

FINGER LAKES VINEYARD NOTES

Newsletter #5

June 24, 2005

Cornell Cooperative Extension

Finger Lakes Grape Program

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THE BIG FREEZE PLUS 1: HOW ARE FINGER LAKES VINEYARDS FARING THIS YEAR?

Timothy E. Martinson

Now that we are past bloom, everyone is starting to look seriously at what are the prospects for this year's crop, and what this winter and carryover from last year's winter injury has done to grapevines in the region.

The 2004 crop (final statistics for *V. vinifera* are not in) was, as expected, short. Hybrids overall appeared to have had about a 60% crop, Natives were down significantly (but not as much as some had thought), and *V. vinifera* (according to my estimates, not confirmed officially yet) was at about 25% of a crop, with 2-300 acres (spread across the entire region, not all in the same blocks) needing replacement. In addition to *V. vinifera*, significant numbers of hybrid vineyards (notably DeChaunac and Baco) had high levels of mortality.

As predicted, not all of the trunk injury resulting from the 2004 freeze became apparent during last year's growing season. Many trunks that produced last year



Trunk Piles – A common sight in the Finger Lakes this year.

bit the dust this winter and spring. Additional winter injury undoubtedly occurred as a result of our January cold snap this year. And in some hybrid varieties, notably Cayuga White, injury levels look unusually high, given temperatures we saw during the winter. Carryover from 2004 or new trunk injury? Probably a combination.

Compounding the existing winter injury was the Friday the 13th (May 13th) freezing temperatures, which lasted from midnight to 7AM (which is why I'm not calling it the Thursday freeze) and went down to as low as 24 degrees F. Shoots were out at bud swell to 2-3 inches at the time. While there are many exceptions (notably the Naples 'flat'), lost shoots and buds amounted to 10-20% in most vineyards throughout the Finger Lakes. Although vines have grown out of it by now, the freeze probably will result in a modest crop reduction. (Remember that vines with fewer clusters can compensate by setting more fruit on the remaining clusters.)

I haven't been out to look at all varieties or areas in the FL, but here are a few observations by category:

Natives: Major varieties (Concord, Catawba, Elvira) should be in better shape than last year. Processors are

reporting average cluster counts, and I think that berry number (on Concord last year it was about 1/2 to 2/3 of average) will rebound as well. I don't have a good handle on Niagaras – many blocks had significant trunk injury last year.

Hybrids: As you would expect, hybrids are a mixed bag. Many Cayuga White blocks have a lot of winter injury. Most, I believe, can be attributed to cumulative trunk injury over the past few years. The worst-looking blocks will need renewal from the ground up (still suckering), while the best will have an average or below average crop. I don't think we'll see many 7T Cayuga blocks this year. What holds for Cayuga White seems to be true also of Traminette. Among the hybrids, I believe we've seen some permanent loss in acreage with De Chaunac and to a lesser extent Baco noir. This happened last year. Some blocks also are showing significant (30%) bud injury. Some standouts for relative lack of winter injury include: Marachel Foch, GR7, and the numbered red 73.0809.17. Please note there are probably a lot of others like this, I just haven't seen them yet.

V. vinifera: I'll be blunt here and say that I don't see many blocks that will be at full production this year. A couple of typical situations are: 1) My vineyard went 3.5 tons last year and we lost most of the trunks this spring, 2) Only the trunks I renewed during the winter are producing anything this year. There are exceptions, of course – and the bright spot is that close to 100% of vineyards were hilled up last winter, so we're not seeing nearly as much total vine mortality. Growers will, in most cases, have plenty of suckers for renewal. One final observation: Vineyards that were defoliated by downy mildew in September fared much worse than vineyards that had green leaves through early November. I'd guess that about 1/3 of the *vinifera* blocks I saw last fall had significant downy mildew defoliation.

Overall Crop: Its safe to say that all categories will probably rebound from last year, but quantities of hybrids and *V.vinifera* will probably remain well below average. Some specific categories (red hybrids, Cayuga, *vinifera*) will be tight, and I suspect that buyers will bid up prices to some extent. In this, the “Big Freeze plus 1” year, I imagine that inventories (that carried some wineries through last year) are dwindling for both large and small buyers and that a restricted supply will either limit production, lead to higher prices, or cause buyers to seek out-of-area supply for a portion of their needs.

SUPPLEMENTAL LABEL FOR PRISTINE TO CONTROL BOTRYTIS

Wayne Wilcox

Dept Plant Pathology, NYSAES Geneva

Both the federal and NY State regulatory bodies have approved a supplemental label for the new "Pristine" fungicide to control Botrytis. The standard Pristine label specifies a use rate of 8 to 10.5 oz/A to control powdery mildew, downy mildew, black rot, and Phomopsis (plus a few other diseases), and allows a rate increase up to 12.5 oz/A for "suppression" of Botrytis (translation for "suppression: No guarantees). The supplemental label allows an increased use rate of 18.5 to 23 oz/ A for control of Botrytis.

IMPORTANT NOTICE: In order to apply Pristine at this higher rate, the user must have a copy of the supplemental label (available from pesticide distributors) in hand. Also note that when Pristine is used at a rate greater than 12.5 oz/A, the re-entry interval increases to 5 days, versus only 24 hr below that threshold. All rates have the same 14-day PHI.

How well does this high rate work? In a 2002 trial on Vignoles, a four-spray program (late bloom, bunch closure, veraison, 2 weeks later) with 12.5 oz/A gave us 66% control (relative to the unsprayed check) versus 89% control with 19 oz/A. The latter was comparable to the control provided by Vanguard, Elevate, or the 3 oz rate of Flint. Interestingly, when we used what we then thought would be the low label rate (6.3 oz/A) in the first two sprays and followed it up with Vanguard in the final two, we got 95% control, versus only 20% control when nothing was applied until the final two Vanguard sprays.

In a 2003 trial, again on Vignoles, the four-spray Pristine program provided 49% control at 8.4 oz/A, 76% control at 12.5 oz/A, and 94% control at 19 oz/A. In a similar 2004 trial, the 12.5 oz rate gave us 75% control, versus 81% for Elevate and 87% for Vanguard.

This is a rather limited data set upon which to base firm conclusions. That being said, my gut feeling is that the 12.5 oz rate is likely be quite adequate at bloom, it should control the other major diseases, and you can avoid the extra label and prolonged PHI needed for the higher rate. The greatest advantage of the high rate allowed by the supplemental label is likely to be at or after veraison, since this product is also labeled for control of some of the "other" bunch rot organisms (I

haven't seen efficacy data), berries have become very susceptible to the spread of Botrytis, and the high rate is likely to provide extended residual control of downy and powdery mildews on the foliage at a time when spraying is normally slowing down.

One final reminder: Pristine is not a silver bullet, and we do not want to burn it out. If you use it for Botrytis control, rotate with other, unrelated Botrytis materials during other parts of the season, just as you will for control of powdery and downy mildews.

TRADE ADJUSTMENT ASSISTANCE (TAA)
FOR CONCORD GROWERS
SIGNUP ENDS JUNE 27.

*Barry Shaffer
Lake Erie Regional Grape Program*

Concord grape growers in NY, PA, and OH are eligible to apply for Trade Adjustment Assistance (TAA) at their local Farm Service Agency (FSA) office. The TAA applicant does need to provide production evidence in tons of grapes as the payment rate of \$3.06 per ton is based on tonnage. This payment rate is based on the 2003 crop year. TAA payments are capped at \$10,000 per farm per year.

The USDA's Foreign Agricultural Service (FAS) approved a petition filed by Concord juice grape producers. All Concord grapes produced are eligible including wine and fresh uses. Producers will need to take their 2002 and 2003 Schedule F to their local FSA office. Reports are that the application process is fairly simple.

TAA benefits are threefold. Qualified applicants will receive cash payments, free training from Cooperative Extension, and optional payments for school tuition through the United States Department of Labor (USDOL). This part of the program can pay tuition for up to 2 years. For more information about this program try:

<http://www.aaforfarmers.org/GeneralInformation.htm>

Producers only have 90 days from the time the petition was approved to apply. This means you have until June 27, 2005 to apply with FSA. The required training from Cooperative Extension needs to be completed within 180 days. There is a series of TAA meetings planned for July and early August 2005. Be on the lookout for one in your area!

NEW YORK RESEARCH PROJECTS FUNDED
THROUGH NEW YORK GRAPE INDUSTRY AND
VITICULTURE CONSORTIUM IN 2004 – PART I

*Tim Weigle, Andy Muza,
Hans Walter-Peterson, Tim Martinson*

[Ed Note – This is the first of a two-part series. The second part will appear in next month's Vineyard Notes – TEM]

Every year in early February, grower and industry representatives of the New York Grape Production Research Fund and Lake Erie Regional Grape Research and Extension Program as well as members of extension receive a packet of progress reports and new proposals for research as part of the annual funding cycle.

This is a lot of material for anyone to read, and it can be difficult to wrap one's head around what is significant – both in the short and long term – to growers and wineries in the region. Every project that's funded has goals of significance to the industry, whether they are to determine the best spray timing for Phomopsis or the genetic basis for disease resistance. But it's been a challenge to briefly describe the goals and important findings in a short, understandable format.

That's exactly what we are hoping to do in this series of two articles for the Lake Erie and Finger Lakes newsletters. The following summaries include the project title, who is doing the work, and a few sentences each about the goals of the project and results that have been found to this point in the research. This month's article focuses on pest management projects. Summaries of projects involving cultural practices, physiology and genetics in next month's Finger Lakes Vineyard Notes.

We hope that this summary will provide you with a sense of the variety and scope of projects currently underway at Cornell and Penn State. We are lucky to be able to draw upon the talents of a large number of researchers – not only in New York and Pennsylvania, but also in other parts of the Northeast – to generate the data that backs up extension information and forms the basis for grower practices.

Evaluation of the Role of Factors That Might Promote the Transition of Latent Botrytis Infections Into an Active State (Disease at Harvest). *Wayne Wilcox, Jim Travis, Bryan Hed, Stella Zitter, David Gadoury, Robert Seem.* There was no evidence that

fruit maturation activates latent infections in intact Chardonnay and Vignoles berries. High humidity, wind, and pedicel injury all appeared to contribute to the activation of latent infections in ripe detached berries. Exposure to wind before subjection to high humidity increased activation over high humidity alone. Injury at the berry pedicel contributed most to activation and closely approached maximum (standard) levels. These results harmonize with the strong effect of pedicel injury on latent activation in Chardonnay in 2003.

Evaluation of Approved Organic and Alternative Fungicides for Control of Powdery Mildew of Concord Grape *Jim Travis, Bryan Hed.* Leaf disease:

The most effective alternatives on leaves were four applications of JMS Stylet Oil (1.5% solution), whole milk (20%), and these two materials tank mixed at half rates. These treatments provided significant control over a water check, and were statistically equivalent to a more conventional program (Stylet oil (1.5%), then Nova (4 oz), then Sovran (3.2 oz), then Nova), providing 65-69% control of leaf disease incidence by 23 July. On the other hand, four applications of Armicarb O (2.5 lb), whey (20 %), or Vigor-Cal (1 gal) tank mixed with SprayTech oil (0.125 %), provided little or no control of early leaf disease.

Fruit disease: Four applications of Armicarb O (2.5 lb) tank mixed with Nutrol (4 lb; not organic), Armicarb O (2.5 lb) tank mixed with whole milk (10%), and the conventional program, provided the best control of fruit disease (81%, 78%, and 75% control respectively). Stylet oil at 1.5%, and a half-rate of Stylet oil (0.75%) tank mixed with low rates of Armicarb O (1.25 lb) and Nutrol (2 lb), provided intermediate and significant levels of control of berry disease (65-67% control). Four applications of Trilogly (1%) provided the lowest level of control (48%), which was not significantly different from the water check.

Evaluation of the Effects of Cluster-Loosening Treatments on Cluster Compactness, Botrytis Bunch Rot (BBR), and Total Rot (TR) Development of Vignoles Grape. *Jim Travis, Bryan Hed.* Various rates and timings of Ultra Fine oil (mineral oil) and SprayTech oil (soybean oil) applied before and during bloom, reduced compactness of clusters by 2-18 %. Trace bloom leaf removal reduced compactness by 13 %. Cluster clipping after shatter significantly reduced the severity of BBR and TR (both by 60 %) over the check, was statistically equivalent to two Vanguard applications, and was significantly more effective at reducing the severity of BBR and TR than trace bloom

leaf removal. All oil and cultural amendments to a Vanguard program (2 applications; pre-close and veraison) improved BBR and TR control. Amendment with bloom oil applications allowed us to reduce the number of powdery mildew chemical fungicide applications without sacrificing control of powdery mildew.

Regaining Control of Grape Powdery Mildew in an Era of Fungicidal Uncertainty. *Wayne Wilcox, David Gadoury, Robert Seem, Juliet Carroll.*

Sulfur is a critical tool for control of powdery mildew on most grape cultivars due to its efficacy, cost, and dependable fungicide resistance-management qualities. The data provided by these experiments challenges some fundamental concepts regarding its lack of curative ability and poor activity at low temperatures, and have the potential to significantly improve our deployment of this essential material. This work also provides the first experimental data concerning the effects of the popular alternative fungicide, JMS Stylet Oil on productivity of cv. Concord, an important eastern cultivar on which sulfur cannot be used.

Factors Influencing the Performance of New Fungicides. *Wayne Wilcox.*

This research demonstrated that phosphates, economical and toxicologically benign compounds newly registered for downy mildew control, have both protective and post-infection activities and strongly inhibit the formation of disease-spreading sporangia from lesions that may develop. Also demonstrated was the DMI fungicide, Nova, has extended post infection activity for black rot under field conditions (at least 7 days) but provides relatively little protective activity, whereas the strobilurin fungicide, Abound has limited post-infection activity but good protective abilities against black rot.

Investigations of Pathogen Biology and Ecology: The Raw Materials for Improved Management of Grapevine Powdery Mildew. *David Gadoury, Wayne Wilcox, Robert Seem, Laura Wakefield.*

Grape powdery mildew produces clouds of infectious spores, and it is this vast spore supply that can make epidemics so destructive and the disease so difficult to control. A diverse body of evidence related to a signaling process in grapevine powdery mildew that control spore production provides the basis for the long-term goal of this project, which is to control the biochemistry or genetics of the process, thereby diminishing or eliminating spore production.

Epidemiology and Control of Grape Downy Mildew.

David Gadoury, Robert Seem, Wayne Wilcox, Megan

Kennelly. This research has provided valuable information on the behavior and control of downy mildew in grapes. It was determined that grape berries and stems become resistant to infection about 2 weeks after bloom. Pedicels remain susceptible for a longer period of time, however, and infection of these can still result in the loss of fruit due to shedding. The DMCase model has been refined using the information gathered from this project in order to improve its accuracy, and to provide growers with better information on the proper timing of sprays to control downy mildew. The revised DMCase model can be found at http://newa.nysaes.cornell.edu/grape_home.htm.

Identification of Plant Host Volatiles Used By Female Grape Berry Moth for Oviposition

Greg English-Loeb, Wendell Roelofs, Tim Weigle. The use of pheromone traps to monitor male grape berry moth (GBM) activity does not correlate well with female GBM egg laying activity and damage to berries, particularly later in the season. The goal of this research is to develop a means of monitoring female GBM activity at various times during the growing season. An initial group of 3 compounds showed some ability to attract females, but not as well as actual grape shoots. Contamination by other compounds was later discovered from an outside source. A technique of isolating and identifying potential plant host volatile compounds from actual grape shoots has been developed, and work is continuing on identifying the key attractants for female GBM for ultimate use in field testing.

Addressing Late-Season Grape Berry Moth Damage.

Tim Weigle, Mike Hoffmann, Greg English-Loeb, Andy Muza. This project examines the feasibility of using *Trichogramma ostrinae*, a parasitic wasp, to control grape berry moth damage in New York State vineyards. This project has the following objectives: 1) positively identify *T. ostrinae* as an egg parasite of GBM, 2) determine the ability of *T. ostrinae* to overwinter in WNY, 3) effectiveness of early vs. late releases and 4) determine levels of native parasitism. The ability of *T. ostrinae* to parasitize GBM eggs in the field was proven conclusively in 2004. Berry damage due to GBM was reduced in seven of the nine blocks treated with *T. ostrinae* as compared to the growers' conventional blocks.

Determining Whether European Red Mites are Serious Pests of Grape in the Northeast. *Jan Nyrop, Alan Lakso, Martin Goffinet.* The objective of this project is to quantify the effect that European red mite (ERM) leaf feeding injury has on yield, quality and vigor of grape. In 2003 results indicated that ERM injury to grape leaves significantly reduced photosynthesis and led to reduced fruit maturation (% Brix) and lower levels of total acidity. Mite injury did not influence fruit yield. The experiments conducted in 2004 were meant to verify the 2003 findings. Due to severe winter injury to grapevines this experiment could only be conducted in 1 of 3 planned sites. The site where data was obtained also showed decreased vine vigor due to low temperatures. Therefore, 2004 results are of questionable utility and the experiment will be repeated in the 2005 season.

Optimizing Spray Penetration and Deposition with Air blast Sprayers in New York and Pennsylvania.

Andrew Landers, Wayne Wilcox. The overall goal of this project is to improve the standard of crop spraying and the understanding of safer pesticide application via the correct use of existing airblast sprayers. Research trials were conducted using the Berthoud sprayer and nozzle orientation experiments using a number of popular vineyard sprayers. In an early season canopy, reducing fan speed resulted in an increase in spray deposition on leaves. Lowering fan speed to 2/3 of the full speed reduced drift at most locations by 75-95%. The best spray pattern for applying spray into the fruit zone in a full canopy: Right hand side nozzles – pointing horizontally with top 2 nozzles between horizontal and 20° below horizontal; Left hand side nozzles - pointing between horizontal to 45° upwards. To improve spray depositions throughout the season, air volume should be changed to match the growing canopy and variable speed drive systems should be fitted to the fan. During the 2005 season, research trials will be conducted using Kinkelder sprayers.

The Biology, Epidemiology, and Control of Botrytis Bunch Rot.

Wayne Wilcox, Jim Travis, Robert Seem, David Gadoury, Stella Zitter, Bryan Hed. Botrytis bunch rot, although a serious disease of premium wine varieties, has been poorly understood. This study significantly aided in determining vine growth stages when infections occur and effects of environment, plant nutrition, and cluster architecture on disease initiation and spread. Results indicated that latent infections can become established at bloom or during early stages of berry development. However, most latent infections do not become active and cause berry rot. Factors that can promote activation of latent infections include: High

nitrogen content in the berry; high atmospheric relative humidity; high soil water content, and injury at point of pedicel attachment. Activated botrytis infections can spread extensively throughout clusters during the preharvest period when berries become more susceptible to botrytis development. Secondary spread of botrytis is greatly enhanced in varieties with tight clusters. Fungicides effective against botrytis reduce the establishment of primary infections and spread of disease. Importance of spray timings at bloom or at preharvest depends on weather events during these phenological stages. The fungicide, cyprodinil (Vangard), appears to have some ability to eradicate latent infections over extended periods.

Management of Crown Gall by Cultural and Biological Means, Tom Burr, Jodi Creasap, Cheryl Red, Guxia Hao. Goals of this project are 1) to establish crown gall free vines through tissue culture and propagate them in crown gall-free mother blocks; 2) evaluate effectiveness of the biological control strain F2/5 in preventing galls in field trials, and 3) investigate how the crown gall bacterium affects graft development and compatibility. In several field trials, vines treated with F2/5 show promise in preventing gall formation. Crown gall mother blocks of Niagara, established in NY and MI are being monitored to determine if they remain crown gall-free. The *Agrobacterium* bacteria can prevent callusing at the graft union, leading to grafting incompatibility.

INDUSTRY GROUP PROVIDES INPUT ON CORNELL INTERNSHIP PROGRAM FOR VITICULTURE/ENOLOGY MAJORS

Timothy E. Martinson

Representatives of Cornell's Ag and Life Sciences Career Development Office, the college's Viticulture and Enology Steering Committee, and ten Finger Lakes grape growers and winery owners met at Swedish Hill on June 7 to discuss how to place Cornell viticulture/enology students in internships with area grape growers and wineries.

The meeting, organized by NYS Agricultural Experiment Station Director Tom Burr, Tim Martinson of the Cornell Cooperative Extension's Finger Lakes Program, Amy Benedict, director of the Career Development Office (CDO), and David Peterson of Swedish Hill Vineyards included a tour of Swedish Hill's production facilities followed by a discussion

session with industry representatives. The Career Development Office employees continued on with a tour of Station facilities in Geneva after lunch at Swedish Hill

The college's new Enology/Viticulture undergraduate program was established with the goal of providing a combination of science-based training and practical experience through internships to students interested in careers in the industry. It offers concentrations in winemaking, grape production, and business management. Industry support was cited by Tom Burr as an important motivator for starting the program, and the industry will play an important role in providing practical experience to students to supplement their classroom training.

The industry group was asked to provide input on their expectations for the internship program by addressing the following questions:

- 1.) *What skills would you like those entering internships to be equipped with?*
- 2.) *What times of year and length of internships would be appropriate (both in vineyard and winery)?*
- 3.) *What issues (for example, formal training in safety procedures or worker protection) are important to consider from the standpoint of your business?*
- 4.) *What is the best way to solicit internships from the industry and place appropriate students?*
- 5.) *What other staffing needs (e.g. summer employment in tasting rooms, permanent jobs) can the CALS career center help you out with?*

The following points came up in the discussion:

- The industry has a strong interest in hosting interns. Many wineries have informally hosted local and international students for years.
- Both enology and viticulture students would benefit from gaining some work experience in both the vineyard and winery.
- Students should be encouraged to seek out summer jobs during their entire program. Lower level students should gain experience in routine tasks, while upper-level students could use their training to do specific, well-defined tasks.
- Winemaking students (and also viticulture students) should be strongly encouraged to work an entire 'crush'. This means that they will need to take a semester off from class work.
- Summer interns in the Finger Lakes could potentially spend a half-day per week gaining

additional exposure to researchers and production issues in the field.

- Wineries and vineyards are subject to safety regulations through OSHA and EPA (worker protection standard). Interns need to be trained in safety requirements before their internship
- Wineries can list internship opportunities, summer jobs and permanent positions with the Career Development Office. They put out a weekly e-mail listing to all undergraduates.
- The CDO also suggested having a 'job fair' on campus, where employers can come to meet interested students and potential interns. This would occur in February or March

Based on these discussions, Cornell personnel will look into the possibility of providing safety training sessions for interns, review the curriculum structure to make sure it will be compatible with students taking a semester's academic leave to work through harvest and crush, and will look into organizing a 'job fair' to connect industry with interested students.

The Career Development Office is eager to help the wine and grape industry with any employment needs, whether it be interns, summer help in tasting rooms, or permanent employment. They can be contacted at:

CALS Career Development Office
177 Roberts Hall
Cornell University
Ithaca, NY 14853
(P) 607/255-2215
<http://www.cals.cornell.edu/Careers.cfm>
Contact person: Laurie Gillespie
Email: lag11@cornell.edu

HE'S BACK: BILL WILSEY RETURNS

We are pleased that **Bill Wilsey** is back working with the Finger Lakes Grape Program again. Bill is funded by several grants, including one entitled *Developing A Sustainable Viticulture Workbook for New York Vineyards*. Please join me in welcoming Bill back with the program.



UPCOMING EVENTS

CUTTING-EDGE CULTIVARS HIGHLIGHTED AT 2005 ASEV/ES SYMPOSIUM

*Anna Katharine Mansfield
University of Minnesota Enologist*

The American Society for Enology and Viticulture, Eastern Section, will conduct its annual technical meeting and symposium, entitled *Cutting-Edge Cultivars*, at the Millennium Hotel St. Louis, St. Louis, Missouri, July 13-16, 2005. In response to the increased interest in terroir-specific cultivar selection, this program will explore the viticultural and enological aspects of specific grape cultivars significant to eastern winegrowing. Half-day sessions will focus on Traminette, Pinot Gris, and Norton, as well as a variety of new cold-climate hybrids from the Upper Midwest. Additional information and registration forms are available at www.nysaes.cornell.edu/fst/asev/. Or call our office at 315-536-5134 for registration forms and program information

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Finger Lakes Grape Program

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