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THE BEVERAGE PEOPLE

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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

"Finning 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?"

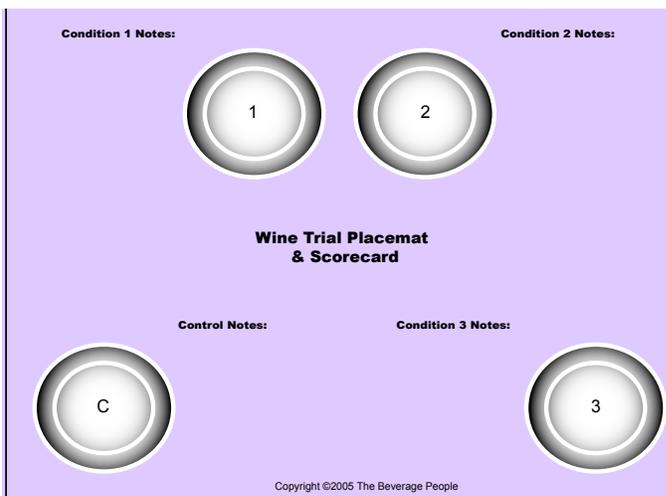
While most homemade wines turn out just fine all by themselves, sometimes they need a little help. Many wines are improved when fined for clarification or flavor modification, deacidified to deal with high acid, or treated with copper to remove sulfide odors. But which treatment and how much will do 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, re-tasting 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.



TRIALS cont. from page 1.

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.

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

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.

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 $(10/20,000) \times 100 = 0.05$ 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, $1/8 \text{ tsp.} = (3.6/24)$ grams, or 0.15 grams. That's still too much, so what about 1/16 teaspoon? Since $3.6 \div 48 = 0.075$, 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 SO₂) 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 SO₂ 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 SO₂ is so high in wine after fermentation, that it should be monitored weekly until changes (drops) in Free SO₂ 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, prune aromas and a general lack of balance without clean aftertastes.

In order to insure you are adding enough SO₂, testing for the pH in the wine will help in choosing how much to add. We have long published a molecular SO₂ 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 SO₂ 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.

Winemaking Step by Step

EQUIPMENT

For most beginners, the hardest thing about making wine is simply figuring out, in advance, what equipment is going to be needed. This list should set most of these fears to rest.

You will need the following:

1. Siphon Hose and Racking Tube
2. Hydrometer (Saccharometer) and Test Jar
3. Acid Testing Kit
4. Sulfite Test Kit
5. Crusher or Stemmer/Crusher
6. Press
7. Corker
8. Thermometer
9. Pressing Bag (optional)
10. Funnel
11. Bottle Filler
12. Small Bucket

For every 75 lbs. of grapes:

1. 10 Gallon Food grade Bucket and Lid
2. One 5 gallon glass carboy (water bottle) with a fermentation lock and a #6 1/2 or #7 drilled rubber stopper.
3. Extra glass jugs, each with a fermentation lock and #6 drilled rubber stopper. These could be gallon size or smaller.
4. Twenty-five wine corks.
5. Two cases wine bottles.

INGREDIENTS

1. Wine Yeast, (1 gram) per gallon of must or juice.
2. Grapes, (16 lbs.) per gallon of wine.
3. Tartaric Acid as needed.
4. Sulfite as needed.
5. Yeast Food (5 grams per 100 lbs.)
6. Fining Agent, such as Sparkolloid.
7. ML Starter for some wines.

Red Wine Procedures

- 1 **Crush (break the skins) and de-stem the grapes.** For most grape varieties, about 90% of the larger stems should be removed.
- 2 **Test for total acidity following the instructions in your acid testing kit.** If the acidity is less than .7%, add enough tartaric acid to bring it to that level.
- 3 **Test for sugar with your hydrometer.** Correct any deficiencies by adding enough sugar to bring the reading up to 22% (22 degrees brix).
- 4 **When these tests and corrections have been completed, the must should be sulfited.** Estimating that you will get roughly one gallon of juice yield for every 16 lbs. of grapes, calculate the anticipated amount of juice. Using this estimate, add enough sulfite to give you a sulfur dioxide (SO₂) level between 50 and 130 parts per million (ppm).
The amount needed will depend on the condition of the grapes, with moldy grapes getting the most concentrated dose.
- 5 **Unless you have found it necessary to add more than 65 parts per million SO₂ in step 4, yeast should be added immediately.** If using more than 65 parts per million SO₂, you must wait six hours before doing so. Add also 1/4 oz of yeast food for every 100 lbs. of grapes. Your yeast culture (or dry wine yeast) should be spread somewhat evenly across the surface of the crushed grapes (now called “must”). Stir it in thoroughly after eight to twelve hours.
- 6 **The must should be stirred twice a day until fermentation begins.** The beginning of fermentation will be obvious, as the grape skins will be forced to the surface, forming a solid layer (called a “cap”).
Once the cap has formed, it should be pushed or “punched” back down into the fermenting juice twice a day until it is ready to be pressed. You may use your hand or a stainless steel punch-down tool to push down the cap.
- 7 **At some point, while fermenting on the skins, the must temperature should be allowed to reach as high as 90° F., at least briefly.** This will help extract color from the skins. The rest of skin fermentation should take place at 60-75°F.
- 8 **Add ML starter** (optional) to the wine about half to two thirds through fermentation. You may also add this at the end of fermentation if you have the Enoferm Alpha or Bacchus strains of bacteria.
- 9 **When the desired level of color has been achieved** (usually from five to fourteen days of active fermentation) **your wine should be pressed to separate the wine from the skins.** Funnel the wine into secondary fermentors, filling them 3/4 full.



Winemaking Equipment from crush to bottle.



Crushing and stemming your grapes.

Time Line for Red Wine Fermentation.....

Active Yeast Fermentation in Primary Fermentors	Pressed wine moved to Secondary Fermentors, stored 3/4 full	Rack off gross lees and top up containers	Rack off lees again and sulfite, test for ML, store in cool place for aging, topping and sulfiting every couple months. Add Oakboys	Racking off lees, adjusting sulfite, fining or filtering, or just topping up	Rack to bottling container, adjust flavor with oak extract, add sulfite, cork and store. ...Usually in time for next harvest.
...5 to 14 days	...1 to 2 weeks	...1 month	...4 to 6 months	...1 to 3 months	

Attach a fermentation lock, and allow the containers to set until all visible signs of fermentation have ceased (at least a week or as long as two weeks.)

10 At the end of fermentation, when no more bubbles are coming up through the lock, rack the wine off the gross lees.

Place wine in storage containers (glass, stainless steel, or oak). Top up the containers and let stand for a month.

11 One month later, rack the wine away from the lees again, add sulfite to about 20 ppm, and keep in topped up containers for four to six months. You must top up barrels, from respiration, and visible inspect carboys. This is a good time to add oakboys or oak chips. Add sulfite every few months. If you innoculated for ML, test the wine to be sure it is complete.

12 Around May or June of the following year, you might want to fine the wine for clarity (following the instructions supplied with your fining agent.) Optional treatment would be the more aggressive clarification via filtration. If the ML fermentation hasn't finished, keep the sulfite level below 20 ppm and warm the storage containers for a month to encourage completion.

13 By late July or August (just before you need your storage containers for the next year's crush), carefully rack the wine to a sanitary bottling container, then siphon into bottles, cork them, and lay them down for bottle aging.

At bottling time, adjust the sulfite to at least 30 ppm, if you plan to store the wine. If possible store your filled bottles on their sides. Otherwise, store them with the corks down. Most red wines will benefit from at least one year's additional aging.

See "Procedures" cont. next page.



Pressing the fermented red grapes.

White Wine Procedures

- 1 **Crush the grapes** to break the skins. It is not necessary to de-stem them. Keep the grapes as cool as possible.
- 2 **Test for total acidity.** If the acidity is less than .7%, add enough tartaric acid to bring it up to that level.
- 3 **Test for sugar with your hydrometer.** Correct any deficiencies by adding enough sugar to bring the reading up to 20% (20 ° brix) for most varieties (22% for Sauvignon Blanc and Chardonnay.)
- 4 **When these tests and corrections have been completed, the must should be sulfited.** Estimating that you will get roughly a gallon of juice from every 16 lbs. of grapes (varies with the variety), add enough sulfite to give you a sulfur dioxide (SO₂) level between 50 and 120 parts per million (ppm.).
The amount needed will depend on the condition of the grapes, with moldy grapes getting the most concentrated dose.
- 5 **Stir in pectic enzyme at the rate of one ounce to every 200 lbs. of grapes.** Place the crushed grapes in a covered container to stand from 2 to 18 hours (longer for the “big, less fruity” varieties. If left to stand longer than 2 hours at this stage, the crushed grapes should be refrigerated.
- 6 **The grapes are then pressed to separate the juice from the skins.** Funnel the juice into topped up containers, cover, and let stand for approximately 24 hours.
- 7 **Siphon the clear juice away from the layer of settlings into a glass, stainless steel, or oak fermentor which is filled no more than 3/4 full.** Yeast should be added, a fermentation lock attached to the fermentor, and fermentation allowed to proceed. Add also a 1/4 oz. of yeast food for every 5 gallons of juice.
- 8 **When visible signs of fermentation end, the wine must be racked off the lees,** sulfited, and placed in topped up storage containers (glass, stainless, or oak). Let stand for a month.
- 9 Rack off the lees and fine. Add sulfite and store stopped full in a cool location.
- 10 **In February or March, rack and sulfite the wine again, placing it back in topped up containers.** This is a good time to filter the wine if you are going to do so.

11 Add Oakboy or oak extract now. **In late April or early May, before the onset of very hot weather, carefully rack the wine from the lees.** Test the wine for free sulfite content with a sulfur dioxide test kit to determine how much SO₂ is needed to bring the level to 30-35 parts per million.

Siphon into bottles, cork them, and set them aside for whatever bottle aging is needed. If you wish to sweeten the wine, do so with simple syrup (two parts sugar to one part water, boiled), and add 1/2 tsp. Stabilizer per gallon to kill any remaining yeast.

Light, fruity, white wines may be enjoyed within two months after bottling.

Time Line for White Wine Fermentation.....

Juice Fermentation with Yeast in Primary Fermentors 3/4 full	Rack finished wine to clean Fermentors, topped full. Settle out lees. Sulfite	Rack off lees and fine or filter. Add sulfite and keep cool. Add Oakboy.	Rack to bottling container, add sulfite, fill and cork bottles.
...1 to 2 weeks	...1 month	...2 to 4 months	...In the spring



Placing the wood blocks and press head into the press before actually pressing the grapes.

Fruit Wine Procedures

Use the following procedures for Berry or Stone Fruit Wines:

1. Smash sound, ripe Berries (or pit Stone Fruit), tie loosely in a straining bag and place in open top fermentor.
2. Heat 6 quarts Water with Corn Sugar and bring to a boil. Remove from heat, cool and pour into the fermentor over the fruit.
3. Add the remaining Water and other ingredients except Sodium Bisulfite and Yeast and mix well.
4. Add 5 tablespoons of Sodium Bisulfite stock solution and mix well. (See pg. 9 for stock sulfite recipe.)
5. Cover with loose plastic sheet or lid and allow to cool and dissipate the sulfite for 12 hours or overnight.
6. Stir in the Yeast.
7. Once fermentation begins, stir or push the pulp down into the liquid twice a day.
8. After 5-7 days, strain and press the pulp. Funnel the fermenting wine into closed fermentors, such as glass or plastic carboys, and attach a fermentation lock. Note: if this fermentation is very active, you may need to divide the wine between two carboys or it will foam out and spill.
9. When bubbles are no longer actively rising through the wine, siphon the wine back together into one full carboy. Fine with Sparkoloid (see pg. 10 for mixing Sparkoloid), add a teaspoon per gallon of sulfite stock solution and let set for four weeks under the airlock.
10. Rack (siphon) away from the sediment, top full with a neutral wine and leave under airlock for 3 weeks up to 4 months.
11. For bottling, rack into an open container, and add 1 1/2 teaspoons sulfite solution per gallon. Sweeten with sugar syrup to taste and add 1/2 teaspoon Wine Stabilizer per gallon.
12. Siphon into bottles, cork, and set aside to age for at least 3 weeks.

Recipes

Blackberry or Loganberry Wine

20 lbs. Blackberries or
12 1/2 lbs. Loganberries
12 lbs. Corn Sugar
5 gallons Water
2 1/2 tsp. Yeast Nutrient

2 1/2 tsp. Pectic Enzyme
5 Tbl. stock Sodium Bisulfite solution (initially)
9 tsp. Tartaric Acid
5 grams Epernay II Wine Yeast

Original Brix: 20
Total Acid: .6-.65%

Blueberry Wine

15 lbs. Blueberries
12 lbs. Corn Sugar
5 gallons Water
2 1/2 tsp. Yeast Nutrient
2 1/2 tsp. Pectic Enzyme
5 Tbl. stock Sodium Bisulfite solution (initially)
9 tsp. Tartaric Acid
5 grams Epernay II Wine Yeast

Original Brix: 20
Total Acid: .6-.65%

Raspberry Wine

15 lbs. Raspberries
12 lbs. Corn Sugar
5 gallons Water
2 1/2 tsp. Yeast Nutrient
2 1/2 tsp. Pectic Enzyme
5 Tbl. stock Sodium Bisulfite solution (initially)
9 tsp. Tartaric Acid
1 1/4 tsp. Grape Tannin
5 grams Epernay II Wine Yeast

Original Brix: 20
Total Acid: .6-.65%

Cherry Wine

22 1/2 lbs. Sweet Cherries or 15 lbs. Sour Cherries
12 lbs. Corn Sugar
5 gallons Water
2 1/2 tsp. Yeast Nutrient
2 1/2 tsp. Pectic Enzyme
5 Tbl. stock Sodium Bisulfite solution (initially)
9 tsp. Tartaric Acid
(Omit Acid with Sour Cherries)
1 tsp. Grape Tannin
5 grams Epernay II Wine Yeast

Original Brix: 20
Total Acid: .6-.65%

Plum Wine

15 lbs. pitted Plums
12 lbs. Corn Sugar
5 gallons Water
2 1/2 tsp. Yeast Nutrient
2 1/2 tsp. Pectic Enzyme
5 Tbl. stock Sodium Bisulfite solution (initially)
7 tsp. Tartaric Acid
5 grams Epernay II Wine Yeast

Original Brix: 20
Total Acid: .6-.65%

Cranberry Wine

15 lbs. Cranberries
1 lb. Raisins
12 lbs. Corn Sugar
5 gallons Water
2 1/2 tsp. Yeast Nutrient
2 1/2 tsp. Pectic Enzyme
5 Tbl. stock Sodium Bisulfite solution (initially)
5 grams Epernay II Wine Yeast

Original Brix: 20
Total Acid: .6-.65%

Tropical Fruit Wine

8 lbs. Chopped Pineapple fruit
3 lbs. Chopped Mango fruit
4 lbs. Banana fruit, sliced
12 lbs. Corn Sugar
5 gallons Water
2 1/2 tsp. Yeast Nutrient
2 1/2 tsp. Pectic Enzyme
5 Tbl. stock Sodium Bisulfite solution (initially)
5 grams Epernay II Wine Yeast

Original Brix: 20
Total Acid: .6-.65%

Apricot Wine

17 1/2 lbs. Apricots
12 lbs. Corn Sugar
5 gallons Water
2 1/2 tsp. Yeast Nutrient
2 1/2 tsp. Pectic Enzyme
5 Tbl. stock Sodium Bisulfite solution (initially)
9 tsp. Tartaric Acid
1 tsp. Grape Tannin
5 grams Epernay II Wine Yeast

Original Brix: 20
Total Acid: .6-.65%

Sulfite Procedures

Sulfur has been burned in wine containers to purify them since the days of the Roman Empire, and probably much earlier. The ancients may not have known about the world of microorganisms, but they recognized that sulfur helped make their wines last longer. We now know that sulfur dioxide gas (SO₂) released by burning sulfur was the effective agent for retarding spoilage, and we have a more precise way of adding it these days. We make up solutions of sulfurous acid/water to known parts per million of SO₂. These solutions are stored and added in tablespoons and or milliliters to the volume of wine.

After 25 years of teaching home winemakers the importance of adding sulfite to wine and monitoring the results with various testing methods, we are convinced that people are still not testing or scheduling SO₂ additions nearly enough.

Over the past year we have had a chance to prove this point for customers by employing the testing device called *Reflectoquant*®. This tester uses a small sample of wine and a test strip that is then treated with two reagents and stored for several minutes before reading by the meter. The actual reading is done by light reflection. Prior to the test, we have already prepared the meter for reading the sulfur dioxide test strip. The readout from the meter is digital.

Time after time, wine samples are coming back with only a few parts per million of SO₂. These wines may not even yet show the effects of oxidation, but given enough time in this unprotected state, the fruitiness will fade, browning will occur and the taste will become pruney and harsh. To avoid this you need to understand the basics of why sulfite works so well to protect your wine.

When you add sulfite to wine, sulfur dioxide ionizes to the sulfite ion, SO₃⁼, and bisulfite ion, HSO₃⁻. A small fraction remains in the “molecular” form, SO₂. It is this molecular form that protects the wine from spoilage organisms and oxidation. As sulfite reacts with other wine components, it becomes “bound” to them and is no longer available to participate in producing “molecular” sulfite.

We cannot measure molecular sulfite directly. Rather, we measure “free” sulfite, and use a table of wine pH values to predict the amount of ‘molecular’ sulfite we will achieve.

This is why it is so important to frequently measure your free sulfite. No matter how high your total sulfite (within reason), it is only the free sulfite number that really counts. Don’t just guess and toss some sulfite in—analyze it first—then add it.

To this end, we now have three ways for you to keep up with testing your SO₂.

The Reflectoquant Free SO₂ Test

For those of you able to bring a sample to us or to a laboratory, you can use the *reflectoquant* test. You will need a full, very small bottle, with a fresh sample of wine. (187ml is more than plenty). Just drop off your sample to the lab for their technicians to test or bring it here and run the test for yourself. We charge \$8.95 for one test, and an additional \$3.95 for each additional test done at the same session. It only takes about 10 minutes to set up, pay and run your test, with additional tests taking about 5 minutes.

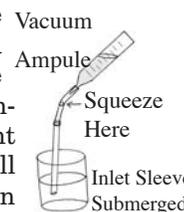
Additionally you can track changes to your SO₂ with the *Titret*® Kit. Although not very accurate in terms of the quan-

tity of SO₂, in red wines, they do work in white wine and these tests will also show changes as the level of SO₂ diminishes even in red wines. These are vacuum sealed, graduated ampules that come with an inlet bead-valve that allows you to titrate slowly by squeezing the valve. You have to keep the inlet tube submerged or the vacuum will be broken by air entering. *The kit instructions recommend a holder which made the test more difficult to execute.* Follow the instructions given here, as their kit instructions are not helpful.

Another testing method, which like Titrets uses the Ripper Test Method, is the *Acidometer*® Kit by Vinfoerm. Using the graduated cylinder supplied and a solution that combines starch and iodine, (the Iodic solution), titration is a simple matter of dripping in the iodic solution until the color end point is achieved.

The Titret Kit

Begin the test by inserting the loose plastic inlet sleeve over the tapered end of the glass ampule. Bend the plastic sleeve 90 degrees to break the tip of the ampule. As you do this hold on tightly at the junction of the sleeve and the ampule to prevent the sleeve from sliding off. Next locate the glass bead/valve inside the plastic inlet sleeve. Squeeze this bead to open the passageway for the vacuum in the ampule to pull wine inside the tube. As you squeeze, a color change will occur turning the sample inside the tube dark blue/black. Continue squeezing until a white wine turns light pink or clear. In the case of red wines, it will return to the original sample color. The titration is finished at this point and the ampule is stood up on its flat end. Let the contents of the ampule settle and then read the liquid level at the graduated line of the vial. This is the amount of free SO₂ present in the wine.



The Acidometer Kit

The *Acidometer* method uses the graduated cylinder to hold the sample wine or juice, while the Iodic solution is dripped in to achieve a color that is blue for white wines and a dark bluish red (blood red) for red wines. Once the color change is observed, you multiply the reading from the graduated cylinder by 10 to get the free SO₂ number. It is as accurate as any winery Ripper.

To reduce the false high reading, you must quickly reach the titration point because the iodine solution will react over time with the bound form of SO₂. The light source is also important to accurately observe the color change. Use a bright white background with a high intensity lamp. Also

Molecular SO₂ needed for Stability

pH	.8 ppm.	.5 ppm
	White Wine	Red Wine
2.9	11 ppm.	7 ppm
3.0	13	8
3.1	16	10
3.2	21	13
3.3	26	16
3.4	32	20
3.5	40	25
3.6	50	31
3.7	63	39
3.8	79	49

use a 10 ml. graduated pipet, to fill the cylinder and stopper the cylinder with a solid #2 rubber stopper, for mixing in the iodine solution. Iodine will stain your fingers and clothes, so use with caution.

Scheduling SO₂ Additions

Initial sulfite may be added at 65 ppm to grapes or juice that is free of rot or mold. The presence of a lot of mold, or grapes in otherwise bad condition, might require twice that amount. Under average conditions the information that follows should keep about 20 to 30 ppm of free SO₂ available throughout the wine's cycle of production through bottling. Add sulfite for white wines at every racking.

Test your SO₂ level at least after fermentation and ML, after rackings and several times while in barrels or tanks and again before bottling. Follow the *pH/molecular SO₂* table on the last page for recommendations for additions. Wines that will be consumed within three months of bottling will not normally need a sulfite addition at bottling time as long as they are stored in a cool place until served.

pH and SO₂

It is generally recognized that only a small amount of molecular SO₂ (.5 to .8 ppm.) needs to be present to provide bacterial stability in wine, but pH has an important effect on how much free SO₂ is needed in order to provide that amount, and that's why both pH and SO₂ need to be tested.

Regard the *Table of Molecular SO₂* to the left. The amount of free SO₂ needed, is based on the pH of the wine. A fairly safe amount for protection of the wine is either .5 ppm for Red Wines or .8 ppm for White Wines. If you know the pH, simply make sure you have the corresponding level of free SO₂, or slightly more, present in the wine when during storage and bottling.

Above pH 3.5, you will notice that the amounts of free sulfur dioxide required become quite high. Adding enough to create an appropriate level may raise the total SO₂ high enough to have a negative effect on the wine's flavor. It is best not to approach the problem that way. Instead, the pH should be lowered early in the life of the wine by the addition of Tartaric or Phosphoric Acid.

Sources of SO₂

SO₂ is available as *Campden tablets*, effervescent *Efferbaktol tablets or granules*, or by powdered *sodium or potassium metabisulfite*. A premeasured Campden Tablet equals 65 ppm in one gallon (13 ppm in a five gallon jug) and is very convenient for those making small amounts of wine. You have to crush the tablet to a powder to add it.

The 2 gram Efferbaktol® tablets or powder pouches add 528 ppm per gallon or 9 ppm per 55 gallon barrel. They effervesce to disperse evenly in the container. They are perfect for working in barrels, but pricey and hard to divide to accurately dose 5 gallon carboys. Potassium Metabisulfite should be made into a liquid preparation before use, to adequately

disperse it, and because it is very potent. This is also the least expensive method and accurate to measure for any size container. Make a strong 10% solution if your additions are to larger vessels, and a weak 3% solution for carboys and jugs.

Preparing a Strong 10% Stock Solution

Using a gram scale, weigh out 100 grams of Potassium Metabisulfite and dissolve in 1 Liter of water. Tightly stopper and store labeled: "poison"! For additions of sulfite in large lots, you will prefer to use the information provided in the following table. Just make sure that your 10% stock solution is fresh and measured carefully. *See notes below left.*

10% Solution of Metabisulfite							
<i>(Desired final SO₂ concentration in ppm.)</i>							
Must/Wine	10	20	25	30	40	50	75
<i>(gallons)</i>	<i>(Add milliliters of 10% solution)</i>						
1	.6	1.3	1.6	2.0	2.6	3.3	4.9
5	3.3	6.6	8.2	9.9	13.1	16.4	24.6
10	6.6	13.1	16.4	19.7	26.3	32.9	49.3
25	16.4	32.9	41.1	49.3	65.7	82.1	123.2
50	32.9	65.7	82.1	98.6	131.4	154.3	246.4

Preparing a Weak 3% Stock Solution

Dissolve four ounces of sodium or potassium metabisulfite powder, (a package size readily available in retail stores) in one gallon of warm water. This is weaker than the 10% solution given above, in fact it is about a 3% solution.

At this concentration, the solution is still quite strong and should be clearly labeled and kept out of reach of children. This stock solution will remain at relatively full strength for up to six months if the jug is kept capped.

3% Solution of Metabisulfite					
<i>(Desired final SO₂ concentration in ppm.)</i>					
Must/Wine	10	21	33	43	65
<i>(gallons)</i>	<i>(Add tablespoons of 3% solution)</i>				
1	.15	.32	.50	.66	1.00
5	.75	1.60	2.50	3.30	5.00
10	1.50	3.20	5.00	6.60	10.00

Removing Excess SO₂

If you ever need to lower your SO₂ because you doubled the dosage or made some other wildly uncareful calculation, do the following: for every 10 ppm free SO₂ you want to remove, add 1 ml. of 3% hydrogen peroxide per gallon of wine. This is an oxidative reaction that occurs immediately. Use only fresh 3% Hydrogen Peroxide, available at the drugstore. Use this method to remove up to 100 ppm, more than this and the wine will oxidize and lose its flavor.

Please Note: Avoid confusing the two solution strengths.

If you have a scale that weighs in grams, and have access to a pH meter, you should use the 10% solution instructions. Have on hand Pipettes graduated in .1 ml to .5 ml, 1 ml to 10 ml volumes and a Graduated Cylinder, with a volume of 100 ml., for large additions. Otherwise, use the weaker 3% solution, using household measuring spoons.

Fining Procedures

Sparkolloid™ and Bentonite are the two most common **all-purpose fining** (clarifying) agents used by home winemakers.

Either may be used with success in most situations, and in the somewhat unusual circumstance that the wine doesn't clear with the first agent, the other will generally work.

Here's how they are used.

Sparkolloid is used at the rate of 1 to 1.5 grams per gallon, so to fine five gallons of wine, begin by measuring out 5 to 7.5 grams of dry Sparkolloid. Then take about 1-2 cups of water, stir in the Sparkolloid, and heat it on the stove.

Simmer for 15-20 minutes, and thoroughly stir the hot mixture into the wine. Let stand three weeks and carefully rack away from the lees.

Bentonite requires that a slurry be made up a day in advance. Measure out 750 ml. of water, and heat it to boiling. Slowly stir in one ounce of Bentonite. Mix it thoroughly for about one minute in a blender, funnel it into a 750 ml. wine bottle, stopper it up and let it stand for a day.

Shake up the slurry, and thoroughly stir roughly 1/4 cup into each five gallons of wine. Rack away from the lees in about 10-14 days

To remove oxidation or reduce bitterness, fine with Polyclar. **To soften tannins**, use either egg whites or gelatin, followed by an all purpose fining agent such as Sparkolloid. Add Metabisulfite when adding a fining agent, to prevent excess oxidation during the mechanical stirring or pumping needed to blend in the agent.

Fining Agent	Rate of Use	Best Used For	Preparation	When
Sparkolloid	5 - 7 grams/ 5 gallons	All wines	Heat slurry of 1 - 2 cups water with Sparkolloid, simmer 15 minutes and add to wine stirring.	After fermented, three weeks before a racking.
Bentonite	10-40 grams/ 5 gallons	White wines	Slurry with juice or water in blender.	Add to must prior to fermentation.
Isinglass	1 Tablespoon/ 5 gallons	White wines that haven't clarified with Sparkolloid.	Soak in 2 Cups water with 1/2 teasp. Citric Acid for 30 minutes.	Prior to a racking.
Gelatin	1/4 oz./ 5 gallons	Red wines with excess tannin.	Dissolve in 10 oz. hot water, let sit for 10 minutes. Stir thoroughly into wine.	After fermentation up to three weeks before bottling.
Egg Whites	1/2 egg white/ 5 gallons	Red Wines with excess tannin.	Whipped to a soft froth with some wine and water then mixed in thoroughly.	In barrel/glass at least a month before bottling.
Polyclar (Divergan F)	2.5-12.5 grams/ 5 gallons	White wines to remove oxidation reduce bitterness.	Thorough mixing	Before, during or after fermentation.
Non-Fat Milk	250 ml/5 gallons	White wines to reduce bitterness, adds sweetness.	Follow with Bentonite Fining	Rack after 4 days A month prior to bottling.

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Sugar, Acid and pH Testing

Procedures

SUGAR

There are two methods to measure the percent sugar (Brix): hydrometry and refractometry. A hydrometer will also be used to track the progress of fermentation. Note that a refractometer will not read accurately after fermentation begins.

Ripe grapes will reach a Brix of 21 and above for white wines and 23 and above for red wines. Overly ripened grapes are just as troublesome as underripened grapes, so it is important to monitor the maturing process closely.

Testing with a hydrometer.

Crush grapes collected from throughout your vineyard and strain out a volume of juice sufficient to float a hydrometer in its test jar, or approximately, 4 oz. of juice. Pour the juice into the test jar and twirl the hydrometer in the juice to release any CO₂ gases in solution. Now you will let the hydrometer settle into the liquid, reading the paper scale where the juice contacts it at its surface. (For accuracy, read the level at the liquid level, not the interface of liquid on the hydrometer, as this point is actually slightly higher than the surrounding liquid owing to an increase of pressure from the tool against the liquid.) Measure from the scale what total of sugar is present. There are usually three scales on a hydrometer. Measure fruit and wine juice from the Brix or Balling scale which is equivalent to percent sugar.

Testing with a refractometer.

Alternately, and especially for those of you growing your own grapes, a refractometer will be used to measure sugar in the field. From the juice of a single grape, a sugar reading can be taken along with the readings from other representative grapes in the vineyard to yield the average percent of sugar. You can check for accurate refraction with standardized sugar solution by placing a drop of 20° Brix solution on the prism and read the percent sugar against the scale in the background. If it is not reading 20, then adjust the set screw to read 20. An ATC (for Automatic Temperature Compensating) Refractometer will compensate for temperature changes.



The refractometer, and sampling tube.

ACIDITY

The "TA" or total acidity of grapes is as important to the flavor balance of wine as the grape sugar content. The balance of flavors produced in perfectly ripened fruit makes not only the best flavored wine, but the least troublesome wine to produce. Therefore tracking changes to the TA in ripening fruit is as important as monitoring the change in sugar.

Immature fruit is usually excessively acidic, burning and even acrid tasting while overripe fruit tastes flabby and soft, lacking the sparkle of crisp fruit. At the point where both sugar and acid are balanced for the wine style, the harvest can commence.

Ideally, the total acidity of grapes would not exceed .9% and also would not be less than .5%. Excessively high or low acids can be corrected, but never provide the exact flavor of perfectly ripe fruit.

Acid Testing Kits for TA

Several different kits are on the market that measure Total Acid, Malic Acid, even Lactic Acid. Mainly, we suggest you check your juice initially with one of 3 different Total Acid Test Kits. Your choice of kit

will depend on your comfort level and budget. We will be happy to go over your choices with you, but here is a basic introduction to the different kits.

The simplest kit to use is made by *Accuvin*, which comes with 10 tests, but is the most expensive and least able to see the results in red wine. You simply add the juice to the vial supplied and allow for a timed response that will then compare to a color chart and read the Total Acid result.

The *Acidometer*, by *Vinoferm* titrates via a graduated cylinder and Blue Hydroxide solution. Your answer can be checked with the supplied litmus paper. This is also simple to run and does several tests before needing replacement solution. Does a better job with red wines.

The least expensive TA test is supplied by *Country Wines* and titrates with Clear .1N Sodium Hydroxide and Phenolphthalein indicator solution. Once you have learned the technique, it is a simple test and can be the most accurate test we have available if you add a pH meter to check your results. The pH will prove neutralization once the solution reads 8.2.

Acid Testing Kits for Malic Acid

Accuvin also makes a kit with ten tests for checking the quantity of **Malic Acid** present in the wine. This allows you to track the progress of ML fermentation, using your cellaring skills to increase ML activity if necessary or shutting down the fermentation when it is undesirable.

We also have in-house **Malic Acid** test available using our Reflectoquant meter. You bring us a wine sample, and we set you up with a simple test that measures the intensity of light reflected off the measurement paper strip supplied for each test. Each test takes only a few minutes. The price for the set up, including one test strip is \$8.95, multiple tests done at the same time are and additional \$3.95 each.

pH

Although Total Acidity is the best measure of a wine's flavor balance, pH is really the best measure of a wine's stability. The two scales are not correlative because the acids in grapes are weak acids and also because of the presence of potassium ions. Most wines have an acceptable pH ranging from 3.1 to 3.6. The problems associated with too low pH are usually poor quality fermentations, especially Malolactic fermentation. In addition, high pH indicates a wine susceptible to bacterial spoilage, particularly at a pH above 3.7.

Testing for pH

To test your juice or wine with a pH meter, first make sure you are working with a degassed sample. The presence of CO₂, as is also the case with testing TA, interferes with the test results.

Meters require calibration to buffer standards prior to every use. Make fresh solutions after several uses to avoid errors. Let the electrode stand in the pH7 buffer for several minutes and then follow the meter instructions to calibrate that sample. Repeat for pH4 and then repeat with the juice or wine, it will be useful later when doing SO₂ additions to preserve the wine. *Note: if you leave your meter unused for several months, it may not calibrate.* You can avoid this, by routinely soaking the electrode in buffer pH4. Place a cotton ball soaked in buffer pH4 inside the cap for storage.

Note: Make your own buffer solution of 3.56 pH by mixing 50 ml of deionized water with one teaspoon of Potassium Bitartrate. Mix well and then calibrate the meter.

JUICE TESTING FOR SUGAR, ACID, PH AND NUTRIENTS

The Testing Program

Our SAP and SNAP Panel testing program is a collaboration between ourselves and *Vinquiry*, the commercial wine laboratory in Windsor. Here's how the program works:

(1) Before picking your grapes, you purchase from *BP* either a **SAP** or a **SNAP** testing panel for your wine. We give you a numbered voucher to take to *Vinquiry*, along with a 225 ml. sample bottle for the juice.

(2) When your grapes are crushed, you deliver the voucher and the sample bottle full of clear, settled juice to *Vinquiry* at 7795 Bell Road, Windsor, CA 95492.

(3) *Vinquiry* sends the results to us and to you, so we can help you interpret the results.

The SAP Panel

This is the more basic panel. It includes Sugar, Total Acid, and pH tests. These are the three tests deemed most essential in the majority of winemaking situations.

By testing these three things: Sugar, Acid, and pH, the SAP panel provides the minimum level of information that a serious home winemaker will generally want to have.

There are, however, a couple of additional tests that will enable winemakers to zero in on Nutrients, an area whose importance has only recently begun to be understood. That brings us to the SNAP Panel.

The SNAP Panel

In addition to the three tests of the SAP Panel, the SNAP Panel provides detailed information in the area of nutrients. Adequate nutritional levels help ensure a healthy yeast fermentation, and also help avoid problems such as: stuck fermentations, or the "rotten egg" smell of Hydrogen Sulfide.

As far as nutrients are concerned, there are two tests a home winemaker could utilize: one for *Ammonia*, and one for *Assimilable Amino Nitrogen*. The results of these two tests are added together to determine the total amount of *Yeast Assimilable Nitrogen (YAN)* present in the sample. When these figures have been combined, the result (logically enough) is called *Yeast Assimilable Nitrogen Combined (YANC)*. It is this YANC figure, in combination with the sugar level of the must, that tells us the nutritional requirements of our juice.

Adjusting Nutrients

Because different strains of yeast have different nutrient requirements, talking about YANC levels can quickly turn complex. For our discussion here, we will consider the natural juice level of YANC in one of 3 levels: Low YANC < 125 ppm, Medium YANC 125-225 ppm or High YANC > 225 ppm.

We also divide the yeasts into three levels of nutritional need (see table on page 13). **LOW, MEDIUM AND HIGH-VERY HIGH**. Once you know your YANC level, it may influence your choice of yeast. Choosing one with an appropriate nutrient need will minimize your nutrient additions.

With your yeast choice comes your selection of a nutrient addition program from the following table by first choosing Low, Medium or High YANC level and then the Yeast Nutrient program of *Low, Medium or High-very High*.

Note: all of this advice is based on "moderate" sugar levels up to 22° Brix. For high- sugar musts, choose yeast both low in nutrient requirements and high alcohol tolerant. Increase the yeast pitch 50% and add both 1 gram DAP and Fermaid K per gallon of juice when 1/3 of the sugar has been fermented.

Yeast Nutrient Needs				
YANC LEVEL	LOW	Low	Med	H-VH
		A	B	E
	MEDIUM	C	D	E
	HIGH	C	C	D

Nutrient Additions

A) Add enough DAP to bring your YANC up to 150 ppm about 8-12 hours after pitching yeast.

For **program A**, use these levels:

50 ppm or less YANC, add 2 grams

DAP per gallon.

50-100 ppm YANC, add 1 1/2 grams

DAP per gallon.

100 -125 ppm YANC, add 1/2 gram

DAP per gallon.

125+ ppm YANC, add no DAP

In addition, about 1/3 of the way through fermentation, add 1 g/gal. of Fermaid K (or Yeast Food).

B) Do all of **program A**, plus:

Add an additional 1/2 g/gal. DAP and do a second addition of 1 g/gal. Fermaid K when roughly 2/3 of the sugar has been consumed.

C) Add no DAP. Add 1 g/gal. Fermaid K about 1/3 of the way through fermentation.

D) Follow **program C**, plus add another g/gal. of Fermaid K about 2/3 of the way through fermentation.

E) Follow **program A**, plus add 1 g/gal. DAP and 1 g/gal. Fermaid K about 2/3 of the way through fermentation.

Which Nutrient, When

Adding the correct nutrients is very important for the highest quality fermentation, however, you can make just two nutrient additions and generally have a successful fermentation. Use the following recommendations, making at least one addition within a few days of active fermentation and a second addition when the sugar fermentation slows or about a week later.

Add **Fermaid K** (Yeast Food) at the rate of 1 oz. per 32 gallons early in fermentation and prior to ML. Provides a complete and balanced food for yeast. Use with DAP if you know you need more nitrogen. Contains ammonia salts, amino acids, sterols, unsaturated fatty acids, yeast hulls, vitamins, magnesium and pantothenic acid.

Diammonium Phosphate - DAP will raise the level of free nitrogen for a healthy fermentation. Contains only ammonium phosphate. Use varies, but 1 oz. per 32 gallons is a good starting addition.

Autolyzed Yeast is used to restart sluggish and stuck fermentations. Contains pure dried yeast providing amino nitrogen, B vitamins and yeast hulls from autolyzed yeast.

Yeast Hulls help prevent stuck and sluggish fermentations and with Autolyzed Yeast to restart fermentations. This is the pure cell wall membrane of whole yeast cells and is more concentrated than autolyzed yeast. Also used to absorb toxic compounds.

Costs

The **SAP Panel (TE98)** is priced at \$26.00, and the **SNAP Panel (TE99)** is priced at \$72.00. If you are ordering by mail, there is no additional shipping and handling charge when combined with a mail order that meets our minimum free shipping. If ordering separately, the charge for sending the bottle and voucher is \$4.00. Vouchers are non-refundable, and must be used the harvest they are purchased. You are responsible for delivering your samples to *Vinquiry*.

Handling & Shipping Juice

Remember that you are sending juice, and that means it is subject to fermentation. *Vinquiry* must receive your samples before fermentation begins! Unless you take your clarified juice to *Vinquiry* yourself, you should do one of two storage methods:

Freeze the juice in the sample jar (with the lid loose). When the sample is solidly frozen, reseal it and ship via next day air.

Pasteurize the juice, heating it up to 180°F., keeping it there for 2-5 min. Do not boil. Cool, freeze, and ship via next day air. **Indicate which storage method used to *Vinquiry*.**

Yeast Recommendations

Locate your grape variety or style, read about the yeast characteristics for the recommended strain(s). Remember that the option is always to use what is freshest and available to you, if all of these strains are not in supply. We try to stock all of these during harvest. See page 18, for instructions on rehydrating dry yeast. See page 12 for Nutrient programs for yeast.

Choose a Yeast: To find fermentation specifics, read down		Assmanshausen													
Varietal	Fruit Wines	Enhances Fruit	Enhances Mouthfeel	Sensory Effect *	Reduces Vegetal Character	Stabilizes Color	Cold tolerant	Use to Restart	Temperature Range F.	Vigor	Alcohol Tolerance %	High Alcohol Tolerant	Nutritional Need **	Reaction to Oxygen ***	Comments
Pinot Noir	YES	YES	YES	EVC	YES	YES			68-86	Slow	15		Medium	Medium	Enhances spiciness
Zin, Syrah	YES	YES		Estery					59-86	Average	14		LOW	Fruit wines	
Sangiovese				EVC					64-82	Average	16	YES	Very High	Extended Macerations	
Bordeaux				EVC	YES	YES			59-89	Average	14		High	Alternate to BDx	
Zinfandel	YES	YES		EVC	YES	YES	YES		50-80	Average	15		Medium	Can be stopped	
Bordeaux				EVC		YES			64-86	Average	16	YES	High	Ideal Fermentor	
White, Red				Neutral			GOOD		50-95	Fast	18		High	Vigorous	
Chardonnay Cabernet		YES	YES	Estery	YES				59-86	Fast	16	YES	Medium	Complex	
Chardonnay Cabernet				Complex					59-85	Average	16	YES	Very High	High H ₂ S Formation	
Chardonnay Cabernet				Neutral			GOOD		59-80	Fast	17	YES	Medium	Vigorous	
White, Red	YES			Neutral			YES		50-86	Fast	18	YES	LOW	Late Harvest	
Rhone	YES			EVC		YES			59-82	Fast	18	YES	High	Late Harvest	
Pinot Noir	YES			EVC					68-86	Average	16	YES	High	Good Color	
German	YES			EVC			YES		40-70	Slow	14		LOW	Easy to stop	
Chardonnay		YES	YES	Estery		YES			59-85	Slow	14		Medium	Mouthfeel	
Whites				EVC			YES		50-86	Fast	14		Medium	Late Harvest	

* Sensory Effect: EVC = Enhances Varietal Character, Estery + Enhances Fruitiness, Neutral does not enhance these characteristics.
 ** See pages 2 - 3 for Nutrient recommendations, especially for Medium and High Categories.
 *** Also try additions of oxygen with active stirring during fermentation to yeasts that react to oxygen additions.

GREAT OAK FLAVOR, WITHOUT A BARREL

There are several methods of adding oak flavor and aroma without using a barrel.

Oak staves and sticks take about six weeks to three months for full extraction, extracts are instantaneous and oak chips take only 48 hours.

Oak **chips** are made from full size staves, with all the normal drying and kilning but chipped for easy addition to any size container. They can even be added into the must during fermentation. Use about 3 oz. per 5 gallons. They impart great flavor, but aren't heavy in the aromatic department.

Chain of Oak™ **staves** can be added any time after fermentation to tanks or barrels which have lost their



oak-i-ness. This **Innerstave** innovation, consists of separate oak staves that tie together with nylon ties, which then folds into a barrel. The bung opening must be at least 2". These are also appropriate for use in stainless tanks. One chain treats 60 or so gallons. They can also be used in smaller barrels if the bung opening is 2", by using less than all 17 staves. We carry both French and American staves.

Also see our lineup of Oak **sticks** for use in Carboys. Use one stick per 5 gallons. After extraction, the stick can be removed and or the wine racked off the stick. Leftover sticks are great on the barbeque.

Finally, the most expensive additive is Liquid Oak **Extract**. A highly concentrated product, liquid oak can be added all the way up to bottling, for making fine tuning adjustments or just finishing a wine that seems lacking in aroma. See page 19 for all these products and small American and French barrels. See below for our method of making your own liquid oak extract using oak chips.

HOMEMADE OAK FLAVORING

Homemade Oak Extract is a sound alternative to barrel storage. The marriage of flavors takes place in glass or stainless steel storage containers instead of barrels and therefore needs to be racked at least as frequently as a barrel to slowly introduce oxygen. Other than maintaining that program, the effects of oak flavor and aroma will very nearly match the tastes imparted from storage in oak cooperage. To make up your extract you will need a few supplies, as well as the oak chips.

You will need:

- | | |
|-----------------------------------|------------------------|
| 8 oz. Oak Chips, Plain or Toasted | 1 yd. Cheesecloth |
| 25 oz. Vodka (or Everclear) | Small Funnel |
| 2 Quart Mason Jars with Lids | .5 ml Pipet or Syringe |
| 100 ml Graduated Cylinder | 5 Clean Wine Glasses |

To make the extract, fill one Mason jar with the oak chips and fill the jar completely with vodka. Cover and let stand for 24 hours. Line a funnel with several layers of folded cheesecloth and place over the second Mason jar. Pour in the oak and vodka mixture, stand until well drained. You will normally collect approximately 10 to 12 oz. of Liquid Oak Extract. You may further clarify this liquid by straining a second time through a paper coffee filter. Pour the extract into a clean bottle and store until needed.

Trial additions: measure 100 ml of wine into the graduated cylinder and add .5 ml liquid

oak extract. Pour 1 oz. of this flavored wine into a wine glass and mark .5 ml. Add 1 oz. of wine to the graduated cylinder. Add another .5 ml liquid oak extract. Pour 1 oz. of this second flavored wine into a second wine glass and mark .85 ml. Add 1 oz. of wine to the graduated cylinder and repeat this process 3 more times to give you five wine glasses marked .5, .85, 1.1, 1.28, and 1.41 ml. Now taste and smell these different wines until you decide which amount is the most desirable.

Now, **to treat five gallons of wine**, multiply your favorite amount (in ml) by 188. For example: your favorite sample wine glass holds is the sample with 1.28 ml added. Multiply 1.28 x 188 = 241 ml. Add this extract per 5 gallons of wine you are flavoring. Taste it now and again in three weeks. The wine will appear to have lost some of its fruitier flavor and aromatic components, but after several weeks, the extract will "marry" to the wine and the fruit will reappear. We recommend you do the extract addition several weeks before bottling, in case you want to increase the amount of oak by making a second addition.

Sample	Dosage	Add to 5 gallons
Glass #1	.50 ml	x 188 = 94 ml.
Glass #2	.85 ml	x 188 = 160 ml.
Glass #3	1.10 ml	x 188 = 207 ml.
Glass #4	1.28 ml	x 188 = 241 ml.
Glass #5	1.41 ml	x 188 = 265 ml.

Barrel Care Procedures

Fresh oak barrels are about as sanitary as it gets because the wood has been heated over direct fire in order to bend the staves to shape and is often additionally toasted for flavor accents such as vanilla and caramel. When a barrel is new, it must be swelled with water to check for leaks. Oftentimes, leaks will seal themselves in only a few hours or days. However, the water should be refilled until the leaking stops, and it should be changed every day to prevent staling or molding and creating an off flavor.

To provide for an acidic environment for receiving the new wine, we recommend an addition of 2 teaspoons of citric acid for every (5) five gallons of barrel being treated. Add this as soon as the barrel is finished soaking. Make sure the barrel is tight and then drain and fill with wine.

After a barrel is used for wine storage, additional measures of cleaning and sanitation must be followed. At each racking, rinse out the barrel with water, to remove

debris, and rerinse the barrel with an acid wash. Again make up a solu-

tion of water with 2 teaspoons of Citric Acid for every 5 gallons. You can just use a 5 gallon amount to swash around inside the barrel for 5 or 10 minutes and then drain it and fill with your wine. The small residual amounts of acidity left in the wood are not harmful just so long as you don't overdo it.

Finally, when the time comes to store the barrel, it is best to wash out the inside with a cleaning compound, instead of only water. You want to remove the organic material left from the wine that penetrated into the wood surface. To do this you will make up a solution of ProxyClean®, which is a peroxide based cleaner. Mix 4 oz. of Proxyclean for every 15 gallons. Mix this into a small amount of water and funnel this into the barrel along with enough water to fill the barrel. Soak for a minimum of 20 minutes, up to a day to remove stains and penetrate the wood for cleaning.

Follow up the cleaner with several flushes of water and then

reacidify the barrel with a soaking of water and citric acid, again using 2 teaspoons acid to 5 gallons water.

For storage, drain this solution and burn 1/2 to 1 full sulfur wick, and bung tight to sterilize the barrel. This wick treatment will need to be repeated every two weeks until a flashlight does not reflect off water left in the barrel. The dry barrel can now be bunged and left in a dry storage area.

An alternative to the wick treatment for sanitation, is to keep the barrel filled with a solution of water and citric acid, to which potassium or sodium metabisulfite has been added. This solution releases the gas sulfur dioxide, the same as burning the sulfur wick. Add 4 teaspoons of sulfite powder with 2 teaspoons of citric acid for every 15 gallons of water. Bung up and keep full of water until needed. Use this option when the barrel will be refilled within a month or two of draining.

You will have to rinse out the residue of either the wick or the sulfite treatment with plain water.

Grape Growers Wanted

We keep a book at our shop giving information provided by grape growers with small lots of grapes for sale to amateur winemakers. The program has effectively bridged the gap between the grower needing to find a home for some excess crop and the winemaker looking for a supply to harvest.

If you would like to place a listing, please send us a list of grapes available, with your **name, address and phone number**. Please **also indicate**:

- The estimated Picking Date
- Varietals available
- Minimum/Max avail
- Price with/or without picking
- Age of vines, location of vineyard.

Competitions for Winemakers

Marin County Fair, Entries due last week of May or so. Contact Marin County Fairgrounds. We normally deliver the entries for you, if you have sent in forms and money in advance.

Orange County Fair, Entries due June 1st., Contact Jim Graver, chairman of Orange County Wine Society 714 708 1636. Again, we normally deliver the entries for a small fee, but you must send in the forms in advance.

HomeWinemakers Classic, Napa County, contact via the web at www.drycreek.org. This is a limited competition and fills up. So contact them in April to be included. Event tickets are on sale at the store, Mark your calendar now for the Classic 2004: Saturday, July 17, 2004, 4:30 -7:00, St. Supéry Winery.

California State Fair. Contact fair www.tomatoweb.com/shw. Deadline for entries is June 30.

Harvest Fair of Sonoma County. Contact fair office at 545-4203, we have forms. Deadline for entries is the last week of August. Opportunity for local winemakers to judge, contact Robert Bennett, 433-4574 to be included on a panel.



#30 Basket Press

2005 Winemaking Supplies Catalog

Presses

Wooden cage with steel base on legs, lets you quickly and smoothly press fermented red grapes or crushed white grapes.

Model	Basket Number	Basket Diameter	Height	Capacity In Gal.	Retail Price
WE02	#25	10"	14"	5	\$325.00
WE03	#30	12"	17"	7	\$375.00
WE04	#35	14"	19"	12	\$450.00
WE05	#40	16"	21"	18	\$525.00
WE06	#45	18"	24"	25	\$600.00
WE07	#50	20"	26"	34	\$750.00

Piston Top Basket Press with Hydraulic Ram on frame with wheels. Very easy to use, with tilt frame for draining. *Size shown to right is similar to a #50 basket press.*

WE54	Piston, manual Hydraulic Press on wheels #40	16" x 21"	\$1500.00
WE50	Piston, manual Hydraulic Press on wheels #50	20" x 26"	\$1900.00
WE51	Piston, electric Hydraulic Press on wheels #50	20" x 26"	\$3500.00

Water Bladder Press inflates with regular garden hose pressure, pressing the grapes against the stainless steel cage, while a lid retains the grapes. *(Not pictured.)*

WE55	#42	17"	23"	20	\$1275.00
WE46	#54 with wheels	21"	28"	42	\$2200.00

Crushers and Stemmer/Crushers

Crushers: Manual rollers crush the grapes by simply turning the flywheel supplied. The rollers gently burst the whole grape.

Dimensions of Bin: 21" x 25"

WE12	Paint finish	\$250.00
WE13	With all stainless hopper <i>(Shown right.)</i>	\$275.00

Stemmer/Crushers: Manual and electric models are available, both will process around one ton per hour. Stainless steel models come with a stainless stem grate and stainless hopper.

Dimensions of Bin: 18" x 31"

WE14	Manual, paint grade stemmer/crusher	\$475.00
WE15	Manual, stainless stemmer/crusher	\$575.00
WE16	Electric 110V, paint grade stemmer/crusher <i>(Shown middle right.)</i>	\$725.00
WE17	Electric 110V, stainless steel stemmer/crusher	\$850.00
WE30	Electric 110V, ALL stainless steel stemmer/crusher	\$1000.00
WE22	Electric 110V, paint grade stemmer/crusher with screw feed and extended hopper <i>(Dimensions of Bin: 18" x 35")</i>	\$800.00
WE18	Electric 110V, stainless stemmer/crusher with screw feed and extended hopper	\$950.00
WE33	Electric 110V, ALL stainless stemmer/crusher with rubber rollers, with screw feed and extended hopper <i>(Shown bottom right)</i>	\$1500.00
WE20	Support stand for above stemmer/crushers	\$275.00

Large Storage Tanks

Variable Capacity Stainless Wine Tanks, come with a floating lid, pressure relief valve and drain.

WE43	100 Liter Stainless tank	\$350.00
WE40	200 Liter Stainless tank	\$500.00
WE42	300 Liter Stainless tank	\$600.00
WE44	400 Liter Stainless tank	\$675.00
WE45	500 Liter Stainless tank	\$725.00
WE41	600 Liter Stainless tank	\$900.00
WE49	600 Liter Stainless tank /Bottom cone, 3 legs	\$1500.00
WE48	800 Liter Stainless tank /Bottom cone, 3 legs	\$1575.00
WE41	600 Liter Stainless tank /Bottom cone, 3 legs	\$1750.00

Equipment is priced for pick up at the store. The basket presses sized #25 to #40 can be broken down for shipping via UPS. All other equipment should be picked up at the store. Call for a freight quote for delivery of any large pieces of equipment.



#50 Piston Press



Roller Crusher



WE16 Stemmer/Crusher



WE33 Stemmer/Crusher
NEW with rubber rollers

Filter/Pumps

Large capacity filter with pump processes wine through 10 pads with 8" square surface. This is 3 times larger than the *Buon Vino Jet Filter* (see pg.19) we sell and rent.

WE60	10 Plate Filter/Pump (85 gal./hr.)	\$1200.00
WE10	6 Plate Filter/Pump (55 gal./hr.)	\$775.00

Large capacity pump with stainless steel body and reverse switch, 110V., uses 1 1/4" hose.

WE61	S/S Large pump	\$1275.00
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INGREDIENTS

Ingredient Kits for Winemaking

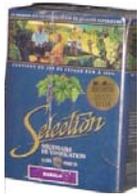
Two cans of concentrate of your choice are included with instructions for 5 gallons of wine. Choose from the list below, and we include the yeast, sugar, acid blend, and a pack of wine labels.

BDW02\$34.95

Choose your flavor or use this list to order individual cans

(C002) **Chenin Blanc** or (C004) **Chablis**,\$10.95

(C006) **Burgundy** or (C005) **Ruby Cabernet**.....\$12.95



Boxed Concentrated Wine Kits

Aseptically packaged, not as concentrated as the above cans, these kits are a complete package of ingredients, boxed for shipping. Excellent flavors and aromas, each 15 liter kit makes 6 gallons of wine.

Selection Kits:

C011 **Barolo** (R) \$84.95

C022 **Pinot Grigio** (W) \$89.95

C018 **Chilean Merlot** (R) \$74.95

C019 **Sauvignon Blanc** (W) \$79.95

C017 **Gewurztraminer** (W) \$79.95

C020 **Pinot Noir** (R) \$84.95

C009 **Cabernet/Merlot** (R) \$84.95

C012 **Chilean Chardonnay** (W) \$74.95

C015 **Aussie Cabernet/Shiraz** (R) \$89.95

C037 **Luna Rossa, big RED** (R) \$89.95

Estate Kits:

C010 **Lodi Old Vines Zinfandel** (R) \$109.95

C016 **Sonoma Unwooded Chardonnay** (W) \$99.95

C026 **Napa Woodbridge Cabernet** (R) \$109.95

Each 7.5 liter kit makes 11.5 liters of wine.

C013 **Port** (R) or C023 **Dry Sherry** (W) \$54.95

Pure Italian Juice Wine Kits

Mosto Italiano® kits are aseptically packaged in plastic pails, that also serve as the primary fermentor. 23 liter kits are a complete package of ingredients to make 6 gallons. Ready in three months.

C030 **Cabernet Sauvignon** (R) \$84.95

C031 **Chardonnay** (W) \$79.95

C032 **Sangiovese** (R) \$84.95

C033 **Gewurztraminer** (W) \$74.95

C034 **Shiraz** (R) \$84.95

C035 **Zinfandel** (R) \$84.95

C036 **Sauvignon Blanc** (W) \$79.95

Seedless Fruit Puree

Each 49 oz. can of fruit puree from Oregon is seedless, with all the goodness preserved in the processing, full of aroma and a deep rich taste and color. Use one can in five gallons of beer, two cans to flavor a mead or four cans to make wine.

The classic wine recipe using four cans of puree, will yield 24 wine bottles of superb fruit wine. Finish it with the addition of a simple syrup just to smooth the flavor and intensify the berry taste. Reminds us of summer even in



the dead of winter and tastes great for several years, if you can wait that long, but is ready to drink in three months. 49 oz. can

FL44 **Raspberry Puree**.....\$15.95

FL45 **Blackberry Puree**.....\$14.95

FL46 **Apricot Puree**\$13.95

FL48 **Dark Sweet Cherry**\$12.95

EQUIPMENT KITS

Wine Equipment Kit

Complete with a ten gallon primary fermentor and lid, a six-gallon glass secondary, an air lock and stopper, 25 Campden tablets, a siphon assembly, a bottle filler, two lever hand corker and 25 corks, Acid Testing Kit, Hydrometer and Test jar, a bottle brush and the book *Winemaker's Recipe Handbook*.

BNW01.....\$119.95



Mead Equipment Kit

Includes a 7-gallon glass primary and 5-gallon glass secondary fermentor with stopper and airlock, a siphon assembly, bottle filler, an Acid Test kit, Hydrometer and Test jar, the "Emily" Capper, caps, a spoon, sanitizer, a bottle brush and the book *Making Mead* by Morse. BN60.....\$119.95

Meadmaker's Ingredient Kit

9 lbs. of our clover honey with yeast, nutrients, acid blend, sulfite, priming sugar and instructions, makes 5 gallons of sparkling mead.

BN50\$39.95

SUPPLIES

Acids

A17 **Ascorbic**. 1 oz.\$1.85

A05 **Citric**. 2 oz.\$.95

A14 **Malic**. 2 oz.\$.95

A10 **Tartaric**. 2 oz.\$1.95

A24 **Acid Blend**. (Citric, Tartaric & Malic). 2 oz. ..\$1.25

Fermenting & Preserving Aids

AD15 **Corn Sugar**. 5 lbs\$5.95

QR04 **Pectic Enzyme**. 1 oz.\$1.85

FN18 **Potassium Sorbate**. 1/2 oz.....\$.99

FN35 **Wine Conditioner/Stabilizer**. 500 ml.\$3.95

QR11 **Yeast Nutrient (DAP)**. 2 oz.\$1.50

QR33 **Autolysed Yeast**, 2 oz.\$1.50

QR16 **Yeast Hulls**, 2 oz.\$2.95

QR06 **Fermaid K™** Yeast Food. Complete nutrient mix with trace minerals, use 1 oz. per 30 gallons. 3 oz. ..\$2.95

Nutrients cont.

- QR50 **Yeast Nutrient for Meads.** (Our special blend)
Use 2 oz. per 5 gallons. 2 oz. \$1.75
QR38 **Acti-ML** (Nutrient for ML - 66 gal.) 50gr. \$5.95

Wine Yeast & Malolactic

YEAST

Choose your yeast from the information given on page 13. Use one gram per gallon. Shelf life is 3 to 4 months, if kept refrigerated much of that time. To make a starter: Boil 4 oz. of distilled water, cool to 100°F, add dry yeast and agitate for 10 minutes. Then spread over juice or grape must. Stir in and stir again in 24 hours.

- 10 grams** \$1.25
WY27 *Pasteur Champagne* (all-purpose yeast)
WY23 *Prise de Mousse* (low foam yeast for whites)
- 10 grams** \$1.75
WY38 Assmanshausen (Pinot Noir, Zinfandel)
WY25 Beaujolais 71B (Fruity, aromatic reds)
WY45 Brunello BM45 (Sangiovese, Macerations)
WY53 CSM (Cab Sauv., Merlot, Cab Franc)
WY22 Epernay 2 (Fruit wines and Blanc de Noirs)
WY30 French Red (Cabernet, Merlot, Zinfandel)
WY24 K-1 (Kills competing wild yeast)
WY50 M2 (Premium Chardonnay and Cabernet)
WY26 Montrachet (All-purpose if no sulfur used)
WY29 Steinberger (Riesling and Gewurztraminer)
WY35 Rhone #L2226 (Syrah, Rhone)
WY55 RC212 (Pinot Noir, other blush wines)
WY31 Simi White (French White) (Chardonnay)
WY28 Wadenswil 46 (Pinot, Riesling)

MALOLACTIC

- WY32 ML Culture, *MCW Strain*. 2 gram pack inoculates 5 gallons directly. May be built up to treat up to 500 gallons. Comes with instructions. \$15.95
WY40 ML Culture, *Bacchus*. 1 gram pack for 5 gal.... \$10.95
WY51 ML Culture, *Enoferm Alpha Strain*, 2.6 gram pack inoculates 60 gallons directly. With instructions \$22.95

Fining Agents

- FN06 **Sparkolloid™** 1 oz. \$ 1.75
FN32 **Bentonite** 2 oz. \$.69
FN07 **Isinglass** 1 oz.. \$ 3.95
FN03 **Fining Gelatin** (75 bloom, grade B) 1 oz. \$.99
FN16 **Tannin.** 1/4 oz. \$.95
TE24 **Copper Sulfate Solution.** 4 oz. \$ 4.00
FN22 **Polyclar VT (PVPP)** (With Instructions). 1 oz. \$ 1.95
QR28 **Calcium Carbonate** (With Instructions). 1 oz. \$.69
FN39 **Potassium Bicarbonate** (With Instructions). 4 oz. .. \$ 2.95

Cleaners & Sterilants

- CS09 **Chlorinated TSP** 1 lb. \$3.95
CS12 **Soda Ash** (Barrel cleaner) 1 lb. \$1.50
CS24 **Sodium Metabisulfite** 4 oz. \$2.25
CS20 **Potassium Metabisulfite** 1 lb. \$4.95
CS17 **Campden Tablets** Pack of 25. \$.95
CS16 **Campden Tablets** Pack of 100. \$2.95

- CS33 **Efferbaktol SO₂ Granules, 2 grams** \$1.00
CS35 **Efferbaktol SO₂ Granules, 5 grams** \$1.50
B39 **Sulfur Strips** 2 strips \$.59
B38 **Sulfur Strips** Bundle of 70 strips \$17.95
CS31 **TDC™ Glass Cleaner** 1 Liter. \$12.95
CS03 **BTF™ Iodophor Sanitizer** 1 Liter \$12.95
CS29 **Proxyclean®** (Barrel Wash) 1 lb. \$4.95

EQUIPMENT

Transferring

- QE11 **5/16" Racking Tube.** \$3.95
FST02 **Hose Shutoff Clamp for 5/16" hose.** \$.69
QE33 **1/2" Racking Tube.** \$4.95
FST03 **Hose Shutoff Clamp for 1/2" hose.** \$1.25
QE17 **Bottle Filler for 5/16" hose.** \$4.95
QE20 **Bottle Filler for 1/2" hose.** \$5.95
PS26 **Transfer Pump,** phenolic head, electric \$139.00
F01 **Filter/Strainer** for Pumps (Use with 1/2" hose) \$16.95
PS36 **Procon Brass Pump,** 4 GPM, 1/4 HP \$285.95
PS35 **Procon Stainless Pump,** 4 GPM, 1/4 HP \$395.95

- PS04 *Pump hose barb fitting, 3/4" x 1/2" barb.* Plastic \$1.99
PS05 *Pump hose barb fitting, 3/4" x 5/8" barb.* Plastic \$1.99
PS04 *Pump hose barb fitting, 1/2" x 1/2" barb.* Brass \$2.95
PB05 *Pump hose barb fitting, 1/2" x 1/2" barb.* Stainless steel \$10.99



PS35 Procon Stainless Pump with PB05 fittings

Funnels:

- QE24 **9" Carboy** \$9.95
QE23 **10" Barrel** \$9.95
QE22 **6" Bottle** \$4.95
QE21 **4" Bottle** \$2.95

Strainers for Funnels:

- QE26 **Coarse Mesh #14** \$1.95
QE27 **Fine Mesh #100** \$1.95

Mesh Pressing Bags:

- PS32 **12" X 19"** \$4.95
PS16 **20" X 22"** \$5.95

Miscellaneous

- KEG58 **Food Grade Lubricant.** 4 oz. \$3.25
MS09 **Gondola Enamel.** Food grade paint. 16 oz. ... \$10.95
MS42 **Private Reserve™.** Nitrogen gas \$9.95
MS32 **Grape Picking Shears.** \$16.95
MS16 **Grape Picking Knife.** Plastic handle \$6.95
QE36 **Grape Masher.** (Cap Punch Tool) 24" long \$29.95
QE10 **Grape Masher.** (Heavy Duty) 36" long \$54.95
MS41 **Food Grade Shovel** 14" x 17" x 42" \$46.95
MS33 **Wine Degasser/Blender.** Nylon whip to stir or de-gas wine, use with a drill. \$10.95
MS02 **Nesting Bowls Set.** Stainless steel, 5 pieces.... \$19.95

Filters

F05 Buon Vino Super Jet Filter. Plate & frame filter includes pump and will process 30 to 45 gallons per set of pads. Change pads and continue. Pump is also useful alone for racking wine.\$375.00



Pads for Super Jet Buon Vino
(Set of Three):

F09 **5-7 m. Coarse** ...\$3.95

F22 **0.8 m. Fine**\$3.95

F21 **0.5 m. Sterile**\$4.95

F23 **25 Backing Papers for Filter Pads** \$4.95

F03 10" Cartridge Filter Housing.

Best for early cleanup of wine and larger volumes than the *Buon Vino*. Choose a cartridge from list below. The smaller the micron rating, the more sediment is removed. Clear, poly housing \$34.95

10" Filter Cartridges:

F10 **3 micron Coarse**\$12.95

F11 **1 micron Fine** \$12.95

F12 **.5 micron Sterile**\$14.95

F41 **.5 micron, reuseable Sterile**.....\$39.95



Hose Barb for Filter Housing. *Need two. Specify: PS02 3/8" hose.*
or *PS03 1/2" hose.*.....\$1.29

Containers

P16 10 liter Plastic Pail, with Pour out lip and Bail Handle.
.....\$6.95

P01 **6.8 Gallon Plastic Bucket** with Wire Bale Handle,
Graduation marks in half gallons & Locking lid.\$9.50

P17 **Poly Drum Liner** (4 mil, 60 gall.)\$4.95

P04M **10 Gallon Heavy-Duty Plastic Bucket**
with molded handles.\$20.95

P05 **10 Gallon Lid**\$5.95
20, 32 AND 44 GALLON SIZES and lids are available at the store.

QE44 **Carboy Draining Stand.**\$8.95

QE34 **Carboy Handle.** 3, 5 and 6 gallon size\$6.95

QE47 **Carboy Handle.** 7 gallon size\$6.95

Glass Carboys EASIEST TO SANITIZE

GL02M **3 Gallon Glass Carboy.**\$20.95

GL01M **5 Gallon Glass Carboy.**\$25.95

GL40M **6 Gallon Glass Carboy.**\$27.95

GL04M **7 Gallon Glass Carboy.**\$27.95

In-store prices: 17.95, 20.95, 23.95 and 23.95 for the 3,5, 6 and 7 gallon carboys.

Plastic Carboys Lightweight, NO TASTE NO ODOR

GL45M **5 Gallon BETTER BOTTLE Carboy.** ..\$24.95

Oak



Oak Chips, 1 lb sacks

B46 **American Medium Toast.**

..... \$5.95, or

Specify: B24 French Medium

Toast or B25 French Dark

Toast. \$6.95

Carboy Oak Stick Inserts,

6 grooved staves

B80 **American Medium.** \$23.95, B82 **American Dark.** \$24.95,

B81 **French Medium** \$28.95, or B83 **French Dark.**\$29.95

Chain-O-Oak™ Barrel Stave Inserts, 17 staves and ties

B78 **American Medium.** \$45.95, B79 **American Dark** \$49.95,

B74 **French Medium** \$49.95 or B75 **French Dark.**\$54.95

New Oak Barrels: (Kiln Dried)

B04 **American Oak, 5 gallon** \$139.95

B05 **American Oak, 10 gallon** \$189.95

B06 **American Oak, 15 gallon** \$209.95

(Air Dried)

B47 **American Oak, 26 gallon - medium toast**..... \$295.00

Used French Oak Barrels: (Shaved and Rebuilt from full size barrels, with new Hoops) (Barrels come with medium toast.)

B84 **French Oak, 10 gallon** \$255.00

B85 **French Oak, 15 gallon** \$275.00

B43 **French Oak, 20 gallon** \$285.00

B48 **French Oak, 30 gallon** \$295.00

Small American Oak Barrels:

B01 **American Oak, 1 gallon** \$89.95

B02 **American Oak, 2 gallon** \$95.95

B03 **American Oak, 3 gallon** \$104.95

Vinegar Barrels are paraffin lined (P):

B10 **American Oak, 2 gallon (P)** \$85.95

B11 **American Oak, 3 gallon (P)** \$95.95

B12 **American Oak, 5 gallon (P)** \$119.95

B64 **French Oak, 10 liter, with spigot (P)** \$189.95

Bungs & Barrel Supplies

FST44 **Silicone Bung "R"** (30 X 44 mm) (#8-#9 size).....\$5.95

FST40 **Silicone Bung** (47 X 54 mm) (#11 size).....\$6.95

B16 **Redwood Bung** (specify diameter).....\$2.95

B17-21 **Hardwood Bung** (specify diameter),(varies from) \$1.95

B37 **Barrel Wax** 4 oz.\$3.25

MS06 **Mildewcide Barrel Coating**, 16 oz.\$6.95

Spigots: Wood. B30 **5.5"** \$7.95, or B31 **7.5"**\$8.95

Additional spigots 2 1/2" to 12" in length are available.

B13 **Hoop Nails Pack of 20.**\$1.25

B14 **Spiles for Barrels** (Fills holes) Pack of 10\$1.75

B42 **Liquid Oak Essence.** 4 oz. size treats 20 gallons of red wine, 25-30 gallons of white wine.\$5.95

Fermentation Locks

FST04	Three Piece Fermentation Lock	.....	\$1.09
FST05	Fermentation Lock Red Top	.....	\$1.09
Breather Bungs, Waterless Silicone Air Lock and Bung:			
FST42	(fits most carboys)	.....	\$4.95
FST47	(fits 5 gallon glass or plastic carboys)	.....	\$7.95
FST46	(fits most reeoped barrels, #9)	.....	\$5.95
FST45	(fits 2", #11 size)	.....	\$6.95

Drilled Rubber Stoppers

#	Code	Top	Bottom	Price
2	FST09	13/16"	5/8"	\$.60
6	FST12	1 1/16"	29/32"	\$.95
6.5	FST13	1 11/32"	1 1/16"	\$ 1.00
7	FST14	1 7/16"	1 3/16"	\$ 1.20
8	FST15	1 5/8"	1 5/16"	\$ 1.35
8.5	FST16	1 11/16"	1 7/16"	\$ 1.45
9	FST17	1 3/4"	1 15/32"	\$ 1.55
10	FST19	1 31/32"	1 5/8"	\$ 1.75
10.5	FST20	2 5/64"	1 3/4"	\$ 1.85
11	FST21	2 13/64"	1 7/8"	\$ 1.95
11.5	FST22	2 15/32"	2"	\$ 2.50
12	FST23	2 1/2"	2 1/8"	\$ 2.70
13	FST24	2 11/16"	2 9/32"	\$ 2.95

Most sizes are available solid, at the same price.

SIPHON HOSE

Sold by the FOOT

HS03	5/16" i.d.	.....	\$ .49
HS04	3/8" i.d.	.....	\$ .49
HS05	1/2" i.d.	.....	\$ .69
HS06	1/2" i.d. thick wall.	.....	\$ .99
HS07	5/8" i.d. thick wall.	.....	\$1.19
HS08	3/4" i.d. thick wall.	.....	\$1.29

Bottling Supplies

BE01	Italian Lever Corker.	.....	\$28.95
BE19	Mini-Floor Corker. Nylon Jaws	.....	\$59.95
BE03	Heavy Duty Floor Corker. Brass Jaws	.....	\$105.00
QE09	90 Bottle Draining Tree.	.....	\$29.95
WE19	Plastic Model 3 Spout Bottle Filler.	.....	\$139.00
WE28	Stainless Steel 3 Spout Bottle Filler.	.....	\$325.00
WE29	Stainless Steel 5 Spout Bottle Filler.	.....	\$425.00
WC06	1 1/2" Twin Disk Corks, Branded 100 pack...	.....	\$16.95
WC14	1 3/4" Twin Disk Corks. 100 pack	.....	\$24.95
WC08	1 3/4" Guardian® Corks. 100 pack	.....	\$26.95
WC13B	1 3/4" Twin Disk Corks. 1000 pack	.....	\$195.95
TC19	All -Plastic Wine Bottle Stopper ea.	.....	\$ .30
TC20	Plastic Champagne Stoppers ea.	.....	\$ .12
TC21	Champagne Wires ea.	.....	\$ .08
TC18	28 mm Black Top Bar Top Cork ea.	.....	\$ .29



Stainless Bottle Filler
Three Spout (WE28)



Heavy Duty
Floor-Model Corker (BE03)



10 Plate Wine Filter
(WE60)



Transfer Pump (PS26)

S01	28 mm Metal Screw Caps ea.....	\$.12
S02	38 mm Metal Screw Caps. ea.	\$.18
S03	28 mm. Plastic Polyseal Caps	\$.25
S04	38 mm. Plastic Polyseal Caps	\$.50
Bottle Seal, Wax Available in 6 colors		\$8.95
SL26 Black, SL27 Burgundy, SL28 Gold, SL29 Silver, or SL30 Red, SL32 Green. 1 lb., Melt to make decorative seal.		
Push-On Plastic Bottle Sleeves. For domestic wine bottles only. Specify : SL23 Burgundy, SL24 Gold, SL25 Green, SL21 White or SL22 Black. Dozen		\$ 1.09
Heat Shrink Plastic Sleeves. Apply to bottle neck with hair dryer or heat gun. Specify: SL18 Silver, SL33 Green, SL20 Gold, SL19 Burgundy, SL09 Blue or SL49 Black w/ Gold Band. OR for Burgundy bottles Oversize Sleeves are SL01 Maroon, SL02 White, SL03 Black. Sold by the Dozen		\$ 1.19
Decorative Wine Bottle Labels. Blank with room to write. 25 per pack, Gum Back.		\$2.75
MS15	Label Glue 16 oz.	\$6.95
MS24	Iceproof Label Glue 32 oz.	\$13.95
MS26	Manual Label Gluer Glue Pot.	\$249.95
BE07	Super "M" Crown Capper	\$37.95
BE10	Plain Crown Caps 1 gross (144 caps)	\$3.50
GL27M	Green Bordeaux Bottles 375ml. 12/cs.	\$14.95
GL12M	Green Bordeaux Bottles 750ml. 12/cs.	\$14.95

Tapered Corks, Solid

Size	Code	Top	Bottom	Price
# 9	TC05	23.8mm	18.6mm	\$.20
#14	TC06	31.8mm	25.8mm	\$.60
#16	TC07	34.9mm	27.9mm	\$.75
#17	TC23	35.9mm	29.9mm	\$.85
#18	TC08	38.1mm	30.9mm	\$.90
#20	TC09	41.3mm	34.1mm	\$ 1.05
#22	TC10	44.5mm	37.3mm	\$ 1.20
#24	TC11	47.6mm	40.5mm	\$1.40
#26	TC12	50.8mm	43.6mm	\$1.65

WINE LABORATORY

Sugar & Alcohol Testing

- TE40 **9" Economy Hydrometer** has Brix, Specific Gravity, and Potential Alcohol scales. \$7.95
- TE41 **9" Wine (Brix) Hydrometer** \$9.95
- TE42 **10 1/2" Hydrometer with Thermometer.**
Needs the tall test jar. \$16.95
- Precision Hydrometers (Brix only). 9"**
Specify range: TE43 **-5° to +5°**, TE44 **0° to 8°**, TE45 **8° to 16°**,
TE46 **16° to 24°**, TE47 or **20° to 50°** \$21.95
- TE39 **9" Hydrometer Proof and Traile** \$7.95
- TE65 **"Santa Rosa" Residual Sugar Kit. 36 Tests**
(with instructions). \$21.95
- TE15 **Replacement Reagent Tablets for Residual**
Sugar Test Kit (36 pack). \$19.95
- TE07 **Replacement .5 ml. Pipet.** \$.75
- TE14 **Replacement Test Tube.** \$.75
- TE23 **Refractometer, 0-32° Brix, ATC, boxed.....** \$99.95
- TE32 **20° Brix Solution.** Sugar solution to standardize the
refractometer. 2 oz. \$2.50
- TE13 **Vinometer.** Measures alcohol in dry wine \$7.95

Labware

- Regular Test Jar for 9" Hydrometer.**
- TE55 **Plastic.** \$4.95
- TE53 **Glass.** \$10.95
- Tall Test Jar for 10 /12" Hydrometer.**
- TE56 **Plastic.** \$5.95
- TE54 **Glass.** \$21.95
- TE07 **0.5 ml. Pipet.** Each. \$.75
- TE06 **10 ml. Pipet.** Pack of 10. \$8.95
- TE62 **10 ml. Pipet.** Each. \$1.25
- TE86 **100 ml. Graduated Beaker Polypropylene.....** \$9.95
- TE87 **400 ml. Graduated Beaker Polypropylene.** \$1.95
- TE92 **1000 ml. Graduated Beaker Polypropylene.** \$2.95
- TE08 **100 ml. Graduated Cylinder Pyrex.** \$12.95
- TE83 **1000 ml. Polypropylene Beaker w/handle.** \$9.95
- TE84 **2000 ml. Polypropylene Beaker w/handle.** \$10.95
- TE85 **3000 ml. Polypropylene Beaker w/handle.** \$12.95
- TE10 **500 ml. Pyrex Erlenmeyer Flask.** \$6.95
- TE09 **1000 ml. Pyrex Erlenmeyer Flask.** \$12.95

Sulfite and Acid Testing Kits

- TE26 **Country Wines Acid Test Kit** \$8.95
- TE29 **Sodium Hydroxide Refill (Neutralizer)**
(for TE26) 4 oz., 0.1 normal \$4.95
- TE58 **Phenolphthalein Refill. (Indicator) (for**
TE26) 3 dram \$1.95



- TE61 **Accuvin Titratable Acid (10 tests).....** \$24.95
- TE30 **Acidometer, Precision Acid Test Kit** \$19.95
- TE66 **Blue Hydroxide Refill (for TE30) (100 ml.)**
..... \$4.95
- TE82 **Iodic Solution Tests free SO₂ with the TE30**
Acid Kit components. (100 ml.) \$8.95
- TE02 **Titrets® Free SO₂ Test Kit. Pack of 10.**
..... \$16.95



pH and ML Testing

- TE60 **Accuvin pH (10 tests)** \$22.95
- TE73 **Waterproof pH Tester20 DJ. ATC. Digital, battery oper-**
ated, accuracy to 0.01 pH. Auto temperature compen-
sated, double junction electrode can be
replaced. \$89.95
- TE69 **Replacement Electrode for Waterproof**
pH Testr2 (old model)..... \$39.95
- T35 **Replacement Electrode for Waterproof**
pH Testr20. (new model)..... \$49.95
- TE72 **pH Buffer Capsules.**
(pH 4.0. and 7.0) One each capsule, to dissolve in 100ml.
distilled water to calibrate your meter. \$1.95



*Kit for testing Malolactic
Fermentation*

- TE20 **Malolactic Chromatography Kit. With 7 papers**
and 4 oz Solvent..... \$39.95
- TE17 **Replacement Solvent. 4 oz.** \$10.95
- TE22 **Replacement Paper 5 Sheets.** \$3.95
- TE19 **Replacement Pipets. (100).** \$6.95
- TE67 **Accuvin Malic Acid. (10 tests)** \$30.95

Thermometers

- TE38 **Spot Check Probe Thermometer. 0-220°F, Recalibratable,**
Type 304 Stainless, 1" Dial x 5" Stem \$18.95
- TE90 **Laboratory Thermometer.**
0-220°F, Recalibratable, Type 304 Stainless, 2" Dial x 12" Stem,
comes with clip for side of kettles \$32.95
- TE91 **Floating Glass Thermometer. 12" (0-220° F**
and -15-100°C). \$14.95
- TE37 **Floating Glass Thermometer. 8" (40-210° F**
and 0-100°C). \$8.95
- TE81 **Fermometer.** Monitors temperature from 36 to 78°F, glue-
backed to read the surface temperature of carboys. \$2.95

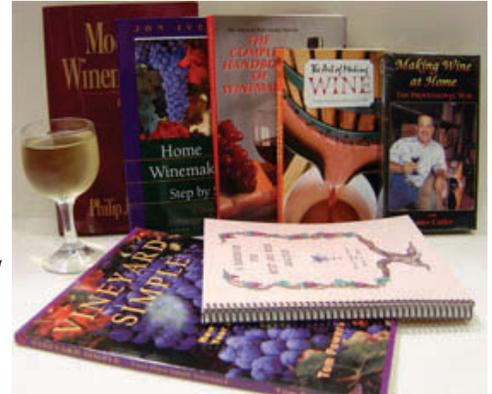
Wine Thiefs

- TE49 **Wine Thief. Plastic. One piece.** \$4.95
- TE48 **Wine Thief. Plastic. Assembled of 3 pcs** \$7.95
- TE52 **Wine Thief Glass. Pyrex. (37/8" by 15")** \$18.95
- TE59 **Wine Thief. Angled 24" w/"D" Ring Handle and**
tough Borosilicate Glass. \$42.95

WINEMAKING BOOKS AND VIDEO

BK56 *Making Table Wine at Home*
Cooke & Lapsley. \$ 15.95
BK140 *Home Winemaking Step by Step*
Iverson. \$17.95
BK20 *Micro Vinification*
Dharmadhikari and Wilker. \$34.95
BK38 *The Art of Making Wine*
Anderson & Hull. \$ 11.00
BK142 *Winemaker's Recipe Handbook*
Massaccesi. \$ 4.95
BK40 *Modern Winemaking*
Jackisch. \$36.95
BK44 *Knowing and Making Wine*
Peynaud. \$89.95

BK61 *Complete Handbook of Winemaking*
American Wine Society. \$14.95
BK54 *How and Why to Build a Wine Cellar*, Gold. \$20.00
BK59 *A Handbook For Must and Wine Analysis* A cookbook approach to analysis, for home labs.
Barrus & Evans. \$24.95
MG11 *Practical Winery and Vineyard Magazine*, current issue. \$3.95
BK109 *Making Wine at Home, "The Video"*, Cutler,
1 hour and 15 min. \$29.95



GRAPE GROWING, CIDER AND MEADMAKING BOOKS

Grapes

BK80 *Great Grapes*, Proulx \$3.95
BK71 *Wine Grape Varieties in California*
UC Extension. \$30.95
BK129 *Vineyard Simple*, Powers
..... \$24.95

Cider

BK70 *Sweet & Hard Cider*, Proulx & Nichols .
..... \$14.95
BK72 *Making Cider*, Deal \$9.95
BK79 *Making the Best Apple Cider* \$3.95

Mead

BK77 *Making Mead*, Morse \$14.95
BK51 *The Compleat Meadmaker*, Schramm \$19.95

Other Fermentations

BK84 *Making Vinegar at Home* \$4.95
BK74 *Making Cheese, Butter, Yogurt* \$3.95
BK75 *Cheesemaking Made Easy* \$14.95
BK76 *Home Sausage Making* \$14.95
BK03 *Homemade Vinegar* \$8.95
BK36 *The Compleat Distiller* \$25.00

ORDERING

Questions? Retail hours are 10:00 to 5:30 Tuesday through Friday and Saturday 10:00 to 5:00.

We are also open on Mondays from August through December. We're always ready to answer questions for our customers.

Ordering Instructions:

For the most personal service, call our TOLL FREE ORDER LINE, (800) 544-1867, which may be used with your Visa, or Mastercard.

To place your order by mail, please note the following, if you live in California, add 8% sales tax on non-food items. **Food items are:** concentrates, sugars, purees, and flavorings. **All items shipped to points outside California are not taxable.**

Fastest Shipping in the Business:

We normally ship UPS Ground service the same day the order is received, if received by 2 pm.

Ground service to Zones 2 and 3 receive one day service. Zones 4 and 5 receive 2 to 3 day service. Customers in Zones 6, 7 and 8 will normally receive their merchandise in 4 to 5 working days.

For faster service to Zones 5-8, and for perishables such as liquid yeast, we recommend UPS Standard overnight Air service, or UPS 2 DAY Air service. **For items totaling less than \$50.00, add \$6.00 for shipping to California, Nevada, Oregon and Washington.** All other states, add \$8.00. Additional rates are quoted at www.ups.com, or call our toll free 800 number.

Customers in Alaska and Hawaii please take note that priority mail service from the Post Office is recommended for packages up to 15 lbs. Heavier packages without perishables can be sent more economically via ground, parcel post.

Shipments to Alaska, Hawaii and out of country will travel by carrier of customer request. We're sorry, but we must add shipping charges to these orders, regardless of free shipping offers.

The Beverage People is a family owned and operated retail and mailorder supply firm with over 25 years experience.

Byron Burch, our owner is also the author of *Brewing Quality Beers*, a textbook for homebrewing that has sold over a quarter million copies.

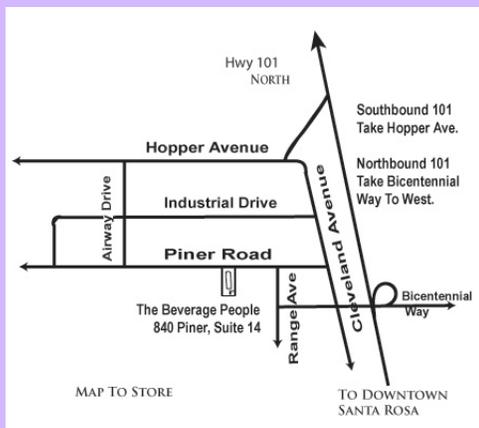
Our staff wishes you the very best with your new hobby and look forward to hearing from you. Mention that you are a new customer, so we may give you a free article from a past newsletter to help answer your fermentation questions.

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 Summer 2005



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 and Saturday 10-5
 August through December - Also Open on Mondays*

Wine Equipment Rentals

CRUSHERS

- Apple Mill, Grinder and Press, motorized \$45.00
- Apple Mill, motorized (without press) \$45.00
- Grape Crusher, manual \$20.00
- Grape Destemmer/Crusher, manual \$45.00

PRESSES

- #30 7 gallon Basket \$25.00
- #35 12 gallon Basket \$30.00
- #45 25 gallon Basket \$40.00

FILTERS/PUMPS

- Transfer Pump \$10.00
- Buon Vino Plate Filter \$30.00

BOTTLING

- 3-Spout Filler \$10.00
- Wine Corker \$10.00
- Glue Labeller \$10.00

Rentals are for 24 hrs. from noon to noon, reservations accepted up to 7 days in advance. Call 544-2520 to make your reservation.

Fall Winemaking Class

Phone *The Beverage People* at 707 544-2520 to reserve a place in our winemaking classes. There is a \$10.00 fee. You will get your questions answered, go over equipment and processes. Space is limited, so call today. Class will meet Saturday, August 20 at 3 pm. Bring a bottle of your wine to critique, class is held outdoors at the retail store.

What's New and Exciting!

Our grape root stock spring sale ended with a small amount of unclaimed, or over ordered vines, which Bob has potted and made available for immediate planting. Call to confirm available varieties and quantities, as both are limited to stock on hand. At press time we had some *sauvignon blanc, merlot, syrah, pinot noir and cabernet* at \$12.95 each. If you have vines to replace or a new area to plant, look for our spring mailing to remind you to order next year.



Two new books are included in this year's catalog, so check out page 22 and look for *The Compleat Distiller, and Homemade Vinegar*. They are each very informative.

For sulfite management, if working in barrels or tanks, we have two sizes of *Efferbaktol granules*, CS33 -2 grams and CS35-5 grams. The 2 grams delivers 9 ppm in 60 gallons, the 5 grams delivers 24 ppm in that same volume. See page 18 for ordering.

We think having the right tools, right when you need them, makes your hobby much more enjoyable, so we are now selling a *Nesting Bowl Set*, Stainless Steel, 5 piece set that you can keep with your winemaking equipment to use for pressing, scooping, holding sanitizer, rinsing airlocks and whatever else strikes your fancy. See page 18 for the set under Miscellaneous Equipment.

There will be a change in supplier for our *Precision Hydrometers*, which will affect the range each hydrometer spans, but will not change the price or part code. The -5+5 will not be affected, but 0-8 will change to *-1-11*, 8-16 will become *9-21* and 17-24 will span *19-31*. These narrow range hydrometers are mostly used professionally, but their accuracy has it's uses at home as well. See page 21 for ordering codes and prices.

The oversize neck on most burgundy wine bottles has caused some problems when trying to finish the bottle with a capsule, so we now stock an *oversize sleeve* in three colors. These are sold by the dozen for \$1.19, listed with the other *heat shrink sleeves* on page 20.

See page 8 for information on our new sulfite and malic acid testing service. Using the technology of refraction, we have a reflectoquant meter here at the store set up to analyze your wine sample and determine Free SO₂ and in a separate test, the quantity of remaining Malic Acid. You can better manage your wine cellaring with better information.