

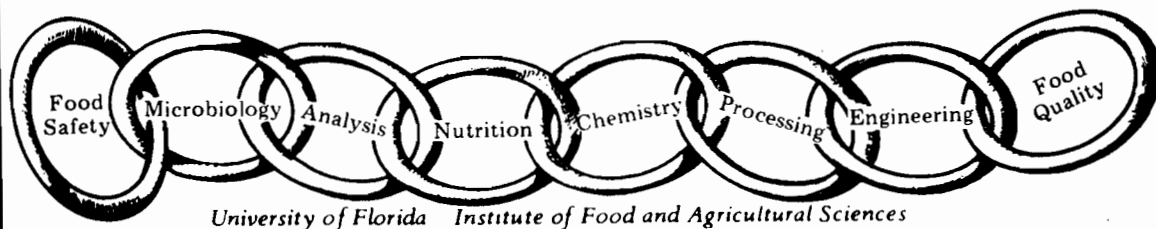


Florida Cooperative Extension Service

Food Science Fact Sheet

FS-3

HOME WINE MAKING IN FLORIDA



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Wine making activities in Florida have increased dramatically since this fact sheet was originally prepared in 1977. Wine consumption in Florida grew from 1.4 gallons to 2.5 gallons per capita during the period from 1970 to 1981. Although Florida still ranks 17th in this measure, it is now 3rd in total wine consumption and the forecast is optimistic.

As a result of grape research and extension activities, the State Cooperative Extension Service receives numerous public inquiries concerning grape growing and wine making. In recognition of this interest the Florida Legislature in 1972 legalized home production of wine, making it possible for Floridians to pursue a popular hobby.

While much home wine making is based upon grapes from the traditional growing areas such as California and New York, the availability of Florida-grown fruits suitable for wine is far greater than is generally realized. There is a modest but rapidly expanding grape industry ranging from commercial vineyards to backyard vines, all of which promise to provide the interested home wine maker with sufficient variety and quality of grapes to challenge the imagination and ability of both the experienced amateur and the commercial wine maker. Currently there are five commercial wineries in production (four of them since 1981) and several more in the planning stage. They all produce very acceptable wines from Florida-grown grapes.

Our dynamic citrus industry and unique tropical fruit potential, as well as increased cultivation of deciduous fruits, provide an ample base for wine production in addition to a wide range of fruit-based homemade juices, jams, jellies, pie fillings and confections.

Let's take a simplified look at home wine making in Florida.

The Legal Aspect

In 1979 the Federal government and the State of Florida waved the requirement for obtaining a permit for home winemaking. However, certain regulations are still in effect and you should be aware of them. There is still a legal limit of 200 gallons of wine per year for the head of a household or 100 gal/yr for a single individual over the legal drinking age (19 years in Florida). This wine is for personal consumption only. It cannot be sold without adhering to a number of complex U.S. and Florida regulations well in advance of the production operation. However, the 200 gallons per year is over 1 1/3 bottles per day and far in excess of the per capita consumption in the leading European wine consuming countries (e.g., France and Italy, over 20 gal/yr).

Raw Material for Wine Production

The principal rule of wine making, and food preparation in general, is to start with raw material of good quality. In this respect the Floridian has a seasonal and geographical advantage over much of the country. A wide range of interesting fruit is available from backyard trees and gardens or from commercial growers. Leading the list are citrus fruits. In South Florida a number of tropical fruits can serve the wine maker fortunate enough to have access to these relatively exotic and limited products. In-season berry fruits can be grown or obtained from markets or pick-your-own operations. And Florida honey should not be ignored. In addition, commercial concentrates of many fruit juices can be obtained through retail outlets.

A pleasant surprise to many Floridians, and one reason for the growing interest in home wine making, is the popularization of Florida-grown grapes.

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Grapes are not usually associated with the state. In the 1920s a moderate grape industry existed but was wiped out by plant disease. Since then Institute of Food and Agricultural Sciences (IFAS) research efforts have begun to bear fruit, literally and figuratively.

Grape varieties of both the Bunch and Muscadine species quite suitable for Florida production are being developed at the Leesburg Agricultural Research Center in cooperation with other southeast State Agricultural Research Experiment Stations. Many of these varieties are well suited for wines and are available from July through October, depending upon variety and location.

Many pick-your-own operations now exist within the state and are increasing in number and size. The Florida Grape Growers Association sponsors a popular annual Amateur Wine Competition. The results of this competition clearly indicate that quality wine can be made from a variety of Florida-grown fruits.

The Fermentation

The principal challenge to the wine maker is to transform the raw material into a finished wine. The biochemical steps involved in converting fermentable sugars into alcohol and subsequently developing the desired wine character are complex. However, this complexity need not deter amateurs, as some of the best wine may be produced by them.

Wine making is both an art and a science. As with innovative cooking, there are a number of recipes and procedures which will give acceptable results, depending upon the individual preference and experience of the wine maker. There are, of course, some obvious and not so obvious practices to be avoided; one's wine making ability should improve with practice and insight.

Sanitation

In wine making as with any food preparation, you should start with clean raw materials and utensils and work in sanitary surroundings. Wine is a food product and should be prepared as you would any other item destined for human consumption.

Equipment Needs

There are a number of wine making kits available from department stores, wine hobby shops and mail order catalogs. They range in size and complexity from a miniature winery to a kitchen counter top operation. You are advised to start simply and work upward in complexity as you gain experience.

Most of the basic equipment needed is actually available in the kitchen.

Some essential components are:

1. *A device for extracting juice from fresh fruit.* This can be either a colander with a wooden mallet and cheesecloth, an electric juicer, or even a small hand- or electric-powered grape crusher.

2. *Fermentation container.* A plastic wastebasket or a narrow mouth ½- to 1-gallon glass cider or vinegar jug are ideal for initial experimentation. A 5-gallon glass water bottle is about the largest size for easy handling in the home. It is difficult to work with quantities smaller than about ½ gallon.

3. *Water seal.* This is an essential component of the fermentation system. It serves to prevent air and contaminating microorganisms from acting upon the juice. Such traps can be fashioned out of glass or plastic tubing or can be obtained from wine supply sources.

4. *Yeast.* Only wine yeast should be used. Some types available from wine supply sources are Montrachet, Burgundy and Champagne. However, don't expect yeast type to dictate the character of the final wine. That feature depends more upon the starting material and your manipulative skills. Never let the fermentation proceed naturally. The wild yeast or contaminants naturally present on fruits will produce a fermentation of low quality.

5. *Yeast nutrients.* These are chemicals which permit the yeast population to increase and thereby produce a vigorous fermentation. Grape juice is unusually adequate nutritionally — a good reason for its tradition as a wine fruit. Other fruits and honey may require added nutrients to achieve a proper fermentation.

6. *Sulfur Dioxide (SO₂).* This chemical has important preservative action when used in small amounts. Kits supply the needed dosage in easily dispensable form as bisulfites. With ideal sanitary conditions the use of sulfur dioxide can be reduced or eliminated. A little goes a long way and it should not be overused.

7. *Siphon.* A small plastic hose is useful for removing the wine from the sediment at the completion of the fermentation and during other finishing steps.

8. *Wine bottles.* Contrary to tradition, cork stoppers and aging in wooden casks are not essential in wine making, particularly for the beginner. Of course, with certain wine types subsequent wood and bottle aging make the difference between a mediocre and "vintage" wine. While you may expand into such practices, it is best to start simply. Clean screw-cap bottles with an intact thread and cap are adequate to start.

Figure 1. Home wine making cycle

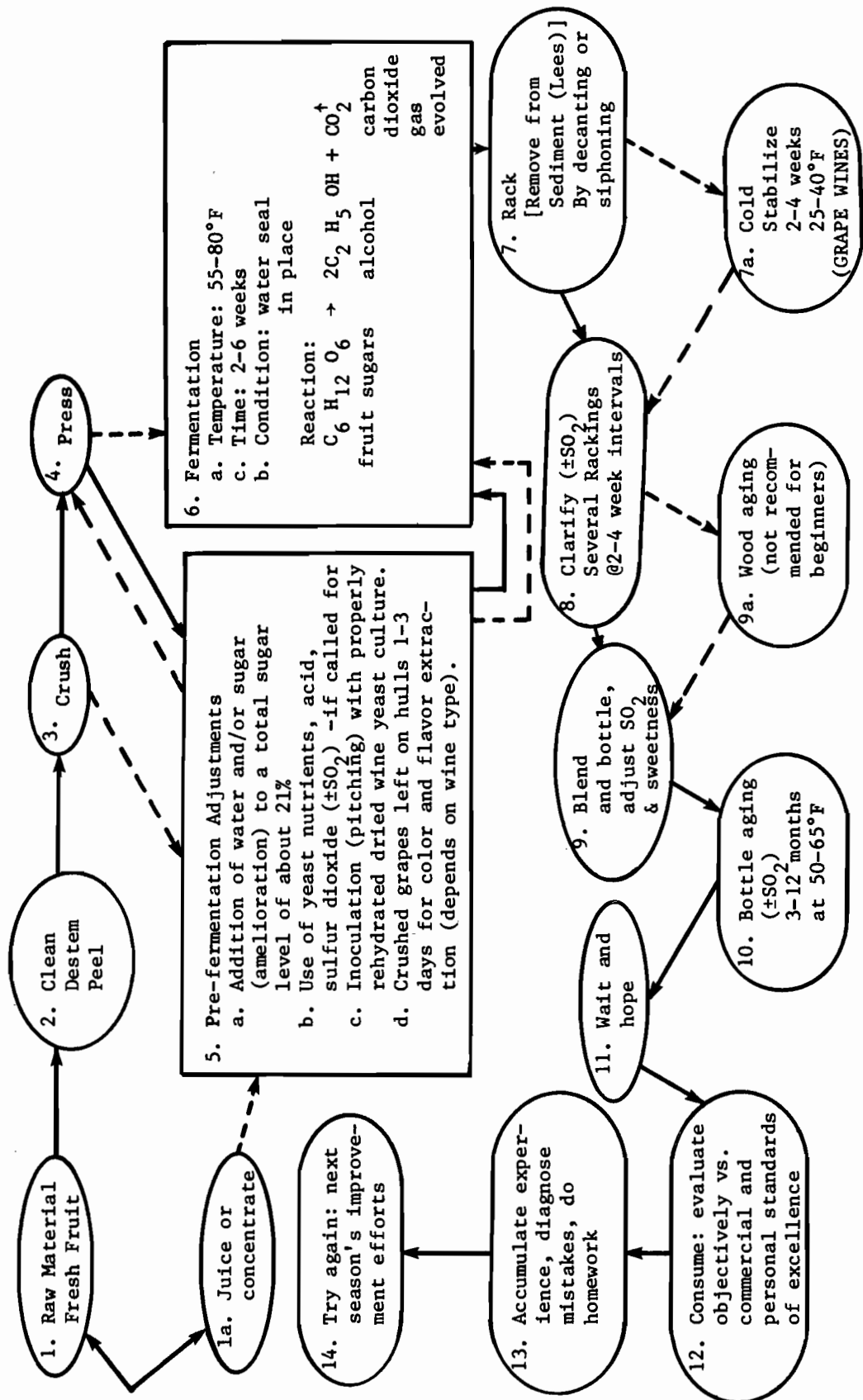


Table 1. Pitfalls in home wine making.

Step*	Common Mistakes	Result
1	Poor quality raw material	Poor quality wine
	Over- or under-mature fruit	
2	Stems, leaves, debris in fruit	Harsh off-flavor in juice
3	Overcrushing	Off-flavor from seed and skin
	Undercrushing	Low juice yield, weak wine character
4	Overpressing	Off-flavor, cloudy wine
	Underpressing	Low juice yield
5a	Insufficient sugar	Weak, low alcohol wine
	Excessive sugar	Partial or no fermentation, very sweet wine
	Water imbalance	Strong or weak wines
b	Inadequate or improper adjustments	Weak fermentation, off-flavor
c	Use of natural or baker's yeast	Weak fermentation, off-flavored wines
d	Too much time on hulls	Harsh flavors from skins
	Too little time on hulls	Weak color and flavor
6a	Low temperatures	Slow fermentation
	High temperatures	Fast, off-flavored fermentation
b	No water seal	Insect infestation, vinegar production
7	Racked too soon	Incomplete fermentation, residual sweetness
	Racked too late	Yeasty off-flavor wine
7a	Inadequate cold storage time or temperature	Bitartrate crystals form in bottle
8	Wine freezes	Broken bottles
9	Excessive SO ₂	Off-flavor
	Sweetness imbalance	Wine too sweet or too sour
10	Insufficient racking	Cloudy wine
	Insufficient aging	Harsh, green-flavored wines
	Excessive aging	Gradual quality deterioration
11	Excessive expectations	Discouragement
12	Unfamiliarity with quality table wines	Acceptance of mediocre results or rejection of good homemade wines
13	Lack of attention to details, inadequate winemaking knowledge	Time, effort and raw material wasted; poor wines produced

*See Figure 1.

A Generalized Wine Making Procedure

Figure 1 is a schematic diagram of home wine making procedures. You can see many interrelated steps and a few optional ones. This allows wide variation in wine making but can represent some confusion for the novice. Table 1 lists some of the pitfalls which plague home wine makers. Use the flow diagram and list of mistakes as a general guide in conjunction with a good book on home winemaking.

Appreciating Your Wine

This is a complex and controversial subject in its own right. Presumably, if you have the interest and initiative to make your own wine, you have some familiarity with the commercial products. You have, by experience, developed certain likes and dislikes for a range of wine types. If your own wine comes close to satisfying your tastes, particularly during the initial trials, you are to be congratulated.

If the results are less than expected, however, don't give up. Even the most experienced wine maker occasionally makes mistakes and learns from them. By trial and error and careful attention to

details you should be able to produce a number of quite drinkable wines of different character from Florida-grown agricultural products.

Additional Information

Wine making is thousands of years old and an impressive body of knowledge exists on the subject. You are encouraged to increase your understanding of the subject through the following sources:

Wine Making Supplies

There are a number of wine hobby shops in Florida which specialize in home wine making supplies. They carry equipment and supplies ranging from beginning kits to a miniature winery, including crushers, presses and analytical chemicals for the dedicated hobbyist. Those active in the Florida Grape Growers Association are:

Winemaker's Pantry, 4480 Park Blvd. N., Pinellas Park, FL 33565, (813) 546-9117

Lil' Ol' Wine Maker, 731 New Warrington Rd., Pensacola, FL 32506, (904) 455-3672

Continental Products, 229 Live Oaks Blvd., Casselberry, FL 32707, (305) 834-6052

Wine & Brew By You, 5760 Bird Rd., S. Miami, FL 33155, (305) 666-5757

Textbooks

These same supply outlets, well-stocked bookstores or libraries generally carry a number of books on winemaking. These range from simple beginning recipe books to highly technical treatments on wine making technology. The quality and emphasis of these texts varies widely, so inquire and shop for one which matches your interest level. A wide list to choose from includes the following:

Amerine, M. S., H. W. Berg, R. E. Kunkee, C. S. Ough, V. L. Singleton and A. D. Webb (1980), *The Technology of Wine Making*, 4th Edition, The AVI Publishing Co. Inc., Westport, CT 06881.

Fessler, Julius H., *Guidelines to Practical Winemaking*, Julius Fessler, P. O. Box 2842, Rockridge Street, Oakland, CA 94618.

Marcus, Irving H., *How to Test and Improve Your Wine Judging Ability*. Wine Publications, 96 Parnassus Road, Berkeley, CA 94708, 1972, \$2.75.

M. S. Tritton, *Amateur Wine Making and Guide to Better Wine and Beer Making for Beginners*. Dover Publications, Inc. 180 Varick Street, New York City, NY 10014.

Vino Corporation, *Encyclopedia of Wine Making Equipment*. 400 Avis Street, Rochester, NY 14615. \$1.00

R. P. Vine (1981) *Commercial Winemaking: Processing and Controls*. The AVI Publishing Co., Inc., Westport, CT 06881.

Adams, Leon D., 1984 *Wines of America*. 3rd Ed. McGraw Hill, New York City, NY.

Periodicals

A very good source of industrial information is the magazine *Wines and Vines*, 703 Market St., San Francisco, CA 94103, published monthly. This journal deals primarily with the California industry, but has useful articles concerning U.S. and foreign wine activity. The book reviews and advertisements are of some relevance to the amateur.

Of perhaps equal relevance to those of us in Florida is a comparable magazine *Eastern Grape Grower and Winery News*, Box 329, Watkins Glen, NY 14891. Their annual Wine Industry Seminar and Trade Show, held in the northeast, is well worth attending if you're seriously interested in wines as a hobby.

Another periodical is *The American Journal of Enology and Viticulture*, the professional publication of the American Society of Enologists, P. O. Box 411, Davis, CA 95616. Although the research articles

are highly technical, the abstracts and reviews often have general interest value.

Bulletins

A number of states with wine industries have published Cooperative Extension Service bulletins on home wine making. Many of them are much more extensive than this Fact Sheet. If you travel or have friends in other states, you may be able to obtain some of these publications, usually at a modest charge. For example:

Winemaking as a Hobby, Pennsylvania State University, College of Agriculture.

Homemade Wine, Cornell Information Bulletin No. 1119, N.Y. State Agriculture Experiment Station, Geneva, NY 14456.

Making Muscadine Table Wines, Department of Food Science, North Carolina State University, Raleigh, NC 27607.

Making Wines at Home, Mississippi Agriculture and Forestry Experiment Station, Mississippi State University, Mississippi State, MS 39762.

Associations

The American Wine Society, headquartered at 3006 Latta Rd., Rochester, NY 14612, with the stated purpose of "furthering the knowledge, appreciation and enjoyment of American wines" has a number of active chapters throughout the U.S. and can serve as a useful forum for those interested in wine making. Their special annual bulletin, *Home Wine Makers Information* is a useful reference. This and their publication, the *American Wine Society Journal*, sent to all members quarterly, is the best guide available for both home wine makers and wine enthusiasts.

Another association is the Florida Grape Growers Association, Box 62, Melrose, FL 32666. It consists of both commercial and backyard grape growers, many of whom have a strong interest in wine making. Members are active throughout Florida and conduct several meetings annually involving both regional field days and a very popular amateur wine making competition. All commercial wineries in Florida are involved and a number of members are in the pick-your-own business. Their vineyards and farms represent a good source of Florida grapes and other fruits for wine making.

Steps in Summary

In summary follow these seven steps to pleasant sipping.

1. Adhere to state and federal regulations on wine making.
2. Familiarize yourself thoroughly with the home wine making literature and information sources.
3. Obtain the necessary equipment and quality Florida-grown raw material.

4. Start simply and conduct the fermentation and aging with care and patience.
5. Improve your touch by experimentation and practice.
6. Share your knowledge with similarly motivated hobbyists.
7. Enjoy the fruit of your labor!

This public document was promulgated at a cost of \$561.00, or \$.15 per copy to answer public inquiries regarding home wine making applied to Florida grapes and other fruits.
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