What is the VineBalance Workbook?

• **VineBalance is…**
  – Educational tool
  – Decision-making tool
  – A scorecard
  – Basis for documenting sustainable practices
• **VineBalance is not…**
  – A production guide
  – A ‘sustainable viticulture program’
What is sustainability?

• Standard Definition
  – Low Environmental risk (Environment)
  – Profitable vineyards (Economics)
  – Safe, healthy workforce (Social Equity)

• Three ‘E’s’ of Sustainability

• ‘Triple Bottom Line’
Sustainability is ‘Mainstream’

New Yorker Magazine
Back-Page Ad
February 7, 2009
Industry ‘Drivers’

• Community-mindedness, water quality
• Product Marketability: *Maintain or increase marketability by adopting and documenting ‘Green’ production practices.*
• Small Winery Segment:
  – Tasting Room sales/ image/ regional identity
• Juice Grapes
  – Sustainability programs of ‘Big Box’ retailers
But is it credible?

- Greenwashing
- Sustainability Claims
  - Based on ‘real’ impacts
  - Verifiable

Practice ↔ Promotion
Questions

• How do you know if you are ‘sustainable’?
• How do you tell the world about it?
What is sustainability?

• Broad Goals
  – Low Environmental risk (Environment)
  – Profitable vineyards (Economics)
  – Safe, healthy workforce (Social Equity)

• Farm Level:

Nuts and bolts:

“Sustainability” results from specific decisions about what production practices you use in producing grapes
More Specifically…

• Environment
  – Protect Water Quality/Health
    • Soil Conservation
    • Pesticide use, choice
    • Nutrient Management (N and P)
  – Energy Use
  – Greenhouse Gases
  – Water Use (irrigation)

• Economics
  – Reduced inputs = lower costs?
  – Inputs per unit of crop produced better measure?

• Social Equity
  – Protect Worker Health/Safety
Protecting Water Quality

Finger Lakes

Long Island
Biggest Environmental Impact:

- Clean Tillage
- Floor Management
- Diversion Ditches
New vineyard project in Finger Lakes
The Workbook

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

Alice Wise
Senior Extension Resource Educator, Viticulture,
Cornell Cooperative Extension of Suffolk County

Tim Martinson
Senior Extension Associate in Viticulture,
Cornell University

Jamie Hawk
Sustainable Viticulture Educator,
Cornell Cooperative Extension of Yates County

Tim Weigle
Senior Extension Associate in Grape IPM,
NYS IPM Program, Cornell Cooperative Extension

Libby Tarleton
Viticulture Program Assistant,
Cornell Cooperative Extension of Suffolk County

www.vinebalance.com
### Nitrogen (N) Management Practices

<table>
<thead>
<tr>
<th>Increasing Sustainability</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>YOUR RANK</th>
</tr>
</thead>
<tbody>
<tr>
<td>When is N fertilizer soil-applied in spring?</td>
<td>N is applied during the period of maximum uptake – bud break to fruit set. AND Split applications are used with 30-50% of the N applied pre-bloom and the remainder applied post-bloom.</td>
<td>All N is applied during the period of maximum uptake – bud break to fruit set. AND Split applications are not used.</td>
<td>N is applied up to 2 weeks prior to bud break when vines are still dormant. OR All N is applied in the period between fruit set and veraison.</td>
<td>N is applied &gt;2 weeks prior to bud break.</td>
<td></td>
</tr>
</tbody>
</table>

There is little absorption of N by roots prior to bud break. 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-bud break application of slower release organic fertilizers confers an advantage in terms of N availability to the vine.
### Example Action Plan

<table>
<thead>
<tr>
<th>Section (Page)</th>
<th>Topic</th>
<th>Score</th>
<th>Action (Y/N)</th>
<th>Goals</th>
<th>Action Steps</th>
<th>Timetable</th>
<th>Date Complete</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXAMPLE</td>
<td>Nutrition Manag.</td>
<td>4</td>
<td>Y</td>
<td>4 -&gt;1: Experiment with cover crops to reduce N inputs, increase soil health &amp; take up water in the spring</td>
<td>1. Establish cover crop research plots&lt;br&gt;2. Calculate cover crop N contribution&lt;br&gt;3. Develop &amp; implement vineyard-wide plan</td>
<td></td>
<td>1.____</td>
<td>Will experiment with legumes cereal rye, and other cover crops</td>
</tr>
<tr>
<td>(Page 4)</td>
<td>Nitrogen (N) contribution from organic sources</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**New York Sustainable Viticulture Practices Workbook Scoresheet**
What Practices Promoted?

8 sections, 140 questions

- **Vineyard Management**
  - Canopy management practices
  - Yield management

- **Nutrition Management**
  - Nutrient use efficiency
  - Tissue and Soil Sampling

- **Pest Management**
  - Scouting & economic thresholds
  - Weather, variety-driven disease management programs

- **Pesticide Management**
  - Mixing, loading & storage practices
  - Worker Protection Standards
What Practices Promoted?

Continued

• Soil Management
  – Leaching & runoff potential
  – Preplant site preparation
  – Cover crops & organic matter

• Weed Management
  – Post- vs. pre-emergent herbicides
  – Integrated tillage/ weed management

• Irrigation Management
  – System design & maintenance
  – Water use efficiency

• Continuing Education
Many in the wine and grape industry have recently experienced customer ordering that requires environmental stewardship programs. The new Sustainable Vineyard Practices (SVP) Workbook, a component of the Sustainable Agricultural Environment Management (AEM) Program, will help growers document their environmental stewardship and identify areas for opportunities to improve.

In New York State, there are a number of funding opportunities available to growers to help address environmental concerns on their farm. Working with the local Soil & Water Conservation District (SWCD), the Environmental Quality Incentives Program (EQIP), and the Conservation Reserve Enhancement Program (CREP), farmers can apply for cost-share assistance to implement conservation practices.

A second step is to complete the Sustainable Vineyard Practices Workbook (SVP) to determine your environmental strengths, needs, and opportunities. You can complete the workbook at a self-assessment, or better yet, contact your local SWCD to assist you. Following the assessment, work with Cornell Cooperative Extension SWCD and/or for NRCS representatives to develop an action plan to address the needs and opportunities identified. Knowing your needs and opportunities will also help in building a relationship with the SWCD and NRCS.

The NRCS & Soil and Water Conservation Districts

- **NYS Agricultural Non-point Source Abatement and Control Grants Program**
- **EQIP**
- **Conservation Reserve Enhancement Program**
- **Conservation Security Program**

The NY State Nonpoint Source Abatement and Control Grants Program (Ag NYS) assists farmers in preventing water pollution from agricultural activities by providing technical and financial assistance. Coordinated by the County SWCD, the program provides technical assistance and cost share funding up to 85% to construct or implement Best Management Practices identified in your action plan. In the past, grape farmers have used this program to construct agricultural waste facilities and to solve erosion control issues. More information is available at [www.nys-aem.org](http://www.nys-aem.org).

Environmental Quality Incentives Program (EQIP) is a federal voluntary conservation program that promotes agricultural production and environmental quality. It is a USDA primary program to provide environmental improvement on farms. EQIP offers financial and technical assistance for the implementation of structural or management practices on agricultural land. Cost sharing rates generally range from 35% to 75%. Water management and riparian management are examples of two practices that can be cost shared for the grape grower through EQIP. More information is available at [www.nrcsusa.gsa.gov/programs/equip.html](http://www.nrcsusa.gsa.gov/programs/equip.html).

Conservation Reserve Enhancement Program (CREP) is a federal program that provides financial assistance to farmers and landowners to install environmentally sensitive agricultural and wetland management practices on their land. The program is designed to help landowners protect soil resources and prevent erosion. More information is available at [www.nrcsusa.gsa.gov/programs/crep.html](http://www.nrcsusa.gsa.gov/programs/crep.html).

Conservation Reserve Program (CRP) is a federal program that provides financial assistance to farmers and landowners to install environmentally sensitive agricultural and wetland management practices on their land. The program is designed to help landowners protect soil resources and prevent erosion. More information is available at [www.nrcsusa.gsa.gov/programs/crp.html](http://www.nrcsusa.gsa.gov/programs/crp.html).

The NY State Nonpoint Source Abatement and Control Grants Program is an excellent resource, not only does it provide valuable agronomic and viticultural management tools, but it also offers an important environmental management strategy. Participates will be able to reduce nutrient losses by implementing best management practices, such as reducing fertilizer application rates, improving irrigation practices, and implementing conservation tillage practices. More information is available at [www.nys-aem.org](http://www.nys-aem.org).
Modifying Nitrogen Use at Centerra Wine Company

Jamie Hawk

Centerra Vineyard Manager
Marc Doyle

Under the weight of skyrocketing nitrogen fertilizer costs, New York grape growers are rethinking their nitrogen application practices. Led by vineyard manager Marc Doyle, Centerra Winery is working with a vineyard consultant (ACS) to tailor their fertilization program on a block-by-block basis. This spring begins their third consecutive year of intensive soil sampling using GPS (Global Positioning System) to ensure consistency. "Our soil samples are taken at the same place and time every year so we can manage our soil in a coordinated way," explains Doyle, "and we’re really doing intensive soil testing. We do some peat soil for comparison, but we’re really doing intensive soil testing.

So far their efforts have focused primarily on two aspects of the results of the soil analysis: pH and soil organic matter. "We have pH problems with some of the blocks, so we’re trying to get the pH up with lime to better balance our soils," notes Doyle. Both pH and organic matter have profound effects upon vine nutrition: low pH reduces the availability of potassium, magnesium, and calcium to the vines, while the breakdown of organic matter provides nitrogen for uptake. "Typically in the past, we always drench blader nitrogen applications using the same rate everywhere across the block. Now we want to tailor it more to what the vines need using our soil samples." Sites with soil organic matter at or above about 4% are receiving less nitrogen fertilizer. For sections that have high organic matter, they’re just lowering the rate, doing a half rate instead of a full rate (about 27 lbs/acre instead of 55 lbs/acre). For the sections that have low organic matter, we’re not going to build it up so we can get away from adding the nitrogen.

To further increase the efficiency of their nitrogen use, Doyle has modified the timing of application as well as the form of nitrogen applied. "Before, we put our nitrogen on with our preemergent herbicides early in the spring, and I don’t think that did much for the vines. Now we’re trying to apply it closer to blooming so the vines are actually using the nitrogen we put on. And we’ve gone from liquid to granular forms — we feel we don’t get as much lost to the atmosphere with the granules."

This month they’ve begun their next step, adding composted pomace to the blocks to raise the level of organic matter, which is especially important in those areas where soil analysis indicates a deficiency. "We’re going to put our first load in this fall, then the rest next spring. The pomace compost has a lot of nitrogen and potash in it, so we’re thinking it’ll be a good slow-release product. Over time, as organic matter increases in the soil, we’ll deal less and less nitrogen. And we are seeing in our soil sampling that pH is definitely coming up where we’ve added lime, and that will help a lot."

In regard to the expected time frame to reach their goals, Doyle states, "I think we’re looking at 4 or 5 years down the road to be more balanced on everything. We’ll track our organic matter continually, and because we have so many acres that are low, it’s going to take us a while to get to where we need to be." And the cost of this remediation program? Actually, what ACS is changing for us is not much more than what it would cost us to do it ourselves.

For New York State grape growers, it’s time to rethink nitrogen application practices and to specifically tailor rates to individual vineyard blocks. "The price of nitrogen is going through the roof," Doyle stresses, "and for us to keep our budget balanced, we should be looking at putting our nitrogen on in a way where we can get the most out of it."

For more information, contact Marc Doyle at 585-694-4757 or marc.doyle@centerrawine.com.
Grower Participation

• 84 growers state-wide
• 7,270 acres managed total
  – 39 Finger Lakes (2,727 acres)
  – 29 Lake Erie Region (3,994 acres)
  – 10 Long Island (499 acres)
  – 6 Hudson Valley (51 acres)
• 24 growers have purchased the workbook to complete on their own.

22% of NY Grape acreage
Applications for Cost-sharing
Soil and Water/AEM program (Data from 2008)

• Finger Lakes
  – 10 referrals, 9 applications, 4 funded
• Lake Erie
  – 20 referrals, 12 applications, 0 funded
• Long Island
  – 6 referrals, 1 application, 0 funded
Nitrogen Use Guidelines

- Avoid ‘blanket’ rates
- No more than 50 lb/acre maximum
- Adjust for soil organic matter content
- Adjust for cropping level, vine vigor
- Delay first application until after budburst
- Use split applications (especially on coarse soils)
Farm Level Impacts

N Application Practices

Standard Rate:  100 lb N/acre ($84/acre*)
Research-based Rate:  <50 lb/acre (<$42/acre*)

*Based on Urea at $400/Ton

100 acre farm = $4,200 saving
5 Tons less actual N

10K acres in Finger Lakes = 500T ($420,000)
32K acres statewide = 1,600 T ($1.3 Million)

78% of participants follow reduced rates (5K acres -$210K)
Sustainability Program Approaches

• Certification and Labeling
  – Who gets to use the label?
  – What standards does the label represent?

• OR: Industry-Wide ‘metrics’
National Grape Cooperative
Sustainability Programs
“Industry-wide Metrics”

Rob Smith
Region Manager National Grape
Three Production Regions

Tri-States and Canada

Michigan

Washington State
National Grape Cooperative

• Mandatory completion of the self-assessment prior to the 2012 harvest

• National staff held small group meetings to lead members through the workbook

• Members found it educational and learned something

• Each member has a baseline score upon which to improve
National Grape Cooperative

• Entering the score sheets into the computer
  • Enable members to review their scores and address and areas that are deficient
Company-wide, about 70% of all National Grape Cooperative grower members of the Coop have completed Grape*A*Syst or a similar sustainability program to date, and the charge is for 100% completion prior to the 2012 harvest. Grape production is different from state to state due to soil types, weather patterns, and growing season. Therefore, National Grape had developed specific programs for their growers in each region across North America, taking a proactive approach to produce grapes in the most sustainable manner.

- John Bowden, Business Development, Welch’s
“Third-Party Certification”

Rich Olsen- Harbich
Bedell Wine Cellars
Establishing Regional Certification

Coalition of like-minded wineries

Well Defined Best Practices

Strong Technical Group

Consensus Building
• LISW version of Vine Balance Workbook: score - 2
• Core Criteria - 18 main sections: score 1-2
• Nutrient, Pest Control Program
• Third Party Certification Farm Visit
• Website: lisustainablewine.org
Nutrient Management

One ton of fruit picked from an acre of vines removes only 4 lbs of actual nitrogen

Fallow land on Long Island ranges from 1-2 mg/l

Long Island vineyard test wells measure an average ground water level of 4.3 mg/l

Row-crop agricultural test wells measure an ave. of 13-14 mg/l

LISW limits total actual nitrogen application to 20 lbs per acre
Disease Control Program

LISW requires >50% of individual materials used for control of fungal diseases are “low-input”

ie—either EPA Reduced Risk, EPA Minimum Risk, EPA Bio-pesticide, are either OMRI-listed Organic or Washington State Department of Agriculture-listed Organic, or are generally considered as “low-input” materials despite being classified as a Conventional Material, eg---Sulfur.
# Prohibited Materials

Use in Agriculture/Horticulture has led to Groundwater Concerns: Not Allowed

<table>
<thead>
<tr>
<th>Active Ingredient</th>
<th>Trade Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azoxystrobin</td>
<td>Abound</td>
</tr>
<tr>
<td>Azoxystrobin + Difenoconazole</td>
<td>Quadris Top</td>
</tr>
<tr>
<td>Metalaxyl/Mefanoxam</td>
<td>Ridomil, Ridomil Gold</td>
</tr>
</tbody>
</table>

Restricted Use Fungicides: Not allowed (subject to MRC review)

<table>
<thead>
<tr>
<th>Active Ingredient</th>
<th>Trade Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluopicolide</td>
<td>Presidio</td>
</tr>
<tr>
<td>Mancozeb</td>
<td>Dithane Rainshield (this formulation only)</td>
</tr>
<tr>
<td>Triflumizole</td>
<td>Procure</td>
</tr>
<tr>
<td>Mancozeb + zoxamide</td>
<td>Gavel</td>
</tr>
</tbody>
</table>
Why Certification?

Validates the claims of sustainability
Promotes on-farm accountability
Pro-active response to local concerns
Respond to Global Competition
Improve and strengthen the Long Island wine brand
Third-Party Certification Process

Members are visited in years 1 and 2 and every 3rd year thereafter

Vineyard walk and record review

Review practices in VineBalance workbook

Review inputs and future plans

Gives report to Core Group for review/certification
Funding

Fully self-sustaining from membership dues and inspection fees beginning 2012

Grants for expansion and special projects

Practice ↔ Promotion
Acknowledgements

Project Team

Jamie Hawk – CCE Yates
Alice Wise – CCE Suffolk
Libby Tarleton – CCE Suffolk
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Tim Weigle – Lake Erie Regional Grape Program
Hans Walter-Peterson – Finger Lakes Grape Program

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Rob Way – Web site design
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Long Island Sustainable Winegrowing

Rob Smith
National Grape Cooperative
The Workbook

VineBALANCE
Sustainable Viticulture in the NORTHEAST

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

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