



THE BEVERAGE PEOPLE

2012 Summer Newsletter and Wine Catalog

REHYDRATING WINE YEAST AND USING GO-FERM®

By Bob Peak

For many years, standard practice at *The Beverage People* has involved direct pitching of active dry wine yeast. On page 6 of this catalog the procedure for red wine is described and on page 8, white wine is discussed. We still think this is the simplest, most reliable way to assure a prompt and vigorous fermentation of must or juice.

On the other hand, many wine books and magazine articles recommend dissolving the yeast in warm water, allowing it to stand for some minutes, and then adding it to the must. Strictly speaking, such methods—carefully executed—may lead to a higher yeast cell count than just pouring in the yeast. The risk is that if rehydration is not carefully carried out, the risk of killing your wine yeast is fairly high. If the rehydration water is too hot, it will kill

the yeast. If there is too much chlorine in the water, it will kill the yeast. If the temperature difference between the yeast slurry and the must is greater than about 8-10 degrees C (15-18 degrees F), the temperature shock will stun the yeast and, yes, possibly kill it. So we have stuck to the tried-and-true direct pitch method.

As often happens, modern developments have, in some situations, overrun our traditional practice. Wine product supplier Lallemand has developed yeast rehydration nutrients to help avoid sluggish and stuck fermentations. The most popular of these is Go-Ferm®. It is certified organic by OMRI (*Organic Materials Review Institute*). It is a natural nutrient product derived from inactivated yeast. While it contains nutrient value, its use should not alter your regular program of nutrient additions to the must or wine. It may seem counter-

intuitive, but Go-Ferm®, applied early, is intended to improve the late stages of fermentation. When a fermentation faces high initial sugar levels, high potential alcohol levels, or difficult fermentation conditions, the application of Go-Ferm® greatly improves the fermentation of the last few percent of sugar in the must. Instead of a potentially slow or stopped ferment, you get sharp, clean progress to dryness.

So if you are facing difficult fermentation conditions, or just to assure that you prevent a stuck or sluggish outcome, we recommend using Go-Ferm®. Which leads to a modification of our standard advice: you can only use a rehydration nutrient if you rehydrate your yeast! If your fermentation conditions are favorable and you will not be using Go-Ferm®, just add the yeast directly as usual.

Yeast Rehydration Procedure pg. 2.

What's So Hard About Making White Wine?

By Gabe Jackson

At my house, our best 2011 wine is bottled and we are already drinking it. It is clean, clear and delicious with bright tropical fruit character. While my red wines slumber for several more months in bulk storage, I'm happy we decided to make white wine this year.

For a third harvest, I joined in with other *Beverage People* in a group project - we bought and picked *Chenin Blanc* from a vineyard in the *Clarksburg AVA* on the Sacramento River Delta. This has become my favorite winemaking project and my favorite homemade wine. The fact that our team has won repeated Silver, Gold and even Double Gold medals from the wines produced from these grapes doesn't hurt either. After these years of making both red and white wines at home, with easier and quicker success to be found in the production of whites, it inevitably leaves me wondering: **What's So Hard About Making White Wine?**

See White Wine pgs. 3-4.

YES, WE REALLY DID MOVE!! and yes, we do love it!!!

April 1, (no fooling) the company moved to its new location at 1845 Piner Road. This was rather stressful at the time, but like childbirth the pain goes away and only the joy remains. All the issues like waiting 27 days for the Internet or climbing a ladder one more time seem trivial now.

We love our new place and are really looking forward to running our first harvest season here. The rental equipment and the store layout are so much more efficient with our 7000 sq. ft. (over 2500 is retail showroom space) and our air conditioning and new offices.

We've added two new members to our staff: Kimi Wilkinson and Joe Hanson-Hirt who both have some beer, mead and cheese experience and they join Jennifer Harris with their love of fermented foods. They are actively fermenting everything they can while we teach them winemaking. We'll all be ready to roll by mid-August. As always, Gabe and Bob and Nancy look forward to providing you with more service than ever to match our always fully stocked store.

See Map to store pg. 2.

1845 Piner Road, Suite D, Santa Rosa, CA 95403 (707) 544-2520

www.thebeveragepeople.com

Procedure for Yeast Rehydration with Go-Ferm®

1 For every gallon of must, suspend 1.25 grams of Go-Ferm® in 20 times its weight of clean, chlorine-free water at 43°C (110°F). At 20 times 1.25 grams, you will be using 25 grams (or, effectively, 25 mL) for each gallon of must. For that same gallon of must, you will later be using 1 gram of yeast. So, for example, for a 10-gram vial of yeast to be used in 10 gallons of must, use 250 mL (8.5 oz.) of water. If the water is not hot enough, the nutrient may not fully dissolve. Since your hot tap water may have chlorine in it, you may prefer to microwave distilled or spring water in a glass measuring cup. Check the temperature carefully before proceeding. Do not add DAP or any nutrient containing DAP to the rehydration water, as it can be toxic to yeast at high concentrations. Use only Go-Ferm®.

2 Allow the temperature of your slurry to drop to 40°C (104°F). Now add 1 g/gal of yeast and stir gently. For the example we are using, this is when you add 10 g of yeast to the 250-mL slurry. Let the suspension stand for 15-30 minutes, but no longer, as yeast viability will begin to decline.

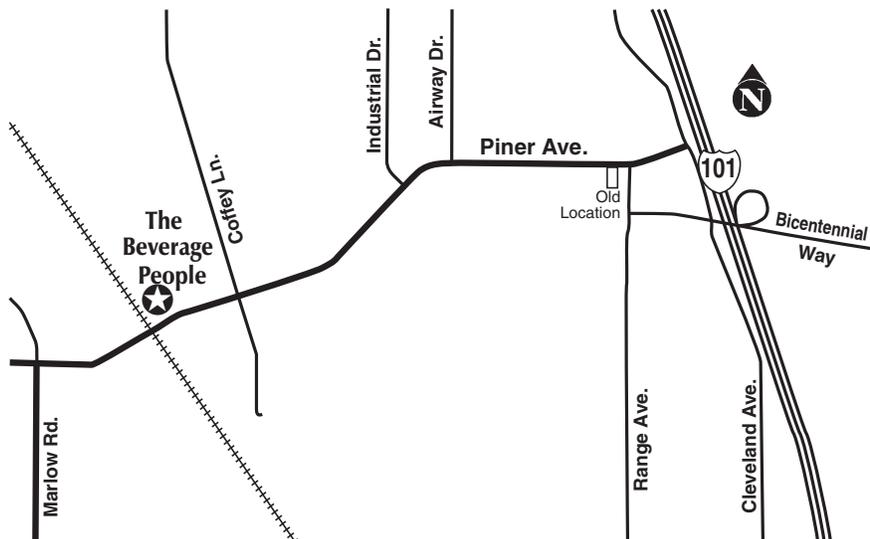
3 As noted earlier, we need to avoid temperature shock when pitching the yeast, but we cannot wait longer than 30 minutes to begin feeding the yeast. We meet

these conflicting goals by gradually adding juice or must to the yeast slurry, so be sure you have some of your juice or must at hand as you begin the process. Slowly, over a period of 5 minutes or so, add an equal volume of juice or must to your slurry. For our example, stir 250 mL of juice or must into the yeast and Go-Ferm® slurry. Let stand for 15-20 minutes while you recheck the temperature of your must. Measure the temperature of the slurry. If it is less than 10°C (18°F) different from the temperature of the must, proceed to step 4. If the difference is greater than this threshold value, add another equal portion of must (another 250 mL in our example). Check temperatures again and either proceed to step 4 or add more must (every 15 to 20 minutes) until the difference is below the 10°C (18°F) limit.

4 For white wine, add the yeast slurry to the fermentation vessel and then rack in the clarified juice (step 7 on p. 8). For red wine, stir the yeast slurry thoroughly into the must in the primary fermenter (ending step 5 on p. 6).

Sounds like some extra work and care? It is. If you really want to rehydrate but do not want to use a rehydration nutrient, start with water at 40°C (104°F) and begin at step 2, above. However, having made one Sauvignon Blanc that finished a bit sweeter than I intended, I am now a convert. To assure a strong, brisk final fermentation ending in a dry wine, Go-Ferm® rehydration is the way to go.

When you find yourself with high sugar levels or want to insure a completely dry fermentation, carefully follow these procedures paying special attention to temperature management.



MAP TO THE NEW LOCATION

DRIVING DIRECTIONS:

Our new location is about 4/5 mile West of our old store, past two stop lights, *Airway* and *Coffey Lane*. Located on the North side of the street, just after the car wash and before the railroad tracks.

There are two driveways you can enter, one on either side of *Advent Office Furniture*.

Drive straight to the back wall and you will see our large glass storefront with a sign on the door and above on the building.

Coming from the West, just turn left after the railroad tracks into either driveway.

White Wine continued from page 1

After five years with *The Beverage People* I've gotten to know hundreds of home winemakers and the fear of white wine is persistent - many believe white wine is just too difficult. Something is scary about it. Sure, the professionals can do it with their glycol jacketed stainless tanks and industrial supplies of inert gases, but at home it is easier to make red wine, right?

Wrong, I say. It's actually easier to make white wine. Here is some food for thought:

WHY YOU SHOULD MAKE WHITE WINE

- The grapes are often cheaper
- No punchdowns needed during fermentation
- The wine can be ready in 6 to 8 months
- Malolactic fermentation is usually not required
 - Destemming is generally not required
 - Your red winemaking friends will want to trade

Additionally, if you have ever made homebrewed beer before, you will find the process remarkably similar. One of our white winemaking customers, Kevin Baughman, recently exclaimed, "If you can make beer, you can make white wine." Perhaps this is why I've personally found success with white winemaking. I made beer for years before wine. So if you have made beer before, this should boost your confidence as a potential white winemaker. You can do it!

Your first job as a white winemaker will be acquiring grapes. The counties of the North Bay, the Delta area and Lake and Mendocino have excellent sources. Many growers list their offerings with *The Beverage People* and you have access to those listings for free when you visit our shop. Ask anyone at the counter for the **Grape Book**. Early September is a great time to do this. The dozens of grower listings will get you connected and you can arrange a deal personally, maybe even pick the grapes yourself.

Next you will need to process the grapes to juice. Please see our white wine instructions on Page 8 for a detailed review of the process. The juice, or must, that you press out and begin with will be cloudy and full of solids - an obviously agricultural product. Your job will be to process it into a beautiful, clear wine. Time and gravity will assist you with this job, but you will need to do your

part. Implement a thorough sanitation program to ensure that the must is fermented into wine with only your chosen microorganisms. This is not hard but it is very important. Potassium metabisulfite (or campden tablets) and iodophor sanitizer are your primary tools. Avoid bleach and sulfite solutions for the job of sanitizing. Iodophor is much more effective. Use your preferred source of sulfite for its most effective role - inhibiting bacterial fermentation and binding oxygen. With sanitary equipment and an anti-oxidant sulfite, you are well on your way to a stable product.

Before you begin fermenting the juice, it is a good idea to check and adjust your sugar and acid levels if necessary. With a *hydrometer* (TE40 - \$10.99), *test jar* (TE55 - \$4.99), and *Country Wines Acid Test Kit* (TE26 - \$8.99), this job will be relatively easy. Refer to Page 8 for optimal sugar and acid numbers. With your sugar and acid adjusted, you may sulfite to inhibit wild organisms. For an even cleaner fermentation, let the solids drop out over night and then siphon off the clean must before adding the yeast. At this point you can let your friends see the pretty juice, bright yellow or gold in a glistening sanitized carboy.

Ferment away, preferably at a cool temperature, adding wine nutrients as appropriate, until your wine is dry and you feel the yeast has finished its job. From this point on, you will need to diligently add potassium metabisulfite to ensure the wine doesn't oxidize and turn brown during the winter and spring storage. Transfer into topped up carboys and keep the vessels topped up at all times. Assume that the sulfite you add is binding with oxygen at all times.

Once it is bound up, it is of no more use as an anti-oxidant. You need to add more, at least once a month or two. Our rule of thumb around the shop is to assume that you are losing free SO₂ at a rate of 1/2 ppm per day. So if you haven't added sulfite for 30 days, add at least 15 ppm just for maintenance (30 days X 1/2 ppm = 15 ppm). If you remember these simple additions, you will end up with a great white wine ready for bottling late in the spring.

Racking and sulfiting is your main job through the winter, but that is also the time to most easily "cold stabilize" the wine. This is a topic not often addressed in red winemaking but more important in white winemaking. The goal is to precipitate solids in bulk storage so they don't

See White Wine cont. pg. 4.



White Wine continued from page 3.

precipitate out in the bottle after you put them in the refrigerator where they would leave an obvious crystallized deposit. You can do this, possibly without effort, if you are ready to seize the opportunity. To cold stabilize, you need the wine be held at low temperatures (generally in the 30's F) for a few days. Natural winter temperatures usually provide this - when a cold snap hits, expose the wine to these cold temperatures by moving the carboys to the garage, shed, etc. Remember to move the wine again if a heat wave comes, you don't want it to cook.

There are a few techniques such as adding oak or sweetening your wine to consider adding to your repertoire as you make white wines. Typically, if you choose to put the wine through malolactic fermentation, then oak will also be used - this is the case for producing rich, oaky and buttery chardonnay or fumé blanc. Leaving residual sugar is usually not used in these wines, but can be employed as a way of dealing with sharp, high acid levels in white wine.

If you opt for malolactic fermentation and oak, expect a little extra expense and care and possibly additional aging time. Some winemakers will age their chardonnay in oak beyond a year, though I don't highly recommend this on the home scale. *Oak sticks and cubes* will extract fully in a few weeks to a few months and are the more common product for use at home. If you have a 60 gallon barrel, you might try the extended aging. If you are fermenting in glass or plastic, however, shorter aging with cubes and sticks gets excellent results. But be careful! Whites can't stand up to the high oak levels that we use in red wine. **Note: I personally use half of the minimum oak addition recommended for reds to oak my whites.**

For example, sticks are generally used at a rate of 1 to 3 sticks per 5 gallons in red---in my chardonnay I would start with a half stick per 5 gal-

lons, or 1 stick in every other 5 gallon carboy. The oak can be added any time after fermentation.

We discussed malolactic fermentation extensively in our *2011 Wine Catalog* which should be available in paper copy at *The Beverage People* for the rest of 2012 and perennially on our website. Please refer to that catalog if you will be using malolactic bacteria for the first time. It is a somewhat mysterious process so you should get oriented before your first try. Expect the process to take about 3 to 6 weeks immediately following the primary sugar fermentation.

Sweetening your finished white wine is a simple process. We carry a bottled syrup solution called *Wine Conditioner* (FN35 - \$6.99). It is blend of invert sugar and potassium sorbate which respectively sweetens and stabilizes the wine. Using it could not be easier, simply pour it into the wine, using at least the minimum required dosage, and stir. If you don't use at least the minimum - 4 oz. per 5 gallons of wine - you won't have enough sorbate to achieve stability, i.e. the wine could start fermenting the added sugar after bottling. Before you use the *Wine Conditioner*, or other method of back-sweetening, be sure that you have racked the wine enough times that the yeast is gone and the wine is clear. Any remaining yeast will pose a risk of re-fermentation. Considering this, it is best to sweeten directly in your sanitized bottling tank, stir gently but thoroughly with a sanitized spoon, and bottle immediately in sanitized bottles.

(Note: it's possible that some settling of additional solids will occur in the bottle if you use this method.)

And don't forget to sulfite! An addition of 50 ppm is appropriate in this case to shock any remaining organisms. If you would like to test your wine to achieve a specific level of residual sugar, or test to ensure that the wine is dry, we carry a *Residual*

Sugar Test Kit (TE65 - \$26.99). It is a fun and simple test that produces bubbling and color changes in a sample test tube and is an important tool for the serious winemaker.

Many white wines won't even require these additional steps. *Sauvignon Blanc, Chenin Blanc, some Chardonnays, many Rieslings and Gewurztraminers*, and most other clean, white table wines are produced without malolactic fermentation, oak, or sweetening. If you are inclined towards simplicity, then, you are in luck. Don't let your friend the winemaker scare you. Try your hand at white wine this year and you'll be toasting to your success as the 2013 heat waves arrive.



Why should you believe me?

2007 was the first year that I made white wine and I began competing in the *Sonoma County Harvest Fair* the following year.

Following the winemaking advice of my mentors at the shop, in 2009 I won **Best of Class** in "*Other White Varietals*" with *Chenin Blanc*. In 2010, I won **Best of Class** in *Chardonnay* as well as *Fruit Wine with a Blackberry Wine*. In 2011, I won **Silver** with a *Gewurztraminer*. During the 2011 Harvest, I made a decision to escalate my white wine program and now I make more white than red, an unusual thing in the home wine world. There are no major secrets to these winning wines. Just follow the instructions on page 8, keep all your equipment sanitized, keep the wine appropriately stabilized with free SO₂ and have faith that those grapes want to become an outstanding wine.

I look forward to hearing about your success.

Oak Additions with Alternative Oak Products

by Nancy Vineyard

I was fortunate to attend the Wine-maker Magazine Conference in June 2012, in Ithaca, NY as both a business opportunity - presenting a seminar - and a vacation with my cousins. The inspiration for my presentation came from my experience working on an experiment that Peter Brehm from *Wine and the People* ran in 1977. He added the same wine to barrels from various origins, including Yugoslavian, Hungarian, French, and American Oaks. It was a great introduction for a novice winemaker to learn to taste the different flavors married to the same wine, a Zinfandel. At the end of a year we tasted and compared all 5 samples including the un-oaked version and they were quite different.

As wine lovers we view rows of wooden barrels as the iconic image of fine wine-making. That mysterious thing that turns a grape into a fine glass of wine doesn't have to take place inside a barrel. There are alternative products that allow us to add this flavoring process into our winemaking that works without any barrels. Oh, and we can forget about that year of waiting, also.

Since I don't grow grapes, but have access to some very good ones, I contacted Ron DeNatale, a retired winemaker who grows grapes on a hillside vineyard in Healdsburg, CA. He had Sangiovese grapes available. This seemed like a good fit for the project because I had never worked with this variety before, and so I had no preconceived ideas about how much oak I would like to have to marry with it, leaving me open to experimentation.

Oak alternative products came to winemaking from the spirits industry. As such, many of the early chips were really sawdust. They were not particularly well suited to wine both due to the wood resins and the lack of proper toasting to develop the needed flavors for wine. Also, most of these early products were American Oak. Around the early 1980's a good friend of mine, Cole Cornelius, took some homemade oak chips and began experimenting with a few small wineries and his own wine to develop a product that would cut the costs of winemaking and still provide the quality winemakers demanded from barrels. His experiments led him to create the product he named *Innerstave* because it would insert new wood - and new life - into old barrels. This company became the first major supplier of oak alternatives for the wine industry, and was located in Sonoma, CA. They became a world leader of these products for the simple reason that they started with known, high quality sources of oak, imported the wood, aged it themselves and toasted it themselves.

Innerstave has a range of products with the same level of toast that allowed me to use

chips, cubes and sticks for this project. All came from the same source, toasted to the same finish. I chose to stay with only French wood, toasted to French plus (or dark). My plan was to smooth out the rough edges of a high tannin, sharp acid wine. I presented charts of tasting notes to illustrate what characteristics appeared and these different products changed the base wine. At the conference we tasted 4 samples of the wine to follow the oak progression.

Starting with the grapes, I picked up 740 lbs. of grapes in lug boxes at Ron's farm on October 2, 2011. By the way, that was the day of the beginning of a 2-3 inch rainfall which put the nail in the coffin for several grape varieties throughout the North Coast of CA for the 2011 harvest. The grapes were 25° Brix and .58 TA, and the pH was 3.4. I took my grapes home where I crushed and destemmed and set four primary buckets to ferment with Uvaferm 43 yeast in my outdoor shed. The wine finished primary in 10 days during which time the temperature of the must was 70-78 ° F. with twice daily punch-downs. Additions of nutrients were made at two intervals with Fermaid K at 1g/gal.

The pressing was done on November 11 and all the wine was funneled to 5 gallon PET carboys then moved to storage at 68-72 °F. for malolactic fermentation. The wine was treated with Enoferm Alpha Malo-Lactic bacteria and Acti-ML nutrient was also added. The wine was tested for ML completion and on December 4th I decided to shut it down and start sulfiting to protect the wine from oxidation or spoilage.

It was time to rack the wine into cleaned, sanitized PET carboys - 10 5 gallon and 1 6 gallon - and sulfiting started. Additions of 30 ppm SO₂ were made on 12/4, 12/5 and January 9, 2012. Testing before the January addition showed a net of 5-10 ppm

free SO₂ in the various carboys.

Now it was time for the Oak Alternatives additions experiment to begin. I had decided to make all of the additions at the same time in order to track when the taste of the oak first began and when it became too much. I used two carboys for each of the additions and left 2 carboys for an untreated control.

Each of the treated group of carboys was given a low dose and a high dose of their respective product - or so I speculated, not knowing exactly how much would be too low or too high. However, after previous personal experience along with customer and industry feedback over the years I had a starting point.

French Dark Chips: 1.5 oz. and 3 oz.

French Dark Cubes 2 oz. and 4 oz.

French Dark Sticks 1 (2.5 oz.) and 2 (5.1 oz.) (I weighed them to get three similar sticks) For a total of seven carboys including the control.

Sampling began on January 9, 2012. Using a 30 mL syringe, 1/2 oz. sample was taken from all the carboys. The tasting was intended to note the beginning appearance of oak in aroma and flavor and any appearance of off aroma or flavor. The wine was sampled four times, two on oak and two off oak after racking the end of February.

The green grape/harvest characteristics gradually faded and were replaced by good fruit expressions, especially cherry and red berries. Toasty oak character showed best in the Cubes and Stick samples, with the Chips dominating the palate with oak tannin. All fared well and as expected the higher dose was more obvious.

The following slide from the presentation are the results of the last sample tasting held prior to bottling.

Fourth Tasting - Off Oak - April 9, 2012

Control	Chips		Cubes		Sticks	
	1.5 oz.	3 oz.	2 oz.	4 oz.	1 Stick	2 Sticks
Cleaner dark cherry fruit, hint of black pepper-raspberry, touch of H ₂ S.	Muted aromas compared to no oak - winery flavor - dry mouth - woody.	Very muted aromas - not oak or fruit - mildly acidic - drying.	Nice cherry - raspberry aroma of wine, pleasant mouthfeel - almost sweet.	Less fruit aroma than 2 oz. cubes, inviting pepper - more oak taste - dry.	Heavy fruit of cherry, raspberry even plum. Balanced aftertaste, not drying.	Less fruit aroma, great wine taste, pretty smooth - notes of tannins.

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. (See the back of the catalog for rental equipment choices and rates.)

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
13. Punch Down Tool

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. Or PET plastic carboy with a #10 drilled rubber stopper and fermentation lock.
3. Extra 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. (see pg. 11 for recommendations)
2. Grapes, 16 lbs. per gallon of wine.
3. Tartaric Acid as needed.
4. Sulfite as needed.
5. Yeast Food as needed.
6. Fining Agent (optional)
7. Malolactic culture 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 .6%, add enough tartaric acid to bring it to that level. If you have a pH meter, also test the pH.
- 3 **Test for sugar with your hydrometer.** Correct any deficiencies by adding enough sugar to bring the reading up to at least 22°Brix or add water to bring the sugar down to a range between 22° and 26°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). (See pages 12 & 13.) The amount needed will depend on the condition of the grapes, with moldy grapes getting the most concentrated dose. Extremely clean grapes may be fermented with little or no SO₂. (If using Lallzyme ® EX enzyme, wait 15 or 20 minutes after sulfiting, then add enzyme.)
- 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 1 -2 grams of dry wine yeast per gallon evenly across the surface of the crushed grapes (now called “must”). Stir it in thoroughly after eight to twelve hours. Also, begin your nutrient program according to the instructions on page 10.
- 6 **The must should be stirred twice a day until fermentation begins.** The beginning of fermentation is obvious, as the grape skins are forced to the surface, forming a solid layer, called a cap. Once the cap has formed, mix it back down into the fermenting juice twice a day using your hand or a stainless steel punch-down tool until it is ready to be pressed. (If using FT Rouge Soft Enological Tannin and/or Opti-Red® Specific Inactivated yeast, sprinkle them over the must and mix in at the first punch-down.)
- 7 **Throughout fermentation, the temperature of the must is usually between about 60 and 75°F.** For better color extraction from the skins, it is helpful to allow the temperature to rise at least once to the 80-90°F range. The fermentation itself generates some heat, which helps warm the must along with warm fall weather. If it is late in the season you may need a heater.
- 8 **When the wine has reached 0° Brix the grapes should be pressed to separate the wine from the skins.** This is usually about 1-2 weeks of fermentation at 70-80°F. During pressing, collect the wine into a bucket under the press and funnel the wine into secondary fermentors. Attach fermentation locks, and allow the containers to settle until all visible signs of fermentation have ceased (several days to a week or so). Top full when all activity ceases even if you have to add wine from another batch, or buy a similar wine, remember, you get to drink it later.



Winemaking Equipment from crush to bottle.



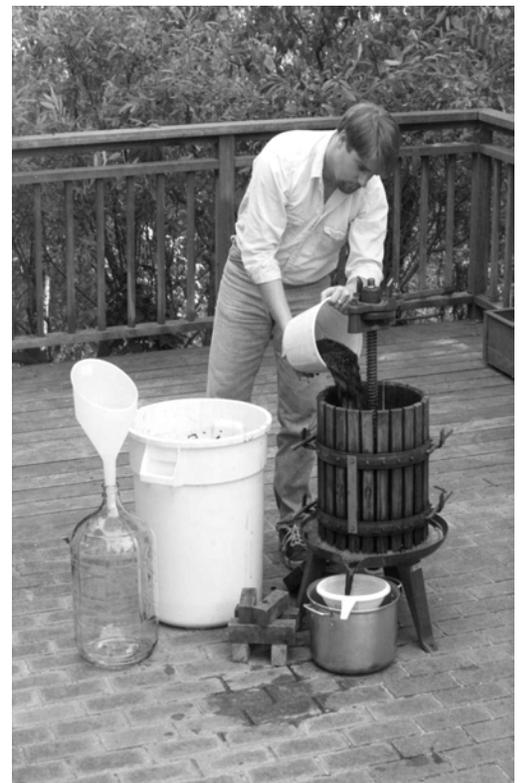
Crushing and stemming your grapes.

Time Line for Red Wine Fermentation.....

Active Yeast Fermentation of Must in Primary Fermentors ...5 to 14 days	Pressed wine moved to Secondary Fermentors (leave a little room for foam for a day or two, then top up.) ...1 to 2 weeks	Rack off gross lees and top up containers ...1 month	Rack off lees again, test for ML, add sulfite and store in cool place for aging, topping and sulfiting every couple months. Add oak sticks or barrel age. ...4 to 6 months	Rack off lees, adjusting sulfite, fining or filtering, or just topping up ...1 to 3 months	Rack to bottling container, adjust flavor with oak extract, add sulfite, cork and store. ...Usually in time for next harvest.
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- 9 **Add an ML (malolactic) culture** (optional) to the wine which, in the case of direct pitch strains like *Enoferm Alpha or Beta*, **is added to the secondary fermentors after pressing.**
- 10 **When the wine has begun to clarify in 1-2 weeks, rack the wine off the gross lees** into clean, sanitized storage containers (glass, stainless steel, or oak). Top up the containers and let stand for a month. If ML fermentation is still active do not add sulfite during this time.
- 11 **After one month, rack the wine away from the lees again**, add sulfite to 25 or 30 ppm, and keep in topped up containers for four to six months. You must top up barrels, and visible inspect carboys. This is a good time to add oak alternatives such as sticks or cubes. Add sulfite every few weeks. If you inoculated for ML, test the wine to be sure it is complete.
- 12 **Rack off the lees again**, and retest to see if the ML fermentation has finished. If completed, raise the sulfite to 20-30 ppm and store in a cool place for aging. If ML fermentation has not completed, keep the sulfite level below 20 ppm and warm the storage containers for a month to encourage completion. (If using Tannin Riche Enological Tannin from French oak, mix it with the wine during a racking at least 3 weeks before bottling.)
- 13 **Usually during the summer** (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 and cork them.** Keep the bottles neck-up for one week to allow the corks time to expand, then move the cases to their side or upside down for storage. Bottling time is your last opportunity to make sure the wine will be bottle stable, so test and adjust the sulfite to 30 ppm. If this is a sweet wine, add Sorbistat to keep the wine from further fermentation. Most red wines will benefit from at least one year's additional aging.

White Wine Procedures, see 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, but it does not hurt if you happen to have a stemmer/crusher. Keep the grapes as cool as possible.
- 2 **Test for total acidity.** If the acidity is less than .65%, 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° brix for most varieties (22° for Sauvignon Blanc and Chardonnay.) If higher than 26° brix, add water to lower it between 22° and 26°.
- 4 **When these tests and corrections have been completed, the must may 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.) Note: The amount needed will depend on the condition of the grapes, with moldy grapes getting the most concentrated dose and very clean grapes may get by with little or no sulfite.
- 5 **Stir in pectic enzyme (pentinase) at the rate of one ounce to every 200 lbs. of grapes, or use Lallzyme® Cuvée-Blanc.** Place the crushed grapes in a covered container to macerate from 2 to 12 hours. 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 (called "gross lees") into a glass, stainless steel, or oak fermentor which is filled no more than 3/4 full.** (If using FT Blanc Soft Enological Tannin, mix it with the juice during the transfer to the fermentor(s). This is also the time to add Opti-MUM White® Specific Inactivated Yeast if desired.) Yeast should be added, 1g per gallon and a fermentation lock attached to the fermentor. Add nutrients according to the instructions on page 10.
- 8 **When visible signs of fermentation end, the wine must be racked off the lees,** and placed in topped up storage containers (glass, stainless, or oak). Add sulfite, 30 - 40 ppm. and let stand for a month.
- 9 **Rack off the lees.** Fine with a sparkolloid or bentonite slurry if clarity is not satisfactory. Sulfite and store full containers in a cool place.

- 10 **In a couple of months, rack and sulfite the wine again, placing it back in topped up containers.** This is a good time to filter if the wine has not clarified with fining adequately on its own. For oak flavor add oak sticks or cubes. If additional high-quality French oak character would benefit your wine, use Tannin Riche enological finishing tannin.
- 11 **In late Spring, 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.
- 12 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. Sorbistat per gallon to inhibit any remaining yeast. White wines may be enjoyed 6 weeks after bottling.

Time Line for White Wine Fermentation.....

Active Yeast Fermentation of Juice in Primary Fermentors 3/4 full ...1 to 2 weeks	Rack finished wine to clean Fermentors, topped full. Settle out lees. Sulfite ...1 month	Rack off lees and fine or filter. Add sulfite and cold stabilize. Add Oak ...2 to 4 months	Rack to bottling container, add sulfite, fill and cork bottles. ...In the spring
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Fruit Wine Procedures, see next page.



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

FRUIT WINE PROCEDURES

Use the following procedures for 5 gallons of 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, Yeast Nutrient, Pectinase and Tartaric Acid**. Add 5 crushed **Campden Tablets**.
- 4 Cover with loose plastic sheet or lid and allow to cool and dissipate the sulfite, waiting for 12 hours or overnight.
- 5 Stir in the **Yeast**. Once fermentation begins, **stir or push** the pulp down into the liquid twice a day.
- 6 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 so it won't foam out and spill.*
- 7 When bubbles are no longer actively rising through the wine, siphon the wine back together into one full carboy. **Optional: Fine with Sparkolloid see pg.15 for mixing Sparkolloid**, add 3 Campden Tablets and store for four weeks with an airlock.

- 8 Rack (siphon) away from the sediment, top full with a neutral wine and leave under airlock for 3 weeks up to 4 months.
- 9 For **bottling, rack into an open container**, and add 3 crushed **Campden Tablets**. Sweeten with **sugar syrup** to taste and add 1/2 teaspoon **Sorbistat** per gallon to stabilize. Siphon into bottles, cork, and set aside to age for at least 3 weeks.

Berry, Plum, or Cherry Wine Recipe

20 lbs. Blackberries or
15 lbs Raspberries or
15 lbs. Pitted Plums or
22 lbs Cherries or
15 lbs Sour Cherries
(omit acid addition for sour cherries)
12 lbs. Corn Sugar
4 gallons Water
2 1/2 tsp. Yeast Nutrient
2 1/2 tsp. Pectinase
8 tsp. Tartaric Acid
5 g Epernay II Wine Yeast

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

EQUIPMENT NEEDED FOR 5 GALLONS OF FRUIT WINE OR CIDER

1. 6.6 Gallon Food grade Bucket and Lid.
 2. Nylon Bag to fit bucket.
 3. One 5 gallon glass carboy (water bottle) with a fermentation lock and a #6 1/2 or #7 drilled rubber stopper. Or PET plastic carboy with a #10 drilled rubber stopper and fermentation lock.
 4. Racking tube and flexible tubing.
 5. Bottle filler
 5. Corks or crown caps.
 6. Two cases wine or beer bottles.
 7. 25 pack of Campden Tablets
 8. Corker or Capper
- Optional:
1. Hydrometer (Saccharometer) and Test Jar
 2. Acid Testing Kit

CIDER PROCEDURES

- 1 Crush the apples. Use only sound, fully ripe fruit. (We rent an electric grinder and press.)
- 2 Stir in **Pectinase** to accelerate break down of the fruit pectins. Use 1/2 oz. per 100-150 lbs. of fruit, with a contact time of 2-4 hrs, to achieve better runoff at press.
- 3 Press to separate the juice from the skins and other solids. Funnel the collected juice into closed containers, filled no more than 75% full.
- 4 Add your **Yeast**. Attach a fermentation lock, and allow fermentation to proceed.
- 5 When visible signs of fermentation end, the cider must be racked off the lees and placed in topped up glass, or stainless steel storage containers. Let it stand for a month.
- 6 During the racking at the end of fermentation, add 3 crushed **Campden Tablets**. (Optional: Fine with Sparkolloid see pg. 15 for mixing Sparkolloid)
- 7 After a month, rack and sulfite again then rack it back into topped up containers. Store for two or three more months.

- 8 Carefully rack away from the lees. If your cider is going into extended bottle storage, add 3 crushed **Campden Tablets**. Beverages such as this may often be enjoyed within two months of bottling. If you plan to drink some that soon, don't add additional sulfite to that portion at bottling time.

- 9 Siphon into bottles, cork or cap them, and set them aside for whatever bottle aging is needed. If you wish to sweeten, do so at bottling time with simple syrup (two parts sugar to one part water, boiled), if you do this add 1/2 tsp. **Sorbistat** per gallon to stabilize the cider and prevent re-fermentation in the bottles. Force carbonation in a keg is also an option. See page 24 in our 2012 beer catalog for instructions on kegging.

Cider Ingredients

100-150 lbs. Apples
for 5 gallons of juice
1 oz Pectinase
10 g Epernay II Yeast
25 pack Campden Tablets

Brix: 10-13
Total Acid: .6-.65%

Great information for anyone who wants to grow apples and make good cider!
BK47 ..\$15.99



JUICE TESTING FOR SUGAR, ACID, PH & NUTRIENTS

Your Testing Program

Crush your grapes and deliver a settled sample of juice to your nearest laboratory (a 250 ml bottle is the minimum volume requirement for most chemical analysis.) We have three labs near the store, Vinquiry in Windsor (707) 838- 8612, Scott Labs in Petaluma (707) 765-7666, and ETS in Healdsburg (707) 433-7051. Contact them to find out information on cost as well as possible shipping options.

There are three tests deemed most essential in the majority of winemaking situations. By testing these three things: Sugar, Acid, and pH, you will have the minimum level of information needed to make wine. Instruments and kits are available at The Beverage People for testing these parameters at home. (See pg.14)

In addition to the three tests mentioned above you may also want to find out the level of nutrients in your juice. 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 would 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. If you are interested in these numbers, you will need to use a commercial lab. No home tests are available for these parameters.

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 11). 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.

After your yeast choice is made select 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	Med	H-VH
LOW	A	B	E
MEDIUM	C	D	E
HIGH	C	C	D

Nutrient Programs

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.

Shipping Juice

Remember that you are sending juice, and that means it is subject to fermentation. A laboratory must receive your samples before fermentation begins! Unless you take your clarified juice to the lab 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. In any case, talk over sampling and shipping with your chosen laboratory before you start.

Which Nutrient...When?

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.

Go-Ferm Use 3 oz. per 1000 lbs. of grapes, mixed into 2 quarts distilled water at 110F. Cool mixture to 104F or below and add 70-80 grams of yeast. Allow yeast to bloom for 15-30 minutes. Pitch into must. (1/4 oz. per 100 lbs. of grapes in 8 oz. water, adding 7-8 grams of yeast.)

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.

YEAST RECOMMENDATIONS

Locate your grape variety or style, read about the yeast characteristics for the recommended strain(s).

We stock all of these during harvest.

Please read page 10 for **Nutrient** programs for fermentation, also see article on **yeast rehydration** page 1, 2.

To find fermentation specifics, read down	Assmann-Hausen	Beaujolais 71 B	Brunello BM45	CSM	Eperney 2	French Red (BDX)	ICV D254	M-2	RP15 "Rockpile"	ICVD21	Prise de Mousse	Rhone L2226	RC212	Steinberger	VLL	Uveferm-43
Varietal	Pinot Noir	Zinfandel Syrah	Sangiovese	Bordeaux	Zinfandel	Bordeaux	Chard Red Rhones	Chard, Cabernet	Syrah	Big Reds	White, Red	Rhone	Pinot Noir	German White	Dry Whites, Viognier	Restarts, Zin, Late Harvest
Fruit Wines	YES	YES			YES					YES	YES	YES	YES	YES	YES	
Enhances Fruit		YES			YES		YES	YES		YES					YES	
Enhances Mouthfeel	YES						YES	YES		YES					YES	YES
Sensory Effect *	EVC	Estery	EVC	EVC	EVC	EVC	EVC	Estery	Complex	Estery	Neutral	EVC	EVC	EVC	EVC	EVC
Reduces Vegetal Character	YES			YES	YES			YES								
Stabilizes Color	YES			YES		YES	YES		YES	YES		YES				
Cold tolerant											YES			YES		
Use to Restart											GOOD	GOOD				EXCEL-LENT
Temp-erature Range F.	68-86	59-86	64-82	59-89	50-80	64-86	50-85	59-86	59-90	59-90	50-86	59-82	68-86	40-70	60-68	55-95
Vigor	Slow	Average	Average	Average	Average	Average	Fast	Fast	Average	Average	Fast	Fast	Average	Slow	Slow	Fast
Alcohol Tolerance %	15	14	16	14	15	16	16	16	17	16	18	18	16	14	15.5	18
High Alcohol Tolerant			YES			YES		YES	YES	YES	YES	YES	YES			YES
Nutritional Need ***	Medium	Low	Very High	High	Medium	High	Medium	Medium	Low	Low	Low	High	High	Low	Low	Low
Reaction to Oxygen ***	Medium			Low			Medium		Low	High	High	Medium			Medium	
Comments	Enhances sptchness	Fruit wines	Extended Macerations	Alternate to BDx	Can be stopped	Ideal Fermentor	Complex flavor Mineral Aromas	Complex	Red fruit, Mineral Tones	Bold Flavors Mouthfeel	Late Harvest	Late Harvest	Good Color	Easiest to Stop Fermenting	Slow, Dry	Restarts Very Well, Red Fruit Character

Notes

to Text

*Sensory Effect: EVC = Enhances Varietal Character, Estery = Enhances Fruitness, Neutral = No Enhancements

** See page 10 for Nutrient recommendations, especially for Medium and High Categories.

*** Also try additions of Oxygen with active stirring during fermentation to yeasts that react to O₂ additions.

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 (SO_2) 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 SO_2 . These solutions are stored and added in tablespoons or milliliters to the volume of wine.

After more than 30 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 SO_2 additions often enough.

Over the past several years 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.

While we have seen improvement during these years, many wine samples are still coming back with only a few parts per million of SO_2 . 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 pruned 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, SO_3^- , and bisulfite ion, HSO_3^- . A small fraction remains in the “molecular” form, SO_2 . 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 offer some advice on ways to keep up with testing your SO_2 .

Aeration-Oxidation Method for Free SO_2

This is the original primary laboratory method for sulfite measurement in wine that helps define what “free” SO_2 means. Winery laboratories are often equipped with elaborate blown-glass apparatus for this test that costs hundreds of dollars for a set. Now we have good news for home winemakers. Advances in technology and simplification have brought a complete home-use aeration oxidation system down to a price that makes sense for many hobbyists (see p. 22). The simplified method uses the same technology and chemicals as a full laboratory setup, but at a fraction of the cost. Note that the kit as packed contains just once ounce (30 mL) of 25% phosphoric acid reagent. That is a sufficient quantity for just three tests, but it has the advantage of shipping without a hazardous material shipping surcharge. If you can come in to our store, we can provide you with a 250 mL bottle of 25% phosphoric acid to supplement your kit, but we cannot ship it. If you are outside the Northern California wine country area, look into sourcing this chemical reagent locally.

In the aeration-oxidation method, a wine sample is placed in a small flask and the phosphoric acid is added to force the sulfite ion over into the form of molecular SO_2 . A small air pump pushes a stream of air bubbles through the acidified sample. Since sulfur dioxide is a gas, it dissolves in the air stream and transfers through a tube to a trapping solution. In the trapping solution, hydrogen peroxide oxidizes the sulfur dioxide (which is sulfurous acid) into sulfuric acid. That combination—the transfer in an air stream and oxidation to sulfuric acid—gives the test method its name. Also in the trapping solution is an acid-base indicator that changes color as the sample gas accumulates. After the 10 or 15 minute transfer period, the trapping solution is titrated with sodium hydroxide solution to measure the acid formed. The free sulfite level can be calculated from the titration results.

The Reflectoquant Free SO_2 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,**

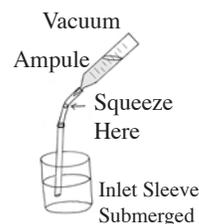
small bottle, with a fresh sample of wine. (187 mL is more than plenty). Just drop off your sample to the lab for their technicians to test or bring it here and run the test for yourself. We charge \$10.99 for one test, and an additional \$5.99 for each additional test done at the same session. It only takes about 10 minutes to set up, pay and run your test, with additional tests taking about 5 minutes.

The Titret Kit

Although not very accurate, 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.

Begin the test by inserting the loose plastic inlet sleeve (which is found behind the cardboard ampule holder) 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. Insert the tip of the plastic sleeve into your wine sample and

squeeze the 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.



Scheduling SO_2 Additions

Initial sulfite may be added at 50-65 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 SO_2 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 below 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 below. 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 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, add tartaric acid early in the fermentation cycle to lower the pH. **(But avoid an excessively high TA)**

Sources of SO₂

SO₂ is available as Campden tablets, effervescent Inodose 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 Inodose tablets add 528 ppm per gallon or 9 ppm per 60 gallon barrel. They effervesce to disperse evenly in the container. They cannot be divided to accurately dose 5 gallon carboys. 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.

Molecular SO ₂ needed for Stability		
pH	.8 ppm. White Wine	.5 ppm 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

PREPARE STOCK SOLUTION

Choose one of the following solutions to add metabisulfite to your wine. Make a 10% solution if your additions are in large vessels and if you work with metric measuring tools. Use the 3% solution for small vessels and use kitchen measuring spoons.

10% Stock Solution

Using a gram scale, **weigh out 100 grams of Sodium or Potassium Metabisulfite and dissolve in 1 Liter of water.** Tightly stopper and store labeled: poison. When adding your sulfite additions make sure you measure carefully.

10% Solution of Metabisulfite

Must/Wine	<i>(Desired final SO₂ concentration in ppm.)</i>						
	10	20	25	30	40	50	75
(gallons)	(Add milliliters of 10% solution)						
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
60	39.5	78.8	98.5	118.3	157.7	187.2	295.7

3% Stock Solution

Dissolve **four ounces of sodium or potassium metabisulfite powder**, in one gallon of distilled water. This is a weaker solution than the 10% solution given above. However, at this concentration, the solution is still quite strong and should be clearly labeled poison. **Replace your solution every harvest.**

3% Solution of Metabisulfite

Must/Wine	<i>(Desired final SO₂ concentration in ppm.)</i>				
	10	21	33	43	65
(gallons)	(Add tablespoons of 3% solution)				
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 due to a mistake in calculation try splash racking or stirring vigorously to aerate. If the FREE SO₂ is still too high do the following: for every 10 ppm free SO₂ you want to remove, add 1 ml. of 3% hydrogen peroxide per gallon of wine. An oxidative reaction 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 Pipets 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.

HOME WINE LAB TESTING...SUGAR, ACID, and pH

Having your wines tested at a commercial wine laboratory provides reliable, accurate information. But sometimes it's fun to do your own testing. Or maybe you live too far away to take advantage of commercial lab testing. Sugar, acid, and pH are readily addressable with home testing techniques.

SUGAR There are three principal methods for measuring sugar content at home: a refractometer, a hydrometer, or a Clinitest® kit. To make a harvest decision in the vineyard, the refractometer is the clear choice. Using the refractometer is very easy. First, calibrate it with a few drops of 20° brix reference solution. Then rinse the prism with distilled water and dry it with lens paper or a clean paper towel. Squeeze the juice of one grape onto the prism, close the cover, and point the refractometer at a bright section of sky. Read the brix level, write it down, and go on to measure another grape until you have taken a representative sample of your crop. Be aware that you may estimate a little high, since you will probably not sample the immature, under-ripe, and second crop grapes that may find their way into your picking bins on harvest day. For a more thorough sample, collect 20 to 100 grapes in a zip-lock bag, crush them with your fingers, and measure the brix level of the resulting mixed juice.

Once fermentation begins, the refractometer can no longer be used, because alcohol confounds the refractive index measurement upon which the sugar reading is based. So, it is time to turn to your hydrometer. Originally invented by Hypatia of Alexandria, the hydrometer has a 1500-year history of reliable service. Gently place the hydrometer in a plastic or glass measuring jar (which minimizes the amount of sample needed), then fill the jar until the hydrometer floats. Spin it gently to free any attached bubbles, then note the reading at the liquid level on the hydrometer stem. Most hydrometers are calibrated in Balling (which is the same as brix), specific gravity, and potential alcohol. Note that the third scale in no way measures alcohol directly—it is just a calculated estimate of alcohol potential based on a measurement of sugar content. Continue to take readings periodically as your wine ferments until you get to zero or below, indicating the end of fermentation. There are also precision hydrometers available if you have a special interest in a particular sugar concentration range.

Finally, when fermentation is all over

and you want to assess the final “dryness” of your wine, turn to the Clinitest® kit. These tablets, produced for measuring sugar in urine for diabetic patients, can be adapted to measure low levels of sugar (up to one percent) in finished wine. Follow the kit instructions and compare the developed color with the chart provided. Wine is usually considered “dry” at a sugar level of 0.4% or below.

ACID Commercial labs use a sophisticated autotitrator to execute the traditional winemaking method for Titratable Acidity. They report in grams per 100 milliliters—roughly equivalent to percent.

At *The Beverage People*, we offer several home tests for TA. The most popular is the *Country Wines* titration kit with phenolphthalein indicator and sodium hydroxide titrating solution. This is based on the primary lab procedure for the same test, which we



also offer (see below). Executed carefully at the kitchen table, it can give precise and accurate results on white wine. Because the visual endpoint of the titration is pink, many users have a bit more difficulty seeing the endpoint in grayish-pink “red” must. If you use this kit for newly crushed red grapes, take your juice sample quickly, before the full red color develops.

Our other two TA methods use full laboratory-scale equipment. The *Indicator Method Titration Kit* and the *pH Meter Titration Kit* both use a Class A buret to add measured amounts of 0.1 N Sodium Hydroxide solution to a wine sample. The indicator method uses the pink color change of phenolphthalein to determine the endpoint and is subject to the same red-wine limitations as the Country Wines kit. The pH Meter Method, on the other hand, uses the HI208 bench-top meter from Hanna Instruments for endpoint detection. That meter, which includes a stability indicator to sharpen endpoint detection, is unaffected by the sample color. Even finished, dark red wines can be accurately measured

for TA with this system. Detailed instructions are included with both kits.

pH Wine pH is of interest primarily as a stability factor. As displayed in our molecular SO₂ table (see page 13), the effectiveness of free sulfur dioxide in protecting wine is strongly dependent on the pH. The lower the pH value, the more stable the wine in the long run. While low pH wines also taste sharper than high pH wines, the real driving force for flavor is TA—not pH. That fact highlights the value of doing both tests on your must and wine: TA for flavor and pH for stability.

Laboratories use a pH meter integrated with their autotitrator for this test. If you use the *Hanna HI208 pH meter* for measuring TA, you can record the initial pH value of your wine in the same manner. Other pH



measurement options at *The Beverage People* include two models of hand-held pH meters. The *pHep meter* from Hanna has a 0-14 pH range, digital readout, and 0.1 pH resolution. The *Waterproof pH Testr 20* from Oakton adds the feature of a watertight housing and offers 0.01 pH resolution. All pH meters, portable or benchtop, require calibration prior to use. Add our buffer set for a true two-point calibration for any of these meters. Calibrate with the pH 7 first, finishing with pH 4. That sequence maximizes the precision in the area of wine pH—at or below pH 4. After rinsing with distilled water, store the electrode in Storage Solution (pg.22).

Note: while precision and accuracy are excellent with both kinds of meters, portable pH meters have inherently slower response times than a bench-top meter and electrode. As a result, a bench-top pH meter is much more suitable for TA titrations than a portable meter. Either works well if you just want to measure pH.

FINING PROCEDURES

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

Either may be used with success, 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 in a saucepan.

Simmer gently (bubbles, but not boiling) 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 1 oz. 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 then thoroughly stir 1/4 cup into each five gallons of wine. Rack as usual after 1 to 2 weeks.

To remove oxidation or reduce bitterness, fine with Polyclar. To soften tannins, use either egg whites or gelatin, followed by Sparkolloid.

Always 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 g/ 5 gallons	All wines	Heat 1 - 2 cups of water with Sparkolloid, simmer 15 minutes and stir into wine.	Post fermentation three weeks before racking.
Bentonite	1/4 cup of slurry per 5 gallons (See directions above)	All wines	Slurry with juice or water in blender	Rack in 1-2 weeks Allow 3 weeks to settle before bottling.
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. Add to wine.	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 a month or more before bottling.
Polyclar (Divergan F)	2.5-12.5 g/ 5 gallons	White wines to remove oxidation reduce bitterness.	Thorough mixing Fluffy, difficult to rack off cleanly.	Before, during or after fermentation.
Non-Fat Milk	100-250 ml/5 gallons	White wines to reduce bitterness, adds sweetness.	Follow with Bentonite Fining	Rack after 4 days A month prior to bottling.
Whole Milk	100-250 ml/5 gallons	Reduce harshness absorb aldehydes.	Follow with Bentonite Fining	Rack after 4 days A month prior to bottling.

BARREL CARE

Care of a New Barrel

Brand new oak barrels are about as sanitary as they can be because the wood has been heated over direct fire in the process of making the barrel. This is done in order to bend the staves into place, and also to enhance various flavor accents (such as vanilla and caramel).

Swelling up a Barrel

Like any wooden container, however, a new barrel must be filled with water to make the wood swell and eliminate leaks. These leaks will often seal themselves in only a few hours, or a couple of days. However, the barrel should be continually refilled until the leaks stop, and the water should be changed each day to prevent off flavors caused by bacteria and or mold growth.

Acidifying a New Barrel

It is recommended that an acidic environment be created in a new barrel, which is about to receive wine for the first time. Dissolve in water 2 Tablespoons of *Citric Acid* for every five gallons of barrel capacity. Fill the barrel and check to make sure it isn't leaking. Drain the acid water and fill the barrel with wine.

Cleaning at each Wine Racking

Once a barrel has been used for wine storage, additional cleaning and sanitation measures are required. At each racking, rinse the barrel

thoroughly with water to remove debris. Follow by rinsing the barrel with an acid wash. Dissolve 2 Tablespoons of *Citric Acid* in five gallons of water, sloshing this mixture around the interior surfaces of the barrel for 5 to 10 minutes. Drain, and refill the barrel with wine.

Preparing for Storage

It is always best to keep a barrel full of wine. When this is not possible, start by removing the organic matter that has penetrated into the surface of the wood. This is done with a solution of *Proxycarb*, a sodium percarbonate based cleaner.

Use 4 oz. (or 8 Tablespoons) of *Proxycarb* for every 15 gallons of barrel capacity. Dissolve in a small amount of water, and funnel the mixture into your barrel. Fill the barrel the rest of the way with water. You may leave this mixture in the barrel for as little as 20 minutes or as much as 24 hours. If the barrel has VA (volatile acidity), double the amount of *Proxycarb* and leave for 24-48 hours.

Drain and rinse the barrel several times with water. Re-acidify the barrel using one ounce or 2 Tablespoons of *Citric Acid* for every five gallons of water. Slosh this all around and drain. Now prepare for storage.

Short Term Storage

If it will be less than two months before the barrel is used again, drain the barrel, and fill with a *Sulfite* and *Citric Acid* solution. Use one teaspoon of *Potassium or Sodium Metabisulfite* powder, along with 1/3 teaspoon of *Citric Acid* for every 15 gallons of barrel capacity. Add enough water to fill the barrel and bung the barrel tightly. Check to make sure sulfur can still be detected inside the barrel, replacing the solution if necessary. Rinse with water before refilling with wine.

Long Term Storage

If it will be more than two months before the barrel is used again, drain the barrel and leave it upside down overnight. Next burn a *Sulfur Strip* in it, hanging it down at least 6 inches below the bung on a wire. Replace the bung. Remove the sulfur strip after about 15 minutes, and bung the barrel tightly. Burning sulfur releases sulfur dioxide gas into the barrel's interior.

Repeat every two weeks (as needed) until a flashlight reveals no shiny dampness in the bottom of the barrel. Bung up the

barrel and store it in a dry place until needed, allowing enough time to soak up and acidify the barrel before the next use.

Cleaning Step by Step

1. Drain wine from barrel and hose out visible solids until clear.
2. Add 4 ounces (8 Tablespoons) of Proxycarb for every 15 gallons of barrel and fill with water, let stand 2 - 24 hours.
3. Drain out cleaner and rinse until water is clear.
4. Acidify barrel with one ounce (2 Tablespoons) Citric Acid for every 5 gallons water. Either make this into a volume to fill barrel, or just slosh around a 5 gallon volume and then drain.
5. No water rinse is required after the citric rinse.

COPPER TREATMENT

Burnt rubber? At Sonoma Raceway, it's a normal aroma. But if you smell it when you rack your wine, you have a problem. "Burnt rubber" is one of many unpleasant descriptors applied to the **volatile reduced sulfur (VRS)** compounds than can occur during the fermentation and aging of wine. Much easier to prevent than correct, these compounds interact with each other, and the wine, in very complex ways. Simply stated, if you detect this kind of aroma, fix it quick!

The simplest, and generally first, **VRS** to appear is **Hydrogen Sulfide, H₂S**. It is commonly described as smelling like rotten eggs (peuw!). Since humans can detect the smell when the concentration in wine is only one or two parts per billion, it doesn't take much to make the wine very unpleasant. While "over sulfuring" in the vineyard (by the vineyard manager) is the most frequently cited cause (by the winemaker), those of you who grow your own grapes and then make the wine have no one else to blame! (Try to go at least 35 days between the last sulfur application and harvest). But let's face it: a much more frequent cause is lack of nutrients—primary amino nitrogen or certain vitamins—during primary fermentation. You can address prevention of that problem by analyzing your juice nutrient level as described on pg 10.

But let's suppose the odor shows up anyway (which it may). The most conservative treatment is to aerate the wine during racking—splash it into the receiving vessel (but be sure your free SO₂ level is up where it should be prior to the splash racking—otherwise you may oxidize your wine, turning it brown and Madeira-like). A more effective solution is to treat with copper. When exposed to copper, the sulfide combines with

the copper to make copper sulfide, which is not soluble in wine. While some books will tell you to just run the wine over a sheet of copper, our experience has not found this technique highly effective. Instead, the direct addition of a small amount of 1% copper sulfate solution is usually quite effective. Add it at a rate of 3/4 of a milliliter (mL) for every gallon of wine. This will give you a maximum level of 0.5 ppm (mg/L), which is the level allowed in commercial wine. If you must treat the wine again to completely clear the sulfide aroma, you may want to remove residual copper by adding yeast hulls (at a rate of 5 grams per gallon), stirring frequently, and racking again in a few weeks. For the copper treatment alone, rack after a couple of days to leave the black copper sulfide behind (at part-per-million levels you may never see it, but it's there!).

If you have not promptly removed **H₂S**, your wine may go on to develop more complex **VRS compounds**. Next in line are the **mercaptans**: **methyl mercaptan** smells like burnt rubber or rotten cabbage and **ethyl mercaptan** smells like burnt matches or dirty ashtrays. These are not volatile enough to remove by aeration, but copper (just as for H₂S) still works. **To check for possible effectiveness, clean a copper penny in a mild acid solution (a little citric or tartaric in some water). Place your now-bright penny in a wine glass, add wine, and swirl. Let it stand for a minute or two, and the bad smell should go away if you have a copper-treatable problem. Follow the instructions in this article and your wine should clean up.**

So let's go back to the top: 35 days after last sulfur before harvest. Adequate nutrients. Aerate (with SO₂ present) if necessary. Treat with copper if the sulfide aromas don't go away.



2012 WINEMAKING EQUIPMENT



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	\$300.00
WE03	#30	12"	17"	7	\$375.00
WE04	#35	14"	19"	12	\$425.00
WE05	#40	16"	21"	18	\$500.00
WE06	#45	18"	24"	25	\$600.00
WE07	#50	20"	26"	34	\$700.00
WE27	#40	(All Stainless Cage and Base and Legs)			\$900.00

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.

WE50 Piston, manual Hydraulic Press on wheels #50 20" x 26" \$2395.00



WE50 #50 Piston Press

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	\$1150.00
WE46	#54 with wheels	21"	28"	42	\$2550.00

Crushers and Stemmer/Crushers

Crushers: Manual rollers crush by simply turning the flywheel supplied.

Dimensions of WE12 and 13 Bins: 21" x 32", WE30 and 35 Bins: 21" x 21"

WE12	Double roller grape crusher with paint finish.....	\$250.00
WE35	Boxed roller grape crusher, stainless with removeable supports.....	\$295.00
WE30	Boxed APPLE crusher, stainless hopper, cutting knives, removeable supports	\$350.00

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 hopper are 16" x 30", except extended hopper with screw feed : 16" x 36".

WE14	Manual, paint grade stemmer/crusher.....	\$425.00
WE15	Manual, stainless stemmer/crusher	\$525.00
WE16	Electric 110V, paint grade stemmer/crusher	\$650.00
WE17	Electric 110V, stainless steel stemmer/crusher.....	\$750.00
WE22	Electric 110V, paint grade stemmer/crusher with screw feed and extended hopper.....	\$725.00
WE18	Electric 110V, stainless stemmer/crusher with screw feed (SF) and extended hopper (EXH).....	\$895.00
WE25	Electric 110V, ALL stainless stemmer/crusher, w/SF & EXH (Shown middle right).....	\$1195.00
WE20	Support Stand w/ stainless chute.....	\$200.00



WE25 Stemmer/Crusher



WE28 3 Spout Bottle Filler

Large Storage Tanks

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

WE43	100 Liter Stainless tank (26 g.).....	\$350.00
WE40	200 Liter Stainless tank (52 g.).....	\$450.00
WE42	300 Liter Stainless tank (79 g.).....	\$550.00
WE44	400 Liter Stainless tank (106 g.).....	\$650.00
WE45	500 Liter Stainless tank (132 g.).....	\$750.00
WE41	600 Liter Stainless tank (158 g.).....	\$850.00
WE53	300 Liter Stainless tank / Bottom cone, 3 legs	\$1150.00

Fillers

WE19	Plastic Model 3 Spout Bottle Filler.	\$149.99
WE28	All Stainless 3 Spout Filler Filler comes w/ drip tray (shown above).....	\$400.00
WE29	All Stainless 5 Spout Filler Filler comes w/ drip tray.....	\$500.00

Equipment is priced for pick up at the store. Call for a freight quote for delivery.

KITS AND JUICE

FRUIT HANDLING



“Premium” Wine Equipment Kit

Complete with a ten gallon primary fermentor and lid, a six-gallon PET Plastic Bottle secondary fermentor, an air lock and stopper, 25 Campden tablets, a siphon assembly, a bottle filler, Mini-Floor Corker, 100 Corks, Country Wine Acid Testing Kit, Hydrometer and Test Jar, a Bottle Brush and the book *Home Winemaking Step By Step*, Iverson.

BNW01\$224.99

(Note: For **White Wine**, kit includes 5 gallon PET Plastic Bottle in place of the bucket and lid, please identify RED or WHITE WINE on order.)

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)\$114.99
- C031 Chardonnay (W)\$94.99
- C032 Sangiovese (R)\$109.99
- C039 Pinot Grigio (W)\$94.99
- C034 Shiraz (R)\$109.99
- C035 Zinfandel (R)\$104.99
- C036 Sauvignon Blanc (W)\$94.99



Canned Grape Concentrate

Choose your Varietal, 46 oz 68° Brix.

- (C006) Burgundy \$19.99, (C003) Cabernet Sauvignon, \$19.99,
- (C008) Chardonnay, \$18.99,
- (C002) Chenin Blanc, \$14.99, (C005) Muscat \$21.99,
- (C001) Zinfandel \$19.99 (C0007), Petite Sirah \$18.99

Seedless Fruit Puree

Each 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\$19.99
- FL47 Blackberry Puree\$18.99
- FL46 Apricot Puree\$19.99
- FL48 Cherry Puree\$14.99

- MS35 Grape Picking Shears,\$10.99
- MS16 Grape Picking Knife, Plastic handle\$6.99
- MS31 Tote Bins for grapes, Cross stacking, nesting tub Hold 30 lbs\$18.99
- QE36 Grape Masher. (Cap punch tool) 24" long\$34.99

Mesh Pressing Bags:

- PS31 14" X 17" w/drawstring \$6.99
- PS16 20" X 22" \$5.99
- PS15 24" X 20" w/drawstring\$11.99
- PS20 26" X 28" w/drawstring\$14.99

Stainless Single Mesh Sieve-Strainer

- QE39 10 1/4" Diameter.\$19.99

YEAST & BACTERIA

Dry Wine Yeasts

Choose your yeast strain from the information chart provided on page 11. Use one to two grams per gallon and see pages 4 and 6 for directions on how to use the yeast. (Shelf life is 3-4 months)

YEAST	10 g	4 oz
	All \$1.99	\$18.99
Assmanshausen	WY38	WY37
Epernay 2	WY22	WY12
French Red	WY30	WY20
Prise de Mousse	WY23	WY13
Rhone #L2226	WY35	WY34
		\$21.99
Beaujolais 71B	WY25	WY15
Brunello BM45	WY45	WY47
CSM	WY53	WY56
ICVD21	WY41	WY16
ICV D254	WY44	WY43
M2	WY50	WY49
RC212	WY55	WY57
RP-15	WY24	WY42
Steinberger	WY29	WY19
Uvaferm 43	WY28	WY18
VL-1	WY31	WY21

Malolactic Bacteria Cultures

- QR38 Acti-ML, (Nutrient for MLF for 66 gal.) 50g.\$5.99
- WY32 ML Culture, Wyeast #4007 125 ml. pack inoculates 5 gallons directly. Pack may also be expanded in juice for a second buildup of 5-7 days to treat up to 50 gallons.
- With instructions.\$7.99
- WY51 ML Culture, Enoferm Alpha Strain, 2.5 g. pack inoculates 66 gallons directly. With instructions.....\$27.99
- WY66 ML Culture, Enoferm Beta Strain, 2.5 g. pack inoculates 66 gallons directly. With instructions.....\$27.99

SUPPLIES

A17 Ascorbic , 1 oz.	\$4.50
A05 Citric , 2 oz.	\$1.69
A14 Malic , 2 oz.	\$1.99
A10 Tartaric , 2 oz.	\$2.99
A24 Acid Blend , Citric, Tartaric & Malic, 2 oz.	\$1.99

Note: Call or check the web
for larger sizes of all dry ingredients, cleaners and sanitizers.

Sugar, Enzymes and Yeast Nutrients

AD15 Corn Sugar , 5 lbs	\$6.99
AD16 Corn Sugar , 10 lbs	\$11.99
QR04 Pectic Enzyme , 1 oz.	\$1.85
QR61 Lallzyme® EX Red Wine Enzyme 10 g	\$5.99
QR63 Lallzyme® Cuvee Blanc White Wine Enzyme 10 g	\$6.99
WY60 Lysozyme liquid "Lyso-easy" 250 ml.	\$29.95
QR11 Yeast Nutrient , Diammonium Phosphate, 2 oz.	\$1.99
QR42 Go-Ferm® , Use 3 oz. Go-Ferm per 1000 lbs. of grapes, 3 oz.	\$4.99
QR33 Autolyzed Yeast . 2 oz.	\$2.99
QR16 Yeast Hulls . 2 oz.	\$3.99
QR06 Fermaid K™ Yeast Food. Complete nutrient mix with trace minerals, use 1 oz. per 30 gallons. 3 oz.	\$3.99
QR38 Acti-ML. , Nutrient for MLF up to 66 gal. 50gr.	\$5.99
QR50 Yeast Nutrient for Meads . (Our special blend) Use 2 oz. per 5 gallons. 2 oz.	\$2.99
QR72 Opti-Red® Yeast Derivative Nutrient , 50 g.....	\$4.99
QR74 OptiMUM-White® Yeast Derivative Nutrient 50 g	\$5.99
CS24 Sodium Metabisulfite , 4 oz.	\$2.99
CS20 Potassium Metabisulfite , 1 lb.	\$5.99
CS17 Campden Tablets , Pack of 25.	\$9.99
CS16 Campden Tablets , Pack of 100.	\$2.99
CS33 2 g IO Inodose Effervescent SO₂ Tablets , 3 pack. One tablet delivers 9ppm SO ₂ in 60 gallons of must or wine.....	\$2.99
CS34 5 g IO Inodose Effervescent SO₂ Tablets , 3 pack. One tablet	

Carboys

Note: All Plastic Carboys take a #10 Stopper,
All current Glass Carboys takes a #6.5 Stopper. Some older carboys
take a #7 Stopper. Also see FST47 Breather Silicone Bung which
fits all Carboys without the use of an Airlock.

GL55 3 Gallon Plastic Better Bottle™	\$22.99
GL45 5 Gallon Plastic Better Bottle™	\$27.99
GL13 6 Gallon Plastic Better Bottle™	\$29.99
GL58 5 Gallon PET Plastic Bottle	\$25.99
GL59 6 Gallon PET Plastic Bottle	\$27.99
GL02 3 Gallon Glass Carboy	\$29.99
GL01 5 Gallon Glass Carboy	\$40.99
GL40 6 Gallon Glass Carboy	\$45.99

Acids

GL04 6.5 Gallon Glass Carboy	\$48.99
P01 6.6 Gallon Plastic Bucket with Wire Handle , Graduation marks in half gallons	\$11.99
P02 Lid for 6.6 Gallon Bucket	\$2.99
P17 Poly Drum Liner , 6 mil, 60 gal.	\$5.99
P04 10 Gallon Heavy-Duty Plastic Bucket with molded handles.	\$20.99
P05 10 Gallon Lid	\$7.99

Bucket Fermentors

Drilled Rubber Stoppers

#	SKU	Top	Bottom	Price
2	FST09	13/16"	5/8"	\$ 0.69
6	FST12	1 1/16"	29/32"	\$ 0.99
6.5	FST13	1 11/32"	1 1/16"	\$ 1.19
7	FST14	1 7/16"	1 3/16"	\$ 1.29
8	FST15	1 5/8"	1 5/16"	\$ 1.55
8.5	FST16	1 11/16"	1 7/16"	\$ 1.79
9	FST17	1 3/4"	1 15/32"	\$ 1.69
10	FST19	1 31/32"	1 5/8"	\$ 2.39
10.5	FST20	2 5/64"	1 3/4"	\$ 2.45
11	FST21	2 13/64"	1 7/8"	\$ 2.89
11.5	FST22	2 15/32"	2"	\$ 4.59
12	FST23	2 1/2"	2 1/8"	\$ 4.79
13	FST24	2 11/16"	2 9/32"	\$ 4.99

Most sizes are available solid, at the same price.

Air Locks and Breather Bungs

FST04 Three Piece Fermentation Lock	\$1.29
FST05 S-Shape One Piece Fermentation Lock	\$1.29
FST47 Breather Silicone - fits outside all carboys	\$8.99
FST41 Breather #11 Silicone - 2", Dalco Dual™	\$7.99
FST510 Breather #10, Silicone - fits PET plastic	\$6.99
FST49 Breather #9 Silicone - 1.5" Dalco Dual™	\$7.99
FST57 Breather #7 Silicone - fits glass carboys	\$4.99

Solid Barrel Bungs

FST48 Silicone Barrel Bung Solid #9 (R Size)	\$6.99
FST40 Silicone Barrel Bung - Joined Size 44 x 55 mm.	\$6.99

Cleaning and Sanitizing

CS12 Soda Ash , Barrel cleaner 1 lb.	\$1.99
CS29 Sodium Percarbonate , All purpose cleaner 1 lb. ..	\$4.99
CS26 TDC™ Glass Cleaner , 4 oz.	\$4.99
CS31 TDC™ Glass Cleaner , 1 Liter.	\$13.99
CS02 BTF™ Sanitizer , 4 oz	\$5.99
CS03 BTF™ Sanitizer , 32 oz	\$17.99
QE29 Bottle Brush	\$4.99
QE30 Carboy Brush	\$5.99
QE31 Long Handled Nylon Scrub Brush	\$14.99
QE45 Bottle Washer -The Blast	\$13.99
QE09 90 Bottle Draining Tree	\$39.99
QE44 Carboy Draining Stand	\$8.99

Oak Additions

B42 **Liquid Oak Essence**, Extracted from pure
Dark French Oak, 4 oz. \$5.99

Alternative Oak Products are sourced from Innerstave™

Oak Chips, 1 lb.

B46 **American Medium** \$5.99

B24 **French Medium** \$7.99

B25 **French Dark** \$7.99

Oak Cubes 8 oz. Specify \$12.99

B44 **French Medium Plus** (Dark), or B32 **French Medium**

Oakboy™ Carboy Staves (5 pack)

B80 **American Medium** \$17.99

B82 **American Dark** \$18.99

B81 **French Medium** \$19.99

B83 **French Dark** \$20.99

Chain-O-Oak™ Staves (Tank or Barrel insert)

(30% surface of new oak in a 60 gallon barrel.)

B78 **American Medium** \$45.99, B79 **American Dark** . \$49.99

B74 **French Medium** \$49.99 or B75 **French Dark** \$54.99

Enological Tannins are used to add smooth, round mouthfeel to wine. Add during and/or after fermentation.

QR65 **FT Rouge Soft** - Enological Tannin, 100 g \$7.99

QR67 **FT Blanc Soft** - Enological Tannin, 50 g \$5.99

Tannin Riche

QR70 10g Use 1/2 to 1g for every 5 gallons of white wine and 1/2 to 3g per 5 gallons of red wine \$5.99

QR69 50g Same instructions as 10g..... \$21.99

Oak Barrels

Small American Toasted Oak Barrels:

B01 **American Oak, 1 gallon (SCT)**..... \$114.99

B02 **American Oak, 2 gallon (SCT)**..... \$124.99

B03 **American Oak, 3 gallon (SCT)**..... \$159.99

B04 **American Oak, 5 gallon (SCT)**..... \$189.99

Vinegar Barrels are Paraffin/Wax Lined (P):

B09 **American Oak, 1 gallon (P)** \$109.99

B10 **American Oak, 2 gallon (P)** \$114.99

B11 **American Oak, 3 gallon (P)** \$139.99

B12 **American Oak, 5 gallon (P)** \$149.99

Charred Oak Barrels for Spirits:

B43 **American Oak, 1 gallon (SCC)** \$114.99

B49 **American Oak, 3 gallon (SCC)** \$159.99

B08 **American Oak, 5 gallon (SCC)** \$189.99

World Cooperage Oak Barrel (Air Dried New Oak)

B47 **American Oak, 26 gallon**, medium toast \$359.00

Barrel Spigots

Wood Spigots by length (Check the website for other sizes):

SP32 **3"** opening fits 1/2" hole size \$3.99

SP33 **5 7/8"** opening fits 11/16" hole size \$9.99

SP35 **8"** opening fits 15/16" hole size \$10.99

SP37 **9 1/4"** opening fits 1 1/8" hole size \$12.99

SP39 **Nadi #2** (9" w/ wood wedge to tighten)
opening fits 1" hole size \$18.99

RACKING AND PUMPING

Hose is sold by the FOOT

HS03 **5/16" i.d. hose** \$.69

HS04 **3/8" i.d. hose** \$.69

HS14 **7/16" i.d. hose** \$.79

HS05 **1/2" i.d. hose** \$.89

HS06 **1/2" i.d. thick wall hose** \$ 1.09

HS07 **5/8" i.d. thick wall hose** \$1.29

QE11 **Racking Tube for 5/16" or 3/8" hose**..... \$3.99

FST02 **Hose Shutoff Clamp for 3/8" hose** \$1.69

QE33 **Racking Tube for 7/16 or 1/2" hose**..... \$4.99

FST03 **Hose Shutoff Clamp for 1/2" hose** \$2.99

Auto Siphon Racking Tubes:

Next generation racking tube engineered with tube inside a cylinder creates a vacuum as it is pulled. Plunge until the racking tube and siphon hose are filled. Order hose to match separately.

QE42 **Auto Siphon for 5/16" or 3/8"** \$14.99

QE43 **Auto Siphon for 7/16" or 1/2"** \$18.99

PS26 **Transfer Pump**, s/s head, phenolic impellers ... \$184.99

F01 **Filter/Strainer for Pumps** (Use with 1/2" hose) \$24.99

PS36 **Procon Brass Pump**, 4 GPM, 1/4 HP \$355.00

PS35 **Procon Stainless Pump**, 4 GPM, 1/4 HP \$469.00

FX06 **Pump hose barb fitting**, 1/2" x 1/2" barb. Brass .. \$2.99

PB05 **Pump hose barb fitting**, 1/2" x 1/2" barb. S/S \$9.99

Filters and Fining Agents

FN06 **Sparkolloid™**, 1 oz. \$ 1.99

FN32 **Bentonite**, 2 oz. \$.99

FN07 **Isinglass**, 1 oz.. \$ 5.99

FN03 **Fining Gelatin**, 75 bloom, grade B, 1 oz. \$ 1.99

FN15 **Tannin**, 1/4 oz. \$.99

TE24 **Copper Sulfate Solution (1%)**, 4 oz. \$ 4.00

FN22 **Polyclar VT (PVPP)** (With Instructions) 1 oz. \$ 1.99

QR28 **Calcium Carbonate** (With Instructions) 1 oz. \$.69

FN39 **Potassium Bicarbonate** (With Instructions) 4 oz. \$ 4.99

F05 **Buon Vino Super Jet Filter**, Plate & frame filter includes pump and will process up to 45 gallons per set of pads. Change pads and continue. \$495.00

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

F09 **8 Micron Coarse** \$4.99

F22 **2 Micron Medium**..... \$4.99

F21 **0.5 Micron Sterile**, Comes w/backing papers \$5.99

F23 **25 Backing Papers for Filter Pads** \$4.99

F03 **10" Cartridge Filter Housing**, Clear, poly housing,
Use with 10" filters \$44.99

10" Filter Cartridges:

F10 **3 Micron Coarse** \$12.99

F11 **1 Micron Fine** \$12.99

F12 **.5 Micron Sterile** \$14.99

Hose Barb for Filter Housing *Need two. Specify size:*

PS02 Fits **3/8" hose** \$1.29

PS03 Fits **1/2" hose** \$1.99

FINAL STEPS

Wine Handling

QE34	Orange Carboy Handle, 3, 5 and 6 gallon size	....	\$7.99
QE47	Blue Carboy Handle, 6.5 gallon size	.....	\$7.99
MS02	Carboy Carrier, Nylon Web	.....	\$14.99
P16	10 Quart Plastic Pail, Pour out lip and Handle	.....	\$11.99
P18	14 Quart Plastic Pail, Pour out lip and Handle	.....	\$18.99
All funnels are white, food-grade plastic.			
QE37	Barrel Funnel, 16"	.....	\$19.99
QE24	Carboy Funnel, 8" Anti-Splash	.....	\$10.99
QE23	Funnel, 10"	.....	\$9.99
QE22	Medium, 6" Bottle Funnel	.....	\$4.99
QE21	Small, 4" Bottle Funnel	.....	\$2.99

Barrel Maintenance

CS24	Sodium Metabisulfite, 4 oz.	.....	\$2.99
CS20	Potassium Metabisulfite, 1 lb.	.....	\$5.99
B39	Sulfur Strips, 2 strips	.....	\$ .59
B38	Sulfur Strips Bundle of 70 strips	.....	\$18.99
B40	Sulfur Disks approx. 15 (5 g)	.....	\$4.50
B65	Sulfur Disk Holder, Stainless Steel	.....	\$14.99
MS06	Mildewcide, Barrel Coating, 16 oz.	.....	\$9.99
B13	Hoop Nails, Pack of 20..	.....	\$1.75
B14	Spiles for Barrels (Fills holes) Pack of 10	.....	\$1.99

Bottles

(Note: actual shipping rates will apply)

GL61	Claret 750 ml. Green Push-Up 12/cs	.....	\$11.99
GL05	Claret 750 ml. Flint Push-Up 12/cs.	.....	\$11.99
GL66	Burgundy 750ml. Antique Green 12/cs..	.....	\$11.99
GL16	Claret 375ml. Flint (clear) 12/cs	.....
(also available in green GL03).....\$17.99			
GL63	Claret 375ml. Flint 12/cs Screw Top.	.....	\$16.99

Corkers and Cappers

BE01	Double Lever Italian Corker	.....	\$36.99
BE19	Mini-Floor Corker, Nylon Jaws	.....	\$74.99
BE21	Heavy Duty Floor Corker, Chrome Jaws	.....	\$179.99
BE07	Super "M" Crown Capper	.....	\$42.99
BE05	Emily Crown Capper	.....	\$18.99

Bottle Fillers

QE17	Bottle Filler, for 5/16" or 3/8" hose	.....	\$4.99
QE02	Bottle Filler, with spring for 5/16" or 3/8" hose.	....	\$4.99
QE20	Bottle Filler, for 7/16" or 1/2" hose	.....	\$5.99
WE19	Plastic Model 3 Spout Bottle Filler,	.....	\$149.99
WE28	Stainless Steel 3 Spout Bottle Filler,		
Includes drain tray.....\$400.00			
WE29	Stainless Steel 5 Spout Bottle Filler,		
Includes drain tray.....\$500.00			

Closures

WC11	1 3/4" Chamfered Corks, 25 pack	.....	\$10.99
WC06	1 3/4" Chamfered Corks, 100 pack	.....	\$40.99
WC14	1 3/4" Twin Disk Corks, 100 pack	.....	\$26.99
WC07	1 3/4" All Natural Corks, 100 pack	.....	\$36.99
WC13B	1 3/4" Twin Disk Corks, 1000 pack	.....	\$215.00
WC02B	1 3/4" All Natural Cork, 1000 pack	.....	\$329.00
TC20	Plastic Champagne Stopper	.....	\$ .15
TC21	Champagne Wire	.....	\$ .10
TC18	28 mm. Black Top Bar Top Cork	.....	\$ .29
TC28	28 mm. Black Top Bar Top Cork, 100 pack..	....	\$ 26.99
S01	28 mm. Metal Screw Cap..	.....	\$ .20
S02	38 mm. Metal Screw Cap	.....	\$ .39
S03	28 mm. Plastic Polyseal Cap	.....	\$ .49
S04	38 mm. Plastic Polyseal Cap	.....	\$ .90
BE11	Crown Caps, 144 caps	.....	\$4.99

Bottle Design

Bottle Sealing Wax Available in 7 colors\$12.99
 SL26 *Black*, SL27 *Burgundy*, SL28 *Gold*, SL29 *Silver*, SL31 *Blue*,
 SL30 *Red*, or SL32 *Green*.

Heat Shrink Plastic Sleeves, Apply to bottle neck with boiling water (212°F.) or heat gun. *Specify*: SL18 *Silver*, SL33 *Green*, SL20 *Gold*, SL19 *Burgundy*, or SL09 *Blue* or SL49 *Black*.

Heat Shrink Sleeves quantity of 12\$ 1.19

Also for Euro-neck Burgundy bottles Oversize Sleeves are:

SL01 *Maroon*, or SL03 *Black*.

Oversize Heat Shrink Sleeves quantity of 12\$ 1.49

Gum-Backed Label Making Paper. L38--*White* , L39--*Blue*
 or L40--*Green*. 18 Sheets, 8 1/2 x 11, solid sheet\$6.99

L46 **Removable White Matte Labels**, Laser & Inkjet, 4" X 5",
 4 per sheet, 12 Sheets\$4.99

L47 **Standard white matte label**, 4 " x 3.3" 6 per sheet
 10 sheets.....\$2.99

MS15 **Label Glue**, 16 oz.....\$9.99

MS24 **Iceproof Label Glue**, 32 oz.....\$12.99

MS26 **Manual Label Gluer**, Glue Pot.....\$369.99

Finishing Supplies

MS42 **Private Preserve™**, Nitrogen gas blend in a can . \$10.99

FN35 **Wine Conditioner**, Sucrose with Potassium Sorbate.
 Treats about 10 to 20 gal. to taste. 500 mL.....\$6.99

FN18 **Potassium Sorbate**, 1/2 oz. treats 10 gallons. Stir into
 sweetened wine and bottle.\$9.99

FN39 **Potassium Bicarbonate**, lowers acidity in wine/must.
 Treat wine with 3.4g per gal. to lower .1 TA, 4 oz.\$4.99

Miscellaneous

KEG58 **Food Grade Lubricant**, 4 oz.\$5.99

MS03 **Silicone Spray Lubricant**, 10 oz.\$9.99

MS09 **Gondola Enamel**, Food grade paint, 16 oz.\$10.99

MS43 **Wine Away™** 12 oz. Spray bottle\$9.99

WINE LABORATORY

Sugar & Alcohol Testing

TE40 Economy Hydrometer has Brix, Specific Gravity, and Potential Alcohol scales, 9"	\$10.99
TE42 Deluxe Hydrometer 3 scale with Thermometer Use with the tall test jar below, 11"	\$25.99
TE43 Precision Hydrometer (Brix only)-5° to +5°	\$21.99
TE39 Hydrometer Proof and Traile	\$10.99
TE65 Residual Sugar Test Kit. 36 tests.	\$26.95
TE23 Refractometer, 0-32° Brix, Automatic Temperature Compensation, boxed w/padded carrying case	\$84.95
TE32 20° Brix Calibration Solution, 2 oz.	\$3.99
TE13 Vinometer, Estimates alcohol in dry wine	\$7.99

Sulfite and Acid Testing Kits

TE102 Economy Aeration-Oxidation Free SO2 Test Kit	\$124.99
TE26 Country Wines Acid Test Kit	\$8.99
TE29 Sodium Hydroxide Refill (Neutralizer) (for TE26) 4 oz., 0.1 normal	\$4.99
TE58 Phenolphthalein Refill (Indicator) (for TE26) 3 dram	\$1.99
TE103 TA Titration Kit - INDICATOR Method Laboratory grade kit employing phenolphthalein indicator and a Class A glass buret with a Teflon stopcock.	\$109.99
TE104 TA Titration Kit - pH meter method Laboratory grade kit employing a bench-top digital pH meter with magnetic stirrer and a Class A glass buret with a Teflon stopcock.	\$395.99

pH Testing Kits

TE74 Hanna pH Meter Digital, battery operated Hanna 98107 - Manual 2 point calibration, .1 Accuracy at 68°F (20°C).....	\$64.99
TE73 Waterproof pH Testr20 Digital, battery operated, accuracy to 0.01 pH. Automatic temperature compensated, double junction electrode can be replaced.	\$104.99
TE35 Replacement Electrode for Waterproof pH Testr20.....	\$66.99
TE101 Hanna HI 208 bench-top pH meter with built-in magnetic stirrer, two Teflon-coated stir bars, BNC combination electrode with temperature sensor. Automatic two- or three- point calibration with stability indicator. Suitable for pH and TA measurement on wine samples.....	\$289.99
TE206 Complete pH Buffer Solutions Set with 4 oz. each of pH 4.0 and 7.0 in jars. Store cool.	\$6.99
TE209 Electrode Storage Solution 2 oz.	\$2.99
TE72 pH Buffer Capsules pH 4.0. and 7.0 One of each capsule, to dissolve in 100ml. distilled water to calibrate your meter.	\$3.99

ML Testing

TE20 Malolactic Chromatography Kit , 6 papers, 4 oz Solvent, 100 pipets, 3 Acid Standards, funnel and Instructions.....	\$39.99
TE17 Replacement Solvent , 4 oz.	\$10.99
TE22 Replacement Paper, 3 Sheets	\$4.99
TE18 Replacement Acid Standards- Set of 3 (Lactic, Malic, Tartaric)	\$8.99
TE19 Replacement Capillary Pipets , 100 pack	\$8.99

Labware

Regular Test Jar for 10" Hydrometer.

TE55 Plastic, 10"	\$4.99
TE08 100 ml. Graduated Cylinder Glass	\$12.99
TE111 250 ml. Graduated Cylinder Glass	\$14.99

Tall Test Jar for 11" Hydrometer

TE56 Plastic 1 1/2" x 14"	\$5.99
TE07 1 ml. Pipet, Each.	\$.99
TE62 10 ml. Pipet, Pack of 20	\$17.99
TE36 10 ml. Pipet, Each.	\$1.25
TE86 100 ml. Graduated Beaker Polypropylene	\$.99
TE87 400 ml. Graduated Beaker Polypropylene	\$1.99
TE92 1000 ml. Graduated Beaker Polypropylene	\$2.99
TE83 1000 ml. Polypropylene Beaker w/handle	\$10.99
TE84 2000 ml. Polypropylene Beaker w/handle	\$12.99
TE85 3000 ml. Polypropylene Beaker w/handle	\$20.99
TE10 500 ml. Borosilicate Erlenmeyer Flask.	\$11.99
TE09 1000 ml. Borosilicate Erlenmeyer Flask.	\$14.99
TE127 2000 ml. Borosilicate Erlenmeyer Flask.	\$18.99

Thermometers

TE50 Wine Thermometer, 0-220°F., 1.75" Dial x 8" Stem, with pan clip, recalibratable, Stainless	\$24.99
TE90 Must or Juice Thermometer, 2" Dial x 12" Stem, with pan clip, recalibratable, Stainless	\$34.99
TE37 Floating Glass Thermometer, 8"(40-210°) F. and 0-100°C)	\$8.99
TE81 Fermometer Strip , Monitors temperature from 36 to 78°F., stick to tanks or carboys to read surface temperature	\$2.99

Wine Thieves

TE49 Wine Thief, Plastic, One piece	\$5.99
TE48 Wine Thief, Plastic, Assembled of 3 pcs	\$7.99
TE51 Wine Thief, Glass 12"	\$12.99
TE77 Glass Straight Wine Thief, 18"	\$49.99
TE05 Glass Angled D- Ring Wine Thief, 18"	\$59.99

Digital Scale

TE01 Escali™ 1-5000 grams, ounces to 16 and pounds 1 to 11, perfect for winemaking additives.....	\$42.99
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WINEMAKING BOOKS AND VIDEO

BK140 <i>Home Winemaking Step by Step</i> Iverson.....	\$17.99	BK54 <i>How and Why to Build a Wine Cellar</i> , Gold.....	\$20.00
BK20 <i>Micro Vinification</i> Dharmadhikari and Wilker.....	\$46.99	MG13 <i>WineMaker Magazine</i> current issue	\$4.99
BK12 <i>Techniques in Home Winemaking</i> Pambianchi	\$ 21.99	BK142 <i>Winemaker's Recipe Handbook</i> Massaccesi	\$ 4.99
BK40 <i>Modern Winemaking</i> Jackisch	\$44.99	BK09 <i>The Wine Defect Wheel</i> diagnostic tool.....	\$22.99
BK44 <i>Knowing & Making Wine</i> , Peynaud.....	\$110.00		



ADDITIONAL BOOKS ON RELATED TOPICS

Grapes

BK80 <i>Great Grapes</i> , Proulx	\$3.99
BK129 <i>Vineyard Simple</i> , Powers	\$24.99
BK67 <i>The Backyard Vintner</i> , Law	\$19.99

Cider

BK70 <i>Cider, Making, Using and Enjoying</i> , Proulx & Nichols	\$14.99
BK47 <i>Craft Cider Making</i> , Lea.....	\$15.99
BK79 <i>Making the Best Apple Cider</i>	\$3.99

Mead

BK77 <i>Making Mead</i> , Morse	\$16.99
BK05 <i>The Compleat Meadmaker</i> , Schramm	\$19.99

Other Hobbies

CH73 <i>The Cheesemaker's Manual</i> , Morris	\$49.99
BK32 <i>The Joy of Cheesemaking</i> , Druart and Farnham..	\$14.99
CH74 <i>Making Artisan Cheese</i> , Smith	\$21.99
CH98 <i>Artisan Cheesemaking at Home</i> , Karlin	\$29.99
BK166 <i>The Home Creamery</i> , Farrell	\$16.99
BK100 <i>American Farmstead Cheese</i> , Kindstedt	\$40.00
BK01 <i>Brewing Quality Beers</i> , Burch	\$7.99
BK84 <i>Making Vinegar at Home</i> , Romanowski	\$4.99
BK03 <i>Homemade Vinegar</i> , Watkins	\$7.99
BK36 <i>The Compleat Distiller</i> , Nixon & McCaw	\$25.00
BK76 <i>Home Sausage Making</i> , Reavis	\$16.99

ORDERING

Place your order ONLINE at www.thebeveragepeople.com or call our TOLL FREE ORDER LINE, (800)544-1867. We accept Visa, Mastercard, American Express, or Discover cards.



To place your order by check, please note the following, if you live in California, add 8.5% sales tax on non-food items. **Tax exempt 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 1 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 Air service, or UPS 2 DAY Air service.

Add \$6.00 for standard shipping to California, Nevada, Oregon and Washington. All other states and out of the country will pay actual shipping.

Customers in Alaska and Hawaii please take note that *priority mail* service from the Post Office is recommended.

ABOUT US

The Beverage People is proud to operate both a retail and on-line-order supply firm for 32 years in the heart of the Sonoma County Wine Country.

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.

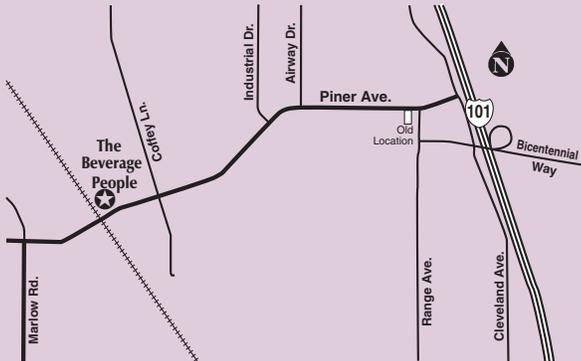
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The Beverage People
 1845 Piner Rd. Suite D
 Santa Rosa, CA 95403

Address Service Requested
 Summer 2012

PRSRT STD
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 DMS INC



The Beverage People's new Location
 For driving directions see page 2.

Our Hours: January through July :
T-F 10 - 5:30, and Saturday 10-5
Also Open on Mondays- August through December

Rental Equipment

CRUSHERS

Apple Mill, Grinder and Press, motorized	\$45.00
Grape Crusher, Manual	\$20.00
Grape Crusher/Destemmer, Manual	\$45.00

PRESSES

#30 7 gallon Basket	\$25.00
#35 12 gallon Basket	\$35.00
#45 25 gallon Basket	\$45.00

FILTERS/PUMPS

Transfer Pump Brass with hose	\$10.00
Transfer Pump Stainless with hose	\$20.00
Buon Vino Plate Filter with one set of pads	\$30.00

BOTTLING

3-Spout Bottle Filler	\$10.00
Wine Bottle Corker	\$10.00
Glue Labeller, Manual	\$10.00

Rentals are for 24 hrs. from noon to noon, and reservations are accepted up to 7 days in advance. We require a \$50 cleaning deposit on most equipment. Cancellation must be made by noon the day prior to your reservation. Call 544-2520 to manage your reservation.

Fall Winemaking Class

If you are new to winemaking, or just want a refresher, plan to attend our beginning winemaking class.

You will be given a step by step run through of the winemaking process with demonstrations of equipment and testing supplies. This will be an opportunity for you to get your questions answered and gain confidence in the ease of becoming a home winemaker.

Space is limited, so call today. (707) 544-2520. Class is held at the store classroom, 2 pm on August 25 and will last approximately 2 and 1/2 hours. Class fee is \$30.00 payable to *The Beverage People*.

2012 Sonoma County Harvest Fair

Deadline for entries is usually the last week of August. Great opportunity for local winemakers to judge.

Contact Bob Bennett, 433-4574 to be included on a panel.

Note, as this is a local event, please deliver entries directly to fair.

BUILD YOUR DREAM LAB...

Get your hands on our latest laboratory testing supplies... We now sell an aeration oxidation kit and titration kits for pH and Total Acid!
see pg. 22

Got Grapes?

Our grape listing book is a resource for both the winemaker and the grower. Local grape growers can list their grapes for sale. Winemakers can source their fruit by coming in to the shop and taking a look at the listings. If you would like to place a listing, please send us a list of grapes available, pricing, and any other information about your grapes you would like to include. Don't forget to provide your name, address and phone.



Follow us on facebook, we can share our fermentation stories! If you would like to get current promotional news, subscribe to our e-mail group. Both of these links can be found on our website's homepage. thebeveragepeople.com