



PennState Extension

Forest Fermentables:

Basic wine making steps



PennState Extension

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Things I will cover:

- Types of fruit for making wine
- Equipment
- Basic wine making steps
- Additives

Fruit for Making Wine (non-grape)

- Almost any kind of fruit can be used
- Common fruits used are:
 - Raspberry / Wineberry / Blackberry
 - Elderberry
 - Paw Paw
 - Persimmon
 - Strawberry, Blueberry
 - Apple, Peach
 - Etc., Henceforth, and So-on

Collecting berries isn't always easy



Photo: Scott Weikert

Raspberry

- Red and black raspberries.
- Black raspberry earlier than red.
- Black ripen in mid to late June.
- Red ripens late June –July.

Photo: Scott Weikert



Raspberry

Red Raspberry



Sheri Hagwood, hosted by the USDA-NRCS PLANTS Database

Black Raspberry



Jennifer Anderson, hosted by the USDA-NRCS PLANTS Database

Blackberries

- Blackberries have 3-5 leaflets.
- Heavy thorns.
- Angular stem.
- Ripen in August.

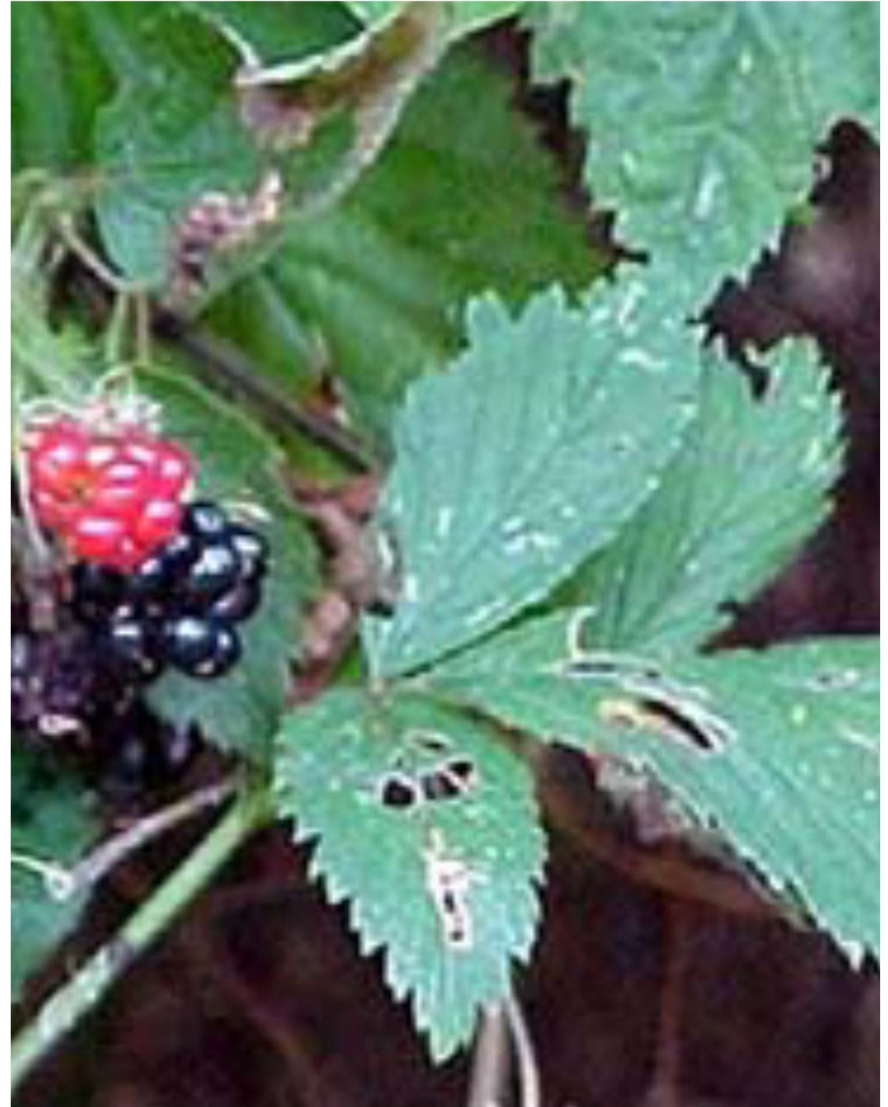


Photo: Britt Slattery, USFWS

Wineberry

- Invasive plant in Pennsylvania.
- Resembles a red raspberry.
- Underside of leaf is silvery.
- Stems have red, bristly, spines.
- Typically ripen mid to late July.
- Please do not plant this in your area.



Wineberry



Photo: Leslie Mehrhoff, U. of Connecticut
www.invasive.org



<https://outofmyshed.co.uk/>

Elderberry

- Opposite, pinnately compound leaves.
- Twig is stout with small warty like growth.
- Fruit is black on umbrella-like cluster.
- Ripens late summer.
- **DO NOT EAT RED ELDERBERRY!!**

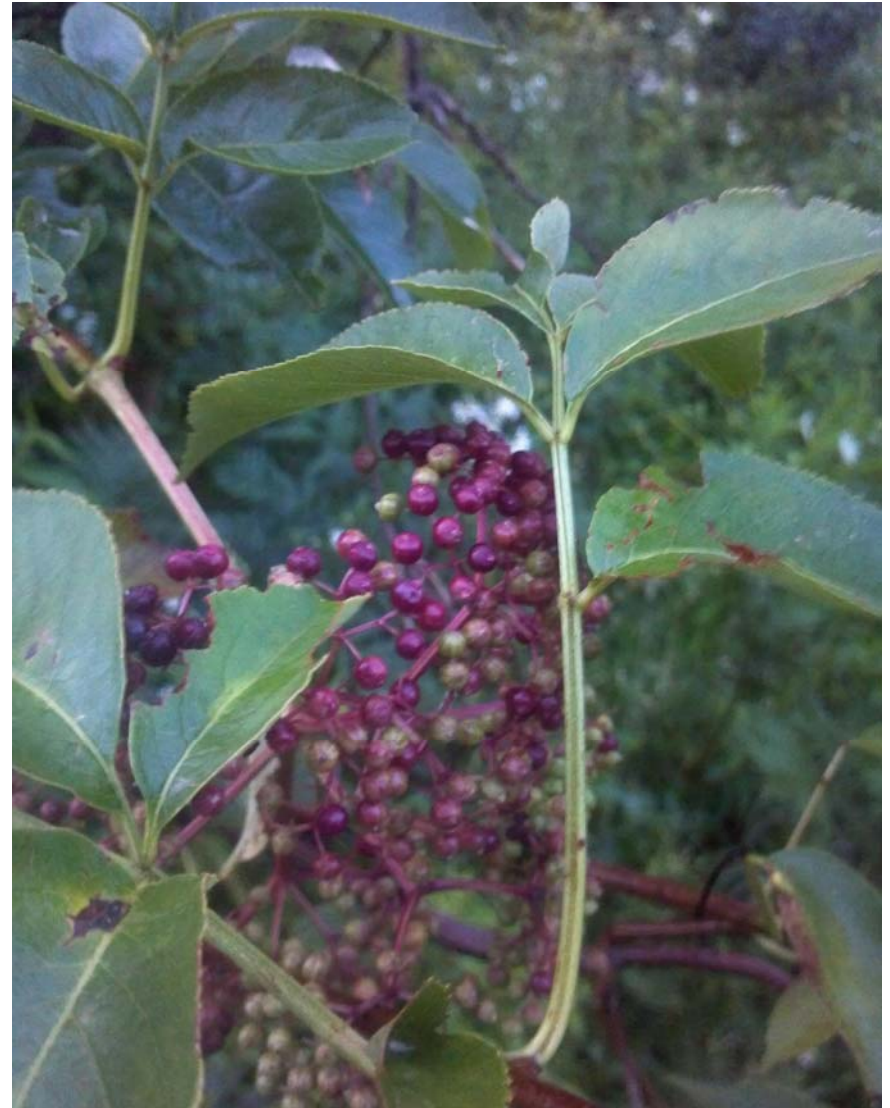


Photo: Scott Weikert

Elderberry

- Found in well drained, damp soils.
- Look for flowers when in bloom to locate bushes for harvesting.



Elderberry

- Reported to have many health benefits.
- May cause nausea in some people if too many raw berries eaten.



Elderberry

- Harvesting is easy—scissors to cut fruit.
- Time consuming to remove berries from stems.
- May leave a greenish goo on equipment when fermenting.
- Be sure to get all bits of stem from berries.



Photo: Scott Weikert

Paw Paw

- Alternate, simple leaves, 5-11" long.
- Fruit resembles a short, fat banana.
- Taste compared to banana/mango mix.
- Terminal bud, $\frac{1}{4}$ " - $\frac{1}{2}$ " long.
- Bark is smooth, brown.



Paw Paw

- Likes rich, moist soil.
- Found in understory.
- Very shade tolerant.



Paw Paw

- Found as multi-stemmed trees along stream bottoms.
- Not self-pollinating.



Persimmon

- Alternate, simple leaf.
- Ripens mid to late fall.
- Very astringent if eaten before ripe.
- Usually sweet after 1st hard frost.
- Holds fruit into winter.



Persimmon

- Bark:
 - Immature- brown/gray color
 - Mature- square, scaly, thick plates
- Tree is dioecious (male & female trees).



Many other types of fruit can be used:



Photos: Scott Weikert

Equipment

- Fermentation vessel



Photo: Scott Weikert

Equipment

- Carboy



Photo: Scott Weikert

Equipment

- Airlock
- Rubber stopper with hole for airlock



Photo: Scott Weikert

Equipment

- Hydrometer



Photo: Scott Weikert

Equipment

- Siphon tube



Photo: Scott Weikert

Equipment

- Corking device



Photo: Scott Weikert

Optional Equipment

- Wine thief



Photo: Scott Weikert

Optional Equipment

- Racking cane



Photos: Scott Weikert

Optional Equipment

- Acid test kit



Photo: Scott Weikert

Optional Equipment

- Nylon bag for fruit



Photo: Scott Weikert

Optional Equipment

- Bottle tree



Photo: Scott Weikert

Basic Wine Making Steps: selecting the fruit

- Select fruit
 - Ripe- not overripe.
 - Not moldy or partially spoiled.
 - Not injured by birds or insects.
- Using subpar fruit can increase chances of spoiling.



Photo: Scott Weikert

Basic Wine Making Steps

- Rule-of-thumb: 12 to 15 lbs of fruit will equal approx. one gallon of juice.
- Fruit wines usually need to be diluted to balance acid and flavor.
- Varies by fruit.

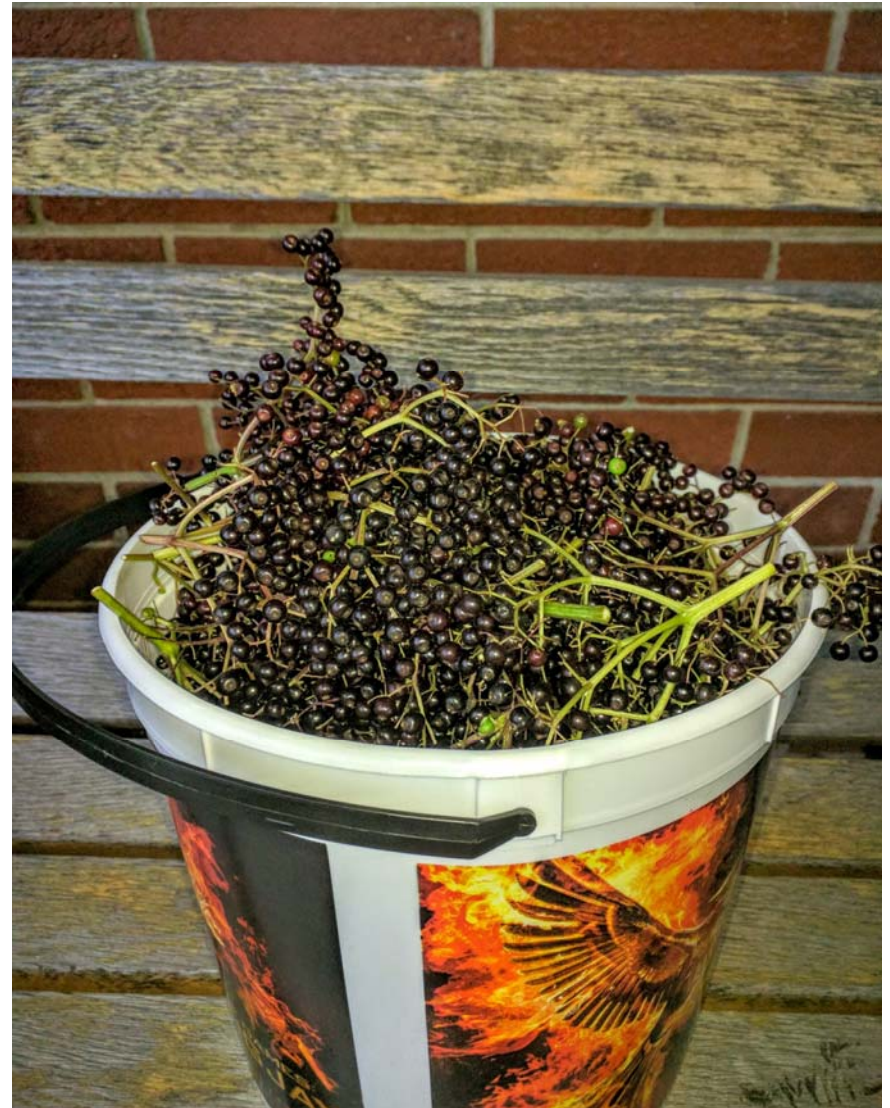


Photo: Scott Weikert

Sanitize all
equipment before
each use!!

Basic Wine Making Steps: preparing the must

- Wash & crush the fruit.
 - Most fruit should be crushed to release juice.
 - Remove larger seed like peach pits, etc.
 - Freezing fruit first will weaken cell walls and release juice easier.



Photo: Scott Weikert

Basic Wine Making Steps: adding water

- Add amount of water needed for wine.
 - Will vary by recipe.
 - Experimenting is fun.



Photo: Scott Weikert

Basic Wine Making Steps: adding sugar

- Use a hydrometer to check the sugar level.
- Add sugar as needed to get the S.G. to the reading you want.
- Be sure it is completely dissolved.
- More is not always better
 - Stuck fermentation.



Photo: Scott Weikert

Basic Wine Making Steps: adjust acid levels

- Test must for acid level and adjust accordingly.
 - Acid gives the wine some zip.
 - Citric, tartaric, & malic acids.
 - Acid blend contains some of all 3.



Photo: Scott Weikert

Basic Wine Making Steps: pectic enzyme

- Pectic enzyme breaks down natural pectin in fruit.
- Without it, wine may not clear.
- When added to must before fermentation, can increase juice yield.

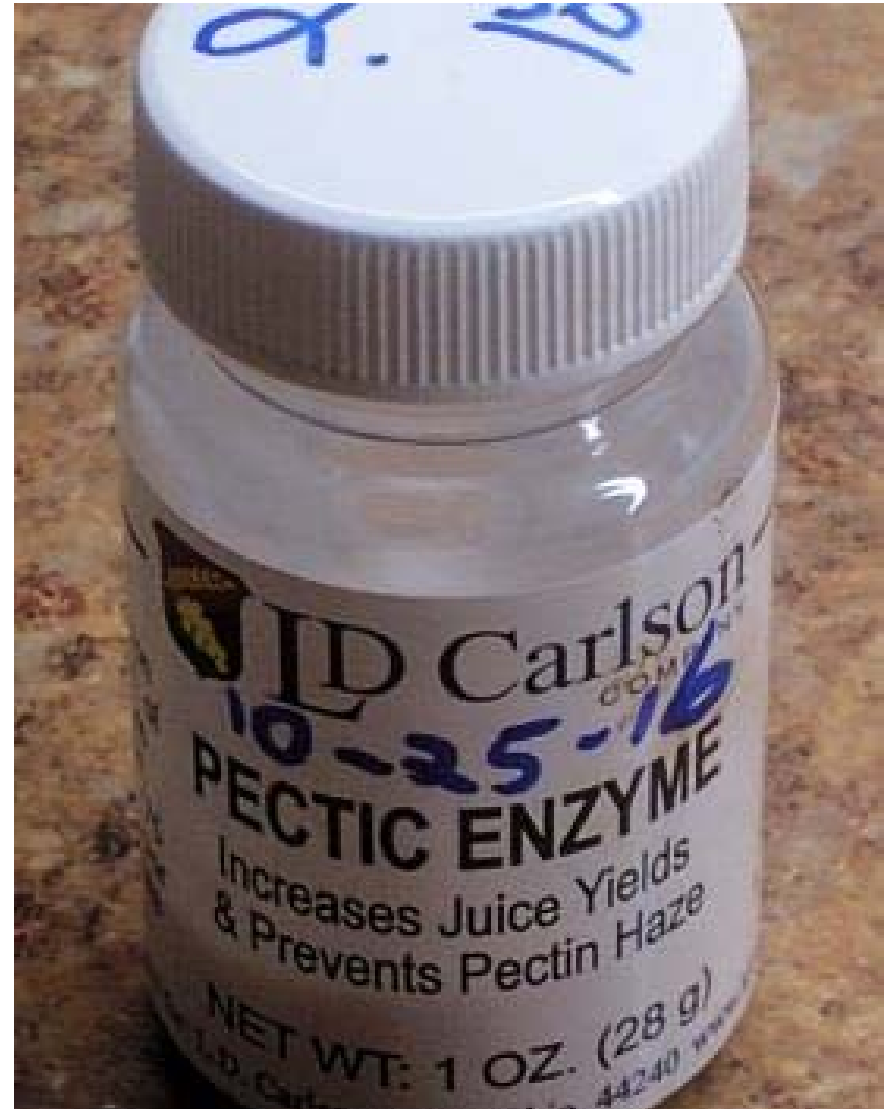


Photo: Scott Weikert

Basic Wine Making Steps: tannins

- Tannins give the wine mouthfeel.
- Follow recipe or add to taste.



Photo: Scott Weikert

Basic Wine Making Steps: yeast nutrient

- Often times fruit wines won't have the correct nutrients for effective fermentation to take place.



Photo: Scott Weikert

Basic Wine Making Steps: sulfite

- Add potassium metabisulfite
 - Campden tablets
 - Kills wild yeast to insure wine yeast succeed in fermenting must.
 - Add 1 tablet/gallon.
 - Crush tablet into a fine powder and mix well.
 - Adding too much will leave off taste in wine.



Photo: Scott Weikert

Basic Wine Making Steps: pitch yeast

- Use a wine yeast!
 - You'll be glad you did.
- Many different yeast available, cheap.
- Each has different characteristics.
- Pitch at least 12 hrs after sulfite added.



Photo: Scott Weikert

Basic Wine Making Steps: primary fermentation

- After yeast is pitched, cover bucket.
- 65 to 75 degrees.
 - Depends on yeast.
- Push pulpy cap down and stir daily.



Photo: Scott Weikert

Basic Wine Making Steps: racking

- When S.G. gets close to 1.00, rack into carboy.
- Be sure fast fermentation is nearly done.
 - Bubbling out of airlock
- Attach airlock.
- Fill into the neck.

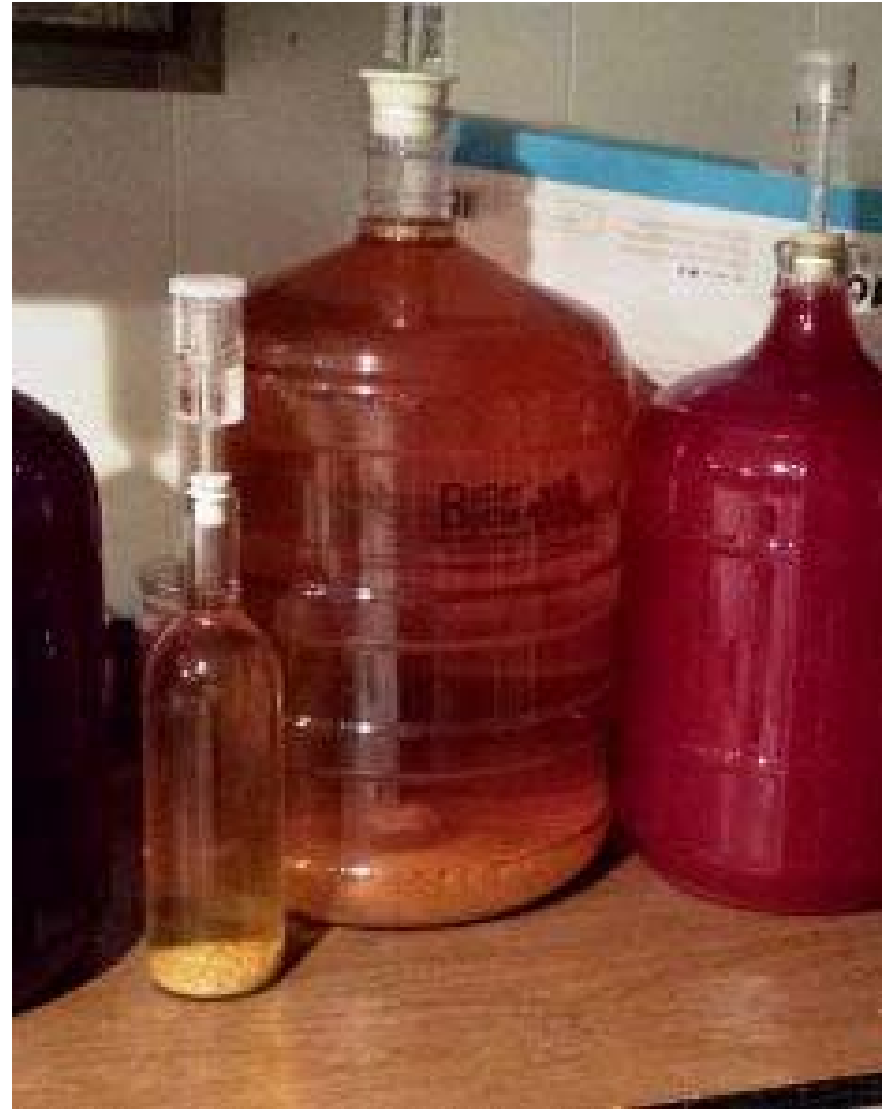


Photo: Scott Weikert

Basic Wine Making Steps:

- Fermentation will continue at a slower pace.
- Rack wine once a month.
- Add sulfite to protect wine.
- Wine should clear on it's own.



Photo: Scott Weikert

Basic Wine Making Steps: sweetening

- Most fruit wines benefit from some sweetening.
- Rack into bucket.
- Add potassium sorbate and sulfite before bottling.
- Add sugar water to taste.
 - 2:1 sugar:water
- Stir well.

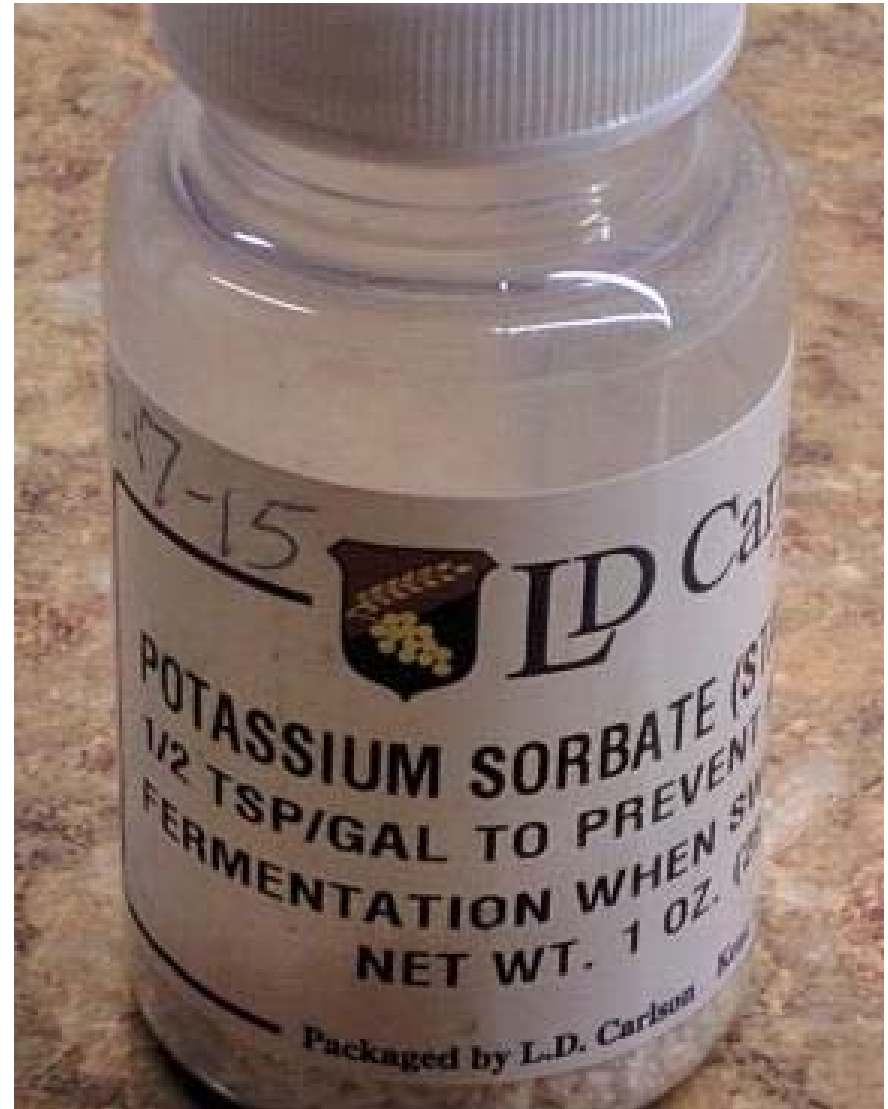


Photo: Scott Weikert

Basic Wine Making Steps: bottling

- Clean & sanitize bottles.
- 5 bottles per gallon.
- Fill bottles to just above the bottom of the neck.



Photo: Scott Weikert

Basic Wine Making Steps: cork

- If sweetened, be sure fermentation doesn't start back up.
- Sanitize corks.
 - Soak in sulfite solution (3tsp/quart).
 - 1 hr
 - Soak in warm water for 10 minutes.



Photo: Scott Weikert

Basic Wine Making Steps: aging

- Let wine age for 4 to 6 months.
- Keep bottles on side so cork doesn't dry out.
- 45-65 degrees, out of sunlight.
- Taste periodically.
- There is a life span on aging wine.

Photo: Scott Weikert



Basic Wine Making Steps: expand!!

- Make more so you have a continuous supply of aged wine.



Photo: Scott Weikert

Hard Cider

- Good cider depends on good blend of apples.
- Tannins, acid, bouquet, flavor.
- Trick is getting the right blend.
- Other steps are same as wine- typically without acid or tannin additions (but you could add them).



Photo: Scott Weikert

Hard Cider

- Apples
 - Many old apple trees to find.
 - Ask permission!



Photo: Scott Weikert



Hard Cider



Photos: Scott Weikert



Photo: Scott Weikert

Hard Cider



Photos: Scott Weikert

Hard Cider



Photos: Scott Weikert

Resources

- Winemaking As A Hobby (PSU)

<http://extension.psu.edu/publications/agrs-049>

- Jack Keller

<http://winemaking.jackkeller.net/>

- Joy of Home Wine Making
By: Terry Garey

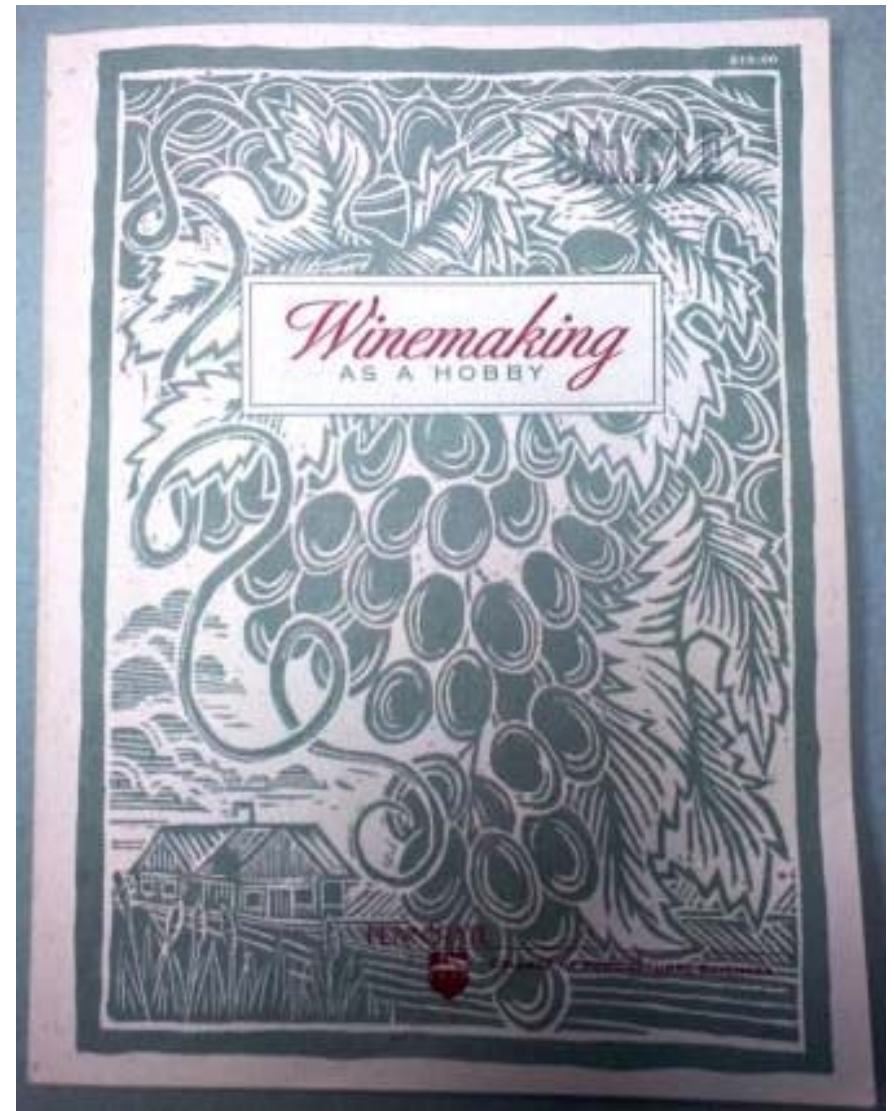


Photo: Scott Weikert

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