

Home Brewing

guide

By D Norris



Warning!!!

Please note: For safety reasons, make ensure no bark or leaves are present - They can be poisonous if consumed!!!

Also, never under any circumstances must sealed containers be used for fermentation!!! This is because the carbon dioxide gas produced as a bi-product must be allowed to escape. Sealed containers may explode, causing damage and personal injury. In order to avoid oxygen contamination (which will cause vinegar to be produced in lieu of ethanol), a fermentation lock must be used. I strongly recommend that you use plastic rather than glass containers for fermentation.

Also, do not try to distil your wines to higher alcohol percentages – this is because it can be dangerous if not done correctly. Firstly, distilled alcohol is about as flammable and volatile as petrol; secondly, you may also concentrate the concentration of methanol

present, which is highly poisonous. That said, and if procedures are followed with care, home brewing is perfectly safe. It is also quite legal to produce alcohol for personal use in the UK. If you are outside the UK, please seek further guidance.

Home wine making is a real skill. Making wine from grapes is quite easy because grapes already have the ideal sugar concentration for wine making, and in addition, the ideal concentration of acidity, sugars, and flavour, so to make wine from them all you need to do is add yeast to the juice. Home wine making using other fruits is invariably more challenging, as the acid, sugar, flavour and body have to be calculated for optimal results. The rewards can, however, be tremendous because the diversity of flavours is immense. Additionally, the cost is negligible as the fruit is free (it grows wild in the UK, or maybe are already available in your own garden!), and the other ingredients such as standard fruit sugar, are cheap. Home brewing kits are also available from online order sites such as <http://www.art-of-brewing.co.uk/acatalog/intro.html>. Either way, as no alcohol is purchased, this is a sure way to beat the taxman!

These wines range from the delicate flower wines such as dandelion, elderflower through to wines such as rose hip, parsnip and then to the full-bodied wines such as blackberry & elderberry.

Equipment needed for Home Brewing:

- * 1 x 4.5 litre fermentation vessel** (glass demijohn), or plastic containers (adjust quantities in recipes in proportion to capacity)
- * Demijohn cork & fermentation lock** (vital)
- * 6 empty wine bottles per 5 litres of wine** (Free!)
- * Plastic wine stoppers**

- * **Thermometer (non mercury)** (this is optional but useful)
- * **Hydrometer** (this is also optional but useful)
- * **Sodium metabisulphate** (this is recommended but optional, see suggestions for sterilisation without chemicals)

Sterilizing a Glass demijohn with no chemicals (unsuitable for plastic vessels).

Wash out with plenty of warm (not hot) water. Note these jars are not designed for heat and will break if subjected to a sudden rise in heat. Change temperature very gradually. My method is to dry & drain the demijohn then put the jar in the oven set at 50C for 10 minutes and then raise it to 70-80C for a few minutes. Because I raise the temperature slowly and keep it low (below boiling point) my jars have not shattered yet. I guess there is some risk here and no manufacturer would recommend this approach. I turn the oven off, open the door and leave the jar in the oven to cool down to room temperature. Bacteria do not like dry heat so this method is especially effective.

General method (some variations according to type of wine):

Now you have a sterile fermenting vessel and water (tap water or water from a water filter, it's debatable whether hard or soft water produces better wine!)

- 1) Add yeast to a cup of water at 40C-50C (oops no thermometer) well this is easy. Add boiling water to just under the half full mark then top up with cold. Add yeast pack wait 5 minutes and stir .
- 2) Add the grape juice from the kit to the demijohn.
- 3 Add the cold water. The temperature of the final quantity should be 25C, however this is tricky without a thermometer. It is just below the temperature of an indoor heated swimming pool at 28C (bathwater is typically at about 33-35C). I added a cup full of boiling water carefully to the existing cold water. This all depends on the temperature of your cold water. If you not sure just add cold water. Fermentation will take slightly longer to start.
- 4) Insert cork with attached fermentation lock.
- 5) Set heater temperature control to 23-27 degrees C (Not usually needed in

summer). So just wrap the jar in bubble wrap and stand on polystyrene foam to reduce heat loss (it saves a little power).

If you are doing this in mid summer, temperature control is not an issue. Yeast produces some heat during fermentation. Wrap the jar in a couple of tea towels. This should help keep in the heat the yeast produces and they will regulate the temperature themselves.

The room temperature should not exceed 27C (for best results) and should not be less than 16C as fermentation stops in cooler conditions.

If you are using kits, they will come with instructions which are usually easy to follow. Here are some recipes for wild/home grown fruit:

Elderberry wine:

The elder Tree flowers June in large, flat plates of flower heads (called umbrellas) made up of many tiny cream-white flowers. If you make sure they are clear of bugs, they can also be eaten straight off the branches.



An elder sprig in flower, approx mid June



Ripe elderberries, approx mid – late August

The berries can be considered ripe when the clusters begin to turn upside down, as shown above. This occurs any time from Early to mid August; note that this may vary somewhat with location and weather conditions throughout the summer. Avoid picking berries that have become over-ripe; these will not make good wine! Wash well.

The berries can also be added to apple pie (40 elderberries: 60 apple) or blackberry jam (50:50). The elderberry is often known as the Englishman's grape, and it's nutritional values show that it is very similar to the grape in many respects.

GRAPE	ELDERBERRY
Nutritional values:	Nutritional values:
Vitamin A: 80 I.U. per 100mg	Vitamin A: 600 I.U. per 100mg
Vitamin B: Thiamine 0.06mg ;	Vitamin B: Thiamine 0.07mg
Riboflavin 0.04mg ;	Riboflavin 0.06mg ;
Niacin 0.2mg	Niacin 0.5mg
Vitamin C: 4mg	Vitamin C: 36mg
Protein: 1.4mg	Protein: 2.6mg
Calories: 70	Calories: 72

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A clear or white glass or plastic container is recommended for primary fermentation for hygiene reasons (you can easily tell whether the container is clean). These should be sterilised with sodium metabisulphate. This can be purchased from chemist shops.

Personally I use 5 litre containers (for small approx. 5 bottle batches) and a 25-litre fermentation vat.

Elderberry Wine Recipes:

Basic Elderberry wine recipe

4lb Elderberries
5 litres (1 gallons) of boiling water
3 lb of granulated sugar
a 'claret' yeast sachet
8 oz chopped raisins
Juice of 1 lemon
Juice of 1 orange
1 vitamin B tablet
1 teaspoon of yeast nutrient

Procedure:

Strip the berries from the umbrellas into a suitably large fermentation vessel with a fork.

Add 8 oz chopped raisins, juice of the lemon, juice of the orange, a vitamin B tablet and a teaspoon of yeast nutrient.

Add the boiling water and stir well.

When cool enough to handle, squeeze fruit with hands to extract juice.

Leave for one day to infuse.

Add 2 1/2 lb sugar and activated yeast and leave covered for three days.

Strain off liquid into demijohns, top up with another 1/4 lb of sugar in each and, if necessary, with cooled boiled water.

Leave to ferment in a warm (65-75 degrees), dark place.

Rack off the lees into a clean demijohn when bubbling has subsided.

Rack again 6 weeks later.

Bottle in dark green bottles when wine is clear (I use a desk lamp to shine through from the other side) and there has been no activity for some time.

Mature for at least 6 months before drinking.

Elderberry Mead Port (3 gal)

10 lb. light clover honey

1 oz. tartaric acid

8 oz. dried Elderberries

1 yeast (EC 1118)

Procedure:

Bring 2 gallons of water to a boil in a stainless or ceramic pan and remove heat source.

Add tartaric acid and honey, stir gently to dissolve.

Depending on how the honey was processed, there may be wax and protein substance that will collect at the surface. Gently skim anything that appears, using a screen spoon.

Cover and allow to cool to 85f. Pour this into a 3 gallon carboy, add yeast and attach air lock.

Allow to fermentation to proceed for two days before adding elderberries.

Do a quick cold-water wash on the dried elderberries using a large fine screen strainer.

A lot of liquid that appears brown will pass through. Put the rinsed elderberries in the carboy using a funnel.

Rack once about 4 weeks into the fermentation discarding the elderberries.

Elderflower Champagne

6 Elderflower heads
2 Lemons (sliced)
8 pints of water
1.5 lb sugar
2 tbsp white wine vinegar

Procedure:

Put elderflower heads and lemons in a [primary fermentation](#) vessel and pour on the water. Leave to soak for 24 - 36 hours. Strain through a sterile cloth (or muslin) and add sugar and vinegar. Stir until sugar is completely dissolved and pour into screw-top bottles. Leave tops slightly loose for 10 to 14 days to allow any residual gas to escape. Keep for 2 to 3 months before drinking. Best served cool on a hot, balmy evening.

A wine recipe that can be used for any fruit:

2-3 lb. fruit
2-3 lb. sugar
3 gallons water
1 yeast cake or sachet
Yeast energizer, captian and yeast nutrient.
I put them in a vat (5 gallon pail) until the fermentation stops (about 7 to 10 days).
Rack it off into once used wine bottles (gallons).
Let it sit for three weeks.
Rack it off again and let it sit for 3 months.

Then rack it off again and let it age for as long as you can wait.

Watermelon and Elderberry wine:

6-1/2 lb watermelon
1/4 lb dried elderberries
water to 1 gallon
juice and zest of 2 lemons
5-2/3 cups granulated sugar
1 tsp pectic enzyme
1 crushed Campden tablet
1 tsp yeast nutrient
wine yeast

Cut the rind off of melon, cut melon into one-inch cubes, remove loose seeds, and put melon and any free juice in primary (crock, plastic pail, etc.). Grate the yellow thinly off two lemons, then juice the lemons and add the juice and zest (gratings) to primary.

Add dried elderberries, pectic enzyme and yeast nutrient.

Add water to make up 1 gallon. Stir in sugar and stir well to dissolve.

Cover primary with cloth, wait 12 hours and add wine yeast.

Cover and ferment 3 days, stirring daily.

Strain juice into secondary (demijohn) and fit airlock.

Ferment 30 days and rack, topping up with water into which 1/3 cup sugar has been dissolved.

Add one crushed Campden tablet, refit airlock, and rack every 30 days for 6 months.

Stabilize (1/4 tsp potassium sorbate and another crushed Campden tablet) about a week before bottling.

Allow to age at least 6 months in bottles, but improves with additional age. .

Elderflower Wine:

3 pints elder flowers (stems removed)
3 gallons water
10 pounds sugar
2 pounds raisins
Juice of 3 oranges
Juice of 1 lemon
1 sachet wine yeast

Wash and drain elder flowers and put in primary fermenter.

Make a syrup of water and sugar, pour it hot over elderflowers, cover and allow cooling.

Mix orange and lemon juice with the yeast, add the liquid, cover and let stand for 10 days.

Strain and add the raisins.

Cover and let stand for 4 months.

Bottle the wine and store in a dark place for 6 months before using.

Blackcurrant & Blackberry Wine:

1.5lb (700g) blackcurrants (frozen)
1.5lb (700g) blackberries
2lb (900g) ripe bananas
12oz(350g) raisins
0.5pint (300ml) concentrated red grape juice
2lb (900g) sugar
pectic enzyme
2 tsp yeast nutrient

yeast (burgundy)
water to 1 gallon (4.5 litres)

Liquidise the blackberries, blackcurrants and peeled bananas. Mince the raisins and put them with the liquidized fruit in a fermentation bucket. Add 1.25lb (550g) of sugar dissolved in a little water, together with the nutrients, pectic enzyme and grape concentrate. Make the volume up to 6.5 pints (3.7 litres) with water containing 1 dissolved Campden tablet. Cover and leave overnight.

Twenty-four hours latter add an active yeast preparation and ferment in the bucket for five days, keeping well covered and stirring daily. Then strain the liquid into a demijohn and fit an air lock. Keep checking the Specific Gravity (S.G.) and "feed" the wine with sugar in small amounts (2 oz; 60 g) each time the S.G. falls to 1.005. When the sugar is used up (or fermentation has finished), Sweeten to S.G. 1.020 with extra sugar. Rack, stabilize and mature as normal.

Apple & Pear Wine:

Ingredients:

4 lb pears
8 pints boiling water
To each gallon juice:
3lb sugar
Juice from 2 lemons
1/2 oz. yeast

This is makes a lovely light white wine. Apples and pears make a really good base for brewing. Like grapes, yeast likes their juices. I add lemons to raise the acidity, as this is more suitable to the yeast.

This light white is very palatable and ideal for drinking with fish or pancakes.

- 1 Cut the fruit into pieces - do not peel or core.
- 2) Pour over the boiling water, press well to extract juices. Leave for 4 days to

- infuse.
- 3) Strain off the juice and measure.
 - 4) Add sugar and yeast and lemon juice and leave to ferment (bubble) in a warm place.
 - 5) When bubbling ceases, stir well.
 - 6) Leave it for a day or two
 - 7) Strain through a flannel or very thick muslin into a cask, filling the cask completely. If the wine is not clear re-strain with thicker material and add fining to help clear the wine.
 - 8) Cork and leave for 6 months.
 - 9) Pour into bottles, cork and store in a cool dark place to mature for another few months at least.
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Mulled Wine

In the midst of winter in the long dark and cold evening a warm and rosy cheer is brought about by a nice hot mulled wine shared amongst a group of friends or neighbours. The really great thing with mulled wine is it tends to be better with rough dark red wines. The trick is to heat the wine with the spices and make sure you do not boil the mixture. Boiling will evaporate most of the alcohol, which has a lower boiling point than water (78 C if memory serves me correctly. If you have a thermometer then keep the temperature at no more than say 60C (140F). Serve in hot glasses to conserve the heat.

If you have an open fire then you can try the classical method of heating mulled wine. Ancient Britons produced "mulling irons" specifically to heat ale or wine. You can heat your iron in the fire. Tap the heated iron to remove any ash or scale and the dip the iron into your wine. This not only warms the drink but also imparts a ferrous taste.

I first made Mulled Wine after trying some after a visit to Hampton Court Palace (Just outside of London) some years back.

Ingredients

- 2 Bottles of Red wine (Dark red & rough is best)
- Country wines with plenty of tannin do well. (Bilberry, damson, blackberry, black plum, elderberry and blackcurrant are all suitable).
- Four small oranges
- 1 Large lemon
- Orange rind
- Brown Sugar (or 2 table spoons of Honey)
- 12 Cloves
- 2 sticks of Cinnamon (Each 3 inches long)
- (Aniseed & Fennel optional)

Instructions

- 1) Insert 4 cloves into each small orange
- 2) Grate the peel from the fourth orange and squeeze the juice into a cup
- 3) Grate the peel from the lemon and squeeze the juice into the cup of orange juice.
- 4) Add the grated orange & lemon peel and the three small oranges to into a pan
- 5) Add the Cinnamon sticks. (and optionally other spices such as Aniseed & Fennel)
- 6) Pour the bottles of wine into a pan and warm to about 60C (140F) maximum (DO NOT BOIL).
- 7) If possible warm the gasses to be used
- 8) Add the orange & lemon juice
- 9) Add sugar or honey to taste, stirring while adding
- 10) SERVE

(If you would like to do this using an open fire whilst your muffins are toasting then do steps 1 - 9 and only warm the wine (say 40 - 50 C)

Then each guest dips the heated iron poker into their drink to raise the temperature and to impart a ferrous taste. Always tap the poker first and trust that your poker is not made of anything toxic. Brass and cast iron pokers should be fine. This should overcome the winter cold and provide jollity and good cheer.

It's particularly good to drink at Christmas.

Maturing & Storage:

Although newly made wine is certainly drinkable, it will taste more like fruit juice than wine. Please note that wine needs to be fairly strong in order to be absolutely sure that your wine keeping for extended periods – about 8% alcohol by volume is a recommended minimum. Fermentation alone can certainly raise concentrations to 12-13% volume, at which point the yeast is killed. To achieve higher concentrations of alcohol, it is necessary to fortify the wine with a concentrated spirit; vodka is recommended in order to preserve the flavour. Such fortified wine will keep indefinitely as high concentrations of alcohol are lethal to the bacteria which can sour weaker wines.

The chemistry of the process of wine ageing:

Phenols + Phenols --> More complex Phenols

Alcohol + Acid --> Aldehydes --> Esters

Esters + Esters --> delicate and more complex esters

Phenols (e.g. Tannin)

Tannin and other phenols are found in the skin of the grape and to some degree tannin is obtained from the oak during oak ageing. Tannin is also in country wines in tea, raisins, elderberries and to varying degrees in fruit. Phenols like tannin give the wine its colour and have a somewhat a bitter taste. The long slow process of ageing allows the phenols to combine together to form more and more complex compounds. As they join together the colour changes from red through dark reds and finally to a coffee red brown. Beyond this the complexity of the compound is such that is too large to remain dissolved in the wine and it precipitates out as a brownish deposit (as with very old wine). The taste changes

as well due to the initial bitter taste of the tannin being smoothed out by this process. Very high tannin wines are unpleasant to drink young but they usually age very well and after 5 years in the case of my Barolo they are very pleasant. I have some elderberry wine which is extremely high in tannin and at present is only drinkable if accompanied by a strong cheese such as Danish blue in a few years I reckon it will have aged well and will be a bit subtler.

Esters.

Esters give fine wines their lovely delicate aromas. I first came across esters in chemistry where we made some unsubtle pear drop flavour. Esters are the result of the marriage of alcohol and acids during an oxidizing reaction. This oxidization takes minimal amounts of oxygen and will happily takes place in sealed bottles. A cork is a very good airtight seal letting in such a minimal, almost negligible, amount of oxygen that it matches the incredibly slow nature of the reaction taking place.

Alcohol + Acid --> Aldehydes --> Esters

Esters + Esters --> delicate and more complex esters

The pear drop ester in chemistry class took minutes to form, in wine this reaction must be done very slowly, gradually and evenly for the productions of the correct balance of complex and delicate esters present in aged fine wines. When this is done too quickly (e.g. storage temperature too high) then the esters do not become as complex and the balanced of esters is noticeably wrong to the trained pallet. The esters instead quickly form less subtly simpler esters but not as simple and crude as the pear drop esters in chemistry.

How do you know how long to age a fine wine?

This is tricky but the main thing that tells you is the quantities of Tannin, alcohol and acidity of the young wine.

Low tannin will not keep for long as in most white wines
 Very high tannin will have to age before it is drinkable

High alcohol and high tannin as with certain port, results in a drink that can mature over a period of 50 years.

Low acid will not form the aged aroma but this is less likely as the fermentation process needs acid conditions.

Colour is the best sign of correct ageing. This is why I often keep my reds in clear bottles. Sure I keep these bottles in the dark all the time but there is no real harm in briefly taking the bottle out and looking at the colour through the clear bottle much as a wine taster does with his glass. Alas people are so used to seeing red wine in coloured bottles that it look strange seeing red wine in clear bottles. People then think I know nothing about wine and quietly inform me of my error. You see coloured bottles are to keep light out when the wine is in the shop, but my home-made wine never leave the house and only see light for the briefest moment when I inspect it or when it is being served.

Wine storage table – Recommendations for storage

Environmental condition	Recommendation	Reason
Light / Dark (Very important)	Keep the light out	Light bleaches out the colour and in time ruins the balance of the wine. Never accept wine from a shop that has been displaying your wine in the full sun especially

		if you are selecting a specialist slow moving wine that may have been there for weeks.
Temperature (Important)	<p>Keep it constant throughout the year. (No sudden changes & No drafts) Keep it 12 C - 15 C (The range is important but most important is to avoid sudden fluctuation)</p>	<p>Correct ageing of wine is a slow process, and if kept too cold, e.g. in a refrigerator at 0-5 degrees Celsius, the change will be very slow; if kept too warm the change is too quick and the aroma does not form its complexity; instead it matures too quickly and out of balance. Temperature fluctuations ruin the balance of the wine and must be avoided. Use bubble wrap if you expect drafts and changing temperatures.</p>

<p>Vibration (Important)</p>	<p>Keep your fine wine away from any source of vibrations. No keeping your wine near the washing machine.</p>	<p>It is thought that the vibrations hamper the slow joining together of simple compounds to form complex colour and aroma compounds. Bubble wrap can help eliminate vibrations.</p>
<p>Humidity (Not so important)</p>	<p>Not bone dry or soaking wet. Some people are more specific and say 80% humidity is ideal</p>	<p>This is not that important but clearly if ultra dry it can effect your cork. Ultra wet, and you will have a mouldy and label and maybe a mouldy cork!</p>

Good Luck!

If you have any recipes of your own, which you would like added to this page, feel free to email me at david.norris23@ntlworld.com. Any suggestions are also quite welcome!
