

Afterword

Having discussed the steps required to successfully produce sound table wine at home, we offer a few words of encouragement. Home wine making is relatively easy, educational, and fun to do. Most of our guidelines are semitechnical and point out things that could go wrong. We hope that this has not been too discouraging or intimidating. The average person, starting with sound, ripe grapes, who pays sufficient attention to temperature control, avoidance of air, and sanitation, should successfully produce a pleasant tasting wine that can be enjoyed with pride. It has been observed that producing a sound wine is a skill and that making a fine wine is an art. Following the guidelines in this publication should help you to develop technical skills; experience will develop artistic skills for the pursuit of excellence in wine making.

Why make wine at home? Many reasons come to mind. We suggest that wine making is an intriguing source of personal expression that can be enjoyed according to each individual's level of interest. In a predominantly urban society, it provides an opportunity for individuals to rediscover the rhythms of nature and joy of the harvest, to participate in an experience as old as recorded history. In a time of increasing specialization and intense brain activity, wine making allows a blending of physical labor, science, and creativity. And, in a culture separated from the source of its food, wine making places the individual in the role of producer as well as consumer. As the winemaker's skills sharpen, knowledge of geography, climate, chemistry, and sensory perception will all naturally expand. Stated simply, wine is a fascinating beverage and wine making unites the mind and body with the pleasures and mysteries of a centuries old process.

Lastly, we close with our best wishes for many successful fermentations and the following thought, attributed to Benjamin Franklin:

"Wine is constant proof that God loves us and loves to see us happy."



Helpful Sources and Information

Selected References

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- Kasimatis, A. N., Bruce Bearden, and Keith Bowers. 1977. *Wine Grape Varieties in the North Coast Counties of California*. Publ. 4069, Div. Agric. and Nat. Resources, Univ. of Calif., Berkeley. 30 pp.
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- Marcus, Irving H. 1984. *How to Test and Improve Your Wine Judging Ability*. 2nd ed. Wine Publications, Berkeley, Calif. 96 pp.
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Sources of Equipment and Supplies for Home Wine Making

Local firms may advertise in the yellow pages of your local telephone directory under such headings as: Hobby equipment/supplies, Wine making equipment/supplies, Home wine making supplies, etc. Additionally, health food stores, hardware stores, or crafts and hobby shops may handle selected small equipment, kits, and wine making supplies. Some pharmacies are often a convenient source for such chemicals as potassium metabisulfite, citric acid, etc. Wine making supplies and equipment firms may also be advertised in magazines about organic farming or gardening, nature or ecology, home gardening, canning, freezing, or hobby food processing. When making purchases, especially of relatively expensive items, always keep in mind the usual caveats and that price cannot always be equated with quality. No endorsement is intended or implied of the firms listed below to the exclusion of those firms not listed.

The following is a partial listing of home wine making supply firms. Contact: Home Wine & Beer Trade Association, 604 N. Miller Road, Valrico, Florida 33594, for possible location of a shop in your area.

- Barrel Builders, 1085 Lodi Lane, St. Helena, CA 94574. (707) 963-7914 or (707) 545-1708.
- Brehm Vineyard, 932 Evelyn Ave., Albany, CA 94706. (415) 527-3675.
- The Brewmaster, 2315 Verna Court, San Leandro, CA 94577. (415) 351-8920.
- Cask & Keg, 24182 Red Arrow Highway, Mattawan, MI 49071. (616) 668-2768.
- The Cellar Wine Shop, 14411 Greenwood Ave. N., Seattle, WA 98133. (206) 365-7660.
- The Compleat Winemaker, 1219 Main St., St. Helena, CA 94574. (707) 963-9681.
- Custom Chem Lab, 2127 Research Dr. #10, Livermore, CA 94550. (415) 449-4371.
- Custom Cooperage, 1194 Maple Lane, Calistoga, CA 94515. (707) 942-6902.
- De Bella's Barrel Company, 1176 Harrison St., San Francisco, CA 94103. (415) 861-1700.
- Fleming-Potter Co., Inc., 1028 S.W. Adams St., Peoria, IL 61602. (309) 676-2121.
- Fresno Home Beer & Winemaker Supply, 911 E. Belmont, Fresno, CA 93701. (209) 445-0797.
- Fun Fermentations, 640 E. Katella Ave., Orange, CA 92667. (714) 532-6831.
- Grape To Glass, 2864 Ray Lawyer Dr., Placerville, CA 95667. (916) 626-WINE.
- Great Fermentations, 87 Larkspur St., San Rafael, CA 94901. (415) 459-2520.
- Great Fermentations, 1840 Piner Rd. #14, Santa Rosa, CA 95401. (707) 544-2520.
- Michael Hat, 22335 S. Olive, Ripon, CA 95366. (209) 599-3396.
- Home Wine Making Shop, 22836 #2 Ventura Blvd., Woodland Hills, CA 91364. (818) 884-8586.
- E. C. Kraus Sales, 9001 E. 24 Highway, Independence, MO 64053. (816) 254-7448.
- Napa Fermentation Supplies, 742 California Blvd., Napa, CA 94559. (707) 255-6372.
- Napa Valley Cooperage Co., 2600 Atlas Peak Rd., Napa, CA 94558. (707) 253-7060.
- Oak Barrel Winecraft, 1443 San Pablo Ave., Berkeley, CA 94702. (415) 849-0400.
- George A. O'Brien-Winemaking Supplies, P.O. Box 284, Wayne, IL 60184. (312) 289-7169.
- O'Brien's Fermentation Supplies, 301 Spring St., Suisun City, CA 94585. (707) 425-0833.
- Petz Enterprises, P.O. Box 478, Endicott, NY 13780. (607) 758-7790.
- Presque Isle Wine Cellars, 9940 Buffalo Road, North East, PA 16428. (814) 725-1314.
- R & R Home Fermentation Supplies, 8385 Jackson Rd., Sacramento, CA 95826. (916) 383-7702.
- Scott Laboratories, Inc., 2955 Kerner Blvd., San Rafael, CA 94912. (415) 457-8460.
- Semplex of U.S.A., 4805 Lyndale N., Minneapolis, MN 55412. (612) 522-0500.
- Vinquiry, P.O. Box 1511, Healdsburg, CA 95448. (707) 433-8869.
- The Wine Lab, 477 Walnut St., Napa, CA 94559. (707) 224-7903.
- A. R. Zacher Co., 200 Santa Fe Ave., Fresno, CA 93714. (209) 485-4150.

Additional Sources of Information and Assistance

Journals, periodicals, and other publications

ANR Publications

University of California
6710 San Pablo Avenue
Oakland, CA 94608-1239

Send for the free catalog of publications of the Division of Agriculture and Natural Resources, Agricultural Experiment Station and Cooperative Extension, University of California. Publications are available on grapes, wine, and related topics. Catalogs and publications can be obtained by California residents from their county Cooperative Extension office, Public Service offices at the UC Berkeley and UC Davis campuses, or from ANR Publications.

American Journal of Enology and Viticulture

P.O. Box 1855
Davis, CA 95617

The quarterly scientific journal of the American Society for Enology and Viticulture. Primarily for professionals, but membership is also open to anyone interested in enology or viticulture and includes the journal.

California and Western States Grape Grower

Munford Publications, Inc.
3636 N. First Street, Suite 150
Fresno, CA 93726

Bimonthly magazine of semitechnical articles primarily for the vineyardist.

Practical Winery

15 Grande Paseo
San Rafael, CA 94904

A monthly magazine of semitechnical articles and trade advertising.

Vineyard & Winery Management

P.O. Box 231
Watkins Glen, NY 14891

Bimonthly trade magazine of semitechnical and popular articles and news items; emphasis upon industry in the eastern U.S.

The Vinifera Wine Growers Journal

The Vinifera Wine Growers Association
The Plains, VA 22171

Quarterly semitechnical and technical articles with association news, correspondence, and book reviews. Association membership includes the journal.

The Wine Spectator

M. Shanken Communications, Inc.
400 East 51st Street
New York, NY 10022

Semimonthly newspaper of local, national, and international trade and consumer news articles and advertising.

Wines & Vines

1800 Lincoln Avenue
San Rafael, CA 94901

Monthly trade magazine; also publishes an annual Buyer's Guide Issue that contains a listing of wineries in North America, listings of trade associations, winery/grower groups, U.S. grape crop authorities, and equipment and supply firms for the grape and wine industries.

Associations, societies, and related groups

Regional grape grower associations are located throughout the U.S. and can often assist with sources of wine grapes. Check your local telephone directory for possible listings. There are also many wine societies and other organizations that provide information, offer memberships, and hold meetings and tastings. Check your phone book for possible home wine making groups, as they cannot only be valuable sources of help but offer the opportunity for interaction and cooperative activities with other home winemakers. Finally, your local Cooperative Extension office may be a source of help in locating grapes, identifying local grape and wine organizations, provide assistance with agricultural questions, and may also have useful publications.

American Wine Society

3006 Latta Road
Rochester, NY 14612

Has regional chapters that hold meetings and wine tastings, and publishes pamphlets and a journal.

Extension courses and other educational opportunities

University of California Extension offers short courses on wine appreciation, home grape growing, and wine making. Likewise, a number of state universities, junior colleges, and community colleges also offer extension courses dealing with grapes and wine. Participa-

tion in state, county, and local wine judging competitions specifically held for home winemakers can be a valuable learning experience.

Society of Wine Educators

132 Shaker Road, Suite 14
East Longmeadow, MA 01028

National organization of persons who teach college and university courses on wine. Can provide information about wine courses and their location.

University Extension

University of California
Davis, CA 95616

Offers short courses on home wine making, with lectures, demonstrations, and hands-on production. Maintains a mailing list for course announcements.

Wine Institute

165 Post Street
San Francisco, CA 94108

Trade organization for California wineries. Offers a correspondence course on wine appreciation and publishes a tour guide to California wineries. Visiting small wineries can provide additional insight into methods and equipment appropriate to small scale wine making operations.

Federal Regulations Pertinent to Home Wine Making

Title 27—Alcohol, Tobacco Products and Firearms—of the Code of Federal Regulations.

CHAPTER 1—BUREAU OF ALCOHOL, TOBACCO AND FIREARMS, DEPARTMENT OF THE TREASURY
[T.D. ATF-55] Effective Date: February 1, 1979.

PART 240—WINE

Subpart Y—Tax-Free Production Wine for Personal or Family Use

§240.540 Production.

(a) Any adult may produce wine, without payment of tax, for personal or family use and not for sale. An adult is any individual who is 18 years of age or older. However, if the locality in which the household is located requires a greater minimum age for the sale of wine to individuals, the adult shall be that age before commencing the production of wine. This exemption does not authorize the production of wine for use contrary to State or local law.

(b) The production of wine per household, without payment of tax, for personal or family use shall not exceed:

- (1) 200 gallons per calendar year if there are two or more adults residing in the household, or
- (2) 100 gallons per calendar year if there is only one adult residing in the household.

(c) Partnerships except as provided in §240.730, corporations or associations shall not produce wine, without payment of tax, for personal or family use.

§240.541 Removal of wine.

Wine made under §240.540 may be removed from the premises where made for personal or family use including use at organized affairs, exhibitions or competitions, such as homemaker's contests, tastings or judging. Wine used under this section shall not be sold or offered for sale.

Subpart H—Other Tax-Free Removals

§240.730 Removal for personal or family use.

Any adult, as defined in §240.540, who operates a bonded wine cellar as an individual owner or in partnership with others, may remove wine from the bonded wine cellar without payment of tax for personal or family use. The amount of wine removed for each household, without payment of tax, per calendar year may not exceed 100 gallons if there is only one adult residing in the household or 200 gallons if there are two or more adults residing in the household. Wine removed in excess of the above limitations shall be reported as a taxable removal. All quantities of wine removed shall be entered as a removal on the monthly report, Form 702.

(Sec. 201 Pub. L. 85-859, 72 Stat. 1331, as amended (26 U.S.C. 5042))

Glossary

Acetaldehyde.	A natural volatile constituent in grapes and wine present in small amounts in sound table wine and in high amounts in oxidized wine.	Cap.	Grape solids (skins and pulp) that separate from juice of crushed grapes (must) and tend to float and compact on the juice surface.
Acetification.	Formation of acetic acid, as in vinegar formation.	Chaptalization.	Adding sugar to must or juice before fermentation to make up for deficiencies.
Amelioration.	Addition of water, sugar, acid, or any combination of them, to correct excesses or deficiencies in juice or must.	Chromatography.	An analytical procedure used to qualitatively separate and identify various compounds; used in wine making to determine malic and lactic acids.
Amino acids.	Natural constituents in grapes and wines that contain nitrogen and are metabolized to form protein and other compounds.	Cold stabilization.	Removal of excess potassium bitartrate to prevent its crystallization and precipitation in wine stored under cold conditions.
Aroma.	Those odors in wine primarily derived from the grape.	Concentrate, grape.	Refers to concentrated grape juice, in which the water content has been reduced so that the soluble (dissolved) solids are increased threefold; usually is 68° to 70° Brix.
Bentonite.	A clay used as a fining agent for protein removal to achieve heat stabilization or to aid in removal of fining agents.	Crusher.	Device for breaking grape berry skins to permit juice extraction.
Bisulfite, bisulfite ion.	A source of sulfur dioxide.	Crusher-stemmer.	Device for breaking grape berry skins and removing stems.
Bouquet.	Those odors in wine related to processing, such as fermentation, wood aging, bottle aging, etc.	Deacidification.	Reduction of the titratable acidity in juice, must, or wine.
Brix, ° Brix, degrees Brix.	Value used to express the weight in grams of sucrose dissolved in 100 grams of a solute, such as grape juice.	Dry, dryness.	Terms that denote absence of fermentable sugar, as in a dry wine; complete fermentation.
Browning.	Undesirable brownish (amber, tawny, dark yellow) color change in table wine resulting from oxidation.	Ethanol, ethyl alcohol.	One of the two major products of grape sugar fermentation.

Fermentation (alcoholic).	Conversion of grape sugar by yeast to ethanol and carbon dioxide.	Metabisulfite, potassium.	A solid form or source of sulfur dioxide with the chemical formula, $K_2S_2O_5$.
Fermentation trap.	Device that allows escape of carbon dioxide gas and prevents entrance of air through the opening of a fermentor.	Must.	Crushed grape mixture that contains juice, skins, seeds, and pulp.
Fermentor.	Vessel used to conduct fermentation.	Oxidation.	Process whereby grape juice or wine constituents react with oxygen, resulting in undesirable odor and flavor changes.
Fining, fining agent.	The addition of various materials that remove certain wine constituents for improved wine quality or stability, such as bentonite, gelatin, etc.	pH.	Denotes the hydrogen ion activity or concentration of hydrogen ions in an aqueous solution.
Free-run.	Juice or wine that separates freely from grape solids without the use of mechanical or other energy.	Phenolic, polyphenolic.	Naturally occurring compounds in grapes and wine (for example, tannin); important in flavor and involved in many complex wine aging and related reactions.
Free SO₂.	Sulfur dioxide ions in solution that are not chemically bound to other chemicals in solution, but that are free or available to react with such substances as dissolved oxygen, acetaldehyde, etc.	Polyphenoloxidase.	Enzyme(s) in grape juice that catalyze oxidation and browning.
Fructose.	One of two simple fermentable sugars present in grapes.	Pomace.	Mixture containing grape skins, seeds, and pulp.
Glucose.	One of two simple fermentable sugars present in grapes.	Press, pressing.	Device for separating grape juice or wine from grape solids.
Heat stability, stabilization.	Removal of excess amounts of certain protein fractions to prevent haziness or cloudiness in wine stored under warm conditions.	Press-juice/wine.	The juice or wine that is separated from grape solids by pressing.
Hydrometer.	Instrument used for measuring dissolved solids such as sugar or °Brix of solutions, such as grape juice or wine.	Pumping over.	Process for mixing juice with skins in red wine fermentation; involves pumping juice from under the cap over the cap surface to facilitate color extraction.
Lactic acid.	A weak organic acid, produced by lactic acid bacteria from malic acid.	Punching down.	Process for mixing juice with skins in red wine fermentation; involves pushing or submerging the cap downward into the juice to facilitate color extraction.
Lees.	The sedimented residue of wine fermentation, comprised mostly of spent yeast cells and small grape particulate matter.	Rack, racking.	The siphoning of clear juice or wine from sedimented solids.
Malic acid.	One of several organic acids present in grapes.	Reducing sugar.	Those sugars in juice or wine that will reduce copper upon chemical analysis and are the fermentable sugars; thus, a method for measuring the sugar content of grapes and wine.
Malolactic fermentation.	Conversion of malic acid in wine into lactic acid and carbon dioxide by certain lactic acid bacteria.	Soluble solids (dissolved solids).	Those constituents of grapes or wine that are dissolved or in solution; mostly grape sugar. Usually expressed as percent by weight (grams per 100 grams) or °Brix.

Stemmer, stemming.	Device for or process of separating grape stems from berries.	Tartaric acid.	Principal organic acid of most <i>vinifera</i> grapes.
Stuck fermentation.	The cessation of fermentation, with fermentable sugar remaining.	Titrateable acidity.	The concentration of organic acids in juice or wine, as determined by titration with a standardized dilute alkali solution, and expressed as grams tartaric acid per liter.
Sulfur dioxide, SO₂.	An antiseptic for inhibiting spoilage microorganisms in wine making. Also acts as an antioxidant. Used universally as a wine preservative and sanitizing agent.	Topping, topping-up.	Process of keeping containers of wine filled to the top or opening/closure of a wine container by adding wine.
Sweet condition.	Sweet smelling or tasting as in pure water or in wine barrels that are free of moldiness, sourness, vinegar, or other undesirable spoilage odors or flavors.	Total SO₂.	The concentration of SO ₂ in juice or wine that is the total of free SO ₂ and SO ₂ bound or combined with other compounds, e.g., acetaldehyde.
Tannins.	Phenolic compounds naturally occurring in grapes and wines; responsible for astringency and/or bitter flavors in wine.	Ullage.	The empty space that develops in bottles or casks as wine evaporates.