

## Industry Roundtable: Filtration

### **Winemakers Discuss the Truth, Fiction and Consequences of Filtration in Winemaking**

By Lance Cutler

**I've written many times** about the winemaker's dilemma: for every gain in winemaking, there is some sacrifice. Let your fruit hang until it has fully matured and you have to deal with higher alcohols. Raise your fermentation temperatures to gain some complexity and you sacrifice some fruitiness. Even the wild pleasure of selling out of your wine means you have to worry about losing wine list positions because you can't supply goods.

When it comes to wine, there are not a lot of absolutes. That's one thing that makes filtration unique. With filtration, you're damned if you do and damned if you don't. Many winemakers are adamant about filtration. They don't like it. We all know **Robert Parker** is not a fan. The argument goes that unfiltered wine is more natural, has richer mouthfeel and more complex, subtle flavors.

Then again, most every winemaker has seen his unfiltered wine develop Brettanomyces character a couple of years after bottling. We've seen some residual sugar get gobbled up to give our Pinot Noir an ill-placed spritziness. We've watched sprightly, crisp Sauvignon Blanc get muddled and eggy.

Plenty of things can go wrong during a filtration. Wine can get oxidized or pick up odd flavors. Many winemakers believe that filtering can strip flavor and subtlety from our wines. We know the simple act of filtration reduces the amount of wine we end up with, and horror of horrors, filtration can make clean, sound wines that are uninteresting and have no character.



What's true and what's fiction? When should we filter and when can we confidently go into the bottle unfiltered? We collected a group of experienced winemakers and asked them.

**Christopher Howell** interned at **Mouton Rothschild** and **Clos du Val**. He worked at several wineries before landing at **Cain Vineyard and Winery** in St. Helena, California, where he has been general manager/winemaker since 1991.

Christopher Howell, David Noyes, Stefano Migotto

**David Noyes** started at **Ridge Winery** over 30 years ago. From there he went to **UC Davis** to earn a degree in Enology. He started as the first winemaker for **Kunde Estate Winery** in 1989 and stayed there until 2006 when he decided to focus full time on his **David Noyes Wines**.

**Stefano Migotto** ran his father's winery in Northern Italy for 12 years. He left with his wife for the United States where he worked at **Franciscan Winery** and then **Gundlach Bundschu** for a two-year stint as assistant winemaker. He started **Winetech**, a company specializing in wine filtration, in 1998.

*Do you have a philosophy toward filtration as being good or bad, desirable or undesirable?*

**David:** I think any handling of wine is desirable if needed. If filtration is not needed then it is undesirable. However, if it is needed then it's desirable because you can have better results with filtration than by blindly marching forward.

I've certainly had every experience in the book. I've not filtered when I should have. I've over-filtered when I shouldn't have. So my philosophy is to filter as needed.

**Chris:** Everyone thinking about filtration should remember the phrase, "First, do no harm." I don't think filtration is always bad, but I do think there is no free lunch. I believe there is always something lost for what is gained. We can say we should filter if needed, but what does that mean? Clearly, filtration has some impact on the wine.

**David:** If you are gearing your winemaking towards no filtration, then you make different decisions, and those decisions may affect the wine as much or more than the filtration. If you are trying to make an unfiltered, sweet white wine, then you need to have nerves of steel. If you are trying to make unfiltered red wine then you have to have stringent sanitary precautions in your winery and do a lot of testing or plan on aging the wine for two and a half years in the barrel so anything will work through.

**Chris:** All winemaking is a series of complex choices, and any choice along the way impacts the others. If you say arbitrarily that at the end of this I don't want to filter, that really needs to inform every choice. That's a really important point. Filtration can't be taken out of context because context is everything. I've learned that painfully myself.

**Stefano:** Our philosophy is to do the best that we can to achieve the highest quality. The highest quality is maintained when we use crossflow filtration. We have performed a series of blind tastings using the same wine before and after filtration. The filtered wine comes out the best, all the time. I've never had one tasting where that wasn't the case.

**David:** You said that in all of your tastings of filtered and unfiltered wines, your customers preferred the filtered wine. Is that a case of microbiological instability?

**Stefano:** No, no, no. That is just on a quality basis, no microbiological problems. We blindtasted on both white and red wines between one and two years after bottling. The filtered wine had brighter fruit. Some of the filtered wines were cleaner tasting, but the main thing was better fruit.

*One of the arguments against filtration is that you get cleaner wines, but you lose character and personality. How do you address that?*

**Stefano:** That doesn't happen in my experience. I can say that bad filtration will definitely destroy the wine. I will give you some examples: oxygen pickup, excessive temperature build up during filtration, wrong amount of DE overdosing the wine. With the new technology, most of these problems are gone.

**Chris:** We can all agree that a filtration badly done is a negative.

**David:** Yeah, but in some of the more complex filtration systems, there's more things that can go wrong. I just like to keep it simple.

**Stefano:** That's why we removed all the automation from our systems. I couldn't trust the accuracy of the computer. Now, if I make a mistake, I make the mistake. I don't want some computer to open or close a valve because some high frequency device is passing by. Now, all of our crossflow filtration machines are operated manually. That gives me better control of the process.

*But does filtration sacrifice complexity and personality for cleanliness and crispness?*

**David:** Well, I would say yes, but sometimes the personality needs to go to a therapist. I've tasted wines that tasted better, in the sense that they are more easily accessible, they're less dry and they are more presentable after filtration. There are other wines that have a lot of character to begin with that seem to lose something after a filtration, some little quirk or eccentricity or personality.

**Stefano:** I was filtering one day and the customer told me, "My wine had a characteristic before and now I don't have it any more." I was filtering with DE at that time. I smelled the wine and he was right. The wine before filtration had a leesy smell, and it was really cloudy. After filtration, it was plain. The problem with the wine was it had no characteristics, and when I cleaned it up, nothing was left. So if you call that *terroir*, or wine quality, then you are better off not filtering.

**Chris:** The core of what a filtration does by cleaning the wine up, in and of itself, is something that we may not want to do. Even if we can conduct a filtration without excessive oxidation and without brutalizing the wine to get this clean, attractive, fruity wine, we may prefer a wine that is more awkward but potentially more complex with more character. We may prefer to leave this complexity in the wine, even if it makes the wine less fruity.

**Stefano:** It depends on what the winemaker wants. That's what I am trying to achieve. I have an example that happens a lot with Sauvignon Blanc. You taste it before and the fruit is there, but it's not as bright as it should be. You have particles; you have colloidal suspension that actually covers the character. You can't even say it is complexity because you don't pick it up. After you filter the wine, it tastes complex, especially with Sauvignon Blanc.

**David:** I have a lot of experience with an ideology of non-filtration. I've also had a fair amount of red wines with Brettanomyces in the bottle. At one point, I felt like I wanted all the complexity to come from the intensity of the grape flavor because really good grapes have layers and layers of flavor. There's enough there that I don't need the added complexity of a tiny amount of Brettanomyces.

That said, a little bit of microbial flavor, a little bit of yeast character does add complexity. It adds another dimension. With filtration, some of that character remains in the wine, but it's stable. With unfiltered wines that dimension changes over time in the bottle in less predictable ways. In other words, each bottle of unfiltered wine has its own personality.

**Stefano:** I think filtration is just a winemaking technique. It's a choice. Wine doesn't need to be filtered every time. It's a tool for the winemaker. Sometimes the tool is exactly what the winemaker needs to achieve the kind of wine he wants for the consumer. Sometimes it's not needed.

**Chris: Emile Peynaud** completely agrees with Stefano. He says cloudy wine never tastes better than a clear wine, and filtration, properly executed, is always going to produce a better wine than one not filtered. In the United States, I think there is a perception among winemaking effetes that filtration equals technology and is therefore bad. In fact, the experience, as you have stated, is that every time people taste filtered versus unfiltered wines, they prefer the filtered ones. Peynaud, who I think is our most articulate French enologist, really spells it out. He says that same thing. That position has just been out of fashion. In most cases, though, I think the reason we are talking about filtration is risk management. It's not just about making the wine taste better.

**David:** Then there's this metaphysical quality. You can say that a wine is non-filtered, and people respond both economically and viscerally to that. That's the counter to that argument. Filtration takes on a meaning beyond the actual, physical process of filtration. It's seen as technological wine versus honest wine. Or from the other perspective, it's seen as professional wine versus amateur wine. Filtration is just one more of the many choices that are made from planting the grapes to drinking the bottle. Wine is made by technology, even if that technology is simply stomping grapes. In that sense filtration is like any other step in the process.

*How many winemakers have a clear understanding of how modern filtration systems work and what they can do?*

**Stefano:** A lot more now than a few years ago. If new customers don't know, they ask. They usually want a meeting and a demonstration. They are really well informed. They don't trust what people tell them. Also, all the publicity about crossflow has helped filtration. For a lot of people, crossflow was the magic tool. Put your wine through a crossflow filter and your wine will be perfect as well as stable.

**David:** That's the danger you run into. People look to technology as the savior of wine instead of using esthetic judgment and observation.

*If the longer hang times give us higher pH, and we would prefer not to filter, why don't we add tartaric acid to lower that pH?*

**Stefano:** You have a bigger, richer wine with higher pH, and that's what people like now.

**David:** Also, with the higher alcohol levels and the tannin extraction levels of these wines, you do have some anti-microbial effect. I'm not arguing for that, but it might explain why more people haven't run into trouble.

**Stefano:** It took a while for people to start experimenting with their winemaking. High pH was supposed to be bad, but people experimented and said, "Let's see what happens." Then they found they liked the wine with higher pH because the wine tasted richer and fatter.

**Chris:** So ultimately, we are still responding to our taste.

**Stefano:** Yes, but that's how it should be. We're drinking it, not taking a bath in it.

*What do winemakers have to do if they want to bottle unfiltered wine?*

**David:** You have to pray. Every step of the process has to be geared to safe bottling. We've all worked with a number of vineyards and we know that a number of those vineyards have a tendency to develop Brettanomyces; other vineyards don't. Sanitation in the cellar is critical. Knowing your cell counts before bottling is important.

**Stefano:** You need to know how much residual sugar there is. The free sulfur, pH and the alcohol content are other factors. That's going to give you an idea about how to handle the risk. You take all the factors into account, look at what kind of bacteria you have and then you make a choice.

**David:** It's also important to know the owners of the winery and understand how much risk they are willing to take. In other words, will you get fired if the wine goes off in the bottle?

**Chris:** I would love it if someone could give me a handle on the risk management side of the equation because I want to know what it takes to bottle my wine without filtration. There's never zero sugar, so it's always a question of how much. We don't have a practical, common sense approach to what standard represents a measurable degree of risk for a wine of this degree of alcohol at this pH with this cell count. Once you get down to professional recommendations, everybody says, "I can't really advise you to do any of these things."

**Stefano:** Suppose during crush you have a tank that stops fermenting. The next tank has the same grapes from the same vineyard and it goes dry. Why? Everything is the same, but the result is different. It happens a lot. That's why we cannot give winemakers a straight answer.

*We keep talking about filtration, but you winemakers both bottle without filtration. Why?*

**David:** I was raised in the no filtration dogma. I just have a visceral feeling that no filtration is better. If I had the wine tested and it showed no Brett and it showed none six months earlier, then based on that I might bottle unfiltered. And filtration is one more thing that can go wrong.

**Chris:** We don't filter the Cain Five or the Cain Concept. The non-malolactic Musqué is a white wine that's also bottled unfiltered. I went to French enology school where I was taught that filtration was fine. That filtration properly done would never damage the wine. I've been through many tedious triangular tests when either you can't tell the difference or the conclusion is less than clear. But there is a texture and mouthfeel in unfiltered wines that I think is slightly fuller. It gives more substance on the palate than the filtered wine. It's almost intangible. It's difficult to state technically. It's almost impossible to prove in a laboratory-based sensory analysis but, nonetheless, I just think there's that much more there. To me, unfiltered wine just seems to be more complete.

*What decisions are you making to enable you to bottle these wines without filtration?*

**Chris:** First of all, we do take risks. Second, we are watching sugars and cell counts. We interpret the results on our own. We ask the opinions of our laboratory, but we don't use the laboratory to tell us what to do. I think every analysis is a question, and every question leads to possible outcomes, so these analytical results are more likely to lead you down a technological path.

We want our sugar below 0.3 grams per liter. We want no history of high cell counts. We do cell counts several times over the life of a wine. Hopefully it's not gone above 100 cells per milliliter in its history. You have to take the time to watch the wine and observe its behavior. One of the things we do at Cain is to blend early so we can watch the wine. If you know the track record of the vineyard and know what it is likely to do next, these things can give you a certain degree of confidence. But it's no certainty of what might happen in the bottle.

**David:** I've bottled quite a number of Viogniers without malolactic fermentation. It had higher pH, but it also had high alcohol. I used to think you could bottle a red wine that had been through malolactic without filtration, but a non-malolactic white wine had to be filtered. But with Viognier there was this texture thing. It's a big wine, high alcohol, a little bit phenolic. It has the potential for being really awful unless there is a degree of richness to it.

**Stefano:** This comes back to my point that filtration is a winemaking tool. Right there, for you to filter would not improve the wine.

**David:** I brought a bottle of white wine that was sterile-filtered, and I felt for a year after bottling that I had hurt this wine. Now after a year in the bottle it is just wonderful. There is a degree of richness there and wonderful aromatics. So these decisions have to be made with some understanding of when the wine is going to be sold, how it's going to be sold. When I go to sell my wine and tell the buyers that it is unfiltered, you see that the buyers mentally put you in a different category.

*Maybe it's a matter of personal experience. Winemakers burned by microbial activity after bottling filter too often, while winemakers whose wines suffered from poor filtration techniques filter too little. Could that be the problem?*

**David:** I think our industry is very susceptible to that because it is a very new industry. It all developed after Prohibition. The boom happened in the 1970s and 1980s when most of us winemakers were all the same age, starting from the same perspective. We all made the same mistakes in the same order. So there is a tendency to think that everybody on the block was doing the same thing, so it had to be the right thing. The point I'm making is that a new tool may be overused because we all want to be at the cutting edge of a rapidly advancing industry--remember centrifuges?

**Stefano:** It's changing. Ten years ago I couldn't talk about filtration because winemakers were completely against it. I mean, filtration was accepted but only to fix problems. Then there was this crossflow filtration boom as a new technology about three or four years ago and everybody started filtering. They thought they could have the safety of filtration as well as perfect wine.

Now people have a different approach. They are looking at filtration as a technique to help them make wine. The attitude has changed. Filtration is better, and winemakers can see it for the tool it has become. We want to provide the final consumer with the safest, most natural way to achieve stable wine, and to my knowledge that is to filter the wine.

**David:** Quality is subjective. You can decide that this one element out of the whole range of taste elements is the key. People decide that if there's no flavor of French oak, it's not the best wine. Or they decide if Cabernet doesn't have eucalyptus notes, it's not the best. It's entirely subjective. If your key element is texture and mouthfeel then you will lean towards unfiltered wine.

**Stefano:** We need to remember that filtration is not the devil. Quality is subjective, and people have to use their own palates to make their decisions. Filtration is just a tool.

**David:** Filtration may not be the devil, but it's not a panacea either.

**Chris:** My experience has been to use filtering for stability, not as a tool to make stable wine better. We think unfiltered wine is better, even if it's metaphysical like David says, but in our heart of hearts we're still wondering. As winemakers, we all seem to agree that filtration changes the wine. So the question for us as winemakers boils down to, "What do we want the wine to taste like?"

### **To Filter or Not To Filter?**

One of the things I like best about making wine is that you work with Mother Nature. Climate, the seasons and *terroir* all contribute to wine quality. The problem with Mother Nature is that she is capricious. Faced with sudden, erratic shifts like rain during harvest, stuck fermentations and Brettanomyces infections, I can understand why winemakers would want to play it safe.

Twenty years ago, there was a lot of poor filtration going on. Ineffective pumps, worn seals, heat build up and such often left wines oxidized, cooked or loaded with earthy flavors. The good news is that filtration has gotten immeasurably better. Nowadays, winemakers can be reasonably certain that a trained filter technician won't destroy his wine.

It would be wonderful if someone could come up with a series of simple tests that would tell winemakers when to filter and when filtration was unnecessary. Several professional laboratories are offering tests already. Forget it. It's not going to happen. These tests will give you more information, but sooner or later each winemaker has to make the

decision for themselves. It's your wine. You've cared for it in the vineyard, babied it through fermentation and cradled it in the cellar. You know it better than anyone else.

Personally, I like Mother Nature and mystery. I like the magic in the bottle. I lean toward the natural over technology and I like to take chances, but there are clearly times when a wine should be filtered. Winemakers need to assess whatever information is at hand and then make the hard decisions. That's why they pay us the big bucks. **wbm**

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