I started making vinegar because I can’t stand to throw anything away. Like most people who regularly drink wine, I often have an unfinished bottle. Rather than pour the wine down the drain, I decided to put it to use. I was thrilled to find a use for my leftover wine, but I was even happier to discover that the vinegar I made was better than the vinegar I could buy. The woody aroma of vinegar drawn fresh from the barrel has an unmistakable home-made quality that can’t be matched by commercially made vinegar.

Making vinegar at home is simple. While it does take time to produce good vinegar, there isn’t much actual labor. The process consists of four basic steps:

♦ preparing the starter,
♦ acidulating and diluting the basic vinegar stock,
♦ fermenting, and
♦ bottling and aging.

As you accumulate unfinished bottles of wine, transfer the wine to smaller bottles, fill them to the top, and keep them tightly corked until ready to use. If you’re in a hurry to start making vinegar, simply buy the wine you need rather than saving up old bottles, but remember, wine that’s not suitable for drinking won’t make a fine vinegar. Dry, full-bodied, fruity red wines such as Cabernet Sauvignon, Zinfandel, Syrah, or Merlot are particularly good choices for red-wine vinegar. White- and rosé-wine vinegar may be made from any varietal.

Keeping records of your vinegar-making is a good idea. I maintain a log that contains the types of wine I used, basic measurements, the temperature at which my barrel was stored, the time it took to complete the process, and any other observations. The log has served me well as a reference for subsequent batches.

AN OAK BARREL FOR BETTER FLAVOR
You can make vinegar in many types of containers, including a large glass bottle, a five-gallon carboy, or an unleaded ceramic crock, but if you want to produce...
vinegar with the round flavor that wood imparts, an oak barrel is your first choice.

A brand-new oak barrel should be treated with soda ash and washed with citric acid before use. The merchant who sells you the barrel can recommend chemicals and proper treatment. If you use a barrel that previously held wine, make sure the barrel is clean and free of molds or other contaminants before you fill it with your vinegar stock. Steam-clean a small barrel by filling it with several changes of boiling water and letting it stand for ten minutes between changes.

In order for the wine to become vinegar, air must be able to pass freely through the barrel. Some shops sell barrels already prepared for vinegar-making. Otherwise, you’ll need to drill a few holes in your barrel before filling it (see diagram on p. 68). Tack some screening over the holes to keep insects out.

VINEGAR NEEDS A MOTHER
Vinegar is made by exposing wine to bacteria that convert the alcohol to acetic acid. The best way to get the right bacteria into your wine is with a starter culture, known as a “mother.” You can buy a vinegar mother from shops that sell winemaking supplies (see sources, p. 68). It’s possible to make your own from a mix of wine, vinegar, and water, but it’s a slightly tricky proposition. The right bacteria must be present in your vinegar or the environment in order to get the mother started; the mixture is also at risk from mold. If you want to try your own, mix equal parts of wine, vinegar, and spring or purified water (the chlorine or fluoride in tap water will curb fermentation) in a large bottle or crock. Cover with cheesecloth, store at 68° to 86°F until a pale white or translucent layer forms on the surface (three to four weeks). The amount of starter you make and use is not that important—a cup should be adequate to inoculate two gallons of vinegar stock.

When you’re ready to fill the barrel, you’ll need to make a vinegar stock—a combination of diluted wine and vinegar. Most wines have an alcohol level

Mixing up a batch of vinegar stock

You’ll need to fill your barrel two-thirds full of vinegar stock, and add the mother to that. Vinegar stock is a combination of seven parts wine (diluted with water to 10% alcohol) plus one part vinegar.

To find out what one “part” is for your barrel, divide its total volume by 12.

The chart at right gives amounts (in parts) of wine, water, and vinegar needed for the most common alcohol levels of wine.

AN EASY EXAMPLE:
A three-gallon barrel (12 quarts) divided by twelve equals one quart, so one part equals one quart. If your wine has a 14% alcohol level, the chart indicates that you need five parts wine. Since one part in this example is one quart, you would need five quarts of wine, two parts (two quarts) water, and one part (one quart) vinegar.

<table>
<thead>
<tr>
<th>Alcohol level of wine</th>
<th>Wine</th>
<th>Water</th>
<th>Vinegar</th>
</tr>
</thead>
<tbody>
<tr>
<td>11%</td>
<td>6½</td>
<td>⅔</td>
<td>1</td>
</tr>
<tr>
<td>12%</td>
<td>5¾</td>
<td>1¼</td>
<td>1</td>
</tr>
<tr>
<td>13%</td>
<td>5⅓</td>
<td>1⅓</td>
<td>1</td>
</tr>
<tr>
<td>14%</td>
<td>5</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

Note: We’ve rounded off our chart to the nearest ½ part. If you’re making very large quantities of vinegar, you may want to be more accurate. To figure out how much wine to use, multiply the amount of diluted wine you need by the desired alcohol concentration (10%), and then divide by the alcohol concentration of the wine. You can then subtract the wine amount from the total amount needed to find out how much water to use.
of about 12%, but acetobacters (the organisms that convert alcohol to acetic acid) work best in an alcohol concentration of 10%. To create an ideal environment for your vinegar, you need to dilute the wine before adding it to the barrel (for proportions, see the sidebar on p. 67). Alcohol concentrations higher than 15% will inhibit the growth of acetobacters and may even kill them. Check the wine label to find the alcohol level. If your wine is saved from many bottles, you can safely assume an average alcohol level of 12%. Use only spring water or purified water to dilute your wine.

Plan not to move or otherwise disturb the barrel. Movement tends to retard fermentation and may stir up the mother or the sediments from the wine. It may also cause the mother to sink. If the mother falls to the bottom of the barrel, the bacteria will continue using up nourishment and the vinegar process will be slowed because the bacteria can't oxidize alcohol in the absence of air.

It takes anywhere from three to six months for wine to turn to vinegar. You can detect how far along the vinegar is in its transformation by smelling it. Immature vinegar can be quite a shock to your nose, so don't just take a big sniff. Instead, pour the vinegar into a wineglass and swirl it gently. Hold the glass a few inches away from your nose and smell it. Uncompleted vinegar has predominant winy overtones. A gentle burn and round, woody aromas indicate that your vinegar is ready to use. When the vinegar suits your taste, draw off a portion and replace it with an equal amount of diluted wine. Draw the vinegar slowly from the spigot; likewise, when you replace the amount drawn, do so by gently and gradually pouring it through the funnel at the top of the barrel, taking care not to disturb the mother floating on top.

You can use the vinegar straight away or bottle it for further aging. Aging vinegar, like wine, will expand its aromas and temper its harshness. Fill and cork your bottles so that no air can further affect the fermentation. You will find a marked difference between a batch of freshly drawn vinegar and one that has been allowed to lie in the dark for several years to develop its complexity.

**Sources for Vinegar-Making Equipment**

- **Oak Barrel Winecraft**, 1443 San Pablo Ave., Berkeley, CA 94702; 510/849-0400.
- **Milan Home Brew Shop**, 57 Spring St., New York, NY 10012; 800/233-7534.
- **Wine Art**, 5890 North Keystone Ave., Indianapolis, IN 46220; 317/546-9940.
- **E.C. Kraus**, 9001 East 24 Highway, PO Box 7850, Independence, MO 64054; 816/254-7448.

*Paul Bertolli, a contributing editor to Fine Cooking, stores his vinegar barrels in California’s Napa Valley.*

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**Tips for Successful Vinegar**

**Follow the simple directions in this article and you’re not likely to encounter any difficulties. Still, there are a number of precautions to take and possibilities to look out for.**

- **No metals.** Don’t let your vinegar come into contact with any metals, with the exception of high-grade stainless steel. This applies to any equipment, tools, or utensils. The acid in vinegar reacts with metals such as aluminum, copper, lead, zinc, and iron in a way that can discolor your vinegar and affect its taste.

- **The right temperature.** Adjust and record temperatures as often as you can to maintain the optimal range (68° to 86°F). Temperatures that are either too high or too low can cause the fermentation cycle to slow down or cease altogether.

- **Keep the area around the barrel clean.** A dirty space may attract vinegar mites, which can spoil your vinegar.

- **Screen it.** Be sure the screening on the outside of the barrel is doing its job of keeping flies from entering. Fruit flies can be a nuisance, particularly if their larvae find their way into your vinegar.

- **Watch the mother.** Over time, the mother may accumulate to the point that there’s more of it than vinegar. If it does, empty the barrel, wash it well with boiling water, and begin again with a new starter and fresh vinegar stock.

- **Bottle it.** Bottling your vinegar cuts off the air supply, preventing the vinegar from overoxidizing and becoming too harsh.