Mondavi Winery**, ostensibly in an effort to differentiate their dry SB, which they modeled on the barrel-fermented SB wines from Pouilly-Fume, from the sweet SBs, which in turn were supposedly patterned after Sauternes that were common in California at the time. It makes a good story, a good enough story that is retold as the official origin story of Fume Blanc in Robert Mondavi Winery marketing literature to this day.

In any event, "Fume Blanc" proved to be excellent marketing. The term Fume Blanc proved popular enough that it is now legally recognized as a synonym for SB as a varietal term. Now there are barrel-fermented SBs and steely unoaked Fume Blancs to the point that any differentiation between the two is really pointless.

None of this addresses the use of oak in or with SB. I find that the use of oak tends to mask or overpower the best of the fruity notes in SB. If it weren't for the obvious oak aromas, wines in this style would be indistinguishable from the "Anti-Varietal" SBs described above. In my opinion, the best exemplars of this style have a bouquet that is reminiscent of a passionfruit crème-brûlée. The tricky part is to balance the tropical aromas of the SB with the vanilla and caramel of the oak.

Important Yeast Attributes for Oak-Influenced Sauvignon Blanc

Ideally for a barrel-fermented white, one wants a low foaming, moderate to slow fermenter with low nutritional requirements. Cold tolerance is also a plus.

In the U.S. at least, oak-influenced Sauvignon Blancs tend to be made with the same strains as are used with barrelfermented Chardonnay. The CY3079 is probably the most popular of the non-PDM strains with some isolates like M05 rounding out the mix. I'm not a fan of oaky wines in general and oaky Sauvignon Blanc in particular, but my best successes making oak-influenced SBs have been when I used yeast strains that are not usually recommended for white wines like 71B and RC212. That said, Red Star Côte de Blancs is my goto yeast for this style because the results tend to be more consistent when used with Californian SB.

Robert Mondavi Winery winemaker **Richard Arnold** noted that, "We select our yeast for Fume Blanc based primarily on the sensory characteristics of the resulting wine (i.e., strong citrus and floral aromatic components with good vibrancy and zestiness in the finish). A few lots are challenges for VL3 and SVG to complete fermentation and I generally use QA23 with those lots."

BOTRYTIZED SAUVIGNON BLANC

Truly botrytized SB is really a specialty niche wine in the U.S. since the sales of all premium dessert wines are only a small part of the overall market. However, the arguably most famous SB, Château Yquem, defines the botrytized style. Following this example, a large number of SB producers make small amounts of SB dessert wine on a regular basis.

For more on Sauvignon Blanc from *Wine Business Monthly*, see:

- "Industry Roundtable: Sauvignon Blanc" by Lance Cutler in the May 2009 issue;
- "World Sauvignon Blanc Congress Takes a Technical Look at Sauvignon Blanc" by Lisa Shara Hall in the November 2008 issue;

Important Yeast Attributes for Botrytized Sauvignon Blanc

Because one is intending to make a wine with a fair amount of residual sugar, it's usually a good idea to select a strain that is fairly easy to stop. This means that you generally want a strain that is not ethanol-tolerant beyond 15 percent, not cold-tolerant below 10°C and not SO₂-tolerant above 50mg/l fSO₂.

THINGS TO REMEMBER ABOUT SAUVIGNON BLANC

Proper yeast nutrition is critical for making Sauvignon Blanc. Using copper sulfate to remove any H_2S is never desirable, but in the case of Sauvignon Blanc, copper binds with, and thus removes, the thiol and thiol precursors that give SB its unique aromas. Always measure free amino nitrogen (FAN) and supplement accordingly.

All wine, in particular all white wine, should be filtered unless it is absolutely dry and has fully completed malo-lactic fermentation.

It's easy to make good wine from great fruit if you just don't mess with it too much. Unfortunately, it's also easy to make bad wine from good fruit: just mess with it too much. **wbm**

- "Sauvignon Blanc: Mysteries of the Soil" by Bibiana Guerra in the May 2008 issue;
- "Sauvignon Blanc Earns a Solid Reputation" by Christopher Sawyer in the April 2005 issue.

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