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2005 Summer Wine Supplies and Beverage People News

Try It…You'll Like It! (Kitchen-Table Winemaking Trials)

by Bob Peak

"Fining with bentonite won't change the aroma, will it?" "My wine is too tart. Should I deacidify it or sweeten it?"

These and similar questions come to us all the time at *THE BEVERAGE PEOPLE*. When the answer is "It depends", neither the winemaker nor the adviser is satisfied. A richer answer would often be, "How about a kitchen table trial?"

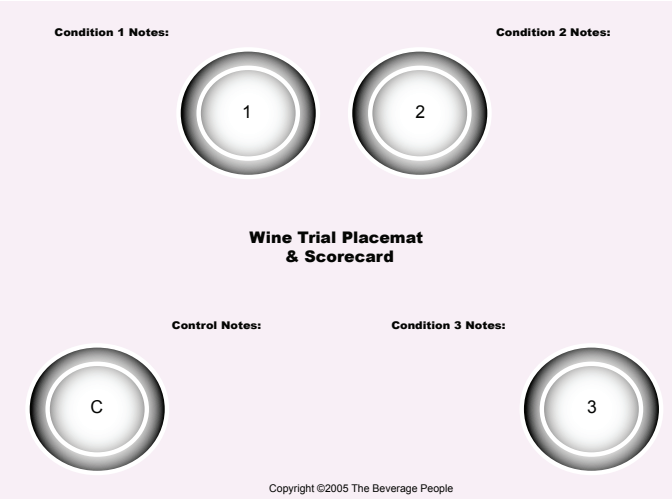
While most homemade wines turn out just fine all by themselves, sometimes they need a little help. Many wines are improved when fined for clarification or flavor modification, deacidified to deal with high acid, or treated with copper to remove sulfide odors. But which treatment and how much will do the most good? While some rules of thumb and general guidelines can point the winemaker in the right direction, there's nothing like a trial for really pinning down the best treatment.

Every manipulation of a wine changes it. If you fine with Sparkolloid® to clarify, you may also alter the aroma and flavor. If you fine with egg whites to reduce astringency, you may also take out desirable color characteristics. Over-fining with gelatin can leave a wine "stripped" and lacking in character. Even as simple a step as sweetening a little before bottling can be very different at, say, 1%, 2%, or 3% residual sugar.

I don't like to figure things out again every time I do them, so I have developed a generalized approach to home wine trials that use specific procedures that will make trials fun for you to do. Try it—you'll like it.

First, some basic equipment.

1. Four matching small bottles with screw caps. (the screw-cap clear 375's that we carry are suitable)
2. A wine thief.
3. A 100 mL graduated cylinder.
4. Several 10-mL and 1-mL pipets.
5. A gram scale (like our little Counter Balance) can be very helpful, though not essential.



Next, prepare your samples.

For trial conditions, you could do more tests, but I usually hold myself to just three alternatives for a particular addition. You must always keep one untreated sample as the "**control**" for a basis of comparison. It goes something like this:

1. Decide what three conditions you want to try (like 1%, 2%, and 3% *residual sugar)* ***or*** (egg white, milk, and Sparkolloid® *fining agents*).
2. Label your **four bottles** as C ***(control)***, 1, 2, and 3 ***(for the test conditions)***.
3. Using a **wine thief**, fill a 375 mL sample in the C (control) bottle. *(If you aren't going ahead with wine treatment as soon as you get your results, just squirt some "*Private Reserve*" wine preserver gas (or carbon dioxide, nitrogen, or argon) in to fill the empty space – it will be fine overnight.*
4. Take your 375-mL sample to the kitchen table. Using the **graduated cylinder**, measure 100 mL into each of the other **three labeled bottles** (leaving 75 mL in the control bottle).
5. Make your desired additions using **teaspoons or pipettes** *(See Tables 1 and 2, next page)* to each of the three test bottles.
6. Swirl or shake to mix.
7. For residual sugar additions or flavoring additions like oak extract, begin your tasting. For finings, place all four bottles in a dark cabinet overnight. *(Never mind that the real fining must sit 3 weeks before racking – this is just a trial and overnight will tell you all you need to know.)*

Now taste it.

Get yourself one or two helpers—multiple palates are better than a single judge. A 100 mL sample (or even the 75 mL control) will easily provide three or four tasting samples. Get out **four wine glasses** for each taster. I like to arrange them on an 8 1/2" x 11" piece of paper made into **a placemat** (See inset) *(email us at bevpeo@sonic.net if you would like a digital version, or call if you would like us to mail you a paper copy at no charge).* Put one glass on each of four marked circles for your control and the three conditions. Using a paper placemat allows taking your notes directly on the mat, making it easy to keep them for future reference and winemaking decisions without transcribing anything.

1. Pour about one ounce of each condition—including the control—into the designated glasses.
2. Starting with the control, observe, swirl, sniff, and taste.
3. Write down any comments about the control.
4. Repeat for each test condition, retasting the control as needed to keep the reference in mind.
5. Choose a winner.

Keep in mind that the winner may well be the control—sometimes the anticipated treatments really aren't improvements. After choosing the best result, apply the same addition strategy to your bulk wine, treat the whole amount, and continue as instructed with whatever product you are adding.

See TRIALS pg. 2.

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Here are some simple recommendations for how much material to add to a 100-mL wine trial sample. (For the mathematically inclined, since 100 mL represents 0.005 part of 20 liters, we are looking for about 0.005 of the usual 5-gallon treatment dose.)

Table 1, Solid Materials:

Material	Recommended Trial Amount in 100 mL	Trial Grams	Same Dose in 5 Gallons
Polyclar	1/16 teaspoon	0.08	16 grams
Sparkolloid	(See *Note A*, below)	0.021	4.2 grams
Isinglass	(*Note B*)	0.024	0.83 Tablespoon
Corn Sugar	1/4 teaspoon (*Note C*)	0.8	160 grams
Gelatin	(*Note D*)	0.05	0.35 ounce
Cane Sugar	1/4 Teaspoon (*Note C*)	1.25	250 grams
Bentonite	(*Note A*)	0.07	14 grams

Note A: Mix 1/2 teaspoon of the powder into 1/2 cup of water (for Sparkolloid, simmer 15 minutes). While stirring, scoop out 1/2 teaspoon for each 100 mL trial sample.
Note B: Soak 1/2 tsp. in 1/2 cup water with a few grains of citric acid for 30 minutes. Stir and add 1/2 tsp. to the 100-mL trial sample.
Note C: For about 1% residual sugar. Multiply as needed for 2%, 3%, etc.
Note D: Dissolve 1/2 teaspoon in 1/2 cup hot water. Let sit for 10 minutes. Stir this mixture and take 1/2 teaspoon of it for each 100 mL trial.

Table 2, Liquid Materials:

Material	Trial mL in 100 mL	Teaspoon Equivalent	Amount for 5 gallons
Grape Concentrate (*Note 1*)	1.5 mL	1/4 teaspoon	300 mL
Wine Conditioner (*Note 1*)	1.5 mL	1/4 teaspoon	300 mL
Oak Extract (*Note 1*)	1 mL	1/4 teaspoon	200 mL
Copper Sulfate 1% (*Note 2*)	0.02 mL	*(Note 2)*	4 mL
Egg Whites (*Note 3*)	----	*(Note 3)*	1/2 egg white

Note 1: For about 1% concentration. Multiply for other trials at 2%, 3%, etc.
Note 2: Place 1/4 teaspoon (or 1.0 mL) in a graduated cylinder and dilute with distilled water to 50 mL. Pour this into a small beaker or a glass and use 1/4 teaspoon (or 1.0 mL) in the 100 mL trial addition.
Note 3: Beat one egg white until frothy. Mix in 2 cups of distilled water, beat, and use 1/4 teaspoon (or 1.2 mL) in the 100 mL trial.

To deal with other materials or concentrations, you can do your own calculations. The conversions in Table 3 and Table 4, below, may help.

Table 3, Teaspoon Equivalents

For 1 Tablespoon of material that weighs "x" grams (or a liquid where 1 Tablespoon is 15 mL):

1 teaspoon = (x ÷ 3) grams or 5 mL
1/2 tsp. = (x ÷ 6) grams or 2.5 mL
1/4 tsp. = (x ÷ 12) grams or 1.2 mL
1/8 tsp. = (x ÷ 24) grams or 0.6 mL
1/16 tsp. (use about 1/2 of a 1/8 tsp. Measure) = (x ÷ 48) grams or 0.3 mL

If you don't have a gram scale to measure the first Tablespoonful, Table 4 has some approximate weights of common addition materials. Keep in mind, however, that apparent densities of solid materials ("fluffiness" or compactness) can vary from lot to lot.

Table 4, Tablespoon Weights for Common Addition Products

Material	Grams in One Tablespoon
Polyclar*	3.6
Sparkolloid*	5.0
Isinglass	5.8
Corn Sugar	10
Gelatin	12
Cane Sugar	15
Bentonite	17

* "Fluffy" materials are gently compacted in a level Tablespoon. All other materials are shaken level in the spoon.
For example, if you wanted 0.5 grams of gelatin, you could measure 1/8 teaspoon with a measuring spoon for 12÷24=0.5 grams.

Here are some real - life examples of recent "kitchen table trials."

Sweetening a Rosé

We had intended to stop the fermentation of a Rosé of Petite Sirah with one or two brix left to make a refreshing, off-dry summer picnic wine. However, the fermentation ran away from us and the wine went completely dry. It was a little too tart that way, so we decided to try 1%, 2%, and 3% sugar (from ***Wine Conditioner*** syrup) to choose the best sweetness.

Since that syrup is about 2/3 sugar by weight, it takes about 1 1/2 mL to be a gram of sugar. So, for our three conditions, we added 1 1/2 mL, 3 mL, and 4 1/2 mL to the three 100-mL portions of wine. After mixing, I poured samples for my wife, Marty White; my brother, John Peak; and myself. We did this in the morning, when most palates are at their most sensitive. We all found the 1% level to be pleasantly sweet, but still very crisp—a very nice dinner rosé level. The 2% level was not good at all—it just made the wine taste bland and a bit sweet. We expected 3% to be worse still, but it wasn't. It moved over into clearly sweet, but was very fruity and much better than 2%. We decided to go with the crisper 1% level because we intend to drink it as a dinner wine, but the 3% would have been nice as just a sipping wine. The trial certainly showed that just guessing could be greatly improved by comparative tasting with its surprising results.

Fining Chardonnay

After barrel fermenting, several months of aging, and two rackings, our 2004 Chardonnay exhibited a slightly grayish color and some fine cloudiness that wasn't settling out. We decided to try ***Sparkolloid*** (a great all-purpose wine clarifier) for *condition #1*, ***Polyclar*** (PVPP—well known for removing "browning" and other oxidation products) for #2, and the two of them together for our third condition.

This one was a bit trickier because the ***Sparkolloid*** is a hot-activated fining agent. The recommended use level is simmering 5 to 7 grams in 1 to 2 cups of water for 15 minutes to treat 5 gallons. So, how to treat 100 mL? Five gallons is about 19 liters, but I rounded off to 20 liters to simplify my math. Five grams in 20 liters is 5grams/20,000 mL. Twenty thousand divided by 100 is 200. So we need 5/200 or 0.025 grams in 100 mL. Now, that is way too small an amount to simmer and measure. So instead, we do what a laboratory calls a "serial dilution." First, we put about 1 gram (use 1/2 teaspoon, which is close enough) in 100 mL (about 1/2 cup) of water and simmer it for the 15 minutes. Then, we have a slurry in a small pot containing 1 gram, and we want 0.025 grams (or 1/40 of a gram) in each treatment. For 1/40 of the 100-mL mixture, we need 100 ÷ 40, or 2.5 mL of the mix. Now, we could use a pipet, except that we need to rapidly stir the slurry and get a reasonable amount of the solid

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Sparkolloid in the trial sample. So instead, we turn to Table 3 and find the measuring-spoon conversion is again 1/2 tsp.

So, we will rapidly stir the hot 100-mL slurry and quickly scoop out a half-teaspoon to add to condition ***#1 Sparkolloid*** and another half-teaspoon for condition ***#3 Sparkolloid + Polyclar***.

For the addition of ***Polyclar***, the usual amount is 2.5 to 12.5 grams in 5 gallons. We decided to test at a level of about 10 grams in 5 gallons, since our goal is to see if it helps, not to set the dose (at this stage). Looking again at our 20 liter estimate for 5 gallons, 10 grams in 20 liters is (10/20,000) x 100 = 0.05 grams in the trial bottle. Since ***Polyclar*** is very fluffy, this is not as hard as it looks. One Tablespoon weighs 3.6 grams, so let's look at 1/8 of a teaspoon. From Table 1, 1/8 tsp. = (3.6/24) grams, or 0.15 grams. That's still too much, so what about 1/16 teaspoon? Since 3.6 ÷ 48 = 0.075, that's close enough. So we estimate about 1/2 the volume of a 1/8 teaspoon measure, coming close enough to 0.05 grams for a trial fining series when you are choosing the fining agent and not trying (yet) to fine-tune the dose. So, 1/16 of a teaspoon of ***Polyclar*** goes into condition ***#2 Polyclar*** and another 1/16 into condition ***#3 Sparkolloid + Polyclar.***

All four bottles were shaken vigorously to mix—even the control, since shaking and the resulting oxidation might affect the outcome. The bottles were then placed in a dark cabinet overnight.

Tasting

The control was unchanged from pre-test conditions: still a bit gray and slightly cloudy, but with classic Chardonnay aromas complemented with nicely rounded oak and a lemony finish. ***Condition #1 Sparkolloid***, was much better. Clear, no gray color at all, a lovely light gold. It was a bit less oaky, with smoother, rounder flavors—altogether a better wine than the control. ***Condition 2, Polyclar***, was clearer than the control but not as clear as #1. There was a slightly edgy aroma, like lemon peel. Flavor was about the same as the control. ***Condition #3 Sparkolloid + Polyclar***, showed excellent clarity but still had the edgy aroma. It was distinctly less oaky, bland, and a little watery. So, our clear winner was ***Sparkolloid*** alone, and that's how we treated the rest of the wine. It came out just as the trial suggested it would.

Are you ready now?

Sure, it takes a little arithmetic, but it's not really that hard. Your estimates will help you to find out if the proposed treatments improve the wine, and if so, is one choice superior to the others? Once the trial gives you those answers, you can go forward with treating your wine with a lot more confidence, and more likely success, than when it's a shot in the dark.

Are There Secrets To Good Winemaking?

by Nancy Vineyard

The best wines available are almost always balanced, clean and drinkable. How do we take well grown grapes and bring them to this state? My advice from personal experience is to pay attention to the four components of stability that make a wine long lasting, balanced and enjoyable.

The components of Acid (TA and ML), Sugar (Dry or Residual), Brightness (Clarity) and Preservative (Free SO_2) all give stability to a finished wine. The goal of stability is to retain all the best of the fermented juice, altering each only as necessary to complete the perfect picture of the wine.

With only a few tests, we can determine how close to stable our wine is at any given time during maturation and storage. Starting with the cessation of fermentation, a hydrometer measures the absence of density – the lack of fermentable sugar or for greater accuracy, a residual sugar test, using Clinitest™ tablets tells us if all the sugar has been consumed. Remaining sugar could start to ferment later at an inconvenient time, so finishing fermentation early on is often the best fermentation to have. If necessary, fermentation can be restarted with stronger yeast and nutrient additions and/or warming the fermentor.

It's also easier to clarify wine that is dry as opposed to sweet and it's easier for the yeast to fall out and stay on the bottom of the container. Stability is also ensured against certain bacteria growing, using the sugar for a food source. Where it is desirable to retain some sweetness in the wine, monitoring the progress of the sugar change in fermentation will allow you to add the stabilizer Sorbistat, filtering and sulphiting to ensure fermentation remains stopped.

Stability involving changes to the acid profile of the wine are tested with several methods; the first involves, Titratable Acid using a TA Kit. There are several kits available and all of them give pretty accurate results. Knowing the TA will allow you to remove excess acid that makes the wine taste out of balance, too tart and harsh. This is best done early after fermentation by cold storage or starting a malo-lactic fermentation where desired.

Should the opposite effect be desired, you can increase acidity by Tartaric Acid additions guided by your test results.Keeping in mind that increasing TA also helps to stabilize the wine, it's best done early to protect the wine during storage.

Malic Acid fermentation is usually best done with the addition of a culture specific for the wine volume and added at the specified time for that culture. After visible signs of ML fermentation are complete, no tiny bubbles, no horsey smell, clarity in the wine, you will want to test for completion. Accuvin kits, Chromatography kits and our in store Reflectoquant Malic test are all available for this purpose. Besides some flavor and aroma benefits from a complete ML fermentation, a bottled wine could ferment in storage, trapping gases and bad odors.

The best part of finishing ML in the wine early, is you can then proceed to mature the wine with a proper quantity of sulphite. As you know, we cannot add much SO_2 to a wine undergoing ML fermentation, so the sooner the wine finishes this bacterial fermentation, the sooner the wine can be stabilized.

The demand for SO_2 is so high in wine after fermentation, that it should be monitored weekly until changes (drops) in Free SO_2 stop. After that, the wine should be tested at each racking, more frequently if left in oak barrels, less so stored in carboys and stainless tanks. We continue to taste a lot of wine that isn't properly sulphited, showing the telltale signs of spoilage: browning, stale, pruney aromas and a general lack of balance without clean aftertastes.

In order to insure you are adding enough SO_2, testing for the pH in the wine will help in choosing how much to add. We have long published a molecular SO_2 table on page 8 of this newsletter to encourage our readers to test for pH. Wine pH is easily tested using Accuvin test strips or with the new Oakton pH Testr20 meter. Hopefully, with the advent of the Reflectoquant test service for Free SO_2 we are offering in store, more customers will make better, more stable wine.

Many wines will brighten on their own to a sparkling clarity. If you have a stubborn, hazy wine, it's best to remove the particles with a fining agent (re: Bob's article, this issue), or even filter out the particles. A wine that doesn't sparkle in the glass isn't truly stable, nor will it be appreciated as much as a wine that does. The chosen technique should give you less sediment in the bottle as well.

Whether or not you have chosen to add oak, sugar, or acid, to remove acid, or just leave the wine alone, at some point, the decision to bottle will come. Hopefully with the right techniques for maturation and stabilization in the cellar, you have a finished wine that is truly ready for its trip to the bottling line.