



Considerations for Starting a Commercial Winegrape Vineyard in Vermont

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Images of fields of ripe grapes ready to be made into excellent wine are usually the beginning of a vineyard enterprise, but many items must be considered before planting vines to ensure the success of the project. With establishment costs around \$10,000 per acre, many years before harvesting a commercial crop, and a lot of potential problems along the way, *planning* the vineyard is more important than planting it.

General Resources -

General resources for prospective and current grape growers in Vermont can be found at the UVM Cold Climate Grape Production website: <http://pss.uvm.edu/grape>.

Development of a long-term financial plan -

Developing and operating a vineyard requires time, money, land, equipment, vines, and -- more time and money. Potential growers must develop a long-term budget for their own situation. It is important to be realistic about vineyard expectations and the time and resources available to devote to it. Economies of scale will become evident early on -- it costs the same to buy a tractor for one acre or ten. There are many resources on the web including:

Winery and Vineyard Feasibility Workbooks -- from the Ag Marketing Resource Center.

http://www.agmrc.org/commodities_products/fruits/wine/winery_and_vineyard_feasibility_workbooks.cfm

Cost of Establishment and Production of Vinifera Grapes in the Finger Lakes Region of New York-2004.

http://www.aem.cornell.edu/outreach/extensionpdf/2005/Cornell_AEM_eb0506.pdf

Site Selection -

Are the soil, slope of the land, and cold temperature extremes at the proposed site suitable for growing grapes?

Of all crops in Vermont, grapes are among the most demanding in regards to site selection and preparation. This cannot be stressed enough -- *poor sites or poorly prepared sites will cause significant problems for the life of the vineyard*. Grapes should be grown in a soil with excellent drainage of water. There also should be good air drainage with no 'frost pockets'. The soil pH should be slightly acidic to neutral and the soil should be deep without restrictive features that would limit root growth. *Soil preparation must be performed prior to planting*. Thus, it is very important to have your soil analyzed. The closest analytical lab for grape soil analysis would be the Cornell Nutrient Analysis Laboratory. It is

recommended that you contact them before you send any samples to confirm that recommendations will be sent along with the analysis and to confirm costs. The Laboratory's website is: <http://cna1.cals.cornell.edu>. Soil analysis will help determine if any amendments are needed for the proper nutrition of the plants. Site modification to improve water drainage are important if you have a wet or marginally wet site. If there is any question that the soil may be wet, digging diversion swales, ditching, or tile drainage options should be explored.

A recommended publication for anyone who is serious about growing grapes is: "NRAES-145: Wine Grape Production Guide for Eastern North America". It is very comprehensive and includes chapters on the cost and returns of vineyards, site selection, vineyard design and establishment, etc. It is available directly from the Natural Resource, Agriculture, and Engineering Service website: http://www.nraes.org/nra_order.taf?_function=detail&pr_id=178&_UserReference=30944CBF7DD56CC74C233BCF.

The following are other resources:

Vineyard Site Preparation & Trellis Systems by Dr. Paul Domoto, Iowa State University
<http://pss.uvm.edu/grape/Horticulture/VineyardEstablishment.pdf>

Vineyard Establishment I: Preplant Decisions. Michigan State University Extension
<http://web1.msue.msu.edu/msue/imp/modfr/26449701.html>

Vineyard Establishment II: Planting and Early Care of Vineyards. MSU Extension
<http://web1.msue.msu.edu/imp/modfr/26459701.html>

Cold temperatures have traditionally been a limiting factor for successful grape growing in Vermont. With the development of very cold-hardy varieties from the upper Midwest, vineyards are now being planted in Vermont. However, the specific climate conditions of the potential planting site must be evaluated to see if they are within the requirements for growing the grape varieties being considered. Available weather data should be examined and used to guide cultivar selection, growing practices, or even whether or not to plant at particular site. Resources on the web include:

USDA Plant Hardiness Zone Map -- from the United States National Arboretum website
<http://www.usna.usda.gov/Hardzone/ushzmap.html>

Vermont Hardiness Map - from Leonard Perry's publication
<http://www.uvm.edu/pss/ppp/pubs/oh53.htm>

Winter Low Temperatures in Vermont-- at this NOAA site, if you can select "Monthly Extremes", a location, min. temperature, the time span of 1971-2000, and then conduct a low temperature search, it will give the lowest recorded temperature by month at the selected site.
<http://www.weather.gov/climate/xmacis.php?wfo=btv>

Average Frost/Freeze Dates for Some Locations in Vermont and New York
<http://www.erh.noaa.gov/btv/climo/freeze/freeze.shtml>

Link to Critical Temperatures during Grape Bud Development -- A Michigan State University webpage that shows temperatures which will cause 50% bud kill if they occur from bud swell to the expanded shoot stage.
<http://web1.msue.msu.edu/fruit/grpfrost.htm>

Variety Selection -

Variety selection is critical to a successful, sustainable vineyard and must be guided by cold-hardiness of the variety, length of the growing season needed for maturation, disease susceptibility, potential wine characteristics of the grape, and the marketability of the harvested crop. Winegrape varieties suitable for the cold-climate conditions in Vermont are limited, and the growing and winemaking characteristics of them are still being determined. It is important to talk with current grape growers and winemakers to learn from their experience and seek their advice. The Vermont Grape & Wine Council is also a valuable resource to learn about the status of the developing winegrape industry in the state; their website is at: <http://www.vermontgrapeandwinecouncil.com/>. Descriptions of cold-climate winegrape varieties are at:

A Review of Cold Climate Grape Cultivars by Lisa Ann Smiley, Paul Domoto, and Gail Nonnecke of Iowa State University. <http://viticulture.hort.iastate.edu/cultivars/cultivars.html>

University of Minnesota Grape website - descriptions of cold climate grape cultivars
<http://www.grapes.umn.edu/>

Grape Varieties for Minnesota - outline of various varieties with relative hardiness rating
<http://fruit.cfans.umn.edu/grape/grapevarieties.htm>

University of MN Licensed Nurseries for Cold Hardy Grapes
<http://www.grapes.umn.edu/nurseries.html>

Integrated Pest Management (IPM) -

Growing grapes will involve managing diseases, insects, and weeds. Integrated Pest Management (IPM) is an approach to managing pests (e.g., insects, mites, disease-causing organisms, mice, etc.) which combines biological, cultural, physical, and chemical tools in a way which minimizes economic, health, and environmental risks. One of the basic concepts in IPM is preventing problems from developing in the first place through cultural practices or IPM techniques and only using pesticides when warranted based on identified problems. There is IPM information on the grape website: <http://pss.uvm.edu/grape/IPM/>. Grape IPM -- whether it is standard IPM or organic IPM -- involves the use of pesticides and anyone who applies pesticides (organic or synthetic) needs to be fully knowledgeable about their safe use and storage. Unfortunately, if you have a vineyard, you or an employee will have to apply fungicides and insecticides each year in order to produce quality fruit. Anyone who uses agricultural pesticides, including organic pesticides, should obtain their pesticide applicator license through the Vermont Pesticide Education and Safety Program (<http://pss.uvm.edu/pesp/>).

Growing grapes can be a very personally rewarding endeavor but it takes a significant, long-term commitment in effort, time, and money to produce quality grapes. Careful and thorough planning is critical to determine the suitability of the site for grape production and the feasibility of developing a successful and sustainable agricultural enterprise.

Best wishes for success !



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