



## INFORMATION RESOURCES FOR COMMERCIAL WINE GRAPE GROWERS IN PENNSYLVANIA and the Mid-Atlantic Region

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<http://pawinegrape.com/>

*The answer to just about any viticulture question you may have lies within these resources. If you read even a small portion of these educational materials you will know as much or more than I did studying in graduate viticulture program at UC Davis. The more you learn the better a grape grower you will be and the greater will be the quality and price of your grapes and the health, productivity, profitability, and sustainability of your vineyard. Knowledge begets fine wines!*

### Recommended for new wine grape growers

#### Books

Mark's top book recommendations:

1. Wine Production Guide for Eastern North America (Wolf)
2. Wine Science: Principles and Applications (Jackson)
3. Sunlight into Wine (Smart and Robinson)
4. The Science of Grapevines (Keller)
5. Wine, Terroir and Climate Change (Gladstones)
6. The Making of a Great Wine: Gaja and Sori San Lorenzo (Steinberg)

#### Practical/Regional Guides

1. ***Wine Production Guide for Eastern North America***. (2008) Edited by Tony Wolf. Published by NRAES. This text is the replacement for the Mid-Atlantic Grape Grower's Guide and covers essential viticulture topics in an Eastern context by 16 outstanding research and extension contributors. It is essential reading for anyone who plans to start or already has a commercial wine vineyard. Ordering information at [www.nraes.org/](http://www.nraes.org/)
2. ***A Practical Guide to Commercial Wine Grape Vineyard Development*** by Mark Chien with contributions from growers and researchers. An A to Z guide to starting a high quality wine vineyard from the idea to the first vines in the ground. It is intended to complement the *Wine Grape Production Guide for Eastern N. America*. Available in winter, 2012.
3. *Midwest Grape Production Guide (Bulletin 919)*. (2005) Written by research and extension faculty at Ohio State University, this is a comprehensive and easy to understand guide to developing and maintaining a commercial wine vineyard. Most of the content is applicable to sites in Pennsylvania. An excellent regional resource. To order a copy, call OSU Ext Media Distribution at 614-292-1607. It is also available on-line.
4. *New York Guide to Sustainable Viticulture Practices: Grower Self-Assessment Workbook*. 2007. Alice Wise, Tim Martinson, et.al. In its essence this is a viticulture best practices guide that serves the needs of growers at all experience levels. It covers most aspects of a commercial vineyard. Whether or not you use the score sheet, it contains essential information that is pertinent to wine growing in the Eastern U.S. Order a copy at <https://www.nysaes.cornell.edu/store/catalog/> or download a .pdf copy at [www.vinebalance.com/](http://www.vinebalance.com/).
5. *A Wine-Growers Guide*. (1985 – 3<sup>rd</sup> edition revised). By Philip M. Wagner. An interesting and informative book for the amateur viticulturist on the cultivation and use of wine grapes by one of

- the pioneers of the Eastern wine industry. This is an excellent introduction to Eastern grape growing by one of its most influential practitioners.
6. **Effective Vineyard Spraying: A Practical Guide for Growers.** (2010). By Andrew Landers. [www.effectivespraying.com](http://www.effectivespraying.com). This the bible for spray use and technology. Applying spray materials (herbicides, fungicides, fertilizers, etc) is a key part of every vineyard. Spray ops must be done correctly, precisely and safely.
  7. *Wine Science: Principles and Applications.* By Ron S. Jackson. Academic Press. 1994. An outstanding general vit/enol text that contains practical information about growing grapes and making wine. This is the textbook for the on-line viticulture course at Washington State University.
  8. *Grapes.* By Glen L. Creasy and Leroy L. Creasy. 2009. #16 in the Crop Production Science in Horticulture series by CABI. This may be the most comprehensive and readable general viticulture guide on the market right now. It covers all aspects of the vine and viticulture.
  9. *Vineyard Establishment I & II* (1997). By Thomas Zabadal and Jeffrey Andersen. \$3 each. These Michigan guide books are very useful helpful with their perspective on establishing grapes in a cold climate region. They cover variety and rootstock selection, vineyard design and management. For copies please refer to Extension Bulletins E-2642 and E-2643. Write to MSU Bulletin Office, 117 Central Services, Michigan State University, East Lansing, MI 48824-1001. Phone: 517-353-6740 or Fax to 517 353-7168
  10. *Vineyard Mechanization: Development and Status in the United States and in Major Grape Production Regions of the World.* Justin Morris and Pamela Brady. 2011. Justin Morris is an authority on mechanization and as labor availability dwindles, machines are likely in our future as wine growers. Topics include: labor, using machines to balance crop and harvest, and complete mechanization of vineyards. It includes descriptions of vineyard machines in European wine regions. <http://shop.ashs.org/product.php?productid=16875&cat=3&page=1>.
  11. *The Backyard Vintner: An Enthusiast's Guide to Growing Grapes and Making Wine at Home.* By Jim Law. (2005). While designed for the backyard grower, this book has a level of detail that will help commercial growers and includes wine making tips from one of the best wine growers in the East. Excellent photos and illustrations. Quarry Books. ISBN: 1592531989

#### General Viticulture

12. *Oregon Viticulture. 2<sup>nd</sup> Edition.* Edited by Dr. Ed Hellman. 2003. Fully revised and updated. Oregon growers and faculty at Oregon State Univ. joined forces to write on of the best hands-on instructional books on wine grape growing. Covers all aspects of establishment, development, operations and more. Available at Amazon.com.
13. **Sunlight Into Wine.** By Richard Smart. This is THE source of information on canopy management. It is for more advanced growers but is an essential document for anyone interested in growing good wine. Richard Smart is a disciple of Nelson Shaulis, one of the great viticulturists of our time. This book will explain the principles of canopy management to you. Read it very carefully. Out of print but still available through various sources.
14. *General Viticulture* (1974-2<sup>nd</sup> edition). By Winkler, Leider, Cook and Kliewer. University of California Press. ISBN 0420025911. For many years this was the bible of California viticulture. Its old and probably hard to find but much of the viticulture content is still useful.
15. *Viticulture, Volumes 1 and 2.* by B.G. Coombe and P.R. Dry (WineTitles, 1992. Note: updated versions are now available) is an excellent source of intermediate to advanced information about grape growing for an Australian perspective. Vol. 1 just recently updated and revised. Order from WineTitles.
16. *Winter Injury to Grapevines and Methods of Protection.* 2007. Zabadal, Dami, Goffinet, Martinson, Chien. Michigan State University Extension Bulletin E2930. A very comprehensive overview of winter injury – what it is, how to prevent it and how to deal with it. Essential for all cold climate wine growers. Order at <http://www.emdc.msue.msu.edu/viewitem.cfm?INVKEY=E2930>
17. *General Viticulture.* By Pierre Galet, translated from the French by John Towey. Oenoplurimedia. 2000. A more up to date version of the classic UC Davis *General Viticulture* text. Covers all aspects of wine growing from vine physiology through viticulture practices from a French perspective.
18. *Growing Quality Grapes to Winery Specifications: Quality Measurement and Management Options for Grape Growers.* M. Krstic, et. al. 2003. WineTitles. From the Cooperative Research

Centre for Viticulture in Australia, this is a comprehensive guide to understanding the components of high quality wine grapes. Contents include physiology, quality parameters, managing the vineyard, harvest conditions and much more. A superb guide from down under. Very hands on, very explanatory.

19. *Northern Wineworks – Growing Grapes and Making Wine in Cold Climates, 2<sup>nd</sup> Edition*. By Tom Plocher and Bob Parke. 2008. This is a basic but very good text covering many of the challenges to cold (I mean really cold) climate viticulture, including site selection, varieties, vine protection, retraining and lots more. It has an excellent reference section with many world-wide contacts and information resources.

#### Sustainable Viticulture Workbooks

1. *New York Guide to Sustainable Viticulture Practices*. Cornell University Cooperative Extension. This is a regional grower assessment workbook that touches on all viticulture issues. It is essential reading for all wine growers in the Eastern U.S. \$30. On-line version at <http://www.vinebalance.com/>. Order form at <https://www.nysaes.cornell.edu/store/catalog/>
2. *2010 Production Guide for Organic Grapes*. Cornell University. Edited by Tim Weigle and Juliet Carroll. NYS IPM publication 224. This is a guide to organic grape production practices with a focus on nutrient and integrated pest management. Available on-line at [http://nysipm.cornell.edu/organic\\_guide/grapes.pdf](http://nysipm.cornell.edu/organic_guide/grapes.pdf)
3. *View From the Vineyard: A Practical Guide to Sustainable Winegrape Growing*. By Clifford P. Ohmart. 2011. Cliff developed the Lodi sustainable program and probably has more experience in this area than anyone in the U.S. This is a very practical and useful guide. I highly recommend it for new and experienced wine growers alike.
4. *Organic Winegrowing Manual*. G.T. McGourty, et al. UCANR Publication no. 3511. 2011. Glenn McGourty is the UC farm advisor in Mendocino County and one of the foremost authorities on organic wine grape production. This is a production guide and it's an excellent complement to the local resources. <http://anrcatalog.ucdavis.edu/Items/3511.aspx>.
5. *Lodi Wine Grower's Workbook, 2<sup>nd</sup> Edition*. 2008. From the Lodi-Woodbridge Wine Grape Commission. Edited by Cliff Ohmart. This is an excellent, comprehensive guide to sustainable vineyard practices developed for the Lodi region. It is a guide of how to grow wine grapes. \$100. <http://www.lodiwine.com/winegrowersworkbook1.shtml>

#### Disease and Pest Management

20. *2011 New York and Pennsylvania Pest Management Recommendations for Grapes*. T.H. Weigle, Andy Muza et al. Written and published by Cornell Univ and Penn State. This is the bible of disease and pest management best practices (IPM) for this region and is updated every spring. Also contains information on weed control, sprayer calibration and more. On-line and ordering information for hard copies at <http://ipmguidelines.org/grapes/>
21. *A Pocket Guide for Grape IPM in the North Central and Eastern U.S.* Updated in 2011. Edited by Rufus Isaacs, et.al. Michigan State Univ Extension Bulletin E-2889. This is the perfect compliment to the NY/PA guide with excellent scouting photos and brief descriptions of diseases, pests, physiological and chemical disorders of grapes. It's small enough to fit in your pocket and is meant to accompany you in the field. Also available in Spanish! <http://web2.msue.msu.edu/bulletins2/site/search.cfm>
22. *2011 VineSmith Pest Management Toolkit*. Updated each year by Jeanette Smith at VineSmith this is a comprehensive pesticide product overview of fungicides, insecticides and herbicides. It should be on the walls of every commercial grape grower. <http://www.vinesmith.com/toolkit.html>
23. *Compendium of Grape Diseases*. Edited by Roger Pearson and Austin Goheen. 1988. Amer Phytopathological Press. Out of print but still available, this is probably the most comprehensive collection of biotic and abiotic diseases and disorders of grapevines available.
24. *Grape Pest Management, 2<sup>nd</sup> edition*. Don Flaherty, et.al. University of California. DNR. 1992. A very complete guide to grape disease and pest problems with a western slant but plenty of useful information for Eastern wine growers.
25. *Graft-transmissible Diseases of Grapevines: Handbook for detection and diagnosis*. Edited by G.P. Martelli. 1993. ISBN 92-5-103245-9

Note: Disease and pest management guides are published annually by Virginia Tech, Rutgers, University of Maryland, Ohio State University, University of Missouri, Iowa State University and others. Check with cooperative extension in your region for how to acquire them.

#### Vineyard Soils, Floor Management and Climate

26. *Wine, Terroir and Climate Change*. John Gladstones. Wakefield Press. 2011. This is probably the definitive guide on the effects of environment on viticulture, in particular temperature. It also covers soils, nutrition, vine balance and other essentials. It connects the conditions around the vine to how a vine works. It is essential reading for the advanced wine grower.
27. *Understanding Vineyard Soils*. Robert E. White. 2<sup>nd</sup> edition. Oxford University Press. 2009. Not as scientific as Terroir, perhaps a little easier to understand with a good foundation of soil science and a connection to viticulture. It is the best vineyard soils guide currently available.
28. *Cornell Soil Health Assessment Training Manual*. Edition 1.2.1, 2007. B.K. Gugino, et.al. Cornell University College of Agriculture and Life Sciences. An excellent primer on agricultural soils and how to assess them. The guide compliments soil analysis services provided by Cornell. PDF copies can be found at <http://soilhealth.cals.cornell.edu>.
29. *Soil, Irrigation and Nutrition*. By Phil Nicolas. Hyde Park Press. 2004. Yet another useful text from down under – this one covers all aspects of vineyard soils, from evaluating potential vigor to adding amendments, also cover crops, weed control, irrigation management and systems, vine nutrition and management and more.
30. *Terroir: The Role of Geology, Climate and Culture in the Making of French Wines*. By James Wilson. Univ. of Berkeley Press. 1998. This is a geologist's viticultural perspective on growing great wines in France. It's scientific but fascinating. For serious wine growers only. Get this through the Wine Appreciation Guild.
31. *Cover Cropping in Vineyards: A Grower's Handbook*, by Chuck Ingels, et. al. 1998. University of California Division of Ag and Natural Resources. Publication 3338. This book covers a lot more than just the practical uses of cover crops in vineyards, including weed and pest control, soil ecology and nematodes. Order from DANR Publications.

#### Vine Biology

32. *The Science of Grapevines: Anatomy and Physiology*. By Markus Keller. Washington State University. Academic Press. 2009. This is an outstanding guide to grapevine structure and function and relating it to viticulture practices. A must read for all commercial wine growers.
33. *Biology of the Grapevine* by Michael Mullins, Alain Bouquet and Larry Williams will provide you with an understanding of the physiology of the grapevine. If you want to learn how vines work, this will tell you in language you can understand. Cambridge University Press, 1996.

#### Table Grapes

34. *Table Grape Varieties for Michigan* (E-2642, 1997) and *Growing Table Grapes in a Temperate Climate* (E-2774, 2002). By Thomas Zabadal. Michigan State University. These two excellent handbooks offer the best information for growing table grapes in our region. Call the MSU bulletin office at 517-355-0240 to order.

#### Other Recommended Viticulture Books

35. *The World Atlas of Wine*, by Hugh Johnson and Jancis Robinson. A wonderful look at the world of wine. Great maps and photos. Concise information on wine production from vineyard to winery. Recently updated and edited by Ms. Robinson. It's my favorite general wine book.
36. *Oxford Companion to Wine*. Edited by Jancis Robinson. Oxford University Press USA. 3<sup>rd</sup> edition (2006). This is THE definitive book on grapes and wine with thousands of references by respected members of the wine and academic communities. If you read this you will pretty much know everything there is to know about wine except what it tastes like. A great reference resource by one of the world's great wine writers.
37. *The Science of Wine*. By Jamie Good. UC Berkeley Press. 2005. I really like this book written by a non-viticulturist but with excellent concepts from well-known figures in the wine industry. It covers topics such as the biology of vines, terroir, precision vit, GM vines, biodynamics and more

- along with enology topics such as microx and spinning cones. It is an excellent source of information on contemporary wine issues from the vineyard to winery.
38. *The Vines of San Lorenzo: The making of a great wine in the new tradition*. By Edward Steinberg. Slow Food Editore. 2006 (new edition). A wonderfully descriptive and personal yet technically informative account of a year of growing wine at the great Sori San Lorenzo vineyard of Angelo Gaja in Piedmont. I would consider this a must read for anyone who wants to make fine wine. If you can, visit the vineyard and winery.
  39. *The New France: A Complete Guide to Contemporary French Wine*. By Andrew Jeffords. Mitchell Beazley Press. 2002. This looks like a simple coffee table book with nice photos but it has amazingly descriptive information in it. The section on Bordeaux is particularly pertinent to conditions in the Mid-Atlantic region.
  40. *The Complete Bordeaux: the wines, the chateaux, the people*. By Stephen Brook. 2007. One of the definitive guides about Bordeaux it has very useful viticulture and wine making information. A must read for anyone intending to grow Bordeaux varieties.
  41. *Matt Kramer's New California Wine*. By Matt Kramer. Running Press. 2004. The section titled "Thinking California" is a general but wonderfully descriptive history of the evolution of wine quality in the Golden State. It contains some very helpful and interesting viticulture information. Mid-Atlantic conditions are very different from arid California but great viticulture relies on the same basic principles no matter where it is practiced.
  42. *Parker's Wine Buyer's Guide No 7*. By Robert M. Parker, Jr. Simon and Schuster. 2008. Tasting benchmark wines is necessary to create quality reference points for your own grape and wine production. Parker is not a viticulturist yet he understands the connection between terroir and wine quality. The viticulture and wine making descriptions in the book are general but interesting. It is most useful for sourcing high quality wines of the same variety you are making for comparative purposes. You may not agree with Parker's palate, but it still the most influential one in the world.
  43. *The Great Domaines of Burgundy*, 3<sup>rd</sup> Edition. By Remington Norman. It looks like another coffee table wine book but it is chock full of useful information extracted directly from many of the best wine growers in Burgundy. The level of viticultural detail is surprising for a general guidebook. It is well worth reading for information and inspiration.
  44. *The Vineyard: The Pleasures and Perils of Creating an American Family Winery*. By Louisa Hargrave. Viking Press. 2005. A good personal account of what is involved in starting an estate winery business, sometimes too personal but good practical information also. I suggest this for anyone thinking about planting a commercial vineyard in the East.
  45. *American Wine Society Booklets* on various vineyard and wine topics including: pruning, grapegrowing, still wines, wine blending, wine acidity and others. Your local AWS chapter is also a good information resource.

Wine: here are a few resources that might be helpful to the aspiring enologist/wine maker:

1. *The Complete Idiot's Guide to Starting and Running a Winery*. By Thomas Pellechia. 2008. I confess to having not read it. It may have some helpful tips for the novice winery owner.
2. *Wine Analysis and Production*. By Bruce Zoecklein. (1995). An older technical textbook that is still considered one of the definitive practical guides to wine production by the research enologist at Virginia Tech.
3. *Winery Planning and Design*. Bruce Zoecklein has taken his well known workshop and put the contents on a CD. Available from his web site and also Practical Winery and Vineyard magazine's bookshelf.
4. *Winemaking Problems Solved*. Edited by Christian Butzke, Purdue University. 2010. This is a big and expensive book but it has a great list of contributors from industry and academia and is oriented towards practical winemaking questions and answers.
5. *Wine Making: From Grape Growing to Marketplace*. Richard Vine and Ellie Harkness. Both are retired from the enology program at Purdue. The first edition of this book walked me through my first vintage as a winemaker. I found it extremely practical and useful.
6. *Enology Notes*. The archive of wine making newsletters from Bruce Zoecklein is an outstanding enology information resources with an eastern perspective. It should be visited frequently by commercial wine makers. <http://www.vtwines.info/> > enology notes subject index.

Many of these books and other grape and wine resources are available at [www.amazon.com/](http://www.amazon.com/) and [www.barnesandnoble.com/](http://www.barnesandnoble.com/). The University of California Press and the Mitchell Beazley Wine Library are among my favorite publishers of books about viticulture and wine making. Visit their web sites for full publication listings.

Other book outlets include:

1. The Wine Appreciation Guild in South San Francisco has an extensive collection of wine and grape publications as well as other wine related items. Look for them at <http://www.wineappreciation.com/>. Telephone: 800 231-9463
2. Practical Winery and Vineyard also sells viticulture and enology books. <http://www.practicalwinery.com/>.
3. Visit <http://winetitles.com.au/> for a comprehensive list of books from down under.
4. The UC Davis bookstore has one of the best collections of viticulture and enology books and textbooks I have ever seen. Only part of the collection is available on their webs site - <http://bookstore.ucdavis.edu/>. If you can visit the book store, plan to spend a lot of money.
5. Also <http://www.winehardware.com/> has books and other wine accessories for sale.

Libraries

The American Society for Viticulture and Enology Eastern Section maintains a collection of viticulture and enology books at the Frank A. Lee Library at the New York State Agricultural Experiment Station in Geneva, NY. This is part of the largest collection of titles on viticulture and enology in the East including rare and historic texts. These books are available on an inter-library loan basis through your local library or any academic library and can be very helpful to growers in the region. You can search titles on their web site at <http://www.nysaes.cornell.edu/library/>. It would be helpful to have the author and title to facilitate your search. Or call the library at 315.787.2214 for assistance.

The Wine Grape Program at Penn State has developed a small but useful collection of books, journals and magazines which commercial wine growers can borrow for three week periods. Please contact Mark Chien at [mlc12@psu.edu](mailto:mlc12@psu.edu) for lending information and a book list.

The Penn State library system has a surprisingly deep collection of viticulture texts, some date as far back as the 1600s. You can search on-line at <http://www.libraries.psu.edu/psul/home.html>.

The Healdsburg branch of the Sonoma County Library System has a large collection of wine books that can be tapped through your library's interlibrary loan system. <http://www.sonomalibrary.org/wine/index.html>

## Information on the Internet

Viticulture

1. The Pennsylvania Wine Grape Network – <http://pawinegrape.com/>. Viticulture information, news and events calendar from Penn State Cooperative Extension.
2. Virginia Tech Viticulture - Dr. Tony Wolf's web site with viticulture information from Virginia Tech. <http://www.ares.vaes.vt.edu/alson-h-smith/grapes/viticulture/index.html>
3. Maryland Grape and Fruit Page from Dr. Joe Fiola - <http://www.grapesandfruit.umd.edu/>.
4. Finger Lakes Grape Program - <http://flg.cce.cornell.edu/>. Information from the Finger Lakes and Cornell Cooperative Extension.
5. Viticulture on Long Island. Cornell Cooperative Extension. <http://ccesuffolk.org/viticulture/> This is primarily about growing vinifera varieties on Long Island.
6. Lake Erie Regional Grape Program – <http://lergp.cce.cornell.edu/>. Information from the Lake Erie region supplied by Penn State and Cornell.
7. New York Vineyard Site Evaluation System from Cornell University - <http://arcserver2.iagt.org/vll/Default.aspx>
8. Grape Pages from Cornell University- <http://www.nysaes.cornell.edu/hort/faculty/pool/GrapePagesIndex.html>. Dr. Robert Pool is one of the most renowned viticulturists in the East. This site has an excellent page on site selection and other viticulture topics

9. Ontario Ministry of Agriculture and Food - <http://www.gov.on.ca/OMAFRA/english/crops/hort/grape.html>. Lots of great information about growing wine grapes from Eastern N America's largest wine region.
10. Texas A&M - <http://winegrapes.tamu.edu/>. Another site excellent site developed by Dr. Ed Hellman, it contains lots of good information and links to other important sites.
11. UC Davis Integrated Viticulture - <http://ucanr.org/sites/intvit/> This is the website of the best known viticulture school in America. It has loads of good information.
12. "E" xtension Grape Community of Practice viticulture web site is an interactive learning tool offering Ask the Expert, FAQs, viticulture fact sheets and much more. All of the materials are created and reviewed by viticulture extension educators. <http://www.extension.org/grapes>

#### Site Selection Information

1. *Vineyard Site Selection*. Tony Wolf. Virginia Tech. <http://www.pubs.ext.vt.edu/463/463-020/463-020.html>
2. *New York Vineyard Site Evaluation System* from Cornell University - <http://arcserver2.iagt.org/vll/>
3. *Pennsylvania Soil and Climate Maps and Information*. Look under soil climates > PA soil climate atlas. <http://www.soilinfo.psu.edu/index.cgi?index.html>.

#### Wine Grape Variety Information

1. *Wines and Juice Grape Varieties for Cool Climates*. Bruce Reisch. Cornell University (updated in 2000). <http://www.nysaes.cornell.edu/hort/faculty/reisch/bulletin/wine/>
2. *Commercial Grape Varieties for Virginia*. Dr. Tony Wolf. Available as a .pdf file (59MB) at <http://www.pubs.ext.vt.edu/463/463-019/463-019.pdf>
3. National Grape Registry from the Foundation Plant Service at UC Davis. <http://www.ngr.ucdavis.edu/>. Large database on grape varieties and nursery suppliers.
4. *Cold Climate Cultivars* for Iowa State University is a comprehensive survey of cold hardy varieties by Lisa Smiley, Paul Domoto and Gail Nonnecke. <http://viticulture.hort.iastate.edu/cultivars/cultivars.html>
5. *The Super Gigantic Y2K Wine Grape Glossary* by Anthony Hawkins is a comprehensive source of information about grape varieties. <http://www.wineloverspage.com/winequest/wgg.html>

#### Wine

1. Penn State Enology. Information from Denise Gardner and the Department of Food Science at Penn State. <http://extension.psu.edu/enology>
2. Cornell Vinification and Brewing Technology - <http://www.nysaes.cornell.edu:80/fst/vb/>. Information about wine making from NYSAES in Geneva, NY.
3. Virginia Tech Enology and Grape Chemistry Group – <http://www.vtwines.info/>. Excellent information about wine making from Dr. Bruce Zoecklein at Virginia Tech.

**GOOGLE** viticulture, enology, wine or other key words to link to infinite web sites.

**Newsletters:** there are eight essential viticulture newsletters for growers in the Eastern U.S highlighted below. They contain valuable time and topic sensitive materials according to each growing season's conditions. Please subscribe:

1. *Viticulture Notes* by Tony Wolf is directed at the Virginia wine industry but has plenty of useful information for PA growers. Available by e-mail or on-line at <http://www.ext.vt.edu/cgi-bin/WebObjects/Docs.woa/wa/getnews?cat=tt-news-viti>
2. *Finger Lakes Vineyard Notes* by Hans Walter-Peterson is full of great information from New York covering production, management and viticulture. Call Linda Baube at 315 536-5134.
3. *Long Island Fruit and Vegetable Update* by Alice Wise comes out weekly during the growing season, monthly otherwise, is from Long Island and focuses on growing vinifera wine grapes. Call 631 727-7850.
4. *Timely Viticulture* from Joe Fiola at the University of Maryland. Contact him to sign up for it at [jfiola@umd.edu](mailto:jfiola@umd.edu).

5. *Lake Erie Vineyard Notes* by the Lake Erie Regional Grape Program focuses on native, process grapes and production but valuable information for all grape growers. Contact Linda Aures to sign up at (716) 672-5296
6. *Wine Grape Information from Penn State* contains viticulture information, regional news and events from the wine grape program at Penn State Cooperative Extension and is delivered on an erratic schedule. Contact Mark L. Chien at [mlc12@psu.edu](mailto:mlc12@psu.edu).
7. *The Tender Fruit Grape Vine* from the Ontario Ministry of Agriculture Vineland Research Centre has excellent information for eastern growers  
[http://www.omafra.gov.on.ca/english/crops/hort/news/news\\_grapevine.html](http://www.omafra.gov.on.ca/english/crops/hort/news/news_grapevine.html)
8. *Ohio State Grape Electronic Newsletter* (OGEN) from Imed Dami. [dami.1@osu.edu](mailto:dami.1@osu.edu)

Newsletters by snail mail only:

9. *The Maryland Grapevine* is the quarterly newsletter of the Maryland Grape Growers Association. Call Jack Johnston for information at 410-848-7577.

Wine

1. Cornell Vinification and Brewing Technology Laboratory – contact Ben Gavitt at 315-787-2263
2. Enology and Grape Group at Virginia Tech – contact Bruce Zoecklein at [bzoeckle@vt.edu](mailto:bzoeckle@vt.edu).

### Vineyard and Winery Economics Information

1. *Cost of Establishment and Production of Vinifera Grapes in the Finger Lakes Region of New York – 2005*. Dr. Gerald B. White and Mr. Mark Pisoni. Dept of Applied Economics and Life Sciences. Cornell University. Publication no. EB 2005-06. Developed using real vineyard input. Cost \$10. For a copy, call Faye Butts at 607.254.7412 or e-mail at [fsb1@cornell.edu](mailto:fsb1@cornell.edu). Available as .pdf at <http://hortmgt.aem.cornell.edu/pdf/resources/eb2005-06.pdf>.
2. *The Economics of Wine Grape Production in Virginia*. 1998. By Dr. Tony Wolf, Eric Capps and Jerry Walker. Virginia Tech. Publication no. 463-008. (available on the web at <http://www.ext.vt.edu/pubs/viticulture/463-008/463-008.html>) Currently being fully updated with new data and information. For a copy, please write to Virginia Cooperative Extension Distribution Center, 112 Landsdowne St., Blacksburg, VA 24060 See it on the web at <http://www.ext.vt.edu/pubs/viticulture/463-008/463-008.html>.
3. *Vineyard Economics Presentation by Dr Tony Wolf*.  
[filebox.vt.edu/vaes/AHSMITHJAREC/WolfWeb/Economics\\_June2003.pdf](http://filebox.vt.edu/vaes/AHSMITHJAREC/WolfWeb/Economics_June2003.pdf)
4. Vineyard development calculators for red and white wine from UC Davis Ag and Resource Development: <http://coststudies.ucdavis.edu/current.php> This includes detailed cost studies including labor and time quantities as well as cost analysis for organic vineyards in different wine regions in California. The North Coast studies would be closest to Eastern US situation.
5. Vineyard development calculator for the Northwest from Washington State University Extension: <http://www.nwgrapecalculators.org/index.php>
6. *Vineyard Economics*. Motto, Kryla, and Fisher, LLP. 2000. The Wine Business Center, St. Helena, CA. This MKF research report is a VERY in depth guide to developing a vineyard using a California site under various scenarios. Its an excellent resource for serious vineyard development. Call 707.963.9222 for information or visit <http://www.mkf.com/>
7. *Establishment and Production Costs for Grapes in Ontario – 2005 Economic Report*. Ontario Ministry of Agriculture, Food and Rural Affairs. A detailed guide to cost of vineyard development for Cabernet Franc, Chardonnay, Vidal and Concord through Year Four. To order call 888.826.3700 or check the OMAF web site at <http://www.omafra.gov.on.ca/english/busdev/download/grpecon.htm>
8. *New York State Winery Handbook – A Single Source Information Source for New York Winery Managers and Owners*. \$100. Contact the NY Wine and Grape Foundation at 315.536.7442.
9. *Writing a Business Plan: An Example for a Small Premium Winery*. Mark E. Pisoni and Gerald B. White. Cornell University publication E.B. 2002-07. A very good look at a four-year plan to develop a premium winery in the Finger Lakes region. Available on the internet at: [www.apec.umn.edu/faculty/wnefstea/eb0207.pdf](http://www.apec.umn.edu/faculty/wnefstea/eb0207.pdf).

## **Additional Pest Management Guides (see listings under Books)**

1. 2011 Midwest Commercial Grape Pest Management Guide. Purdue University. [http://www.ag.purdue.edu/hla/Hort/Pages/sfg\\_sprayguide.aspx](http://www.ag.purdue.edu/hla/Hort/Pages/sfg_sprayguide.aspx)
2. Mid-Atlantic Vineyards Grape IPM <http://www.virginiafruit.ento.vt.edu/grape-fruit-ipm.html>
4. Ohio, New Jersey, Maryland, Ontario and other states have their own local pest management guides. Contact your extension agent.

## **Magazines** (highlighted are essential reading for Eastern growers)

1. **Practical Winery and Vineyard** is the best industry magazine for useful information that you can take into your vineyard. It has a west coast bias but you will still learn a lot from its knowledgeable writers. Call 415 479-5819
2. **Wine Business Monthly** focuses on the business of the wine and vineyard industries, but also contains lots of practical information for grape growers. They also provide a daily e-mail update. 925 372-6002.
3. **Vineyard and Winery Management** covers grape growing and wine making stories from a mostly eastern slant. Lots of information about meetings and trade shows as well as regional vendors. Call 1 800 535-5670
4. *Wine East* section of *Wines & Vines*. In 2008 *Wine East* merged with *Wines & Vines*. It is still an important source of information for the wine industry east of the Rockies. Hudson Cattell and Linda Jones are still the editors. Subscribe through *Wines & Vines*.
5. *Australian Viticulture: Practical Vineyard Management*. Published by Winetitles. Along with PWV, the best practical guide in winegrowing.
6. *Australian and New Zealand Grapegrower and Winemaker*. Ryan Publications. Excellent practical information from down under, much of it is relevant to our own vineyards. Order online at [www.grapeandwine.com.au](http://www.grapeandwine.com.au).

## **Consultants and Vineyard Development Services**

### Vineyard

1. Brian Dickerson – manager of Mica Ridge Vineyard in Chester County, combines his experience with vineyard management and real estate to help people find high quality vineyard sites. He can also assist with vineyard planning and development. [brian@pennsland.com](mailto:brian@pennsland.com). (610) 656-7087
2. Lucie Morton - is a known around the world for her work on rootstocks, grapevine ampelography and vine decline pathogens. She has a broad range of very practical viticulture knowledge.
3. Jeanette Smith. VineSmith. Jeanette has decades of experience in the Eastern wine industry as an extension educator, vineyard manager and winery-grower liaison. She is the publisher of the Eastern US wine grape fungicide and insecticide posters. <http://www.vinesmith.com/>
4. Kevin Ker - Ker Crop Management Services provides a full range of viticultural services. They have 25 years of experience working in orchards and vineyard in Ontario. 905 945-8228. <http://www.kcms.ca/default.asp>
5. Chris Hill has been a vineyard consultant in Virginia for over 20 years. His methods seek to match the best viticulture to a particular site. (434) 296-2604 or [cohill@cstone.net](mailto:cohill@cstone.net).
6. Maryland Vineyard Management Co. is owned by Don McClure and offers a range of consulting and vineyard development services, and they will work in other states. [www.marylandvineyardmanagement.com/](http://www.marylandvineyardmanagement.com/)
7. Mudd Vineyard Ltd. Steve Mudd has vast experience planting vinifera vineyards on Long Island. His company does superb work in vineyard development and management. 631-765-1248

California consultants: pricey but tops in their field:

8. Dr. Mark Greenspan. Advanced Viticulture. Napa, CA. [www.advancedvit.com](http://www.advancedvit.com).
9. Dr. Daniel Roberts. Integrated Winegrowing, Sebastopol, CA. [www.integratedwinegrowing.com](http://www.integratedwinegrowing.com).

## Soil Consultants

1. Alex Blackburn. Berryville, VA. Complete vineyard site evaluation and soil mapping with local knowledge and experience. <http://www.soilfoundations.com/>
2. James Fisher. Soil Solutions. Malvern, PA. [soils@comcast.net](mailto:soils@comcast.net). (610) 656-2946. James has local experience in Pennsylvania with soils and vine nutrition issues. (indefinitely on leave in Afghanistan).
3. Dr. Paul Anamosa. Vineyard Soil Technologies. Napa, CA. [www.vineyardsoil.com](http://www.vineyardsoil.com). Paul offers the full suite of vineyard planning, analysis and development services with special attention to soils.
4. Dr. Paul Skinner. Terra Spase. St Helena, CA. Soil, climate and vineyard planning. (707) 967-8323 x12. <http://www.terraspace.com/>

## Winemaking Consultants

1. Tom Payette from Virginia – has extensive experience in the eastern wine industry. <http://www.winemakingconsultant.com/>. [tpayette@ns.gemlink.com](mailto:tpayette@ns.gemlink.com).
2. Tom Cottrell is the WineDoc. Tom is the enology extension specialist in Kentucky but still consults in the East. Vast experience with Eastern and California wine making. <http://www.winedoc.com/>
3. Richard Carey – has experience in both research and commercial wine making. He has a small pilot winery at his home in Lancaster. 63 Peach Lane, Lancaster, PA 17601. 717 560-8737. [rcarey@vitisresearch.com/](mailto:rcarey@vitisresearch.com/)
4. Jean-Pierre Colas. Ontario. [jean.colas@sympatico.ca](mailto:jean.colas@sympatico.ca). (905) 325-5326. Jean Pierre has outstanding experience growing grapes and making wine in cool/cold climate environment.

## Soil and Tissue Testing Labs

1. Penn State - [http://www.aasl.psu.edu/plant\\_tissue\\_prog.html](http://www.aasl.psu.edu/plant_tissue_prog.html). Obtain soil and tissue testing kits from your county extension office.
2. A&L Eastern Agricultural Services. Dr. Paul Chu. <http://www.al-labseastern.com/index.html>
3. Rutgers University Plant Diagnostic Lab will test for plant, soil, nematodes and water. <http://njaes.rutgers.edu/services/>
4. Brookside Labs - <http://www.blinc.com/intro.htm>

## Analysis for Nematodes, Virus, Disease, etc.

1. Rutgers University Plant Diagnostic Lab will test for plant, soil, nematodes and water. <http://njaes.rutgers.edu/services/>
2. Agri-analysis in Davis, CA. <http://www.dcn.davis.ca.us/vme/agri-analysis/>.
3. FPS at UC Davis testing services – <http://fpms.ucdavis.edu/grape/GrapeProgramSubindexCustomServices.html>
4. STA Laboratories, CO. [http://www.stalabs.com/newsite/Grapevine\\_Diagnostics/Grapevine\\_Diagnostics.php](http://www.stalabs.com/newsite/Grapevine_Diagnostics/Grapevine_Diagnostics.php)

Contact your extension agent about local analysis services and identification of vine problems.

## Vendors

1. Spec Trellising is located in Ivyland and has vineyard development materials and vineyard equipment and supplies. Michael Schmidt is very knowledgeable about vineyard building needs. 215-322-5588. <http://www.spectrellising.com/>
2. Orchard Valley Supply. Located in Harrisburg, NC, they do a lot of mail order shipping. A comprehensive list of supplies and materials for vineyards. 888.755.0098 or 704.455.4933. <http://www.orchardvalleysupply.com/>.
3. BDI Equipment in Macungie, PA has large vineyard equipment including sprayers, grape hoes, hedgers, mowers and more. Contact Bill Reiss. 800 808 0454. Catalog at <http://www.bdimachinery.net/resources/BDiCatalogVineyard2010.pdf>

4. Finger Lakes Harvester and Vineyard Equipment in Dundee, NY sells many vineyard implements such as hedgers, sprayers, grape hoes, etc. Call Harry Humphreys at 607-243-5262.
5. H and W Equipment in Ontario. Suppliers of mostly very fine German vineyard equipment. These folks know their products. Talk to Hans Woerthle. 905-468-5016.  
<http://www.vineyardmachines.com/>
6. Finger Lakes Trellis Supply in Marion, NY sells a complete line of vineyard equipment and supplies. For information go to <http://www.fingerlakestellissupply.com/>
7. Gempler's. This farm and industry supply catalog is a MUST for every farm. Don't just look at their website, you must have the full catalog to view the full range of their products. It is an awesome resource for vineyard supplies from WPS posters to raingear and spray equipment. Order a catalog through their website at [www.gemplers.com/](http://www.gemplers.com/)

### **Chemical Products Sales and Services serving Pennsylvania Vineyards**

1. Helena Chemical Co. Ron Serfass. 215.416.4896
2. Chester County Crop Care. Ralph Cheeks. 610.345.9001

### **Vineyard and Winery Services**

1. Mudd Vineyard, Ltd. Full range of vineyard development, installation and management services. Based in Southold, NY. 631-765-1248.
2. Chris Hill in Virginia also develops new vineyards. See consultants.
3. Laser Planting. Ken Whitty. Benchmark Custom Work. Outstanding custom planting with a laser planter. Straight rows. 905.682.4904. [kenw@niagara.com](mailto:kenw@niagara.com).
4. Trellis installation – Delbert Weaver, Fleetwood, PA. 610-944-9695.

### **Wine Production and Analysis**

1. Vitis Wine Center Wine Services. Richard Carey. A full range of production and analysis services based in Lancaster, PA. (717) 560-1650
2. Eastern Wine Labs. <http://www.easternwinelabs.com/index.htm>
3. Virginia Tech. <http://www.fst.vt.edu/extension/enology/index.html>. See enology lab services.
4. NY State Wine Analysis Lab at NYSAES in Geneva.  
<http://grapesandwine.cals.cornell.edu/cals/grapesandwine/outreach/nys-analytical-lab.cfm>
5. Enological Testing Service (ETS) <http://www.etslabs.com/>

### **Sustainable and Organic Viticulture Information Resources**

1. Vine Balance: Sustainable Viticulture in the Northeast. Cornell University.  
[www.vinebalance.com](http://www.vinebalance.com).
2. Organic Viticulture in New York from Cornell University.  
<http://www.nysaes.cornell.edu/hort/faculty/pool/organicvitwkshp/tabofcontents.html>
3. Disease Management Guidelines for Organic Grape Production in the Lake Erie Region. Dr. Jim Travis, et. al. Dept of Plant Pathology. Penn State University. 2007. Please contact the author at [jwt2@psu.edu](mailto:jwt2@psu.edu) for a copy.
4. Guide to Application of Compost in Vineyards. Dr. Jim Travis, et. al., Dept of Plant Pathology, Penn State University. 2005. PDF copy available at  
<http://www.ppath.cas.psu.edu/EXTENSION/FRUITPATH/compostguide.pdf>
5. National Sustainable Agriculture Information Service (ATTRA). A full guide of organic practices for grapes including product vendors, wine and other resources. <http://attra.ncat.org/attra-pub/grapes.html>
6. California Association of Winegrape Growers Code of Sustainable Viticulture.  
<http://www.cawg.org/sustainable/index.htm>
7. University of California Sustainable Agriculture Research and Education Program.  
<http://www.sarep.ucdavis.edu/>
8. Oregon Low Input Viticulture and Enology. <http://berrygrape.oregonstate.edu/LIVE/>
9. Lodi-Woodbridge Winegrape Commission. <http://www.lodiwine.com/sustainableviticulture1.shtml>
10. Napa Sustainable Winegrape Group. <http://www.nswg.org/homepage.htm>

11. Central Coast Vineyard Team. <http://www.vineyardteam.org/>

### **Grape Variety, Clone and Rootstock Information**

1. *Commercial Grape Varieties for Virginia* by Tony Wolf et.al. (1999) contains information that is relevant to vineyards in Pennsylvania. Available on-line at <http://www.ext.vt.edu/pubs/viticulture/463-019/463-019.pdf>
3. *Wine Grape Varieties of California*. By L.P. Christensen, et. al. Univ of CA Agriculture and Natural Resources. Publication 3419. Very good description of grape varieties suitable for California vineyards but lots of information is pertinent to eastern vineyards. Call communication services at 510.642.2431 to order
4. *Wine Grape Varieties for Michigan*. By G.S. Howell, D. Miller, T. Zabadal. Michigan State University Extension. Publication E-2643.
5. *Wine and Juice Grapes for Cool Climates*. By B. Reisch, R. Pool, D. Peterson. Cornell Cooperative Extension. Bulletin 233. To order call 607.255.2080.
6. *The National Grape Registry at UC Davis* - A very comprehensive list of wine grape varieties. <http://www.ngr.ucdavis.edu/>
7. *Wines, Grapes and Vines*. By Jancis Robinson
8. *Guide to Wine Grapes*. By Jancis Robinson
9. *Rootstocks for Grape-vines*. By D.P. Pongracz
10. *A Concise Guide to Wine Grape Clones for Professionals.2<sup>nd</sup> Edition*. By John Caldwell.

### **Commercial Grapevine Nurseries**

1. Grafted Grapevine Nursery in Clifton Springs, NY has a wide range of grape varieties. Call Herman or Eric Amberg at 315 462-3183. <http://www.graftedgrapevines.com/>.
2. Double A Vineyards in Fredonia, NY has a good reputation for quality. Call 716 672-8493. <http://www.rakgrape.com/index.php>
3. Hermann J. Wiemer Nursery is a long time supplier of grapevine material to growers in New York and the East. Call 607 243-7971. <http://wiemer.com/nursery/>
4. Lincoln Peak Vineyard and Nursery in New Haven, VT. Chris Granstrom grows all kinds of cold climate varieties. <http://www.lincolnpeakvineyard.com/default.aspx>. Ph: 802-388-7368
5. Northeastern Vine Supply in Poultney, VT is another reliable supplier of cold climate grapevines. <http://www.nevinesupply.com/>.
6. Many other nurseries, mostly in California (Sunridge, Duarte, Vintage, NovaVine California Grapevine and others), sell to growers in Pennsylvania. Check out their websites. They have valuable information on wine grape varieties, clones and rootstocks.
7. Certified vine materials: Certified and rare vine materials can be obtained from the Foundation Plant Service (FPS) at UC Davis - <http://fms.ucdavis.edu/> and at the North West Grape Foundation Plant Service in Washington State at <http://nwgfs.wsu.edu/>.

Grape Materials Consultant: Plant materials are one of the most important parts of your vineyard and should be of the correct variety, rootstock and clone. Do not compromise! In order to insure the quality and quantity of your order from a California nursery you may wish to engage a vine consultant. Dr. James Stamp provides this valuable service. You can contact him at [james@jamesstamp.net](mailto:james@jamesstamp.net) or 707-829-8405. His web site has excellent information at <http://www.jamesstamp.net/home.html>

### **Wine and Grape Organizations**

1. The Pennsylvania Winery Association (PWA) includes most of the wineries in the state. They are very active in all issues concerning grapes and wine in the state. Call Jennifer Engle for more information at 717 234-1844. <http://www.pennsylvaniawine.com/>. Sam Landis from Vynecrest Vineyard is the current PWA president.
2. The Pennsylvania Wine Marketing and Research Program is the marketing order the Pennsylvania wine industry. It uses a \$0.15/gal fee on all wines produced in PA to support research, education and marketing programs that benefit the wine industry. The program is administered by PDA. Karl Zimmerman from Shade Mountain Vineyard is the current PWMRP chairman.

## **Penn State and other regional Cooperative Extensions (for commercial grape inquiries only)**

1. Mark Chien is the statewide viticulture extension educator in Pennsylvania. He can be reached at (717) 394-6851 or [mlc12@psu.edu](mailto:mlc12@psu.edu).
2. Andy Muza handles grapes and horticultural crops in Erie County. (814) 825-0900
3. Lee Young is the county extension director in Washington County and has been coordinating grower and winemaker activities in SW PA. (724) 228-6881.
4. Denise Gardner is the extension enologist based in the food science building at University Park. She provides extension education materials and services to commercial wineries. She can be contacted at [dxg241@psu.edu](mailto:dxg241@psu.edu) or 814.867.0431.
5. Regional grape extension agents include:
  - a. Dr. Tim Martinson – Cornell Cooperative Extension, NYSAES. Geneva, NY. Tim is the statewide coordinator for viticulture in New York and has access to the incredible research and extension resources at Cornell beyond the list presented here.
  - b. Ms. Alice Wise – Cornell Cooperative Extension, Riverhead, Long Island, NY. Covers Long Island.
  - c. Mr. Hans Walter-Peterson – Cornell Cooperative Extension, Finger Lakes Grape Program, Penn Yan, NY. Covers the Finger Lakes.
  - d. Ms. Jodie Creasap – Cornell Cooperative Extension, Lake Erie Regional Grape Program in Fredonia, NY. Covers Western New York.
  - e. Dr. Tony Wolf – Virginia Tech, Alson Smith Research Center, Winchester, VA, and Tremain Hatch – extension assistant to Tony Wolf.
  - f. Dr. Joe Fiola – U Md Cooperative Extension, W Md Research and Extension Center, Keedysville, MD
  - g. Dr. Gary Pavlis, Rutgers Cooperative Extension, Atlantic County. NJ.
  - h. Dr. Imed Dami – Ohio State Univ, OH Ag Research and Development Center, Wooster, OH
  - i. Dr. Sonia Schloemann – University of Massachusetts, Amherst, MA. Covers southeast New England
  - j. Dr. William Nail – CT Agricultural Experiment Station. New Haven, CT.
  - k. Dr. Lorraine Burkett – University of Vermont, Burlington, VT. Covers northern New England and Vermont in particular.
  - l. Dr. Sara Spayd, NC State Cooperative Extension. [Sara\\_Spayd@ncsu.edu](mailto:Sara_Spayd@ncsu.edu). (919) 513-0772

### Non-commercial/backyard grape growers

Backyard growers can direct their questions to the Master Gardener program at your local county extension office. Look in the blue pages of your phone book in the agriculture listings under your county offices. A **Backyard Grape Grower** bulletin is available at your county extension office. An excellent instructional guide is **The Backyard Vintner** by Jim Law (listed under books), one of the best wine growers in the East. The American Wine Society has a number of publications written for the amateur wine grower which you can find at [http://www.americanwinesociety.org/web/books\\_manuals.htm](http://www.americanwinesociety.org/web/books_manuals.htm)

Neighbor Relations: With many vineyards at the urban-agricultural interface, this is becoming and increasingly difficult topic for farmers, which needs to be handled with great care and concern. A great source of information can be found at the California Association of Wine Growers web site: <http://www.cawg.org/relations/>.

### **Education:**

The busiest meeting-workshop-seminar months are between January and May. Virtually every wine area has local meetings, from Ontario to North Carolina, New Jersey to Iowa. Large regional meetings like Wineries Unlimited cover the needs of almost all wine growers and include a large trade show. These meetings are a great place to learn the latest in viticulture and enology technology and ideas, recent research, network and meet with fellow wine growers. Check the annual viticulture and enology regional events calendar put out by Penn State Cooperative Extension.

#### Important regional meetings:

1. Wineries Unlimited, sponsored by Vineyard and Winery Management. 2<sup>nd</sup> week in March. King of Prussia, PA. [www.wineriesunlimited.com](http://www.wineriesunlimited.com).
2. Eastern Winery Exposition, Lancaster, PA. 2012 is the inaugural year for this new event. [www.easternwineryexposition.com](http://www.easternwineryexposition.com).
3. American Society for Enology and Viticulture Eastern Section. Usually held the 2<sup>nd</sup> week in July. Locations move around the eastern section area. <http://www.nysaes.cornell.edu/fst/asev/index.php>.
4. Pennsylvania Winery Association Annual Meeting
5. Maryland Grape Growers Association and Maryland Winery Association Annual Meeting.
6. Virginia Vineyards Association annual meeting. 2<sup>nd</sup> week of February. Omni Hotel in Charlottesville, VA. <http://www.virginiavineyardsassociation.com/>.

Cornell University has recently established a viticulture and enology four year undergraduate degree program in the Department of Horticulture to compliment their graduate degree programs. This is a great opportunity for students from our region to prepare for a career in research or industry. There are also vit/enol graduate study opportunities at Cornell. You can find information about the program at <http://grapesandwine.cals.cornell.edu/>.

Vocational/Practical Viticulture and Enology Training. These vary greatly in experience and quality so be sure to research each one very carefully and pick the right one for your specific needs.

#### East and Midwest:

1. Harrisburg Area Community College is offers a 1-year certificate and 2-year associate's degree programs in viticulture and/or enology. It is a blended/on-line curriculum with grape and wine "camps." Please contact Bob Green at 814-860-1452 or [ragreen@hacc.edu](mailto:ragreen@hacc.edu) for more information. Visit these websites for courses and information:  
Viticulture: <http://www.hacc.edu/AcademicDepartments/HospitalityandTourism/Viticulture.cfm>  
Enology: <http://www.hacc.edu/AcademicDepartments/HospitalityandTourism/Enology.cfm>
2. Surry Community College, Dobson, NC. Associates degree courses in viticulture and enology. Contact Gill Giese, director. <http://www.surry.cc.nc.us/>
3. Niagara College Teaching Winery, Niagara-on-the-Lake, Ontario. Hands-on program in viticulture and enology with internships in the Ontario wine industry. Steve Gill, director. <http://www.niagarac.on.ca/>
4. Viticulture and Enology Science and Technology Alliance (VESTA) started in the Midwest but has grown to a national network (land and online) of viticulture and enology programs. It currently offers 25 courses for certificate and applied science degree programs. For more information go to <http://www.vesta-usa.org>

#### West:

1. Chemeketa Community College, Salem, Oregon at the Northwest Viticulture Center. Viticulture and Enology Associates Degree Program. Instructors are Al MacDonald and Barney Watson. Outstanding facilities and practical instruction in grape growing and wine making. <http://www.chemeketa.edu/exploring/locations/eola/index.html>.
2. California State University at Fresno, Department of Viticulture and Enology, Fresno, California, offers an excellent practical training curriculum in viticulture and enology. <http://cast.csufresno.edu/ve/>
3. Napa Valley College, Napa, California. Certificate and associate degrees are offered through its viticulture and winery technology program. Dr. Stephen Krebs is the director. <http://www.napavalley.edu/Academics/TechnicalDivision/VWT/Pages/default.aspx>
4. Santa Rosa Junior College, Santa Rosa, California. A veteran JC program in viticulture and enology. <http://www.santarosa.edu/>
5. Alan Hancock College, Santa Maria, California. Associates courses in viticulture and enology. Visit [http://www.hancockcollege.edu/body\\_viticulture.asp?ID=363](http://www.hancockcollege.edu/body_viticulture.asp?ID=363).

The following are four-year or graduate education and research programs for more in-depth viticulture and enology studies:

7. Virginia Polytechnic University Department of Horticulture, Blacksburg, Virginia. Graduate programs in viticulture and enology with Dr. Bruce Zoecklein and Dr. Tony Wolf.
8. Cornell University (see above)
9. Brock University, Ste. Catherines, Ontario. Dr. Andy Reynolds. Excellent program at the Cool Climate Enology and Viticulture Institute (CCOVI).
10. University of California at Davis, Department of Viticulture and Enology, Davis, California. Undergraduate, graduate curriculum, short courses and some on-line distance learning offerings in viticulture and enology. <http://wineserver.ucdavis.edu/>
11. California State Polytechnic University (CalPoly) has developed a fine reputation for its viticulture and enology program. It trains some of California's best professionals. <http://www.calpolywine.com/>
12. Washington State University, Department of Horticulture. Pullman, Washington. On- line program viticulture and enology program started in 2004. <http://www.wineducation.wsu.edu/viticulture/>.
13. Oregon State University, Department of Horticulture, Corvallis, Oregon. OSU has recently begun an enology and viticulture four year curriculum.

Distance and on-line learning opportunities:

1. Washington State University is now offering a comprehensive on-line viticulture curriculum. It spans 18 months and include grape camps in Washington as the hands-on component. It is very limited enrollment and difficult to access. You can find more information about the program at <http://www.wineducation.wsu.edu/>.
2. The University of California at Davis offers limited courses on enology and viticulture on-line. They are not part of a unified curriculum. More information is available at <http://universityextension.ucdavis.edu/winemakingcert/>.
3. Texas A&M Cooperative Extension has just developed a two-year certificate viticulture course that is on-line with grape camps. For information go to <http://winegrapes.tamu.edu/certificate.shtml>
4. Charles Sturt University in Wagga Wagga, Australia offers international distance on-line viticulture and enology certificate and degree programs. Students must have access to a vineyard and winery. Information is available at <http://www.csu.edu.au/faculty/science/saws/>

Note: These listings do not represent a Penn State endorsement of any products, services or businesses. They are simply meant as a useful guide for the reader. There are many additional resources around the region and country. You should always shop around for the best product, service, price and quality whether it is a book or a tractor.

Mark L. Chien

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717.394.6851  
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<http://pawinegrape.com>