Soda
Cider
Beer

THE BEVERAGE PEOPLE

Wine
Vinegar
Mead

2003 Summer Wine Supplies and Beverage People News

New Items.

A review of what is new for winemaking in 2003.

See page 2.

Winemaking Supplies and Catalog.

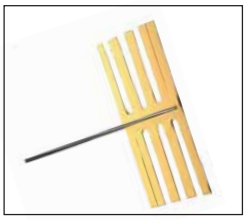
Winemakers find supplies to fit your needs.

See page 15.

Step by Step How to Make Red or White Wine

Begins on page 4.

Why Carboys Need Wings, and Winemakers Need Angels



by Nancy Vineyard

Looking back over the years, the one item everyone needs to make wine, the glass carboy, has been discussed and pictured in this publication over and over. More accessories have been invented to aid in transporting, filling, emptying, cleaning and storing, than for almost any other hardware. There are carboy handles, racking tubes, rubber hoods, draining stands, auto siphons, rinsers, oakboys and fermometers.

It's been a good thing to have all these gadgets and it's still getting better. Pictured here is the latest 'necessity' for **cleaning carboys**. The wand attaches to a drill and with the carboy partially filled with a good cleaner mixed in water, such as chlorinated TSP or TDC, the wings flutter about, circling to achieve a clean as new glass jug. The new Carboy Scrubber, QE01, retails for $24.95.

You may be wondering where angels fit in to this discussion. Well, several years back, on two separate occasions, I had the distinct displeasure to watch Byron fall and roll a full

See Angel page 2.

Corks Still have It

by Byron Burch

If I hadn't known the customer, I probably wouldn't have done it, but sometimes a chance is just too good to pass up. He was looking at the cork display, and called over to me, "What's the difference between these inch and a half corks and these inch and three quarter corks?"

I called back the obvious answer, "Oh, about a quarter of an inch," and we both laughed.

Unfortunately, most wine cork questions require an answer somewhat beyond the level of a simple joke. Corks are one of winemaking's more mysterious, romantic, and sometimes controversial topics, and for the foreseeable future, at least, are likely to remain so. Perhaps it may be useful then, to discuss various aspects of the cork issue, starting with the most basic.

We try to be alert to obvious newcomers, but once or twice a year we get a call for help. "I just bought these corks, and they're too big for my bottles." We have to explain that using corks that are too big is the way wine bottles are sealed, and a discussion ensues about the need for a corking tool to

compress them to fit and insert them. Experienced winemakers may find this idea very self-evident, but it isn't always so for beginners.

Cork Widths

Even though all wine corks are oversized, there are differences. A supplier must decide whether to sell #8 or #9 corks (8 or 9 mm. in diameter). With a small hand corker (See Figure 1), it may require slightly more effort to get a #9 into the bottle. The seal, however, is more secure for long term storage than with a #8. The larger, free standing, floor corkers (See Figure 2) have enough leverage to put in #9 corks with no difficulty.

At *The Beverage People*, we sell mostly #9 corks, with one exception. Our shortest cork, 1 1/2 inches long, is a #8 because the usual situations in which it will be used are not as demanding on the seal as would be the case with the longer corks. That leads us directly to the question of why you might select a wine cork of a particular length.

Cork Lengths

If you are using the customary 750 ml. bottles, 1 3/4 inches is considered the standard cork length for most purposes. There are exceptions, however. If your wine will be in the bottle longer than six or seven years, you should consider using a two inch cork. A good quality #9 two inch cork should last at least ten years under ideal storage conditions.

There are also a couple of situations in which the shorter, 1 1/2 inch, corks might be used. The first is when you are putting your wine into 375 ml. bottles instead of 750's. That's what these corks are designed for. They may also be used with full size bottles if the wine will be consumed within a short time, no more than a year or two.

Be aware, though, that using a shorter cork will give you a larger air space between the wine and the cork. That alone will contribute to an oxidation problem in a wine that is low in sulfite or has a high pH. The fill height of each bottle should have no more than one third of an inch between the cork and the wine.

See Corks pg. 2.

Angel cont. from page 1.

carboy out of his arms and luckily out of harms way. He was scraped a bit, both times, but he wasn't massively cut, arteries severed, etc.

We solved the problem by purchasing a four wheel trolly for safely transporting jugs from one area to another. The point is, we started thinking about safety in the winemaking process.

Last harvest was my first guardian angel experience. I was cold soaking 1000 lbs. of Pinot Noir grapes with dry ice, prior to fermentation, for several days. This had been written about in last year's newsletter and the article is now on our website.

In 2001 the buckets of must were in a large open area of a shed, with lots of air movement, although it is enclosed. In 2002, the must had to be fermented inside a small storage room, while some construction took place in the shed. There was also twice as much must as the year before and the grapes were harvested on a very hot afternoon. The volume of dry ice was about five times greater than I used in 2001.

When I went out to add the dry ice to the grapes, I first lifted off the wide covers from the buckets and then with a scoop, starting adding 10 lbs. of pellets to each bucket. Billows of CO^2 formed immediately filling the room with gas. I turned and ran for the outside and stayed there, panting and seeing stars for several minutes. I realized what I had almost done was lose consciousness with no one else around to find me. Had I not run out, or had I performed this operation with any impairment, such as after a beer or two, it's likely I wouldn't have realized what was happening and I wouldn't be here today to warn others about this.

Safety isn't something we thing about first as hobby winemakers, but it should be. Hopefully these stories keep safety on your mind this season.

New Supplies

Twin Disk Cork

Very good quality for grade B cork, that provides solid cork protection against the wine, but fills in the space in the middle with agglomerated cork. Makes a low cost, quality seal. WC14 $19.95/100

Glass Wine Thiefs

Very attractive and functional thiefs, come in an angled 24" shape, or a curved 24" shape (to pass between stacked barrels.) TE59 and TE89 respectively $42.95

Accuvin Test Kits

Great new test kits for measuring pH,(TE60, $22.95) the completion of ML fermentation, by tracking the quantity of Malic Acid, (TE67, $30.95) and the titratable acidity (TE61, $24.95) of grapes for harvest. Each kit, comes with ten tests. Use them for quick checks, takes only a few minutes.

Carboy Scubber

Described on page 1. QE01 ..... $24.95

Our New Web Site

We recently upgraded our web site, with the help of Byron's oldest daughter, Alicia Boyce, (with help from Allen Boyce, and lots of love and support from Emma, now 7 months old.) We're bringing this to your attention, because, over the next several years, we will be focusing our attention on moving articles of past newsletters into this forum. Articles, such as last year's wine equiment discussion, will rotate into the site, to help newcomers and remind us old folks how to get ready for another harvest. Please visit, *thebeveragepeople.com*. We appreciate your feedback during this building phase.

New Books

The Complete Meadmaker, by Ken Schramm A quality effort to bring brewing and winemaking knowledge to meadmaking. Good information, more thorough than anything to date. BK51 ..... $19.95

Old British Beers and How to Make Them, by Dr. John Harrison and The Durden Park Beer Circle. Third Edition with much better layout, modest corrections and new information. BK33 ..... $14.95

Corks *from page 1*

Chamfered or Unchamfered

"Chamfering" refers to the beveled edges some corks have. If you have one of the small hand corkers, you will almost certainly have to use chamfered corks to help get them in the bottles. You will also have to soak the corks in cold water for an hour or so to help soften them before use.

Note that corks should never be boiled prior to use, even though boiling for sanitation is part of the manufacturing process. Additional boiling may begin to damage the cell structure of the corks.

You hear a lot about two alternative types of wine cork these days, and to these we now turn.

Synthetic Corks

People frequently ask us whether we carry synthetic corks. You see them in many commercial bottles these days, so it's a natural curiosity, perhaps fueled by the hope that artificial corks might be a less expensive alternative to the real thing, or a way to retain the sexiness of the cork tradition, while avoiding the occasional "corky" bottle.

Unfortunately, not all is happy on this front, so the answer must still be 'No." First, let's start with the bad news. Synthetic corks aren't designed to be inserted with any of the relatively low tech corkers available to home winemakers. We get samples occasionally, and we've yet to find any that work well.

The problem is that these "corks" need to be inserted under vacuum to keep pressure from remaining in the head space of the bottle. A normal cork allows some of that pressure to escape as the cork is inserted. We've used floor corkers to try putting synthetics in bottles, and the process leaves the cork looking like a small balloon sticking up above the bottle, or else it simply refuses to go all the way in.

I know one person who claims to have some success by placing a length of 30 lb. test fishing line down into the bottle neck. This appears to prevent forming a complete seal until the cork is in place and the fishing line has been pulled out of the bottle.

Even if this technique works, however, it may only lead to more bad news. I recently learned of an ongoing experiment in which several wines were bottled and aged with a variety of closures. This aging has been going on now, for about two years, and certain patterns are emerging.

Wines corked with synthetics seem to be faring worst of all. Sulfite levels dissipated especially quickly, and these wines have shown more browning and other signs of oxidation than wines bottled with any other closure. This oxidation may be at least partially due to the synthetic cork's inability to vent head space pressure, the same problem that makes insertion difficult. Problems involving excess head space pressure tend also to be exacerbated if the wine is stored or transported at temperatures that are warmer than when the wine was bottled.

Maybe these problems will eventually be solved, but I wouldn't start cutting up your

See cork cont. pag 3.

Corks cont. from pg 2.

fishing line just yet.

Natural Cork

The traditional, natural cork appears to be faring quite a bit better in terms of extending the life of the wine, which is good news. So why then all the discussion of alternatives like synthetics and screw cap bottles in recent years?

Some of the unrest is based on economic concerns, but there is another issue, long known about, but which began to get a lot of attention a decade or so ago. That's the issue of TCA "cork taint."

"Corkiness" and "cork taint" are terms used to describe certain musty aromas that can make a bottle of wine less enjoyable than it should be. As these terms suggest, these aromas can be attributed to the cork. Several years ago, it began to be suggested that the problem was extremely widespread, perhaps affecting as much as 15% of all corked wine bottles.

How big the problem remains these days is a matter of some controversy. Recognizing the problem, the cork industry in Portugal, where most cork bark is grown, made radical changes to upgrade their processing and storage of cork. Other countries have followed suit. Perhaps one of the most significant changes was to stop washing the raw cork with chlorine, a chemical closely associated with producing TCA.

Precise assessment of the extent of cork taint at this point is difficult, however, because many of the wines still being evaluated date from the time prior to recent industry reforms. Also, some of the various publicized evaluations are written with potential vested interests in mind to obtain one result or another. There is also the fact that people's ability to detect cork problems in wine is widely variable with many people not noticing the difference.

That having been said, there have been some studies done involving large numbers of bottles, and overall, it looks like identifiable, cork-related, musty flavors in wine bottles can probably be identified less than 1% of the time unless you're a highly trained expert, in which case, the percentage will be somewhat higher. In other words, it's not something most of us are finding on a regular basis. At the store, from our inventory, we have received less than a half dozen complaints in the last 5 years, and most of these were before the cork industry reforms were undertaken.

One advantage that cork has over synthetics is the cell structure allows pressure to escape at the time of insertion, but the gases in the cork cells continue pushing outward for an extended time, giving you a seal.

Eventually, over an extended period, these gases do gradually escape from the cells, and the cork adjusts to the shape of the bottleneck. After removing a cork that has reached the end of its lifespan, it won't expand to the large diameter necessary to stopper a bottle. Besides the other issues of reusing cork, such as mold, wild yeasts and bacteria, it's best not to consider reusing old corks.

Sulfite at bottling time.

The progression of oxidation can be arrested by properly adjusting the sulfite levels at bottling time.

Test your wine to find out how much free SO^2 is still available For directions, see page 8. Add enough sulfite to bring the free SO^2 to at least 30 ppm for red wines and 40 for white wines.

Composite Corks

In recent years another type of wine cork, the "composite," has begun to achieve widespread acceptance. With these corks, many small cork pieces are adhered together into the shape of a traditional wine cork. In the oxidation study referenced earlier, composite corks have performed best of all as far as sulfur dioxide retention and lower oxidation rates were concerned. After some recent improvements in the adhesives used to make composite corks, it is our experience that these corks are a viable alternative to all natural cork.

TCA problems should be no more common with composites than with traditional corks. This may have to do with composites having greater structural uniformity than natural cork, but also with possible blocking functions of the adhesives used. In any case, the cell structure allows headspace pressure to escape in much the same way as with natural cork.

Twin Disk Corks

At *The Beverage People*, we began carrying a type of composite cork early in 2002. Originally we were looking for a new "bargain" cork to replace the "overbranded," winery reject corks we'd sold for several years. The supply of the overbranded corks had become irregular.

We decided to carry a refinement on the composite cork theme called "twin disk" corks. These are a good quality composite through most of the cork's length, but with a 1/4 inch disk of top quality solid cork attached to either end. Twin disk corks give you the economic advantages of a composite cork, while keeping your wine in contact with a natural material, and away from the adhesives.

These corks have performed very well, and have gained increasing acceptance. Please note that, again, we don't recommend boiling wine corks to soften them because this may break down the cell structure of the cork. That goes double for composite corks. Boiling is likely to break down the adhesives holding the composite together, causing the cork to disintegrate. Also, composite and twin disk corks do not compress easily enough to use with small hand held corkers.

Screw Caps

Screw caps bring another question to the issue of closures, though this may be more of an issue years down the road than it is now.

In the past few years, ever since the cork taint question began to be widely discussed, researchers have been looking at whether corks should be replaced with screw caps. Some research does suggest that screw caps would make a better closure, and locally *Sonoma Cutrer Winery* and *Bonny Doon Winery* have released some premium wine in screw cap bottles to test this market.

This idea, however, seems to be a long way from any sort of public acceptance, and perhaps it's just as well. The home winemaking industry is far from wielding the clout to bring widespread usage of screw cap bottles to mainstream winemaking. We quite simply have to wait for acceptance of this practice to spread before the bottles will even be available for us to sell.

Technical superiority is only part of the picture. Our society is capable of doing a great many things technically. Whether we should do them is a separate issue. Like many areas of life, wine is enriched by its rituals and exists as the centerpiece of its particular culture.

Even if screw caps are eventually proven to be the best closure, their use would not necessarily enhance the total wine experience, even for those of us for whom wine is an aspect of everyday life.

To illustrate, let's say that the parish council at my church decided to illuminate our worship services with halogen bulbs instead of the traditional candles and oil lamps because the light would be brighter. Brighter it would truly be, but the overall worship experience would not necessarily be enhanced. Perhaps there's a lesson for wine lovers in there somewhere. Let's hope so!

Winemaking Step by Step

EQUIPMENT

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

You will need the following:

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

For every 75 lbs. of grapes:

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

INGREDIENTS

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

Red Wine Procedures

1 **Crush (break the skins) and de-stem the grapes**. For most grape varieties, about 90% of the larger stems should be removed.

2 **Test for total acidity following the instructions in your acid testing kit.** If the acidity is less than .7%, add enough tartaric acid to bring it to that level.

3 **Test for sugar with your hydrometer.**
Correct any deficiencies by adding enough sugar to bring the reading up to 22% (22 degrees brix).

4 **When these tests and corrections have been completed, the must should be sulfited.** Estimating that you will get roughly one gallon of juice yield for every 16 lbs. of grapes, calculate the anticipated amount of juice. Using this estimate, add enough sulfite to give you a sulfur dioxide (SO_2) level between 50 and 130 parts per million (ppm).

The amount needed will depend on the condition of the grapes, with moldy grapes getting the most concentrated dose.

5 **Unless you have found it necessary to add more than 65 parts per million SO_2 in step 4, yeast should be added immediately.** If using more than 65 parts per million SO_2, you must wait six hours before doing so. Add also 1/4 oz of yeast food for every 100 lbs. of grapes. Your yeast culture (or dry wine yeast) should be spread somewhat evenly across the surface of the crushed grapes (now called "must"). Stir it in thoroughly after eight to twelve hours.

6 **The must should be stirred twice a day until fermentation begins.** The beginning of fermentation will be obvious, as the grape skins will be forced to the surface, forming a solid layer (called a "cap").

Once the cap has formed, it should be pushed or "punched" back down into the fermenting juice twice a day until it is ready to be pressed. You may use your hand or a clean 2x4 to push down the cap.

7 **At some point, while fermenting on the skins, the must temperature should be allowed to reach as high as 90° F., at least briefly.** This will help extract color from the skins. The rest of skin fermentation should take place at 60-75°F.

8 **Add ML starter** (optional) to the wine about half to two thirds through fermentation. You may also add this at the end of fermentation if you have the Enoferm Alpha strain of bacteria.

9 **When the desired level of color has been achieved** (usually from five to fourteen days of active fermentation) **your wine should be pressed to separate the wine from the skins.** Funnel the wine into secondary fermentors, filling them 3/4

Grapes in the Crusher.

Crushing and stemming your grapes.

Time Line for Red Wine Fermentation (...→)

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

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

10 **At the end of fermentation, when no more bubbles are coming up through the lock, rack the wine off the gross lees.**
Place wine in storage containers (glass, stainless steel, or oak). Top up the containers and let stand for a month.

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

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

13 **By late July or August** (just before you need your storage containers for the next year's crush), **carefully rack the wine to a sanitary bottling container, then siphon into bottles, cork them, and lay them down for bottle aging.**
At bottling time, adjust the sulfite to at least 30 ppm, if you plan to store the wine. If possible store your filled bottles on their sides. Otherwise, store them with the corks down. Most red wines will benefit from at least one year's additional aging.

See *"Procedure"* cont. next page.

Pressing the fermented red grapes.

White Wine Procedures

1 **Crush the grapes** to break the skins**.** It is not necessary to de-stem them. Keep the grapes as cool as possible.

2 **Test for total acidity.** If the acidity is less than .7%, add enough tartaric acid to bring it up to that level.

3 **Test for sugar with your hydrometer.** Correct any deficiencies by adding enough sugar to bring the reading up to 20% (20 ° brix) for most varieties (22% for Sauvignon Blanc and Chardonnay.)

4 **When these tests and corrections have been completed, the must should be sulfited.** Estimating that you will get roughly a gallon of juice from every 16 lbs. of grapes (varies with the variety), add enough sulfite to give you a sulfur dioxide (SO_2) level between 50 and 120 parts per million (ppm.).

The amount needed will depend on the condition of the grapes, with moldy grapes getting the most concentrated dose.

5 **Stir in pectic enzyme at the rate of one ounce to every 200 lbs. of grapes.** Place the crushed grapes in a covered container to stand from 2 to 18 hours (longer for the "big, less fruity" varieties. If left to stand longer than 2 hours at this stage, the crushed grapes should be refrigerated.

6 **The grapes are then pressed to separate the juice from the skins.** Funnel the juice into topped up containers, cover, and let stand for approximately 24 hours.

7 **Siphon the clear juice away from the layer of settlings into a glass, stainless steel, or oak fermentor which is filled no more than 3/4 full.** Yeast should be added, a fermentation lock attached to the fermentor, and fermentation allowed to procede. Add also a 1/4 oz. of yeast food for every 5 gallons of juice.

8 **When visible signs of fermentation end, the wine must be racked off the lees,** sulfited, and placed in topped up storage containers (glass, stainless, or oak). Let stand for a month.

9 Rack off the lees and fine. Add sulfite and store stopped full in a cool location.

10 **In February or March, rack and sulfite the wine again, placing it back in topped up containers.** This is a good time to filter the wine if you are going to do so. Add Oakboy or oak extract now.

11 **In late April or early May, before the onset of very hot weather, carefully rack the wine from the lees.** Test the wine for free sulfite content with a sulfur dioxide test kit to determine how much SO_2 is needed to bring the level to 30-35 parts per million.

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

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

Time Line for White Wine Fermentation(...→)

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

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

A Glossary of Wine Nutrients

Yeast Food
Use at the rate of 1 oz. per 32 gallons prior to fermentation and prior to ML. Provides a complete and balanced food for yeast. Use in conjunction with DAP for additional nitrogen with difficult wines such as late harvest, stressed grapes or wines to go through malolactic fermentation. Contains ammonia salts, amino acids, sterols, unsaturated fatty acids, yeast hulls, vitamins, magnesium and pantothenic acid.

Diammonium Phosphate - DAP
Use at the rate of 1 oz. per 32 gallons to raise the level of free nitrogen for a healthy fermentation. Use in conjunction with Fermaid K for best results. Contains only ammonium phosphate.

Autolyzed Yeast
Use at the rate of 1 oz. per 32 gallons of juice or must. Add to restart sluggish and stuck fermentations. Add during fermentation and may be repeated. Contains pure dried yeast providing amino nitrogen, B vitamins and yeast hulls from autolyzed yeast.

Yeast Hulls
Use this product to 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 use in over-clarified juice and to absorb toxic compounds. (Use rate is also 1 oz. per 32 gallons)

Barrel Care Procedures

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

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

After a barrel is used for wine storage, additional measures of cleaning and sanitation must be followed. At each racking, rinse out the barrel with water, to remove debris, and ***rerinse the barrel with an acid wash.*** Again make up a solution of water with 2 teaspoons of Citric Acid for every 5 gallons. You can just use a 5 gallon amount to swash around inside the barrel for 5 or 10 minutes and then drain it and fill with your wine. The small residual amounts of acidity left in the wood are not harmful just so long as you don't overdo it.

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

Follow up the cleaner with several flushes of water and then ***reacidify*** the barrel with a soaking of water and citric acid, again using 2 teaspoons acid to 5 gallons water.

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

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

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

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.

By adding minute and carefully measured amounts of Sodium Bisulfite (or Potassium Metabisulfite) at selected stages during the winemaking process, wine's natural pattern of progression past the wine stage, and toward spoilage, can be retarded. An additional benefit is that sulfur dioxide is an effective antioxidant.

When you add sulfite to a wine, not all of it remains free to fight the good fight against microbes. Only "free" molecular SO_2 does that. Some sulfur dioxide becomes "bound". In other words, it reacts with compounds in the wine to form other compounds, and therefore, it's kept on the sidelines, unable to do battle where you need it most. It's important to test for free SO_2, so that you may accurately add sulfite, rather than haphazardly dropping in a few teaspoons.

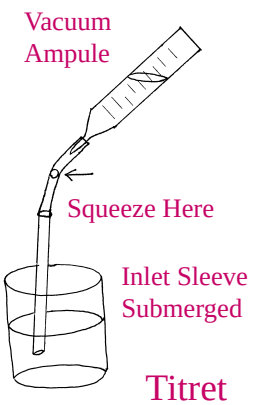
Our directions that follow explain two simple methods for using the Ripper Method to test the free SO_2.

The Titret® Kit takes place inside of a glass ampule. These vacuum sealed, graduated ampules, 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 that is no longer available, and which made the test more difficult to execute.*

New this year is the Acidometer® Kit by Vinoferm, which also uses the Ripper Mehod. Using the graduated cylinder and a solution that combines starch and iodine, (the Iodic solution),titration is a simple matter of pipeting in the iodic solution until the color end point is achieved.

The Titret Kit

Begin the test by inserting the loose plastic inlet sleeve over the tapered end of the glass ampule. Bend the plastic sleeve 90 degrees to break the tip of the ampule. As you do this hold on tightly at the junction of the sleeve and the ampule to prevent the sleeve from sliding off. Next locate the glass bead/valve inside the plastic inlet sleeve. Squeeze this bead to open the passageway for the vacuum in the ampule to pull wine inside the tube. As you squeeze, a color change will occur turning the sample inside the tube dark blue/black. Continue squeezing until a white wine turns light pink or clear. In the case of red wines, it will return to the original sample color. The titration is finished at this point and the ampule is stood up on its flat end. Let the contents of the ampule settle and then read the liquid level at the graduated line of the vial. This is the amount of free SO_2 present in the wine.



Titret

The Acidometer Kit

The Acidometer method uses the graduated cylinder to hold the sample wine or juice, while the Iodic solution is pipeted in to achieve a color that is blue for white wines and a dark bluish red (blood red) for red wines. Once the color change is observed, you multiply the reading from the graduated cylinder by 10 to get the free SO_2 number. It is as accurate an any winery Ripper.

This kit may be the best method yet for red wine testing at home. But, the color transition is also difficult to see, even winery lab techs need time and experience to accutately judge the color change. Follow these hints and practice a few times, till results are consistent. To reduce the possibility of a false high reading, you must quickly reach the titration point because the iodine solution will react over time with the bound form of SO_2 . The light source is also important to accurately observe the color change. Use a bright white background with a high intensity lamp. Also use a 10 ml. graduated pipet, to fill the cylinder and stopper the cylinder with a solid #2 rubber stopper, for mixing in the iodic solution. Iodine will stain your fingers and clothes, so use with caution.

The false high reading from the Ripper method can be as high as 10 ppm, so be sure to do your test frequently enough that the additions of sulfite will always maintain some free SO_2 , thus protecting the wine from bacterial spoilage or oxidation.

Scheduling SO_2 Additions

Sulfite additions can vary somewhat depending on the condition of the fruit and the quality of the storage conditions. Initial sulfite may be added at 65 ppm to grapes or juice that is free of rot or mold. The presence of a lot of mold, or grapes in otherwise bad condition,

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

might require twice that amount. Under average to good 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 and at least two to three times for red wines.

Schedule these additions as you rack your wine to remove it from gross lees and possible fining agents, and then after racking in early spring. The whites may be ready for bottling at this time. Red wines may require a fourth racking before bottling in the late summer.

At bottling time, you should test your SO_2 level, and adjust to 30-35 ppm in the wine. Wines that will be consumed within three months of bottling will not normally need this sulfite addition at bottling time as long as they are stored in a cool place until served.

pH and SO_2

It is generally recognized that only a small amount of molecular SO_2 (.5 to .8 ppm.) needs to be present to provide bacterial stability in wine, but pH has an important effect on how much free SO_2 is needed in order to provide that amount, and that's why both pH and SO_2 need to be tested.

Regard the *Table of Molecular SO_2* to the left. The amount of free SO_2 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 SO_2, or slightly more, present in the wine when it is bottled.

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 SO_2 high enough to have a negative effect on the wine's flavor. It is best not to approach the problem that way. Instead, the pH should be lowered early in the life of the wine by the addition of Tartaric or Phosphoric Acid.

Sources of SO_2

SO_2 is available as Campden tablets, effervescent, Efferbaktol tablets, 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.

New for home winemakers are 2 gram Efferbaktol® tablets that deliver 528 ppm per gallon (9 ppm per 55 gallon barrel) and effervesce to disperse evenly in the container. They are perfect for working in barrels, but pricey and hard to divide to accurately dose 5 gallon carboys. Potassium metabisulfite should be made into a liquid preparation before use, to adequetely disperse it, and because it is very potent. This is also the least expensive method.

Make a strong solution if your additions are to larger vessels, and a weak solution for carboys.

Preparing a Strong 10% Stock Solution

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

10% Solution of Potassium Metabisulfite

(Desired final SO_2 concentration in ppm.)

Must/Wine	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
50	32.9	65.7	82.1	98.6	131.4	164.3	246.4

Preparing a Weak 3% Stock Solution

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

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

3% Solution of Potassium Metabilsulfite

(Desired final SO_2 concentration in ppm)

Must/Wine	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 SO_2

If you ever need to lower your SO_2 because you doubled the dosage or made some other wildly uncareful calculation, do the following: for every 10 ppm free SO_2 you want to remove, add 1 ml. of 3% hydrogen peroxide per gallon of wine. This is an oxidative reaction that occurs immediately. Us 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: There could be some confusion by listing both a 3% and a 10% solution here. Be careful to follow the scale that is appropriate to the stock strength. If you have a scale that weighs in grams, and have access to a pH meter, you may wish to use the 10% solution instructions. Pipettes graduated in .1 ml to .5 ml and 1 ml to 10 ml volumes are recommended for making accurate additions.

Fining Procedures

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

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

Here's how they are used.

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

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

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

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

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

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

Sugar, Acid and pH Testing Procedures

SUGAR

There are two methods to measure the percent sugar (Brix): hydrometry and refractometry. A hydrometer will also be used to track the progress of fermentation which a refractometer cannot do.

You must establish a routine for sampling fruit from various parts of the vineyard, due to variations in conditions or microclimates throughout the vineyard. So be sure to take grapes from clusters that represent the true mix of ripening your vineyard is experiencing. If you have a lot of area, divide it into a quadrant and block off the areas that you will sample. Then either sample and record to a notebook, averaging the total sugar from these results, or pick grapes from all over into a bucket, bring this back to be crushed together, mixing all the grapes you have collected and then use this juice to create a test sample.

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

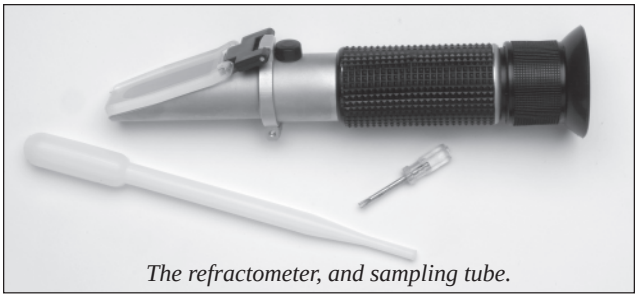
Testing with a hydrometer.

Crush your collection of grapes and extract by straining a volume of juice sufficient to float a hydrometer in its test jar, or appoximately, 4 oz. of juice. Pour the juice into the test jar and twirl the hydrometer in the juice to release any CO_2 gases in solution. These tiny bubbles can stick to the hydrometer and cause it to lift, increasing the chance of an erroneous reading. Now you will let the hydrometer settle into the liquid, reading the paper scale where the juice contacts it at its surface. (For accuracy, read the level at the liquid level, not the interface of liquid on the hydrometer, as this point is actually slightly higher than the surrounding liquid owing to an increase of pressure from the tool against the liquid.) Measure from the scale what total of sugar is present. There are usually three scales on a hydrometer. Measure fruit and wine juice from the Brix or Balling scale which is equivalent to percent sugar.

Testing with a refractometer.

Alternately, and especially for those of you growing your own grapes, a refractometer will be used to measure sugar in the field. From the juice of a single grape, a sugar reading can be taken along with the readings from other representative grapes in the vineyard to yield the average percent of sugar. The following standardizations are useful when using a refractometer.

First, standardize the refractometer against the zero point on the prism by using a drop of distilled water and looking through the eyepiece in direct light to see the sugar scale in the backdrop. There is a set screw on the refractometer that can be adjusted if this reading is not zero. If you can't find the screw refer to your instruction manual.



The refractometer, and sampling tube.

Next, check the refraction of a standard sugar solution. Place a drop of 20° Brix sugar solution on the prism and read the percent sugar against the scale in the background. If it is not reading 20, then adjust the set screw once again. Now your refractometer is ready to use with fruit. An ATC (for Automatic Temperature Compensating) Refractometer will compensate for temperature changes, but costs more. However, if you have a non-compensating refractometer, there are plenty of books that carry the compensation scale. Otherwise make sure the sample tested is about 60° Farenheit for the most accurate reading.

ACIDITY

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

Immature fruit is usually excessively acidic, burning and even acrid tasting while overripe fruit tastes flabby and soft, lacking the sparkle of crisp fruit. Fortunately, as ripening proceeds, and sugar increases, acids particularly, malic are respiring and thus decreasing in intensity. At the point where both sugar and acid are balanced for the wine style, the harvest can commence.

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

Using the Country Wines Acid Test Kit

To run an acid test with this kit, measure 10 ml. of Juice or Wine into the sample jar and add 3 or 4 drops of Phenolphthalein, the indicator solution. Swirl to mix. Rinse out the syringe/pipette with distilled water and refill with 10 ml. of the Sodium Hydroxide neutralizer. Add a drop to the sample one at a time, swirling the mix as you add it. Continue adding the neutralizer until the sample turns a distinct pink, that holds for longer than 15 seconds.To do this test, choose a well lighted location with a white background.

Also keep a sample of the untreated juice, of the

Acidity continued next page.

From Acidity previous page.

same volume, in a clear cup next to the test sample. You will more quickly see the marked color change in this way. Red wine pigments will alter the pink color to a gray tone or even darker. Keep track of how many millileters of neutralizer are added to the sample. However much you use will be multiplied by a factor that accounts for the particular strength of the neutralizer used. The kit we sell uses a neutralizer that is .1N Sodium Hydroxide, which is multiplied by a factor of .075 to achieve the final reading.

You may wish to verify your results by using a pH meter. Full titration will be achieved when the neutralizer additions raise the pH to 8.2. See the use of pH instructions that follow for how to measure pH.

Using the Vinoferm Acidometer Acid Test Kit

A "new" kit has returned to the market that allows home winemakers to accurately and quickly measure TA. The Acidometer, by Vinoferm consists of a graduated glass cylinder, a 100 ml bottle of Blue Indicating Solution and a packet of litmus paper. This kit is particularly good at testing red wines.

It is easy and simple to use. Fill the cylinder with wine or juice to the 0 mark. (Note: if using a pipete this is 10 ml. of solution.) Add the indicating solution drop by drop until the solution turns from green to blue in white wines, or red to purple in red wines. The litmus paper confirms that all the acid is neutralized. Then the TA is read directly from the fill line of the cylinder. No further calculation is necessay. In our tests, using several wines, the results compared favorable with laboratory anaylsis. In three sample, fresh juice, dry white wine, and a dry red wine the results were almost identical. In a dessert wine with 10% residual sugar, the kit erred on the low side by .3 grams/Liter, 6.2 instead of the 6.5 the Lab returned.

Our friend and former employee, Jeff Sternfeld, who ran these tests at a wine lab for us recommends three additional components to make the kit more user friendly. Rather than pouring in the 10 ml. sample, get a 10 ml. pipet to accurately set up the starting point. Use a #2 rubber stopper to close the cylinder when dispersing the neutralizer in the cylinder, it's cleaner and keeps the sample uncontaminated. Last, use a bright light, even a high intensity desk lamp, to better see the color change in red wines.

pH

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

Testing for pH

pH can be tested either by strips, or by a pH meter. A pH meter is more expensive, and more difficult to maintain and use than strips are, but it is absolutely required for accuracy.

Always remember that the lower the pH, the higher the acidity. Thus, a wine with a pH of 3.2 has more natural stability against bacterial spoilage than a wine with a pH of 3.4 or 3.5, and much more than a wine with a pH of 3.7 or 3.8.

To test your juice or wine with a pH meter, first make sure you are working with a degassed sample. The presence of CO_2, as is also the case with testing TA, interferes with the test results. Prepare a sample by boiling it briefly and adding deionized water back to the original volume. Or alternatively, stir the wine or juice and let it stand for an hour, which will work if no active fermentation is taking place.

Next calibrate your meter by following the manufacturer's directions, or by making up a standard buffer preparation to pH4 and another to pH7. Make a fresh solution after several uses to avoid contaminating and shifting the pH of the standard. Let the electrode stand in the pH7 buffer for several minutes and then follow the meter instructions to calibrate that sample. Repeat for pH4 and then repeat with the juice or wine. Post your readings to a log. You may find that it will be useful later when doing SO_2 additions to preserve the wine. Note: if you leave your meter unused for several months, it may not be calibratable. You can avoid this, by routinely soaking the electrode in buffer pH4. Place a cotton ball soaked in buffer pH4 inside the cap for storage.

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

Yeast Recommendations

Locate your grape variety or style, read about the yeast characteristics for the recommended strain(s). Remember that the option is always to use what is freshest and available to you, if all of these strains are not in supply. We try to stock all of these during harvest. See page 17, for instructions on rehydrating dry yeast.

Choose a Yeast: To find fermentation specifics, read down	Assmanshausen	Beaujolais 71B	Brunello BM45	CSM	Epernay 2	French Red (BDX)	K-1	M-2	Montrachet	P. Champagne	Prise de Mousse	Rhone L2226	RC212	Steinberger	Simi White	Wadenswill 46
Varietal	Pinot Noir	Zin, Syrah	Sangiovese	Bordeaux	Zinfandel	Bordeaux	White, Red	Chardonnay Cabernet	Chardonnay Cabernet	Chardonnay Cabernet	White, Red	Rhone	Pinot Noir	German	Chardonnay	Whites
Fruit Wines	YES	YES			YES						YES	YES	YES	YES		
Enhances Fruit		YES			YES			YES							YES	
Enhances Mouthfeel	YES							YES							YES	
Sensory Effect *	EVC	Estery	EVC	EVC	EVC	EVC	Neutral	Estery	Complex	Neutral	Neutral	EVC	EVC	EVC	Estery	EVC
Reduces Vegetal Character	YES			YES	YES			YES							YES	
Stabilizes Color	YES			YES		YES						YES				
Cold tolerant					YES						YES					YES
Use to Restart							GOOD			GOOD	GOOD	GOOD				GOOD
Temperature Range F.	68-86	59-86	64-82	59-89	50-80	64-86	50-95	59-86	59-85	59-80	50-86	59-82	68-86	40-70	59-85	50-86
Vigor	Slow	Average	Average	Average	Average	Average	Fast	Fast	Average	Fast	Fast	Fast	Average	Slow	Slow	Fast
Alcohol Tolerance %	15	14	16	14	15	16	18	16	16	17	18	18	16	14	14	14
High Alcohol Tolerant			YES			YES		YES	YES	YES	YES	YES	YES			
Nutritional Need **	Medium	LOW	Very High	High	Medium	High	High	Medium	Very High	Medium	LOW	High	High	LOW	Medium	Medium
Reaction to Oxygen ***				LOW			LOW				High	Medium				
Comments	Enhances spiciness	Fruit wines	Extended Macerations	Alternate to BDX	Can be stopped	Ideal Fermentor	Vigorous	Complex	High H_2S Formation	Vigorous	Late Harvest	Late Harvest	Good Color	Easy to stop	Mouthfeel	Late Harvest

Notes to Text

* **Sensory Effect: EVC = Enhances Varietal Character, Estery = Enhances Fruitiness, Neutral does not enhance these characteristics.**

** **See page 7 for Nutrient recommendations, especially for Medium and High categories.**

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

For Great Oak Flavor, Try OakBoy™ or Chain of Oak™

OakBoy™, is a 15" long piece of pure toasted French or American Oak, planed on all four sides, and grooved longitudinally, for maximum surface exposure. The shape and size of this wooden stick allows for easy treatment of wine stored in glass carboys. It gives a gentle, slow extraction of oak flavor and does an especially good job of accenting oak aromas. This treatment very closely duplicates the activity of wine in a new barrel.

OakBoy flavor choices are: French Medium toast, French Dark toast, American Medium toast and American Dark toast. We are recommending the addition of 1 to 2 pieces of wood per carboy, with a 1 to 2 month contact period. The longer contact period will increase mouthfeel and heighten aromas. And best of all, you can remove the stave from the carboy or rack away from it. Manufactured by *Innerstave*, Oakboy is available in a 6 pack, and has a long shelf life. Need only a few staves this year? The rest will be usable next year. B80, **American Medium** is $21.95 and B82 **American Dark** is $22.95. B81, **French Medium** is $24.95 and B83 **French Dark** is $25.95.

For use with full size 60 gallon barrels, which have lost their oak-i-ness, we are also selling another *Innerstave* innovation, called **Chain of Oak** which as the name implies,are seperate oak staves that tie together with nylon ties, which then folds into a barrel. The bung opening must be at least 2". These chains are sold in packages of 17 staves, and can be used in smaller barrels if the bung opening is large enough by using less than all 17 staves. B78 **Chain of Oak, American Medium** is $45.00, B79 **Chain of Oak, American Dark** is $49.00. B74 **Chain of Oak French Medium** is $49.00 and B75 **Chain of Oak French Dark** is $54.00.

Homemade Oak Flavoring

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

You will need:

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

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

Trial additions: **measure 100 ml of wine into the graduated cylinder** and add .5 ml liquid oak extract. Pour 1 oz. of this flavored wine into a wine glass and mark .5 ml. Add 1 oz. of wine to the graduated cylinder. Add another .5 ml liquid oak extract. Pour 1 oz. of this second flavored wine into a second wine glass and mark .85 ml. Add 1 oz. of wine to the graduated cylinder and repeat this process 3 more times to give you five wine glasses marked .5, .85, 1.1, 1.28, and 1.41 ml. Now taste and smell these different wines until you decide which amount is the most desirable.

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

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

2003 Winemaking Supplies Catalog

Presses

Wooden cage with steel base on legs, lets you quickly and smoothly press fermented red 59grapes or crushed white grapes. *(Model shown to right is #30 ratchet head style.)*

Model	*Basket Number*	*Basket Diameter*	*Height*	*Capacity In Gal.*	*Retail Price*
WE02	#25	10"	14"	5	$295.00
WE03	#30	12"	17"	7	$375.00
WE04	#35	14"	19"	12	$450.00
WE05	#40	16"	21"	18	$500.00
WE06	#45	18"	24"	25	$600.00
WE07	#50	20"	26"	34	$750.00

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

WE50	Piston, manual Hydraulic Press on wheels #50	20" x 26"	$1600.00
WE51	Piston, manual Hydraulic Press on wheels #60	24" x 30"	$2095.00

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

WE55	#40	17"	23"	20	$1125.00
WE46	#54 with wheels	21"	28"	42	$1895.00
WE59	#99 with wheels			79	$3625.00

Crushers and Stemmer/Crushers

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

Dimensions of Bin: 21" x 25"

WE12	Paint finish	$275.00
WE13	With all stainless hopper *(Shown top right.)*	$325.00

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

Dimensions of Bin: 18" x 31"

WE14	Manual, paint grade stemmer/crusher	$500.00
WE15	Manual, stainless stemmer/crusher	$595.00
WE16	Electric 110V, paint grade stemmer/crusher *(Shown middle right.)*	$750.00
WE17	Electric 110V, stainless steel stemmer/crusher	$850.00
WE22	Electric 110V, paint grade stemmer/crusher with screw feed and extended hopper *(Dimensions of Bin: 18" x 35")*	$825.00
WE18	Electric 110V, stainless stemmer/crusher with screw feed and extended hopper	$995.00
WE25	Electric 110V, **ALL** stainless stemmer/crusher with screw feed and extended hopper *(Shown bottom right)*	$1195.00
WE20	Support stand for above stemmer/crushers	$275.00

Large Storage Tanks

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

WE43	100 Liter Stainless tank	$325.00
WE40	200 Liter Stainless tank	$450.00
WE42	300 Liter Stainless tank	$500.00
WE44	400 Liter Stainless tank	$700.00
WE45	500 Liter Stainless tank	$800.00
WE41	600 Liter Stainless tank	$875.00

Filter/Pumps

Large capacity filter with pump processes wine through 10 pads with 8" square surface. This is 3 times larger than the *Buon Vino Jet Filter* we sell and rent. (85 gal./hr.)

WE60 10 Plate Filter/Pump $1125.00

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

WE61 S/S Large pump $1225.00

Equipment is priced for pick up at the store. The basket presses sized #25 to #40 can be broken down for shipping via UPS. All other equipment should be picked up at the store. Palletizing and shipping other equipment, is subject to labor and shipping charges.

INGREDIENTS

Ingredient Kits for Winemaking

Two cans of concentrate of your choice are included with instructions for 5 gallons of wine. Choose from the list below, and we include the yeast, sugar, acid blend, and a pack of wine labels.
BDW02 ..... $34.95

Choose your flavor or use this list to order individual cans
(C002) **Chenin Blanc** or (C004) **Chablis**, ... $10.95
(C006) **Burgundy** or (C005) **Ruby Cabernet**. $12.95

Boxed Concentrated Wine Kits

Asceptically packaged, not as concentrated as the above cans, these kits are a complete package of ingredients, boxed for shipping. Excellent flavors and aromas , ready to drink in less than three months. Each15 liter kit makes 6 gallons of wine.

C011 **Barolo** (R) $69.95
C022 **Pinot Grigio** (W) $74.95
C014 **Johannisberg Riesling** (W) $69.95
C018 **Chilean Merlot** (R) $69.95
C019 **Sauvignon Blanc** (W) $64.95
C017 **Gewurztraminer** (W) $74.95
C021 **French Cabernet Sauvignon** (R) $79.95
C020 **Pinot Noir** (R) $74.95
C009 **Cabernet/Merlot** (R) $74.95
C012 **Chilean Chardonnay** (W) $64.95
C015 **Aussie Cabernet/Shiraz** (R) $84.95
C037 **Luna Rossa, *big RED*** (R) $84.95
Each 7.5 liter kit makes 11.5 liters of wine.
C013 **Port** (R) *or* C023 **Dry Sherry** (W) $45.00

Pure Italian Juice Wine Kits

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

C030 **Cabernet Sauvignon** (R) $84.95
C031 **Chardonnay** (W) $79.95
C032 **Sangiovese** (R) $84.95
C033 **Gewurztraminer** (W) $74.95
C034 **Shiraz** (R) $84.95
C035 **Zinfandel** (R) $84.95
C036 **Sauvignon Blanc** (W) $79.95

Seedless Fruit Puree

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

The classic wine recipe using four cans of puree, will yield 24 wine bottles of superb fruit wine. Finish it with the addition of a simple syrup just to smooth the flavor and intensify the berry taste. Reminds us of summer even in the dead of winter and tastes great for several years, if you can wait that long, but is ready to drink in three months. Ask for our wine recipe handout. FL44 **Raspberry Puree**, FL45 **Blackberry Puree**, FL46 **Apricot Puree** *or* FL48 **Dark Sweet Cherry**
49 oz. can ..... $12.95 each

Meadmaker's Ingredient Kit

9 lbs. of our honey with yeast, nutrients, acid blend, sulfite, priming sugar and instructions, makes 5 gallons of sparkling mead. BD50 ..... $39.95

EQUIPMENT KITS

Wine Equipment Kit

Complete with a ten gallon primary fermentor and lid, a six-gallon glass secondary, an air lock and stopper, 25 Campden tablets, a siphon assembly, a bottle filler, two lever hand corker and 25 corks, Acid Testing Kit, Hydrometer and Test jar, a bottle brush and the book *Winemaker's Recipe Handbook.* BDW01 ..... $119.95

Mead Equipment Kit

Includes a 7-gallon glass primary and 5-gallon glass secondary fermentor with stopper and airlock, a siphon assembly, bottle filler, an Acid Test kit, Hydrometer and Test jar, the "Emily" Capper, caps, a spoon, sanitizer, a bottle brush and the book *Making Mead* by Morse.
BD60 ..... $119.95

SUPPLIES

Acids

A17 **Ascorbic.** 1 oz. $1.85
A05 **Citric.** 2 oz. ..... $ .95
A14 **Malic.** 2 oz. ..... $ .95
A10 **Tartaric.** 2 oz. $1.95
A24 **Acid Blend.** Citric, Tartaric & Malic. 2 oz. $1.25

Fermenting & Preserving Aids

AD15 **Corn Sugar.** 5 lbs $5.95
QR04 **Pectic Enzyme.** 1 oz. $1.85
FN18 **Potassium Sorbate.** 1/2 oz. ..... $ .99
FN35 **Wine Conditioner/Stabilizer.** 500 ml. $3.95

Yeast Nutrients

See page 7 for recommendations for these additives.

QR11 **Yeast Nutrient (DAP).** 2 oz. $1.50
QR33 **Autolysed Yeast,** 2 oz. $1.50
QR16 **Yeast Hulls,** 2 oz. $2.95
QR06 **Yeast Food, Fermaid K™** 3 oz. $2.95
QR50 **Yeast Nutrient for Meads.** (Our special blend)
Use 2 oz. per 5 gallons. 2 oz. $1.75

Wine Yeast & Malolactic

YEAST

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

10 grams $1.00
WY27 ***Pasteur Champagne*** (all-purpose yeast)
WY23 ***Prise de Mousse*** (low foam,yeast for whites)

10 grams $1.50
WY38 ***Assmanshausen*** (Pinot Noir, Zinfandel)
WY25 ***Beaujolais 71B*** (fruity, aromatic reds)
WY45 ***Brunello BM45*** (Sangiovese, Macerations)
WY53 ***CSM*** (Cab Sauv., Merlot, Cab Franc)
WY22 ***Epernay 2*** (fruit wines and blanc de noirs)
WY30 ***French Red*** (Cabernet, Merlot, Zinfandel)
WY24 ***K-1*** (kills competing wild yeast)
WY50 ***M2*** (Premium Chardonnay and Cabernet)
WY26 ***Montrachet*** (all-purpose if no sulfur used)
WY29 ***Steinberger*** (Riesling and Gewurztraminer)
WY35 ***Rhone #L2226*** (Syrah, Rhone)
WY55 ***RC212*** (Pinot Noir, other blush wines)
WY31 ***Simi White*** (French White) (Chardonnay)
WY28 ***Wadenswil 46*** (Pinot, Riesling)

MALOLACTIC

WY32 ML Culture, ***MCW Strain.*** 2 gram pack inoculates 5 gallons directly. Can then build up to treat up to 500 gallons. Comes with instructions. $9.95

WY51 ML Culture, ***Enoferm Alpha Strain***, 2.6 gram pack inoculates 60 gallons directly. With instructions $19.95

Fining Agents

FN06 **Sparkolloid™** 1 oz. ..... $ 1.75
FN32 **Bentonite** 2 oz. ..... $ .69
FN07 **Isinglass** 1 oz.. ..... $ 3.95
FN03 **Fining Gelatin** (75 bloom, grade B) 1 oz. ..... $ .99
FN16 **Tannin.** 1/4 oz. ..... $ .95
TE24 **Copper Sulphate Solution.** 4 oz. ..... $ 4.00
FN22 **Polyclar VT (PVPP)** With Instructions.1 oz. $ 1.95

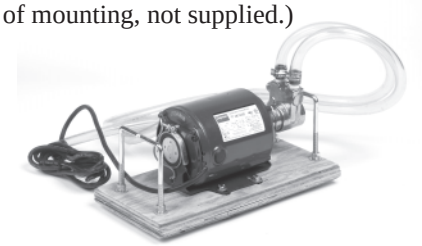
Cleaners & Sterilants

CS09 **Chlorinated TSP** 1 lb. $3.95
CS12 **Soda Ash** Barrel cleaner 1 lb. $1.50
CS24 **Sodium Bisulfite** 4 oz. $2.25
CS20 **Potassium Metabisulfite**1 lb. $4.95
CS17 **Campden Tablets** Pack of 25. ..... $.95
CS16 **Campden Tablets** Pack of 100. ..... $2.95
CS14 **Efferbaktol SO² Tablets** Pack of 3 ..... $2.95
B39 **Sulfur Strips** 2 strips ..... $ .59
B38 **Sulfur Strips** Bundle of 70 strips $15.95
CS06 **Sanibac™ Chlorine Sanitizer** 1/2 oz. ..... $ .69
CS03 **Iodine Sanitizer** 1 Liter $11.95
CS29 **Proxyclean®** Barrel Wash 1 lb. $4.95

EQUIPMENT

Transferring

QE11 **5/16" Racking Tube.** $3.95
FST02 **Hose Clamp for 5/16" hose.** ..... $.69
QE33 **1/2" Racking Tube.** $4.95
FST03 **Hose Clamp for 1/2" hose.** $1.25
QE17 **Bottle Filler for 5/16" hose.** $3.95
QE20 **Bottle Filler for 1/2" hose.** $5.95
PS26 **Transfer Pump**, phenolic head, electric ... $139.00
F01 **Filter/Strainer** for Pumps (use with 1/2" hose) $16.95
FX15 **Large Motorized Pump**, 4 GPM, 1/4 HP .. $285.00
(Shown with example of mounting, not supplied.)



Funnels:
QE24 **Carboy** $9.95
QE23 **9" Barrel** $9.95
QE22 **5" Bottle** $3.95
QE21 **3" Hose** $2.50

Strainers for Funnels:
QE26 **Coarse Mesh #14** $1.95
QE27 **Fine Mesh #100** $1.95

Mesh Pressing Bags:
PS32 **12" X 19"** $4.95
PS16 **18 3/4" X 19"** (may be slightly larger) $5.95

Miscellaneous

TE49 **Wine Thief.** Plastic. One piece. $4.95
TE48 **Wine Thief.** Plastic. Assembled of 3 pcs $6.95
TE59 **Wine Thief.** Angled 24" w/'D' Ring Handle and tough Borosilicate Glass. $42.95
KEG58 **Food Grade Lubricant.** 4 oz. $3.25
MS09 **Gondola Enamel.** Food grade paint. 16 oz.. $10.95
MS42 **Private Reserve™.** Nitrogen gas $9.95
MS32 **Grape Picking Shears.** $16.95
MS16 **Grape Picking Knife.** Plastic handle $8.95
QE36 **Grape Masher** (punch down tool) 25" long . $24.95

Filters

F05 **Buon Vino Super Jet Filter.** Plate & frame filter includes pump and will process 30 to 45 gallons per set of pads. Change pads and continue. Pump is also useful alone for racking wine. $355.00

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

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

F22 **0.8 m. Fine** $3.95

F21 **0.5 m. Sterile** $4.95

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

F01 **Flojet Filter Strainer.** 1/2" Barbed. Use in line to protect your pump. $16.95

F03 **10" Cartridge Filter Housing.** Best for early cleanup of wine and larger volumes than the Buon Vino. Choose a cartridge from list below. The smaller the micron rating, the more sediment is removed. Clear, poly housing $34.95

10" Filter Cartridges:

F10 **3 micron** Coarse $12.95

F11 **1 micron** Fine $12.95

F12 **.5 micron** Sterile $14.95

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

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

Containers

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

P17 **Poly Drum Liner** (4 mil, 60 gall.) $4.25

P04M **10 Gallon Heavy-Duty Plastic Bucket** with molded handles. $19.95

P05 **10 Gallon Lid** $5.95

20,32 AND 48 GALLON SIZES are available at the store, also with lids.

QE44 **Carboy Draining Stand.** $8.95

QE34 **Carboy Handle.** 2.8, 5 and 6 gallon size $6.95

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

GL02M **2.8 Gallon Glass Carboy.** (3 gallon substituted if stock of 2.8 is unavailable) $20.95

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

GL040M **6 Gallon Glass Carboy.** $27.95

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

In-store prices: 17.95, 19.95, 23.95 and 23.95 for the 3,5, 6 and 7 gallon carboys.

Oak

B46 **American Medium Toast.** $5.95, *or Specify:* B24 **French Medium Toast** or B25 **French Dark Toast**. $6.95

OakBoy™ Carboy Inserts, 6 grooved staves

B80 **American Medium.** $21.95, B82 **American Dark.** $22.95, B81 **French Medium** $24.95, or B83 **French Dark**. $25.95

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

B78 **American Medium.** $45.95, B79 **American Dark** $49.95, B74 **French Medium** $49.95 or B75 **French Dark**. $54.95

New Oak Barrels: (Kiln Dried)

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

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

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

(Air Dried)

B47 **American Oak, 26 gallon** - medium toast $269.00

Recoopered Oak Barrels: (Shaved and Rebuilt with new hoops)

Subtract $20.00, for American Oak. Barrels come with medium toast.

B55 **French Oak, 10 gallon** $200.00

B52 **French Oak, 15 gallon** $225.00

B43 **French Oak, 20 gallon** $240.00

B48 **French Oak, 30 gallon** $270.00

Small American Oak Barrels:

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

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

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

Vinegar Barrels are paraffin lined (P):

B09 **American Oak, 1 gallon** *(P)* $74.95

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

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

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

B64 **French Oak 6 liter,** *(P)* $129.95

Bungs & Barrel Supplies

FST44 **Silicon Bung "R"** (30 X 44 mm) (#7-#9 size). ... $5.95

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

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

B21 **Hardwood Bung** (specify diameter) $3.95

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

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

Spigots: B29 **4 3/4"** $7.25, B35 **9 1/2" (#2)** $15.95

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

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

B14 **Spiles for Barrels** Pack of 20 ..... $1.75

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

Fermentation Locks

FST04 **Three Piece Fermentation Lock** ..... $ 1.09
FST05 **Fermentation Lock Red Top** $1.09
Breather Bungs, Waterless Silicon Air Lock and Bung:
FST42 (fits all carboys) ..... $ 4.95
FST46 (fits recoopered barrels, #9) ..... $ 5.95
FST45 (fits 2", #11 size) $8.95

Drilled Rubber Stoppers

#	Code	Top	Bottom	Price
2*	FST09	13/16"	5/8"	$ .60
6*	FST12	1 1/16"	29/32"	$ .85
6.5*	FST13	1 11/32"	1 1/16"	$ .90
7*	FST14	1 7/16"	1 3/16"	$ .95
8	FST15	1 5/8"	1 5/16"	$1.00
9*	FST17	1 3/4"	1 15/32"	$1.10
10*	FST19	1 31/32"	1 5/8"	$1.50
10.5*	FST20	2 5/64"	1 3/4"	$1.75
11*	FST21	2 13/64"	1 7/8"	$1.90
11.5	FST22	2 15/32"	2"	$2.15
12*	FST23	2 1/2"	2 1/8"	$2.40
13*	FST24	2 11/16"	2 9/32"	$2.60

* sizes are available in solid, same price

SIPHON HOSE

Sold by the FOOT

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

Bottling Supplies

BE01 **Italian Lever Corker.** $28.95
BE19 **Mini-Floor Corker.** *Nylon Jaws* $59.95
BE03 **Heavy Duty Floor Corker.** *Brass Jaws* $105.00
QE09 **90 Bottle Draining Tree.** $26.95
WE19 **Plastic Model 3 Spout Bottle Filler.** $135.00
WE28 **Stainless Steel 3 Spout Bottle Filler.** $265.00
WC11 **1 1/2" Chamfered Corks**. 25 pack $6.95
WC12 **1 3/4" Chamfered Corks**. 25 pack $8.95
WC14 **1 3/4" Twin Disk Corks.** 100 pack $19.95
TC19 **All -Plastic Wine Bottle Stopper ea.** ..... $ .30
TC20 **Plastic Champagne Stoppers** ea ..... $ .10
TC21 **Champagne Wires** ea ..... $ .05
S01 **28 mm Metal Screw Caps.** ..... $ .12
S02 **38 mm Metal Screw Caps.** ..... $ .15

Stainless Bottle Filler
Three Spout

Heavy Duty
Floor-model Corker

Plastic model Bottle Filler with Stainless fillers.

S03 **28 mm. Plastic Polyseal Caps** ..... $ .25
S04 **38 mm. Plastic Polyseal Caps** ..... $ .50

Bottle Seal, Wax available in 6 colors $8.95
SO26 Black, SO27 Burgundy, SO28 Gold, or SO29 Silver, SO30 Red, SO32 Green. 1 lb., Melt to make decorative seal.

Push-On Plastic Bottle Sleeves. (for domestic wine bottles only). *Specify :* SO23 *Burgundy*, SO24 *Gold*, SO25 *Green*, SO21 *White* or SO22 *Black*. Dozen ..... $ 1.09
Heat Shrink Plastic Sleeves. *Specify*: SO18 *Silver*, SO45 *Green*, SO20 *Gold*, SO19 *Burgundy*, SO48 *Blue* Dozen ... $ 1.19
Decorative Wine Bottle Labels. Room to write.
25 per pack, Gum Back. $2.75
MS15 **Label Glue** 16 oz. $5.95
MS24 **Iceproof Label Glue** 16 oz. $9.95
BE07 **Super "M" Crown Capper** $37.95
BE10 **Plain Crown Caps** 1 gross (144 caps) $3.50

GL12M **Green Bordeaux Glass 750ml.** 12/cs. $14.95

Tapered Corks, Solid

Size	Code	Top	Bottom	Price
# 9	TC05	23.8mm	18.6mm	$ .16
#14	TC06	31.8mm	25.8mm	$ .50
#16	TC07	34.9mm	27.9mm	$ .65
#17	TC23	35.9mm	29.9mm	$ .75
#18	TC08	38.1mm	30.9mm	$ .85
#20	TC09	41.3mm	34.1mm	$ .95
#22	TC10	44.5mm	37.3mm	$ 1.05
#24	TC11	47.6mm	40.5mm	$1.20
#26	TC12	50.8mm	43.6mm	$1.35

Wine Laboratory

Sugar & Alcohol Testing

TE40 **9" Economy Hydrometer** has Brix, Specific Gravity, and Potential Alcohol scales. $7.95

TE41 **9" Wine (Brix) Hydometer** $9.95

TE42 **10 1/2" Hydrometer with Thermometer.** Needs the tall test jar. $16.95

Precision Hydrometers (Brix only).

Specify range: TE43 **-5° to +5°**,TE44 **0° to 8°**, TE45 **8° to 16°**, or TE46 **16° to 24°** $20.95

TE47 **20° to 50° Brix** $20.95

TE39 **9" Hydrometer Proof and Traille** $7.95

TE65 **"Santa Rosa" Residual Sugar Kit.** 36 Tests (with instructions). $19.95

TE15 **Replacement Reagent Tablets** for Residual Sugar Test Kit (36 pack). $16.95

TE07 **Replacement .5 ml. Pipet.** ..... $ .75

TE14 **Replacement Test Tube.** ..... $ .75

TE23 **Refractometer**, 0-32° Brix, ATC, comes with a carrying case $99.95

TE32 **20° Brix Solution.** Sugar solution used to standardize the refractometer. 2 oz. $2.50

TE13 **Vinometer.** Measures alcohol content in dry wine $7.95

Test Jars

Regular Test Jar for 9" Hydrometer.

TE55 **Plastic.** $4.95

TE53 **Glass.** $8.95

Tall Test Jar for 10 /12" Hydrometer.

TE56 **Plastic.** $5.95

TE54 **Glass.** $9.95

Glassware

TE07 **0.5 ml. Pipet.** Each. ..... $ .75

TE06 **10 ml. Pipet.** Pack of 10. ..... $8.95

TE62 **10 ml. Pipet.** Each. $1.25

TE08 **100 ml Graduated Cylinder.** $11.95

TE10 **500 ml. Pyrex Erlenmeyer Flask.** $6.95

TE09 **1000 ml. Pyrex Erlenmeyer Flask.** $12.95

TE52 **Wine Thief Glass** (3/4" by 15") $9.95

Sulfite and Acid Testing Kits

TE02 **Titrets® Free SO_2 Test Kit.** Pack of 10. ..... $16.95

TE26 **Country Wines Acid Test Kit** $8.95

TE29 **Sodium Hydroxide Refill** (Neutralizer) (for TE26) 4 oz., 0.1 normal $4.95

TE58 **Phenolphthalein Refill.** (Indicator) (3 dram) .. $1.95

TE61 **Accuvin Titratable Acid** (10 tests) $24.95

TE30 **Acidometer, Precision Acid Test Kit** $19.95

TE66 **Blue Hydroxide Refill** (for TE30) (100 ml.) $4.95

TE82 **Iodic Solution** Tests free SO_2 with the TE30 Acid Kit components. (100 ml.) $8.95

pH and ML Testing

TE60 **Accuvin pH** (10 tests) $22.95

TE33 **ColorpHast® pH Strips.** 2.8-4.5 range. (100 tests) ..... $21.95.

TE68 **Waterproof pH Tester2 Meter. ATC.** Digital, battery operated, accuracy to 0.1 pH.Auto temperature compensated, electrode can be replaced. $79.95

TE69 **Replacement Electrode for Waterproof pH Tester2** $38.95

TE72 **pH Buffer Capsules.** (pH 4.0. 7.0). To calibrate your meter $1.95

Kit for testing Malolactic Fermentation

TE20 **Malolactic Chromatography Kit.** With 7 papers and 4 oz Solvent $39.95

TE17 Replacement **Solvent.** 4 oz. $10.95

TE22 Replacement **Paper** 5 Sheets. $3.95

TE19 Replacement **Pipets** (100). $5.95

TE67 **Accuvin Malic Acid** (10 tests) $30.95

Thermometers

TE38 **Spot Check Probe Thermometer.** 0-220°F., Recalibratable, Type 304 Stainless, 1" Dial x 5" Stem $18.95

TE90 **Laboratory Thermometer.** 0-220°F., Recalibratable, Type 304 Stainless, 2" Dial x 12" Stem, comes with clip for side of kettles $32.95

TE91 **Floating Glass Thermometer. 12"** (0-220° F. and -15-100°C). $14.95

TE37 **Floating Glass Thermometer. 8"** (40-210° F. and 0-100°C). $8.95

TE81 **Fermometer.** Monitors temperature from 36 to 78°F., glue-backed to read the surface temperature of carboys. $2.95

MS33 **Wine Degasser/Blender.** Stainless top attaches to drill, spinning the nylon rod to stir or degass wine $16.95

WINEMAKING BOOKS AND VIDEO

BK56 **Making Table Wine at Home**
Cooke & Lapsley. ..... $ 10.95

BK140 **Home Winemaking Step by Step**
Iverson. $17.95

BK39 **Grapes Into Wine**
Wagner. $18.00

BK38 **The Art of Making Wine**
Anderson & Hull. ..... $ 11.00

BK142 **Winemaker's Recipe Handbook**
Massaccesi. ..... $ 4.95

BK40 **Modern Winemaking**
Jackisch. $36.95

BK44 **Knowing and Making Wine**
Peynaud. $89.95

BK61 **Complete Handbook of Winemaking**
American Wine Society. $14.95

BK54 **How and Why to Build a Wine Cellar**, Gold. $20.00

BK59 **A Handbook For Must and Wine Analysis** A cookbook approach to analysis, for home labs.
Barrus & Evans. $24.95

BK109 **Making Wine at Home, "The Video"**, 1 hour, 15 min., Cutler $29.95

GRAPE GROWING,CIDER AND MEADMAKING BOOKS

Grapes

BK80 **Great Grapes,** Proulx $3.95
MG11 **Practical Winery and Vineyard Magazine,** current issue. $3.95

Cider

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

Mead

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

Other Fermentations

BK84 **Making Vinegar at Home** $4.50
BK74 **Making Cheese, Butter, Yogurt** $3.95
BK75 **Cheesemaking Made Easy** $14.95
BK76 **Home Sausage Making** $14.95

ORDERING

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

We are also open on Mondays from August through December. We're always ready to answer questions for our customers, or to discuss any problems that come up.

Ordering Instructions:

For the fastest, most personal service, call our TOLL FREE ORDER LINE, (800) 544-1867, which may be used with your Visa, Mastercard, or American Express card. Have your catalog and credit card handy for reference. If this is your first order, please tell us, so that we may help you with any questions you have.

To place your order by mail, please note the following, if you live in California, add 7.50% sales tax on non-food items. **Food items are:** concentrates, sugars, purees, and flavorings. All items shipped to points outside California are not taxable.

Fastest Shipping in the Business:

We normally ship UPS Ground service the same day the order is received, if received by 2 pm. Ground service to Zones 2 and 3 receive one day service. Zones 4 and 5 receive 2 to 3 day service. Customers in Zones 6, 7 and 8 will normally receive their merchandise in 4 to 5 working days.

For faster service to Zones 5-8, and for perishables such as liquid yeast, we recommend UPS Standard overnight Air service, or UPS 2DAY Air service.

Rates are quoted at www.ups.com, or call our toll free 800 number.

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

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

These rates can be quoted by calling our toll free 800 number.

UPS Zone Chart

To determine time in transit for most shipping, use the first three digits of your zip code and refer to our shipping information at left.

Zip Code Prefixess	Zone
004-005	8
010-089	8
100-199	8
200-299	8
300-339	8
342-374	8
375	7
376-379	8
380-381	7
382-385	8
386-387	7
388-399	8
400-499	8

Zip Code Prefixess	Zone
500-528	7
530-534	8
535-540	7
541-543	8
544-567	7
570-577	6
580-582	7
583-588	6
590-591	5
592-593	6
594-599	5
600-609	8
610-617	7
618-619	8
620-623	7
624	8
625-628	7
629	8
630-668	7
669-672	6

Zip Code Prefixess	Zone
673	7
674-679	6
680-682	7
683-693	6
700-704	8
705-706	7
707-709	8
710-729	7
730-732	6
733-734	7
735-739	6
740-745	7
746	6
747-762	7
763	6
764-768	7
769	6
770-789	7
790-799	6

Zip Code Prefixess	Zone
800-806	5
807	6
808-832	5
833	4
834	5
835-837	4
838	5
840-841	4
842-845	5
846-847	4
850-853	5
854	4
855-863	5
864	4
865-880	5
881-882	6
883	5
884-885	6
889-893	4
894-897	3
898-899	4

Zip Code Prefixess	Zone
900-931	4
932-934	3
935	4
936-938	3
939-954	2
955	3
956-959	2
960-961	3
970-974	4
975-976	3
977-979	4
980-985	5
986	4
987	2
988	5
989	4
990-992	5
993-994	4

For items totaling less than $50.00, add $5.00 for shipping to California, Nevada, Oregon, Washington, all other states, add $6.00.

The Beverage People is a family owned and operated retail and mailorder supply firm with over 25 years experience teaching home wine and beer making to people like yourself. Our founders, Byron Burch and Nancy Vineyard broke ground for the good beer movement in the 1970's by searching out products for home use and teaching thousands of customers how to make great beer, mead and wine at home.

Our approach to business is reflected in the style of our newsletter and catalog. We bring you both products and information, at prices that compete with any nationwide mailorder firm. Our retail store is a mecca for enthusiasts like yourself, stocked with all the great products you need for your next fermentation.

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

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

The Beverage People News is a publication of The Beverage People, America's most respected homebrewing and winemaking supply company.

The Beverage People
840 Piner Rd. #14
Santa Rosa, CA 95403

ORDER FORM

Fastest shipping guaranteed!
Phone Orders 800-544-1867
Advice 707-544-2520
Fax Orders 707- 544-5729

NAME:

____

____
ADDRESS

____
CITY STATE ZIP

____
TELEPHONE

SHIP TO (if different):

____

____
ADDRESS

____
CITY STATE ZIP

____
TELEPHONE

We accept checks, money orders and credit cards:

- ☐ **Visa**
- ☐ **MasterCard**
- ☐ **AmericanExpress**

CREDIT CARD NUMBER ________ ***EXP. DATE*** ________ ***NAME AS IT APPEARS ON CARD*** ________

NON-FOOD ITEMS

CODE	QUANTITY	DESCRIPTION OF ITEMS		PRICE	TOTAL
				Taxable sub-total:	
				California residents add 7 1/2 % sales tax:	

FOOD ITEMS (Malt, Sugar, Beer Yeast, Vinegar, Soda and Concentrates)

CODE	QUANTITY	DESCRIPTION OF ITEMS		PRICE	TOTAL

Non-taxable sub-total	
Complete sub-total	
Shipping and handling	
Total enclosed	

Our Guarantee:

All our supplies are guaranteed for one year, except yeast which is perishable and should be refrigerated upon arrival. Best used in 60 to 90 days.

Order Form:

1. Organize the items by non-food/taxable and food/non-taxable to properly apply sales tax. If unsure of tax status, a list is located on page 22. (California orders only. Out of state are all non-taxable.)
2. Print legibly if sending it by fax or mail.
3. Add no money for shipping if items total over $50.00. For items totaling less than $50.00, add $5.00 for shipping to California, Nevada, Oregon, Washington, and all other states, add $6.00.
4. Orders with *50 lb. sacks of grain malts, Selection or Mosto Italiano Wine Kits, wine barrels larger than 5 gallons*, or *Beer Keg Systems* add $10.00 for shipping for each of these items.
5. Two cases of beer or wine bottles or two carboys per order, do not incur additional shipping charges, every additional case or carboy add $4.00 .
6. Bulk items not listed in catalog are subject to actual shipping costs.
7. Wine equipment such as grape presses and stemmer/crushers are shipped via truck, freight collect. We cannot ship tanks without charging for crating.

Fastest Shipping.
Fax order to
(707) 544-5729

Feel free to make copies of this form.

The Beverage People
Byron Burch, Proprietor
840 Piner Rd. #14
Santa Rosa, CA 95403

Change Service Requested
Summer 2003

PRSRT STD
U.S. Postage
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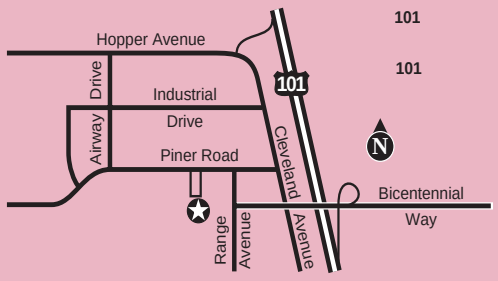

Visit us at the retail store: Hours:
August thru December: Mon. - Fri.10:00 to 5:30, Sat. 10:00 to 5:00.
January thru July:, regular hours, except, closed on Monday.

Wine Equipment Rentals

CRUSHERS

Apple Mill, Grinder and Press, motorized	$45.00
Grape Crusher, manual	$20.00
Grape Stemmer/Crusher, manual	$45.00

PRESSES

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

FILTERS/PUMPS

Transfer Pump	$10.00
Buon Vino Plate Filter	$30.00

BOTTLING

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

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

Fall Winemaking Class

Phone *The Beverage People* at 707 544-2520 to reserve a place in our winemaking classes. There is a $10.00 fee. You will get your questions answered, go over equipment and processes. Space is limited, so call today. Class will meet Saturday, August 23 at 3 pm. Bring a bottle of your wine to critique, class is held outdoors at the retail store.

Grape Growers Wanted

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

If you would like to place a listing, please send us a list of grapes available, with your name, address and phone number. Please also indicate:
The estimated Picking Date
Varietals available
Minimum/Max avail
Price with/or without picking
Age of vines, location of vineyard.

Competitions for Winemakers

Marin County Fair, Entries due last week of May or so. Contact Marin County Fairgrounds or call Jay Conner 510 232 5456. We normally deliver the entries for you, if you have sent in forms and money in advance.

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

HomeWinemakers Classic, Napa County, contact via the web at www.homewine.com. This is a limited competition and fills up. So contact them in April to be included. Event tickets are on sale at the store, Mark your calendar now for the Classic 2003: Saturday, July 19 2003, 4:30 -7:00, St. Supéry Winery.

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

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