

VITICULTURE AND ENOLOGY EXTENSION UPDATE

June 15, 2007



Cornell University
Cooperative Extension



In this newsletter...

THERE'S A LOT HAPPENING...



Cornell programs in Viticulture and Enology are expanding. New faculty, in place since January, are starting their

teaching and research programs. A new laboratory facility is being built in Western NY. New extension and research initiatives, funded in part by a new initiative from the NY Wine and Grape Foundation called 'Total Quality Focus' are starting. The first teleconferenced 'Basics of Winemaking' short course is being offered at 10 locations across New York. And upper-level students from Cornell's Enology and Viticulture program and other institutions are fanning out across New York for summer internships.

This update is an effort to let growers, processors and wineries across New York know about what's happening in New York's vineyards, wineries and laboratories this summer.

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GRAPE EXTENSION AND RESEARCH PROGRAMS HOST FOUR SUMMER INTERNS

Tim Martinson, Alice Wise, Tim Weigle, and Justine Vanden Heuvel

Extension programs across New York will host four summer interns to work on projects of interest to the industry. Two of them are students in Cornell's Enology and Viticulture undergraduate programs. The other two come from SUNY Fredonia Business School and Montpelier, France.



Mark Scholl, a Senior in the Enology and Viticulture program at Cornell, will work in the Cornell Cooperative Extension of Yates County office in Penn Yan as an Extension intern, with funding from the College of Agriculture and Life Sciences at Cornell. Mark will be working with the Finger Lakes Grape Program, the Yates Co. Soil and Water Conservation District, and several Finger Lakes Extension

Associations on the 'Vineyard Mapping' project. This is an effort to compile in a Geographical Information Systems (GIS) map boundaries and varieties of each block of grapes currently planted in the Finger Lakes. These will be combined with soil mapping units and climate data to identify critical land suitable for vineyards in the five-county area surrounding the major lakes.

"Hillside property within a mile of Keuka, Seneca, Canandaigua, and Cayuga lakes comprises over 90% of existing vineyard sites in the Finger Lakes", said Tim Martinson, Statewide Viticulture Extension Associate with Cornell University. "This same land is under increasing pressure for residential development. Using mapping to identify and highlight superior vineyard sites will allow interested parties to develop strategies to preserve this limited resource for future needs of the community."

Mark came into the undergraduate program with previous coursework in biology and mathematics, extensive managerial experience at high-end restaurants, including developing wine lists, and a fall crush at Sheldrake Point under his belt. He intends to stay in the Finger Lakes, and would like to develop his own vineyard someday.



Ben Riccardi, a Senior in Cornell's Viticulture and Enology program, has been selected as the 2007 Shaulis Scholar, and will be working with the research programs of Justine Vanden Heuvel and Alan Lakso at the NYS Agricultural Experiment Station in

Geneva. The award, funded by the N. J. Shaulis Fund for the Advancement of Viticulture, is intended to encourage students to consider viticulture as a career by providing a summer work experience and exposure to Cornell extension and research programs.

After graduating from Dryden High School in 2003, Ben spent two years at the Air Force Academy in Colorado before transferring into the Viticulture and Enology Program at Cornell.

Ben is interested in canopy management, and his summer project, supervised by Dr. Justine Vanden Heuvel, will focus on the effect of shoot and cluster thinning on fruit quality of Corot noir, a Cornell variety named and released in 2006. He will be evaluating effects of the treatments on canopy microclimate and yield components. He hopes to carry the project through to an independent study this fall, where he will make wines and carry out sensory analysis of the resulting wines.



Chris Grassotti is a summer and fall intern with the Long Island Merlot Alliance. He will be working with CCE viticulturists Alice Wise and Libby Tarleton and the Merlot Alliance on a Merlot crop level and wine evaluation program on the Island, and will also work

on a collaborative project of Cornell Viticulturist Dr. Justine Vanden Heuvel and Alice Wise.

Chris worked as a research atmospheric scientist for 15 years in the Boston area. He was accepted into an international Masters program in viticulture and enology at the Ecole Nationale Superior Agronomique in Montpellier, France. This interdisciplinary program includes instruction in economics, management, and finance in addition to viticulture and enology. Chris has taken classes in Montpellier, Bordeaux, and Dijon, and completed a previous internship in the Minervois region of southern France.



Dan Struzynski, a senior at SUNY-Fredonia studying business administration, is working with the Lake Erie Regional Grape Program this summer. Dan's family is involved in the grape industry in the Sheridan area in Chautauqua County.

Dan is working on two projects this summer. First he is developing a crop chemical cost spreadsheet for use by industry and Cornell Cooperative Extension. We will be able to compare different materials and spray programs with approximate costs in order to design cost-effective crop protection programs for grape farmers.

Dan's second project is to determine costs of different production practices outlined in the NY Sustainable Viticulture Workbook. We hope to have dollar figures for the practices that improve vineyard sustainability. That way growers will be able to know approximately their cost per acre if they want to improve their operation. These cost figures will be incorporated in the workbook.

CORNELL STUDENTS START SUMMER INTERNSHIPS AT NEW YORK WINERIES

Kathleen Arnink

Students in the Enology and Viticulture (E/V) undergraduate options at Cornell University obtain a solid foundation in the sciences, with a broad curriculum including biology, chemistry, microbiology and botany courses. But a key part of their education is not obtained in the classroom, but through practical, hands-on experience in the grape and wine industries. Industry personnel contribute to students' knowledge by providing internship opportunities. E/V students undertake two internships during their undergraduate experiences. This summer, a number of Enology and Viticulture students are spending time in the vineyards and wineries of New York

Steve Fulkerson will be an intern in the vineyards at Swedish Hill Winery. **Ted Moore** is performing vineyard work this summer at Casa Larga Winery. **Wesley Tomaselli** will work in the winery and vineyards at Atwater Estate Vineyards. **Alex Bluhm** is beginning an internship at Sheldrake Point Winery this summer, which will continue into the fall for a chance to experience crush at a Finger Lakes winery.

FREDONIA TO PORTLAND:
WESTERN NY GRAPE EXTENSION AND
RESEARCH PROGRAMS ON THE MOVE
Rick Dunst & Tim Martinson

Sometime in 2008, grape research and extension programs currently housed in a converted nursery facility near Fredonia will move 13 miles down Route 20 to a new \$5 million laboratory facility at Portland, NY. The move represents the culmination of a 10-year effort to locate and fund a new location for research and extension programs in the region.

The facility – currently still in the design phase – will include modern laboratory facilities, office space for staff and visiting scientists, and a sizable conference facility for grower and industry meetings. Modern teleconferencing facilities will be built in, enhancing opportunities for remote participation in meetings and conferences held at other locations. Groundbreaking for the new facility is expected this fall.

While the modern office and laboratory space will be a welcome upgrade from the current aging Fredonia facility, a larger challenge is moving research plots from the current farm to the Portland research farm. Essentially, for the research staff it will mean running two farms for the next two years. The Portland farm has about 50 acres of grapes, about double the vineyard acreage at Fredonia.

Existing experiments at Fredonia will be wrapped up after this growing season, and new plots are being planted in Portland this year. New experiments and plantings in the ground include:

- *Concord* - Performance on two soil types (clay and gravels) will be assessed in two existing plantings (Terry Bates).
- *Vignoles* - Clonal selection for reducing cluster tightness and reducing rot susceptibility (Amanda Garris - USDA)
- *Riesling* - Own-rooted vines will be planted for

evaluating control of root-form Phylloxera (Greg Loeb, Entomology).

Ten acres are slated to be replanted in 2008 to support research with American, hybrid and *V. vinifera* cultivars on a broad range of viticulture and pest management issues.

Meanwhile, researchers are wrapping up existing projects at Fredonia. These include:

- Effects of viticulture treatments on root structure, nutrition, and seasonal carbohydrates (Alan Lakso, Terry Bates, Lailiang Cheng)
- Improving wine grape production in acid soils by adjusting pH and use of different rootstocks (Terry Bates)
- Crop load effects on root growth (Alan Lakso and Dave Eissenstadt)
- Evaluating new grapevine germplasm (Lance Cadle-Davidson, USDA)
- Fungicide evaluations for phomopsis and powdery mildew (Wayen Wilcox)
- Developing precision agriculture tools for Concord vineyards (Terry Bates)



The move to Portland offers a unique opportunity to gather more information by destructively harvesting whole vines and weighing and measuring effects of vine treatments on roots, carbohydrates, and nutrition, as these vines are pulled out.

The Fredonia station operated from the late 1950s to the present, and no mention of its legacy would be complete without citing the ‘West Tier Factorial’ experiment. This experiment, set up in the late 1950s by Nelson Shaulis, provided over 40 years of data on the effect of rootstock, training systems, nitrogen, and floor management on Concord productivity. The dataset generated by this experiment will continue to provide insights on vine management and productivity for years to come. This one experiment has had, and will continue to have, an enormous impact on our understanding of vine performance. Time to give it a rest and move on to new questions and experiments at Portland.

NEW FACULTY START RESEARCH PROJECTS

Tim Martinson

Three new Viticulture and Enology faculty members, who started in January of this year, are gearing up their research programs for the summer and fall field and ‘crush’ season. All will be teaching undergraduate students at Cornell in addition to their research activities.



Viticulturist **Justine Vanden Heuvel** is busy establishing new plantings and gearing up for the first season of field studies. Several projects (on Campus and off) are targeting:

- Impact of light and temperature on production of phenolics in red wine grapes.
- Timing viticultural practices on red grapes to improve phenolic composition and decrease vegetative flavors (with Gavin Sacks)
- Improving quality of hybrid grapes and wines through appropriate canopy management (with Gavin Sacks)



Enologist and microbiologist **Ramon Mira de Orduña** is interested in lactic acid bacteria nutrition, formation and degradation of acetaldehyde by wine yeast, and strategies for removing iron to improve chemical and microbiological stability. With Gavin Sacks, he will be starting the ‘NYS Wine Quality Census’ to measure a variety of chemical compounds in finished wines, which will serve as a baseline for future follow up studies on factors affecting wine quality.



Wine chemist **Gavin Sacks** has started several projects. With Justine Vanden Heuvel and Alan Lakso, he is investigating factors influencing methoxypyrazine production and accumulation through the growing season. Methoxypyrazines form the ‘green bell pepper’ flavor, and the amount of this compound at harvest may be influenced by how much is produced early in the season as well as how fast it is metabolized before harvest. With Ramon Mira, Gavin will also be measuring several chemical components in finished wines (see above). Finally, Gavin is working on general methods for identifying and measuring several hundred compounds in wine headspace (eg. aromatic compounds) at once, using a new machine with these capabilities.

HANS WALTER-PETERSON NAMED TO FINGER LAKES VITICULTURE POSITION



Hans Walter-Peterson has been hired as the new viticulture extension educator for the Finger Lakes Grape Program. He comes to the position after spending the past 5½ years in a similar position with the Lake Erie Regional Grape Program (LERGP), based in Fredonia, NY.

“I am very excited to have the opportunity to work in one of the most diverse and exciting grape industries in the world,” Walter-Peterson stated. “I think I bring a unique set of skills and experiences to this job, between my experience working with low cost, high production growers of Concord and Niagara grapes in the Lake Erie region, and the education and experience that I gained while studying with some of the best viticulturists in the world at UC-Davis.”

“The Finger Lakes has earned a reputation as one of the finest grape growing and wine producing regions in the United States, if not the world. I want to help the industry strengthen that reputation even further,” Walter-Peterson said.

The position was previously held by Tim Martinson.

WILLSBORO TRIAL ENTERS THIRD YEAR

Kevin Iungerman and Tim Martinson

The Willsboro cold-hardy grape trial, established by the Northeast NY Fruit Program, along with volunteers from the Lake Champlain Grape Growers Association and others, is entering its third year. It is located at the Cornell Baker Fruit Farm, and will be producing fruit for the first time this year.

The 300-vine trial comprises 25 grape varieties, most of them bred to withstand winter low temperatures in the -20° F range. Kevin Iungerman of Cornell Cooperative Extension and Steve Lerch, Research Support Specialist in viticulture at Geneva, have led a crew of 15 volunteers in establishing and taking care of this trial. It has provided interested ‘beginning’ growers with the opportunity to learn about trellis construction, pruning, tying, and other vineyard tasks.

Limited fruit production this year will allow Kevin and his crew to evaluate vine performance, maturity dates, and do some preliminary examination of juice maturity indicators (brix, TA, pH) important to winemaking.

EFFECTIVE SPRAYING WORKSHOP COMPLETED AT THREE NEW YORK LOCATIONS

Vineyard managers and growers received cutting-edge education in spray technology at four New York locations this past spring.

A total of 97 attended the day-long workshop and a followup half-day field session, developed by Andrew Landers, Senior Extension Associate in Spray Technology at Cornell University.



At the course, repeated six times in the Lake Erie, Finger Lakes (4), and Hudson Valley, participants learned how to :

- Improve their knowledge of spraying techniques leading to better deposition and reduced drift
- Improve timeliness of application for better disease and insect control
- Reduce off-target drift
- Modify and modernize existing sprayers
- Learn about up-to-date developments in sprayer design
- Learn how to potentially reduce pesticide use by 30 - 40%, improving profitability.

The course was developed and presented with funding from the New York Farm Viability Institute, Inc.



TRAINING FOR NEW WINEMAKERS: DISTANCE LEARNING AND HANDS-ON WORKSHOP AT GENEVA *Timothy E. Martinson*

Aspiring winemakers will have local access to training in basic winemaking and wine analysis practices through a new distance-learning short course offered at 8 locations across New York and a followup 'hands-on' workshop at vinification and brewing technology laboratory, located at the NY Agricultural Experiment Station in Geneva.

Kathleen Arnink, lecturer in Enology with the Food Science department at Ithaca, has developed the 'Basics of Winemaking' course, delivered via two-way video hookup to Cornell Cooperative Extension offices in Suffolk, Columbia, Dutchess, Essex, Jefferson, Erie and Chatauqua

counties and the Food Technology laboratory at Geneva. The course will be held evenings from 6:00 to 8:30 PM on June 12, July 10, and July 31.

Co-sponsoring the course are four regional Viticulture Extension programs in the Finger Lakes, Lake Erie, Long Island, and Hudson Valley regions, along with Sue Gwise's horticulture program at CCE of Jefferson county.

A followup 'Basic Wine and Must Analysis' workshop, taught by Arnink and Ben Gavitt, Enology Extension Associate who runs the NY Wine Analytical Laboratory, will be held August 9 at the Vinification and Brewing Laboratory in Geneva.

"We're excited to be able to offer this course and deliver it across the state", said Tim Martinson, Statewide Viticulture Extension Specialist with Cornell University, " We hope to be able to offer this again and develop other distance-learning courses to address needs of grape growers, winemakers, and winery owners throughout New York."

NEW YORK SUSTAINABLE VITICULTURE WORKBOOK TO BE PRINTED *Tim Martinson*

By the end of June, NY grape growers will have a new resource for assessing and adopting sustainable 'best management practices' in their vineyard. The New York Guide to Sustainable Vineyard Practices is in the final stages of production, with publication due on June 30.

A collaborative effort of an industry steering committee and regional extension programs in Lake Erie, Finger Lakes, and Long Island, the workbook contains 140 questions about grower practice in vineyard establishment and management, soil conservation, pest management, pesticide storage and application, and irrigation. By completing the workbook and developing an action plan, growers will have a 'road map' for improving the sustainability of their growing practices and reducing environmental risk.

The workbook was produced with funding from the NY Farm Viability Institute, and the Northeast Center for Risk Management Education.



HUDSON VALLEY COMPLETES FIRST YEAR OF TEMPERATURE SURVEY

Tim Martinson, John Hudelson and Steve Hoying

Research underway in the Hudson Valley is attempting to identify and characterize suitability of sites for planting wine grapes. Climate - and particularly winter low temperatures - is a major determinant of the range of wine grape varieties that can be grown. The Hudson Valley Mesoclimate Study, led by Steve Hoying and John Hudelson, of the Hudson Valley Laboratory in Highland, NY, is attempting to characterize winter temperature trends throughout the valley.

To accomplish this, researchers placed over 100 watch-battery sized temperature loggers along the Hudson River Valley from just north of the Tappan Zee bridge to just south of Albany. These data loggers have recorded hourly temperatures from November through April.

This year's winter was far from typical, but there were geographic trends. In the Mid-Hudson, more sites (66%) east of the river in the 'middle' Hudson got below 0 ° F than sites West of the Hudson river (11%). In the Southern Hudson, winter lows were above 0 ° F in all but one site. As data accumulates over the next few years, Hudson Valley growers should have a better handle on climate variability in the region.

RESEARCH FUNDING CHANGES IN 2007

Tim Martinson

Researchers and Extension Educators are accustomed to an annual funding cycle. Proposal requests come in the fall, industry groups meet during the winter to decide what to fund, and awards are announced in the spring. Industry funding (the Lake Erie Research and Extension Fund, the Long Island Wine Council, others) is matched with state funds through the NY Wine and Grape Foundation, and the Federal Viticulture Consortium funds research projects throughout the nation. This process changed dramatically in 2007.

Viticulture Consortium/Industry Funding. This year Congress eliminated so-called 'earmarks', and with it the 10-year old Viticulture Consortium that funded \$2 million in viticultural research projects nationally. In its place, they moved the funds to

'Formula Funding', which delivers funds to land-grant institutions such as Cornell based on a numerical formula. These funds support around 20 viticulture research projects at Cornell.

The industry funding group, led by **Tim Moore** of Centerra Wine Company, and **Tom Burr**, director of the NYS Agricultural Experiment Station in Geneva came up with creative ways to address loss of viticulture consortium funds. Industry funding was directed at materials, supplies, and travel costs, while personnel costs were covered by additional 'formula funds' allocated to the Geneva station. As a result, most projects reviewed by industry received adequate funding.

Total Quality Focus. The New York Wine and Grape Foundation received additional support this year from New York State for a program called 'Total Quality Focus'. The new grant program, supported by the State Senate Agriculture committee, lead by Sen. **Katharine Young** and Assembly Ag. Committee Chairman **Bill Magee** and colleagues, will allocate \$350,000 to research and extension projects aimed at improving wine and grape quality. According to Foundation President **Jim Trezise**, "The Total Quality Focus program is designed to provide the knowledge and stimulate the commitment to fulfill our strategic goal of having the NY grape and wine industry recognized as a world leader in quality, productivity, and social responsibility"

The 12 projects funded (**Lead Researcher**) include:

- *Delivering timely information across NY during harvest season to increase wine quality* (**Tim Martinson**)
- *Controlling grape phylloxera in NY vineyards* (**Greg Loeb**)
- *Grower seminars on canopy management and practices to improve wine quality* (**Extension Educators**)
- *Developing a database to assess vineyard soil health to improve juice/wine quality and productivity* (**Lailiang Cheng**)
- *First comprehensive winemaker and grower-oriented quality analysis of NY Wines* (**Gavin Sacks & Ramon Mira**)
- *An interactive vineyard site evaluation and selection system for New York* (**Alan Lakso**)
- *Effects of late-season fungicide sprays on wine quality* (**Wayne Wilcox**)
- *Improving the quality of hybrid grapes and wine* (**Justine Vanden Heuvel & Gavin Sacks**)
- *The effect of crop load on Concord juice quality* (**Terry Bates**)
- *Effect of pH and rootstock on the wine quality of Riesling and Traminette* (**Terry Bates**)



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