



## New York Guide to Sustainable Viticulture Practices Grower Self-Assessment Workbook



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Production Funded by:



# New York Agricultural Environmental Management Program

## Tier 2 Assessment Worksheets for Vineyards

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The Sustainable Viticulture Workbook is recognized and endorsed by the Agricultural Environmental Management (AEM) Program of the New York State Soil & Water Conservation Committee and New York State Department of Agriculture & Markets as the official Tier 2 Assessment Worksheets for vineyards.

**For more information about the AEM Program:**  
**[www.agmkt.state.ny.us/SoilWater/aem](http://www.agmkt.state.ny.us/SoilWater/aem)**

New York's AEM Program is a voluntary, incentive-based program that helps farm operators make common-sense, cost-effective and science-based decisions that help meet business objectives while protecting and conserving the state's natural resources. Strong partnerships at the local, state and federal levels have led to the growing success of AEM, linking existing agricultural and natural resource service agencies together with the farmer as a cooperative team. As the umbrella program for all of New York's agricultural conservation efforts, AEM also lays the groundwork for participation in other state, federal and locally administered programs. With close to 10,000 farms enrolled in 54 counties across the state, AEM is continually expanding as new assessment tools are tailored to meet the needs of all types and sizes of agricultural operations.



# Sustainable Viticulture Workbook

## Steering Committee

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# Introduction

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This workbook is designed to provide grape growers in New York and other regions of the northeastern United States with guidance in evaluating and adopting best management practices that minimize environmental impacts, reduce economic risks, and protect worker health and safety. These practices include: soil management to reduce erosion, runoff and leaching; use of integrated pest management (IPM) practices for insect, disease, and weed management; nutrient management, with a particular focus on nitrogen use; pesticide management and spray technology; and cultural practices used in viticulture.

Viticulture in New York and the Northeast is diverse. Wine and juice grape varieties are drawn from three general classes of cultivars - native Labrusca-type grapes, *Vitis vinifera*, and interspecific hybrids (also known as 'French Hybrids'). These cultivars have different growth habits, training systems, and disease and insect susceptibility, and are grown for different markets – from commodity-priced bulk wine and juice grapes to premium estate-grown wine grapes. Moreover, the major grape growing regions – Lake Erie, Finger Lakes, and Long Island – have unique soils, slopes, and climates that greatly influence 'best management practices'.

The impetus for developing this workbook came from industry groups across New York State and from all industry segments – from juice grape cooperatives and large wineries based in the Finger Lakes and Lake Erie to the small-winery segment in the Finger Lakes and on Long Island. All of these groups, represented on the steering committee, were looking for a way to promote and document the use of sustainable production practices by growers, processors and wineries.

The workbook's format and content evolved from two previous efforts. The Long Island Sustainable Viticulture Program draft workbook was developed by Cornell Cooperative Extension of Suffolk County and the New York Agricultural Environmental Management (AEM) vineyard worksheets developed by the Cornell Cooperative Extension Finger Lakes Grape Program and the Yates County Soil and Water Conservation District. This workbook represents a synthesis of these two previous efforts. Questions were developed with input from the industry steering committee in seven conferences during the winter of 2005-2006. As a result, the workbook is designed to serve as a reference for all growers across New York – from bulk Concord and hybrid producers to premium *V. vinifera* growers. It has also been adopted as the New York State AEM 'Tier 2' worksheets for vineyards.

We hope this workbook will provide grape growers throughout New York with a valuable resource for identifying and adopting practices that protect the environment, are economically viable, and protect worker's health and safety.

## Preface

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The Sustainable Viticulture Workbook culminates a collaborative effort that engaged all aspects of the grape and wine industries across New York State. It included growers, processor and winery representatives, Cornell viticulture and cooperative extension staff members, and New York State's Soil and Water Conservation Committee.

It was the first time such broad representation from Long Island to the Lake Erie region worked together in such a significant way. New York's grape industry represents diverse regions, varieties, and end products. The assembled group included those interested in wine, juice, and table grapes as well as producers of organically grown grapes. This inclusive group worked tirelessly to reach consensus on the many issues associated with New York's varied production base.

The workbook is intended to help producers meet the increasing environmental and social challenges facing the industry. As the concept of sustainable viticulture was being explored, participants agreed that the

practices developed must be economically, environmentally, and socially sustainable.

The workbook was designed so producers can assess their farm's position regarding the sustainable practices that were developed. To help producers improve practices, it was important that the workbook serve as a measurement tool as well as an educational tool. It was not designed to compare one producer's practices to another's.

As time goes on there will be new and evolving sustainable practices and those will need to be incorporated into the workbook. What we all clearly recognized was our desire and need to be good stewards of our precious resources. By doing so, we can be profitable today and leave a legacy for generations to come.

**Tom Davenport**

*Director of Viticulture*

*National Grape Cooperative*

## Acknowledgments

This workbook represents the collaborative efforts of many organizations, faculty and cooperative extension specialists from Cornell University, the Agricultural Environmental Management (AEM) Program of the New York State Soil & Water Conservation Committee and New York State Department of Agriculture & Markets, and growers representing many processor and winery groups across New York, with financial support from a number of funding agencies over several years.

Several California, Oregon and Washington State programs provided a model for this effort. Major inspiration came from West-coast programs, notably the Oregon LIVE program, Central Coast 'Positive Points' system, Washington's VineWise program and particularly the Lodi-Woodbridge Winegrape Commission's *Lodi Winegrower's Workbook: A self-assessment of Integrated Farming Practices*. Dr. Cliff Ohmart, Research/ IPM Director for the Lodi-Woodbridge Winegrape Commission, provided support for our efforts in New York.

The original Long Island Sustainable Practices workbook was developed in 2001-2003 by Alice Wise, Grape Specialist with Cornell Cooperative Extension of Suffolk County, with assistance from the following organizing committee members: Allan Connell, USDA Natural Resources Conservation Service, Riverhead; Ron Goerler, Jamesport Vineyards, Jamesport/Cutchogue; Stephen Mudd, Mudd's Vineyard, Southold; Jens Ruthenberg, Pellegrini Vineyards, Cutchogue; Andy Senesac, Weed Specialist, Cornell Cooperative Extension of Suffolk County, Riverhead; Ben Sisson, Raphael, Peconic;

Libby Tarleton, Grape Program Assistant, Cornell Cooperative Extension of Suffolk County; and Dave Thompson, Bedell Cellars, Cutchogue. The Long Island Agricultural Stewardship Working Group, a committee of cross-commodity growers and agency personnel created guidelines, called the Long Island Agricultural Environmental Management Worksheets, which focused on protecting groundwater. The pesticide management section of the Sustainable Viticulture guidelines was in large part taken from the Long Island AEM Worksheets. Region 2 of the US EPA provided funding for the creation of the guidelines. In particular, we wish to thank Regional Ag Policy Specialist Ms. Audrey Moore for her support and interest.

The other source for this workbook was the Agricultural Environmental Management Worksheets for Vineyards, developed in 1998 by Tim Martinson, Cornell Cooperative Extension Area Grape Specialist with the Finger Lakes Grape Program, and Tom Eskildsen and Les Travis of the Yates County Soil and Water Conservation District (SWCD). A grant entitled 'The Keuka Lake Looking Ahead Agricultural Environmental Management Project, by Peter Landre, CCE of Yates County Water Quality Specialist, and Les Travis, Yates SWCD, received funding through the NY State Section 319 AEM Planning Grants Program. The effort was supported by the New York State Soil and Water Conservation Committee of the NYS Department of Agriculture and Markets.

Our thanks to the numerous people who reviewed text and provided input on the workbook: from Cornell

University, NYS Agricultural Experiment Station, Dr. Wayne Wilcox, Dr. Tom Burr (both Plant Pathology), Dr. Greg Loeb (Entomology) and Dr. Andrew Landers (Entomology/Biological and Environmental Engineering joint appointment in Ithaca); from Cornell University, Ithaca, Dr. Lailiang Cheng (Horticultural Sciences), Mr. Paul Curtis (Natural Resources) and Mr. Bill Smith (Pest Management Education Program); Mr. Mark Chien, Southeastern PA Winegrape Extension Agent, Penn State (Chien was one of the original creators of the Oregon LIVE program); and Mr. Dan Gilrein, Entomologist, Cornell Cooperative Extension of Suffolk County. Members of the Sustainable Viticulture Steering Committee (listed elsewhere) reviewed the entire workbook in seven teleconferences in December 2005 and January 2006.

Major funding for developing this workbook was provided by an Extension Innovation Grant from the New York Farm Viability Institute, a Risk Management Education grant from the Northeast Center for Risk Management Education, and industry funding through Lake Erie Regional Grape Program, Inc, and the New York Wine and Grape Foundation. Special thanks to Tom Davenport, Director of Viticulture, National Grape Cooperative, for identifying funding sources for starting this project.

Finally, we would like to thank Les Travis and Jeff Ten Eyck, Environmental Analysts with the State Soil and Water Conservation Committee and the NY Department of Agriculture and Markets, for their support of this workbook and its integration into the New York Agricultural Environmental Management program.

## How to Use this Workbook

This workbook contains 134 questions in 8 sections. The questions address issues or practices that are important to good vineyard management. Each question is followed by 4 options ordered on a sustainable scale, with “1” being the most desired (i.e. most sustainable) option and “4” being the least. The questions are designed to help you evaluate all areas of your current management practices, with each chapter covering a different production area. A sample question is presented on page 9.

Questions are often followed by a short sidebar designed to further explain the rationale behind the promoted practices and provide additional resources related to the topics. When reading through the possible answer options, we recommend starting at option #4 and moving toward option #1, choosing the option that your current practice fully encompasses. If you find that your present practice comprises part, but not all, of an answer, choose the higher score. For instance, if you presently perform only two of the three practices necessary to assess yourself a score of “2” on a certain question, score yourself a “3” on that question. Your scores will provide a baseline from which to develop an action plan and assess improvement after implementation of your plan. It’s important to note that this is not a test, and there are no ‘wrong’ answers. Simply choose the answer that best describes what you do. In answering the questions, it may be helpful to think of a particular vineyard block rather than a range of different blocks and varieties. We recognize that different varieties may require different management approaches.

Some of the questions in the workbook may not be applicable to your farm, so you can skip the questions that don’t apply to you and mark ‘NA’ on the score sheet. Canopy management questions applicable to *vinifera* grapes, for example, will not be applicable to Concord production. Similarly, if you don’t use irrigation, you can skip the irrigation section.

A score sheet is provided for you to record your responses to the questions.

**Action Plan.** Once you have completed the workbook, the next step is to develop an action plan based on the results of your self-assessment that will address the practices that you believe you can effectively modify within the financial and management capacity of your farm. Concentrate on the issues where you scored three or four, with the goal of modifying your practices to reach the more sustainable one or two rating. The action plan is yours, and only you will know what is practical and possible on your farm.

*Please note that this workbook is not a production guide. Managing vineyards is a complex enterprise involving numerous site and variety-specific practices and weather conditions, along with skill and experience in making decisions. Not all questions will apply to your vineyard, nor are the options listed for management the only possible solutions. You are the person most familiar with your site and most suited to deciding what is applicable to your situation.*

## Example:

Nitrogen (N) Management Practices					
	1 - Low Risk	2	3	4 - High Risk	YOUR RANK
When is N fertilizer soil-applied in spring?	N is applied during the period of maximum uptake – budbreak to fruit set.  AND Split applications are used with 30-50% of the N applied prebloom and the remainder applied postbloom.	All N is applied during the period of maximum uptake – budbreak to fruit set.  AND Split applications are not used.	N is applied up to 2 weeks prior to budbreak when vines are still dormant.  OR All N is applied in the period between fruit set and veraison.	N is applied >2 weeks prior to budbreak.	2
<p>There is little absorption of N by roots prior to budbreak. The soil is cold and roots are inactive. Early vine growth depends almost entirely on N stored in the woody parts of the vine. It is unclear whether pre-budbreak application of slower release organic fertilizers confers an advantage in terms of N availability to the plant.</p>					

Example: Our grower applies nitrogen in the spring in one application about 1 1/2 weeks before bloom. Based on this practice, the grower selects '2'. Self-assessment scores can be recorded in the 'Your Rank' column following each question and/or on the Workbook Scoresheet included with this workbook. In deciding whether or not to modify

current practice to reach the '1' level, the grower will have to consider whether the benefits (e.g. increased efficiency in timing and rates of nitrogen fertilizer application and the associated potential savings) outweigh the drawbacks (e.g. increased labor, tractor use and other potential costs).