FY 2011 PROGRAM WORK TEAM ANNUAL REPORT

1. Full name of your Program Work Team (PWT):

   Viticulture and Enology

2. Please list names, affiliations and e-mail addresses of the PWT Co-Chairs: (With an asterisk [*], please indicate the co-chair responsible for finalizing this report.)

   Timothy E. Martinson*
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3. Please identify your PWT’s activities, accomplishments, and, most importantly, outcomes and impacts over the past year.

   The Viticulture and Enology Program Work Team exists to support profitable production of grapes, wine and grape products in New York State, including:

   – Profitable and sustainable production of grapes, wine and juice products
   – Relevant input by industry into overall direction of extension programs and activities
   – Research efforts that are connected with finding solutions to issues identified by industry.
   – Visibility and demonstrated impact to decision-makers and funding agencies
   – Connection of extension staff with campus-based faculty and extension programs

   The group is diverse, and encompasses 20 Cornell faculty research and extension programs, 4 associated ARS research scientists, and 10 Extension Educators representing four regional grape programs, along with the Northeast New York Fruit Program. Industry input is channeled through program advisory committees for the respective extension programs.

   We held Two PWT meetings to provide an opportunity to align programming with industry needs. The Spring meeting (April 12) focused on updates about projects and funding. Many traditional funding sources are changing. The USDA Viticulture consortium ($700K to Eastern viticulture) is totally gone, and the 5 endowments managed by station director Tom Burr were used to replace some portion of the lost funding. A marketing order is being promoted by NYWGF to help secure stable industry funding. The fall meeting was the CRAVE conference (Cornell Recent Advances in Viticulture and Enology) in November, which provides a venue for PWT members to make brief presentations about their current projects.
Accomplishments:

- **Winter conferences:** PWT members planned and executed several winter conferences, including the Finger Lakes Grape Growers Convention (H. Walter-Peterson), Lake Erie Grape Growers convention (J. Creasap Gee, T. Weigle, K. Martin), Wine Industry Workshop (C. Gerling, A.K. Mansfield, R. Mira de Orduna, G. Sacks), Hudson Valley Fruit Program (S. McKay and S. Hoying) and the Long Island Hort Forum (A. Wise).

- **Newsletters:**
  - **Electronic crop updates:** Lake Erie, Finger Lakes, and Long Island grape programs provide weekly updates during growing season, and 3-5 more extensive newsletters
  - **Veraison to Harvest:** Statewide fruit ripening newsletter jointly produced by Statewide Viticulture and Enology Programs, Lake Erie, Finger Lakes, Hudson Valley, and Long Island grape extension programs. *Nine weekly issues* published in 2011. Impacts: A readership survey was completed in October 2011 N=100, and showed that 80% read all 9 issues, 84% reported ‘moderate to high’ degree of change in awareness of harvest and fruit ripening issues; 72% rated the value of fruit chemistry sample information has high, and 60% of readers rated the overall value of V to H in the highest category. Complete survey results are posted at: [http://blogs.cce.cornell.edu/grapes/files/2012/01/Veraison-to-Harvest-Survey-Results-2011.pdf](http://blogs.cce.cornell.edu/grapes/files/2012/01/Veraison-to-Harvest-Survey-Results-2011.pdf)
  - **Cellar Dweller.** A periodic newsletter produced by the Enology Extension program, published four issues in 2011, focusing on a variety of winemaking topics.

- **Appellation Cornell** (supported by PWT special needs funding). This *quarterly newsletter* entered its second year, and provides a venue for updating clientele on all aspects of the Viticulture and Enology program (teaching, research, extension) through articles, profiles, and features. New this year was the RIPE (Research in Plain English) feature, which provides 2 pp summaries of journal articles by faculty, graduate students and staff. Amanda Garris, freelance writer, is managing editor of the publication, and PWT special needs funding provided compensation for her services. The newsletter is distributed to 2000 e-mail addresses. Metrics indicate that 50% of e-mail recipients read the ‘landing page’ in their e-mail message, and 50% also ‘click through’ to at least one individual article.

  IMPACT: Research Focus Feature articles have been widely cited in trade journals. *Sulfur Dioxide Content of Wines: The Role of Winemaking and Carbonyl Compounds* will appear in Practical Winery and Vineyard Management, with wide distribution and a national audience.

- **Cornell Fruit Resources.** Led by Juliet Carroll, a 3 year project funded by Smith-Lever funding overhauled the site. It is a great aggregator of information and links from Cornell programs, organized by commodity (grapes, tree fruits, berries) and topic area (production, IPM, labor/business management, Enology and Value Added).

- **eXtension Grape COP** – Jodi Creasap Gee, Tim Weigle, Hans Walter-Peterson, and Tim Martinson have been contributing to the e-extension grape community of practice, a national effort involving around 40 extension viticulturists from throughout the nation.

- **CAPS Invasive Pest Survey:** Led by Tim Weigle, regional extension programs worked with Ag & Markets to set up and service pheromone traps for several invasive pests. Peter Jentsch (Hudson Valley Laboratory) provided leadership in monitoring and providing traps for Brown Marmorated Stink Bug and two-spotted drosophila.
Two SCRI Projects in Grapes Funded in 2011: Bruce Reisch is leading a $2M project to advance the use of genetic markers for marker-assisted breeding of grape vines, with 25 collaborating scientists from 10 universities. Tim Martinson is leading a $2.5M project, entitled the Northern Grapes Project to focus on viticulture, enology, and marketing of new cold-hardy grape varieties through the upper Midwest and New England.


Major Workshops/Field meetings:

- Concord mechanization and mechanical crop thinning: Jodi Creasap Gee, Kevin Martin, Tim Weigle, and Terry Bates (Horticulture, CLEREL) hosted a workshop in July on vineyard mechanization, including automated crop load measurements, visual sensors for crop estimation, and harvester-based techniques for mechanical crop estimation and thinning. At CLEREL laboratory.
- Botrytis Management and Seasonal Review, Finger Lakes Grape Program, early November. Hans Walter-Peterson – discussion about Botrytis and other fruit rot issues prevalent during the very wet 2011 growing season.
- Several workshops on fermentation and distillation were presented to industry groups statewide. Anna Katharine Mansfield and Chris Gerling. (Extension Enology) NY Wine Analytical Laboratory (Ben Gavitt) provides testing and consultation to NY producers on wine production issues. [http://www.cals.cornell.edu/cals/grapesandwine/outreach/enology/workshops.cfm](http://www.cals.cornell.edu/cals/grapesandwine/outreach/enology/workshops.cfm)

Impacts:

Collectively, five regional grape extension programs (Lake Erie, Finger Lakes, Long Island, Hudson Valley, and Northeast New York Fruit program (cold-hardy grapes) and the statewide viticulture and enology extension programs provide continuing and comprehensive programming to well over 1000 New York growers and winemakers, supported by active faculty programs in Ithaca and Geneva. Programming in most cases, is directly driven by industry interest, and mediated by advisory committees. Much of the impact is not measured formally, and is the result of consistent, multiyear efforts, supported by ongoing research projects. Here are a few lasting impacts:

- **20 years of Variety Trials on Long Island** by A. Wise at the Long Island Horticultural Research and Extension Center have directly influenced what Chardonnay clones are planted on the Island, and have identified other cultivars and clones (eg. Sauvignon blanc, specific Merlot clones) that do well in the long Island environment.
- **Annual Disease and Insect Management Articles** by pathologist Wayne Wilcox and entomologist Greg Loeb provide growers with background on pest biology and specific information on fungicides and insecticides, along with other management tools.
- **Concord Mechanization Studies** for the juice grape industry started with development of the mechanical grape harvester (used worldwide) in the 1960s, and have continued with mechanical pruning, crop estimation, and crop thinning techniques that maximize production of ripe fruit. New initiatives include characterization of ‘green note’ flavor attributes as influenced by viticulture, and ways of predicting and moderating its influence as growers aim for higher cropping levels.
- **Expanded Workshops in Winemaking and Distillation.** Additional staff resources since 2007 (Chris
Gerling and Anna Katharine Mansfield) have allowed enology Extension to train well over 500 persons annually in wine analysis and distillation techniques.

- **Expanded programming in Cold Climate Viticulture in non-traditional areas of NY.** We have expanded programs to areas of New York (notably Watertown and Champlain regions) that were previously too cold to produce grapes and wine. Research and extension through Kevin Jungerman’s grape planting and the new Northern Grapes project is aimed at new wine cultivars that have spawned an estimated 20 wineries and substantial grape plantings in Non-traditional areas of new York.

- **Clean Plants.** Virologist Marc Fuchs is leading an effort with NY nurseries to provide testing and surveillance for improving production and distribution of virus-tested plants to enable growers to avoid transmission of graft-transmitted diseases. This long-term project should improve availability of clean planting stock to the Eastern Grape industry.

- **Yeast Assimilable Nitrogen (YAN) in NY.** Current research has verified that NY winemakers can sample well ahead of harvest for nitrogen content of the fruit they will use in winemaking, allowing early planning for nitrogen supplements added to musts during the winemaking process. Foliar N applications after veraison (start of fruit ripening) can increase YAN, but also may increase the incidence of *Botrytis* fruit rots. Several talks and newsletter articles have highlighted results from current (2010 and 2011) studies.

These are a few of the specific impacts that result from ongoing programs, and long-term support of Viticulture and Enology research and extension done through the VIEN program work team.
ADDENDUM

CRAVE Presentations. The Cornell Recent Advances in Enology and Viticulture workshop is a venue for PWT research and extension members to get together to share latest results of projects. In 2011, we had 11 presentations by Faculty, Students, and ARS scientists. Topics (see table below) illustrate diversity of items presented.

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<tr>
<th>Speaker</th>
<th>Topic</th>
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<td>Wayne Wilcox</td>
<td>Rot Management through Canopy Management</td>
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<td>Gavin Sacks</td>
<td>Brown Marmorated Stink Bug off-aromas in juices and wines: preliminary data</td>
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<td>Jodi Creasap</td>
<td>Hybrid Berry Curve Project and Concord Foliar Feed Project</td>
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<td>Miguel Gomez</td>
<td>Challenges facing growing wine regions in Michigan, Missouri and New York</td>
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<td>Chris Gerling</td>
<td>Making the PWT pay: Two ways to get research funding from attending meetings</td>
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<td>Juliet Carroll</td>
<td>Cornell Fruit Resources, online access to viticulture and enology information for extension</td>
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<td>Andrew Landers</td>
<td>Spray Technology: Wil D’Alembert’s paradox and the Audi R8 spyder help us in the vineyard?</td>
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<td>Justine Vanden</td>
<td>Crop load management in hybrid wine grapes: can it pay off?</td>
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<td>Alan Lakso</td>
<td>Studies on various pruning and training methods for regulating shoot vigor and uniformity in vigorous vines</td>
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<td>Jason Londo (ARS)</td>
<td>Introduction and near future studies in grapevine environmental stress biology</td>
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<td>Misha Kwasniewski</td>
<td>Persistence of elemental sulfur in the vineyard and into wine</td>
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<td>Trent Prezslerr</td>
<td>Cluster thinning affects fruit composition and economic sustainability in Riesling (Questioning Yield/Quality Folklore with Science)</td>
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<td>Anna Katharine Mansfield</td>
<td>Wine typicity rating: All over the Map!</td>
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<td>Sarah Harris</td>
<td>Quantification of 3-isobutyl-2-hydroxypyrazine, a key intermediate in IbMP metabolism</td>
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<td>Brad Rickard</td>
<td>Links between wine availability regulations, alcohol consumption, and traffic fatalities</td>
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<td>Vinay Pagay</td>
<td>Microsensors in the vineyard.</td>
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