



FINGER LAKES VINEYARD NOTES

Newsletter #8
July 15, 1998

Written by Tim Martinson, Area Grape Extension Educator, Finger Lakes Grape Program (315) 536-5134 and Tim Weigle, Area Extension Grape Pest Management Specialist for the Finger Lakes and Lake Erie Grape Programs (716) 672-6830. Edited by Tim Martinson.

IN THIS ISSUE

Summer Research Tour

Notes on the Long Island Wine Industry

What Is An Infection Period?

Food Quality Protection Act and Grape Pesticides

NY Agriculture Tour for National/State Regulatory Officials

Upcoming Events

- Eastern section American Society of Enology and Viticulture (ASEV) Meeting
- Grape Production Research Fund Summer Tour
- Beyond the Big Apple

SUMMER RESEARCH TOUR JULY 28

Timothy E. Martinson

The NY Grape Production Research Fund and Lake Erie Regional Grape Research Fund are organizations that provide industry funding for grape research projects in New York, through the NY Wine and Grape Foundation.

You are invited to attend the annual summer research tour of these organizations, which will take place in the Finger Lakes this year. The tour will include presentations by researchers on studies taking place in commercial vineyards, and also will highlight innovative practices being used in area vineyards.

The tour will take place on **July 28, 1998**, starting at Jim Bedient's vineyard outside of Branchport, proceeding through several stops on Seneca Lake, and closing with a chicken barbecue at Swedish Hill Winery in Romulus.

Please feel free to join the tour at any point during the day, or for any topic that interests you. Lunch and a barbecue will be served. If you plan on joining us for lunch (at Glenora Winery) or dinner (at Swedish Hill), cost is \$8 for one meal or \$15 for two meals. Please call our office by the end of the day on **Monday, July 20** if you plan on joining us for lunch or dinner. Otherwise, no pre-registration is required.

Summer Research Tour Schedule

10:00 Bedient Vineyards, Stever Hill Rd, Branchport

- Grape nutrition research *W. Stiles, J. Saenz, M. Goffinet, T. Martinson*
- Nutrition/Root biology projects in W. New York *T. Bates*
- Grape Plume Moth impact on yield *G. English-Loeb*

Tones Farm, Stever Hill Rd.

- Row middle rye seeding with no-till seeder.
D. Tones (Grower Practice)

11:30 Travel to next stop

12:00 Canandaigua Wine Co. Dresden Farm
Ridge Rd. - E of Penn Yan off Rte 54

- Disease Management Research, *W. Wilcox Laboratory*
- Tomato Ringspot Management *T. Martinson, D. Gonsalves*

12:40 Travel to next stop

1:00 Glenora Winery / Glenora Farms, Rte 14, 8 mi N of Watkins Glen

- Lunch at Glenora Pavillion, Catered by Glenora Winery
- European Red Mite -Biological control and Dormant / Stylet oil treatments *G. English-Loeb, T. Martinson*
- Site Selection/Weather Monitoring *B. Seem, R. Magarey, H. Kredon*
- Irrigation of new planting *Jeff Morris, Glenora Farms (Grower Practice)*

2:30 Travel to next stop

2:45 Lakewood Vineyards
Route 14, 3 mi. N Watkins Glen

- Demonstration of leaf-pulling machine *D. Stamp (Grower Practice)*

3:05 Travel to next stop

3:30 Lamareaux Landing Wine Cellars
Route 414, E. Seneca Lake

- Vinifera canopy management *M. Wagner (Grower Practice)*
- Resveratrol content of grapes *L. Creasy*
- Clonal Selection - commercial '3rd test' plantings *B. Pool*

4:30 Travel to next stop

5:00 Swedish Hill Winery Route 414, Romulus

- Crown Gall Research, *T. Burr*
- Planting and evaluation of new varieties, *B. Reisch, S. Luce, D. Peterson*

6:00 Chicken Barbecue at Swedish Hill

NOTES ON THE LONG ISLAND WINE INDUSTRY

Timothy E. Martinson

Last week, 20 Finger lakes growers and winemakers participated in an intensive two day tour of the Long Island wine industry. I want to share some observations about the industry, which provides an interesting contrast to the Finger Lakes.

What we found on Long Island was a thriving, growing industry that has changed noticeably since my last visit to the island in 1994. There are close to 1500 acres of *vinifera* grape in production. With about 200 of that being nonbearing acres, there is also a great deal of vineyard land under development. These vineyards coexist with an increasingly vocal and growing residential population. Combine that with sandy soils and a shallow aquifer upon which everybody depends for drinking water, and it should be evident that neighbor relations and regulatory agendas are important elements in grape and wine production on the island.

Varieties. Merlot and Chardonnay are the signature red and white varieties of the region, with cabernet sauvignon also having major acreage. As in the Finger Lakes, Cabernet Franc is gaining in renown, with many new plantings and more on the horizon. Pinot Noir is also widely planted, but considered less well adapted to the region. Other varieties with lesser acreage include Riesling, sauvignon blanc, pinot blanc, Gewurtztraminer, Viognier, and Chenin blanc. There is very limited acreage of hybrids, such as Seyval and Cayuga white.

Products. The 19 wineries on Long Island currently are able to command \$14 to \$40 per bottle for their products. This is a tribute to the recognized high quality of the wines. The proximity to a large, affluent market (including wine critics), meticulous vineyard practices, and the marketing/advertising background of some of the winery owners are additional factors in the success currently enjoyed by the industry.

Viticulture. Vineyards in Long Island are almost universally under intensive management that is dictated both by quality issues and the unique soils of Long Island. Perhaps the biggest contrast with the Finger Lakes is the sandy soils. These soils have low water holding capacity, low organic matter and much lower capacity to retain and supply mineral nutrition to the vine. They dictate a different approach to vine spacing and fertilization practices. Early vineyards were planted on a standard 9 x 8 ft spacing. Experience showed that it was difficult to obtain sufficient vine size to fill the trellis at this spacing. New plantings go in at 8 x 5 ft - or even 8 x 4 ft spacings, and many older vineyards have been retrofitted to this spacing. Because of the sandy soils, more nitrogen (30-50 lb actual) is applied, commonly split into two or even 3 applications - most use a bud-break & post-bloom split; some apply additional N close to veraison. Soil pH is also low on the island - and 2 T/acre lime is commonly applied yearly to raise soil pH to the 6-6.5 range. Sandy soils have also led to widespread installation of drip irrigation, which also opens the door to chemigation and more precise delivery of fertilizers to the vine.

Vine Training. Most vineyards are cane-pruned and trained to the low wire, with vertical shoot positioning. A few are cordon/spur trained. Summer hedging (shoot tipping) and basal leaf removal are universal practices. Some of the larger operations, with 150 - 350 acres of *vinifera* under management, have invested in machines to mechanize shoot positioning. We saw one that moves the catch wires up about a foot, inserts fasteners at each post length that

bind the catch wires together, and trims off the top of the shoot tips. Many growers also adjust shoot density and crop by shoot thinning or cluster thinning. The latter is done mid-season for the purpose of attaining optimum and even maturity levels at harvest. In contrast to the Finger Lakes, excess vine vigor does not seem to be a common problem - again due in part to the sandy soils. With in-row vine spacing of 5 ft, growers shoot for 20 - 25 retained buds per vine. In the past several years, winter bud kill has not been a problem.

Pest management. Practices are generally similar to those used on *vinifera* grapes in the Finger Lakes- with a few important exceptions. One that most of you are probably aware of is that Abound did not receive registration on Long Island due to concerns (whether justified or not) about leaching into ground water. With vineyards interspersed with rapid growth in residential development, neighbor relations centering on pesticide use are a continuing challenge to the industry. A couple of vineyards have invested in curtain-type hooded boom sprayers manufactured in Germany. These sprayers (one was demonstrated for us) have recirculating pans that can recover 70% of the spray solution in early applications, 30% in post-bloom applications, and greatly reduce visible drift - which helps maintain good relations with the neighbors. Savings on spray material appear to be substantial enough to justify the cost of these units - however it is uncertain how this two-row unit would perform on steeper slopes here in the Finger Lakes. Spider mites (european red mite) are another perennial problem, but one that the industry may be getting a better handle on. Several growers told me that they avoided application of Sevin (carbaryl) because it resulted in flare-ups of mites. Many have started using 2 - 3 early-season applications of Stylet oil, starting as early as 1-3 in shoot growth, and appear to be satisfied with the results. The other unique problem is with birds - while we have problems with birds here in the Finger Lakes, Long Island's position on major flyways has led to

more intense bird problems. As a result, bird netting is necessary on virtually 100 % of the acreage. As you might imagine, this is not a minor cost if you are a vineyard manager deploying netting on 350 acres of grapes.

Yield and Economics. Vineyard managers I talked to shoot for yields in the 2.5 to 3.5 tons/acre range. With the intensive and careful management that these vineyards receive, cash costs per acre were reported to be in the range of \$3000 per acre. Prices for vineyard land are in the \$16,000/acre range. These costs suggest that stand-alone vineyard operations would probably not be economically viable. However, wineries appear to be able to recoup growing costs through retail sales at the winery. For those wineries that do not want to grow their own grapes, contract vineyard management companies are available. They charge set fees for vineyard management.

The Long Island industry has accomplished much in the 20 years since the first vineyards came into production. It has established a reputation for producing quality wines, continues to grow, and now represents the largest concentration of *vinifera* grapes in New York. Vineyards are gradually replacing potato farms as the dominant agricultural enterprise on the East end of Long Island. The growers and wine makers of Long Island have reason to take pride in their accomplishments, and contribution to a thriving New York wine industry.

WHAT IS AN INFECTION PERIOD?

Tim Weigle
Grape IPM Specialist

Growers often hear about the occurrence of an infection period for a particular disease. With the expansion of available weather equipment across the region we now can do a better job of determining whether infection periods for powdery mildew, black rot and Phomopsis have occurred belt wide or just in certain areas. While we talk freely about the use of infection periods to help make more informed

management decisions there have been questions lately about how infection periods are determined. This article should help take the mystery out of how infection periods for the various diseases are determined.

A handout developed by the late Dr. Roger Pearson, Dept. of Plant Pathology, NYSAES, Geneva provided these general requirements for the major diseases:

- Rainfall is required for release of spores of Phomopsis, Black rot, Powdery mildew (primary inoculum), and Downymildew (primary inoculum) fungi.
- Rainfall is not required for release of secondary spores of powdery mildew and Downy mildew fungi
- A film of water is required for infection by Phomopsis, Black rot and Downy mildew fungi.
- Water is not required for infection by Powdery mildew fungus.

Powdery mildew. Infection requirements for primary inoculum of powdery mildew are pretty straight forward. The only requirements are temperatures of 50°F or higher (optimal temperatures are between 68-77°F) and rainfall of 0.10-inch or more. The water is necessary for the release of the spores from the cleistothecia (overwintering structures). However, water is not required for infection by the powdery mildew fungus. Secondary inoculum of powdery mildew (produced by primary infections from earlier in the season) needs no rainfall at all for infection to take place. High relative humidity is all that is needed for the production and sporulation of secondary spores. During the 1995 Lake Erie Regional Grape Growers Conference, Wayne Wilcox labeled powdery mildew as a “compound interest” disease due to the explosive nature of this disease under the right conditions. According to Wayne, the time between infection by either primary or secondary inoculum of powdery mildew until the development of a new infection

with another crop of spores is: 32 days at 46°F; 18 days at 50°F, 11 days at 57°F, but only 7 days at 61°F and 5 days at 81°F. Powdery mildew tends to drive a disease management strategy based on infection periods due to the ease in meeting infection requirements.

Black rot. Infection by both primary and secondary inoculum of black rot is determined by a combination of available water, hours of leaf wetness and the average temperature during those hours of leaf wetness. We use the Spotts chart developed by Spotts² at Ohio State for use with conidia, or the secondary inoculum. There is another model which Ferrin and Ramsdell¹ of Michigan State University developed for infection by ascospores or the primary inoculum. They are as follows:

Average Temp °F	Duration of Leaf wetness (hrs)	
	Ascospores ¹	Conidia ²
50	12	24
55	12	12
61	12	9
64		8
70	12	7
75		7
81	6	6
84		9
90	>24	12

As you can see by the charts there are some gaps in the data for certain temperatures. To use the Spotts chart hours of leaf wetness needs to be recorded along with the average temperature during the hours of leaf wetness. For example, if there was a wetting period which lasted 6 hours with no drying (as a rule of thumb we call any hour with 30 or more minutes of leaf wetness equal to an hour of leaf wetness). You look at the infection requirements using the appropriate model and see that an average temperature of 81°F (add the hourly temperatures during the 6 hours of leaf wetness and divide by 6) is needed for infection by

conidia or ascospores to take place. When determining infection periods I tend to be conservative and go with the lowest hours of leaf wetness required. As an example, for conidia at 55°F you need 12 hours of leaf wetness. The next temperature is 61°F and needs only 9 hours. If the average temperature during leaf wetness is 58°F, the conservative way to go would be to use 9 hours of leaf wetness. For those more daring you can split the difference and use 10 or 11. I have used the Spotts chart (conidia) for both ascospore and conidia infection requirements over the years as we have had infection from black rot in some years without meeting the requirements for infection by ascospores using the Ferrin and Ramsdell model.

Phomopsis. This has been the most closely watched disease the past several years. There is a model, developed in France, which uses hours of leaf wetness and the average temperature during the leaf wetness period to predict infection. At this point in time I would caution that this model is experimental in New York as we are still trying to determine whether it is a good predictor of infection by this disease. It is as follows:

Average Temp (°F)	Duration of Leaf wetness (hrs)
46	13
50	12
54	11
55	10
57	10
59	9
61	8
64	7
68	6
70	
73	5
77	5
81	6
84	
86	8

I'll try to keep you up to date as we keep looking at this model.

Downy mildew. Bob Seem and Dave Gadoury, Dept. of Plant Pathology, NYSAES, Geneva, have been working on a model for the primary inoculum of downy mildew. It is a complex model and requires weather instrumentation and computers to run. They are currently validating this model with field research. Hopefully we will be able to begin using this model in the coming growing seasons. As of now the best model we have is the 10-10-10 rule. 10 cm of shoot growth, 10 mm of rainfall and 10°C. Translated, this is roughly 4-inches of shoot growth, 0.25-inches of rainfall and temperatures of 50°F or above. Secondary inoculum is produced at night during periods of high humidity and temperatures above 55°F. Speed of secondary infections is very temperature dependent with infection taking place in as little as 2 hours at 77°F and up to 9 hours at 43°F.

Although the use of models provides information to make a better management decision, there are still plenty of gaps in the information provided. History of disease in a particular vineyard, varietal susceptibility to a particular disease, training system, previous management strategies, current growth stage, and weather forecasts are important factors that must be considered when incorporating models into a disease management strategy.

FOOD QUALITY PROTECTION ACT AND GRAPE PESTICIDES

Timothy E. Martinson

Many of you have probably heard about the Food Quality Protection Act (FQPA). This act, passed by Congress in 1996, directs the Environmental Protection Agency (EPA) to review and reassess all pesticide food tolerances over the next 10 years. Under the previous registrations, tolerances for pesticide residues were set individually, based on levels measured

after application at harvest time. Under the new law, the EPA is required to also consider:

- Total exposure to the pesticide (through diet, residential use, and drinking water)
- Cumulative effect from other pesticides sharing a common mode of toxicity (for example, organophosphate insecticides may share a common mode of action, so exposure to the entire class needs to be considered)
- Whether there is an increased susceptibility to infants and children from exposure to the pesticide.
- Whether the pesticide has effects similar to naturally-occurring hormones (e.g. estrogen mimics).

This represents a major change in regulatory policy, and it is projected that the review will result in cancellation of some current registrations. To quote a document from the Pesticide Management and Education program at Cornell, "Potentially this has a dramatic effect for states like New York that grow minor crops, as pesticide registrants [companies] will have to decide which registrations they will retain to conform to the new risk criteria as well as decide which products will continue to provide economic profits for manufacturers. The loss of certain pesticide active ingredients at this time could mean that New York's agricultural producers may not have adequate or effective control measures for some of our minor crops or for some of our major cropping systems for that matter."

The EPA has divided pesticides subject to reassessment into three groups. Group 1 pesticides will be reassessed first, followed by groups 2 and 3. The first group to be assessed will be the organophosphate insecticides, with a target completion date of August, 1999. A review of carbamate insecticides and probable carcinogens will follow.

The pesticides registered for grapes that are on the priority list for review are summarized in Table 1. See following article for tour announcement related to this article.

Table 1. List of 'Group 1' pesticides registered on grapes.

Organophosphate Insecticides
Guthion
PennCap-M
Imidan
Carbamate Insecticides & Fungicides
Sevin (Carbaryl)
Lannate
Benomyl
Potential Carcinogens (B1 & B2)
Captan
Rovral
Mancozeb
Other 'Group 1' Pesticides (for later review)
Simazine
Bayleton
Nova
Paraquat
Thiodan
Methoxychlor

References

Food Quality Protection Act Database. Web Page: <http://pmep.cce.cornell.edu/piap/fqpa-list.html>

The Food Quality Protection Act and New York State. Chem News, March 1998, Pesticide Management and Education Program, Cornell University.
<http://pmep.cce.cornell.edu/chemnews/1998/mar-98>

Raw and Processed Food Schedule for Pesticide Tolerance Reassessment.
<http://pmep.cce.cornell.edu/chemnews/1998/mar-98>

NY AGRICULTURE TOUR FOR NATIONAL/STATE REGULATORY OFFICIALS

Timothy E. Martinson

If you have just read the previous article [FQPA article] and are wondering what you can do, here is an event you can attend, and share your questions or concerns with pesticide regulatory decision-makers.

A tour entitled 'Beyond the Big Apple' has been organized by Cooperative Extension and Ag industry representatives. This tour will bring a bus load of national (EPA) and state (NYS DEC) regulatory officials out to vegetable and fruit farms in Central and Western New York on August 11 - 13. The purpose of the tour is to: 1) Educate EPA, DEC, and other officials about the diverse array of vegetable and fruit products grown in NY; 2) Share with regulatory officials concerns about pesticide registration, particularly for minor crops, arising from the Food Quality Protection Act [See previous article]; 3) Establish active communication between NY grower and industry groups and Federal/State regulatory officials.

There will be 3 tour stops related to grape production on the afternoon of **August 11, 1998**. At each stop we will explain the size and scope of the industry, pest management practices, and the impact that loss of registration of current pesticides would have on the industry. You are invited to attend any or all of the stops. Please contact our office for additional details. The schedule follows:

'Beyond the Big Apple' Tour Grape Tour Stops

3:30 -4:30 PM. Lucas Vineyards. Cty Rd 150, off Rte 89, Interlaken. Wine grapes, disease management

6:00 - 6:30 PM. Steve Bond Farm. Rte 414, 1 mi S. of Hector. Juice grapes, Table grapes, insect management.

7:00 Wagner Winery, Rte 414, Lodi. Wine grapes, dinner.

UPCOMING EVENTS

July 22-24. Eastern section American Society of Enology and Viticulture (ASEV) Meeting, Crowne Plaza Hotel, Grand Rapids, Michigan. This program has two major sections. Issues in Sparkling Wine Production: An International Symposium (22-23 July) includes tasting, viticulture, and enology aspects of sparkling wine production. The Technical Program (23-24 July) includes research presentations on Enology and Viticulture, a trade show, and a regional wine showcase. Contact Ellen Harkness, 745-494-6704 (phone) or 745-494-7953 (fax), or harkness@foodsci.purdue.edu for registration information.

July 28. Grape Production Research Fund Summer Tour. 10:00 AM to 6:00 PM. All growers are invited to the annual tour for Grape Production Research Fund members. The tour will feature visits to field plots and commercial vineyards to highlight innovative grower practices. See article in this issue for complete details.

August 11. 'Beyond the Big Apple' tour for State and Federal pesticide regulatory officials. See article in this newsletter for details.



Timothy E. Martinson
Area Extension Educator
Finger Lakes Grape Program

Cornell Cooperative Extension and its employees assume no liability for the effectiveness or results of any product. No endorsement of products is made or implied. When using any recommendation, check the product label which is the final word with respect to product usage, or check with the manufacturer or supplier for updated information."