

Gathering Summary: Winemaking at Home, by Don Beans & Leslie Budewitz, June 20, 2012



Summary by Catherine Haug; *photo, right, from [Wikipedia](#)*

Introduction

Why make wine?

According to Don, wine was originally used as a way to store fruits during the off season.

But according to *Wild Fermentation*, by Sandor Katz, wine actually predates the beginning of agriculture. Honeybees nested in the crook of tree branches, and honey gathered in the bowl created by the crook. Then rainfall and/or dew diluted the honey, which was then fermented by natural yeasts in the tree's bark and in the air. A hunter-gatherer climbed the tree for food and/or safety; always curious, he dipped his finger in the pool of liquid to taste it, and discovered the natural effects of mead wine.

Making wine is also a great way to recycle used glass bottles.

The chemistry

The chemistry is very simple: natural yeasts eat the sugar ($C_6H_{12}O_6$) to make carbon dioxide (CO_2) and alcohol (C_2H_6O). The CO_2 bubbles off and you are left with wine.

You can make wine from just about any sweet or starchy food, but you are limited by the yeast's ability to live in the mix, before the high alcohol content (12 - 17%) kills the yeast.

For example, potato wine is about 15% alcohol. Then you can distill it to make vodka and other hard liquors. Distillation separates the alcohol from the watery solution by boiling it off - alcohol will boil off at a lower temperature than the water in which it is dissolved - and then condense it back to a liquid in a new container.

Wine kits and equipment needed

A good way to start is with a wine kit. They provide everything you need for a particular type of wine (except the equipment), including detailed instructions. Once you become familiar with the process, you can experiment with recipes of your own or from friends.

Kits

Don provided a few catalogues of wine kits from Witheys. The average price of a kit is \$100 (works out to about \$3/bottle of wine). Each kit contains:

- some variety of grape juice
- yeast
- clarifying agents
- instructions
- labels



*glass carboy, from
NorthernBrewer.com*

Equipment

You will need the following whether you use a wine kit or not:

- ✓ fermenting bucket with lid (primary fermentation chamber)
- ✓ glass carboy (secondary chamber, pictured left)
- ✓ long-handled stir stick or spoon (for fermenting bucket)
- ✓ airlock
- ✓ hydrometer (to measure specific gravity)
- ✓ siphon tube
- ✓ plastic stick-on thermometer
- ✓ flow regulator
- ✓ corks that fit hole in fermentation bucket and carboy
- ✓ bottles to store the wine

The process

Cleanliness is probably the most important factor in the success of your project. Clean all equipment, bottles, corks, and also your hands whenever working with the equipment/wine. Don recommends 'One-Step' from Brewcraft USA for sterilization; you don't need to wipe it off, but Don rinses it off. This product claims to be "environmentally sound."

Keep a log

Don recommends keeping a log of each batch. Include:

- which kit or recipe used
- temperature
- dates for each step
- tasting notes

Primary fermentation

For this step you need the fermenting bucket (*photo, right*), stir stick, hydrometer and airlock. For the wine you need the fruit or juice, water and yeast.

1. Put juice (or crushed fruit) into bucket.



*Airlock, from
TeachersBrewingCoop*

2. Add water and yeast per recipe. Also add other flavorings per the recipe; for example, chardonnay requires wood chips.

3. Place lid on bucket; this has a hole in the center so you can stir the contents. Give it a good stir, then plug the hole with your airlock (photo, left).

The airlock allows CO₂ to leave the bucket without letting oxygen in. This is important because the oxygen would oxidize the alcohol to vinegar.



*Fermentation bucket, from
NorthernBrewer.com*

4. Measure [specific gravity](#) (see below for explanation) of the brew using a hydrometer (see image, below). This is inserted through the hole in the lid. It's a good idea to use a rubber band to make a handle, so you can readily remove the hydrometer from the bucket.

What is specific gravity? It compares the weight of the liquid medium (your brew) to water. Water has a value of 1; anything different from 1 has something in it. For example, the specific gravity at the start might be 1.068, which includes the effect of sugar from the juice. As the yeast eats the sugar, it turns it into alcohol. Because alcohol weighs less than water, the specific gravity goes down, for example, to 1.001. When all the yeast is dead, the specific gravity will be 0.996, which is less than 1. It takes 6 - 8 weeks for all the yeast to die.



Hydrometer, from [Wikipedia](#)

Note that each variety of wine has a different specific gravity.

5. Continue to stir through the process, as often as the recipe indicates: remove airlock, insert stir stick and stir well. Remove stir stick and replace airlock
The airlock allows CO₂ to leave the bucket without letting oxygen in. This is important because the oxygen would oxidize the alcohol to aldehydes and ethers.
6. Also continue to check the specific gravity through the process. When it is at the correct value for the type of wine you are making (each variety has a different specific gravity), it's time to transfer your wine to the secondary fermenter: your carboy.
At this point, the alcohol level is high enough that oxidation won't turn it to vinegar.



glass carboy, from [NorthernBrewer.com](#)

7. Siphon into your carboy. Ensure that your fermentation bucket is at a higher level than the carboy. Don also advises placing the carboy in a milk crate, which makes it easier to move it when it is full (and heavy).

Transferring 'stirs things up' which allows more sugar to be converted.

Secondary Fermentation

8. Once all the brew is siphoned, top up with water (to reduce oxygen exposure). Then attach the airlock to the carboy. Also attach a plastic stick-on thermometer to the outside of the carboy, for monitoring temperature of the brew.
9. If the kit or recipe calls for other additions, such as clarifiers, add them now.
Your brew starts out cloudy but turns clear from the action of the clarifier. Don brought a sample to show the difference.

Bottling your wine

10. When the wine stops bubbling, it is ready, but you should still check specific gravity.
11. Attach a “button gizmo” (flow regulator) on end of the siphon tube, to start/stop the flow into the bottles. You may want to fill a few bottles at a time, then take a break to cork each bottle, to seal. Then repeat until all bottles are filled.
12. Attach label to each bottle (kits come with labels). You can also buy labels for other fruits, or you can make your own by hand or using label templates for your computer. Each label should include the fruit, the variety, and the date bottled.

Q: If homemade wines don’t keep very long, what do commercial wineries do differently so their wine lasts for years?

A: Preserve wine (commercial) are re-corked in a way that draws oxygen out to prevent oxidation.

Using other fruits

This is nearly as easy as using kits. You can find recipes on the web or in books, and Don & Leslie promise to share some of their recipes in pdf files linked to this summary.

You use the same steps, and similar ingredients. You do not need to pit or seed the fruit, although you may want to pit apricots.

Dandelion wine is lots of work. You use the petals only - no stamens or pistils and no green parts.

Sake (rice wine) uses a “whole different process” that was not discussed at this event.

Limoncello: Wash and peel the zest from the lemons (peeling is easier than grating the zest), and put into a jar. Pour everclear over, let it sit for awhile and strain.

Mead: made from honey.

Sources & References

Presentation handouts

1. e

Instructional info

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3. [How to use a hydrometer](http://winemaking.jackkeller.net/hydrom.asp) (to measure specific gravity; includes charts)
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4. eHow video: [Introduction to Winemaking; Learn how wine is made](http://www.ehow.com/video_2290416_introduction-winemaking_learn-wine-made.html)
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Equipment, supplies and kits

5. Witheys, 1231 S Main St, Kalispell, MT 59901, 755-5260
6. [NorthernBrewer.com](http://www.northernbrewer.com) (www.northernbrewer.com)
7. Homebrewers.com: [winemaking starter kits \(include equipment\)](http://www.homebrewers.com/category/aasdvarks/)
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