As we enter the new millennium, it is a good time to reflect upon what lies ahead for the grape industry in New York. The New York Wine & Grape Foundation, Cornell University, and Cornell Cooperative Extension are sponsoring a special conference called Viticulture 2000 to do just that. This two-day conference, to be held February 18 and 19 at the Adam’s Mark Hotel in Buffalo, NY, will bring local, nationally and internationally known industry, research, and extension experts together to focus on the future of the New York and Eastern Grape industry. It will combine the annual Lake Erie Grape Growers Convention and the Finger Lakes Grape Growers Convention. Sessions will focus on viticulture, juice grapes, wine grapes, future markets for NY grapes, labor, retirement planning, and vineyard establishment.

Growers took the initiative in organizing this program, with special funding from the NY Wine and Grape Foundation. We are excited about this unique, one-time event—I hope all of you will join us. Details and registration information will be mailed out in November.

The 1999 growing season has ended surprisingly well. Despite the second driest summer in the last 100 years, timely rainfall occurred at the end of the season (brought in by Hurricane Floyd), and yields are up considerably from last year for most native and hybrid grape varieties. As I write this, harvest is almost complete, and most growers have expressed satisfaction with the results.

Winter Lows. Temperatures were again moderate during the 1998-1999 winter. During the two coldest episodes, temperatures at the coldest sites (see Figure 1 and 2) didn’t drop below -6°F (January 14) or -9°F (March 8). More typical lows were in the 0 to -3°F range. The March 8 episode was unusual, because the coldest temperatures occurred in a narrow band extending from East Seneca Lake near Lodi over to Cayuga Lake (both east and west sides). As a result, bud injury was low to moderate, and few growers needed to adjust their pruning to compensate for it.

Temperatures. It’s tempting to think of 1999 temperature patterns as being similar to the 1998 season. In both seasons, development was accelerated, bloom started early, and harvests occurred during the same time frames. Monthly summaries of growing degree days (see Figure 3) show that the two seasons were quite different. In 1998, most of the ‘extra’ degree days occurred in April, May and September. This year, most of the extra heat units came in June and July.

Rainfall. The drought, of course, was what everyone will remember about this season. Dry conditions (see Figure 4) actually started in fall 1998. By May, there was a deficit of about 4 inches, which rose to 7 inches by August in Geneva. Rainfall records from Geneva actually understate the condition. Rainfall declined from north to south, and all of the summer storms were thunderstorms that were limited in size. Many areas received no significant rainfall from June through late August. Driest areas appeared to be around Hector and Glenora and a band encompassing parts of Bluff Point and eastward to Seneca Lake.
Drought Stress Symptoms. Vineyards started showing drought stress symptoms by late June. In many vineyards, canopies appeared to be about one-third smaller than average. Growth may have been affected by lack of nitrogen uptake in some cases—there was little rain to move applied nitrogen into the root zone. Shoots stopped growing early, and by mid-July it was apparent that berry size was reduced as well. By veraison, in early August, leaves exposed to full sun were pale yellow, indicating leaf shutdown and possible temperature injury. In the most severely affected sites, marginal or blotchy leaf browning occurred—particularly in high spots or shallow areas. In young vineyards, 2-3 year old vines showed the worst water stress, with 2-5% of vines dying in a few locations.

Recovery. Rainfall resumed in late August, with several downpours (including 3 to 4 inches from Hurricane Floyd) over the past several weeks. Brix levels temporarily dropped as much as 2° following the first rain, as berries sucked up the water. Most blocks—except those with visible leaf scorching—appeared to recover, and ripening resumed.

Diseases and Insects. The dry weather kept diseases in check. Early-season botrytis infections. Leafhoppers were abundant in many blocks, but I heard of few control failures with growers using Penncoate and Sevin. The big surprise was that few blocks had mid-season European red mite problems. Mites tend
Many vineyards showed mild to severe drought stress symptoms in 199 to like hot, dry weather. They also respond to plant stress—particularly to leaf nitrogen—which may have helped keep numbers down. Populations rebounded late in August, and some vineyards showed leaf bronzing at that time. Japanese beetles, apparently for the first time, appeared in larger numbers in some new plantings with grow tubes. In a couple of new plantings, up to 10% of the vines were partially or fully deoliated in mid July.

**Harvest.** Again, warmer than average weather accelerated harvest. Despite drought conditions, tonnage of natives and hybrids was up sharply from last year. *Vitis* yields were stable to lower than 1998. Bulk wine and juice grapes, for the most part, achieved or exceeded maturity targets. Light yields corresponded to areas with shallow soils and lowest rainfall.

**Natives.** Niagaras ran very heavy this year, with many blocks in the 7-11 T/acre range. Conrods and Catawbas are still being harvested, but tonnage is running average to heavy (6-10 T in most blocks). *Delawares* were well above average. Due to favorable pricing, many growers put their heaviest blocks into the ‘early harvest’ programs of area processors. Sugars for Concord blocks are high—with many in the 17-18° Brix range. A few drought stressed areas ran light—in the 1-3 T range. The above-average crop is probably attributable to early harvest last year and ample vine reserves, and may have been much larger with more moisture.

**Hybrids.** Aurora tonnage reportedly ran about 25% higher than last year. Rougeon, which yielded poorly last year, did well this year. Some Baco noir blocks—many of which are in shallower soils—had small canopies, small berry size, and low tonnage.

**Vinifera.** The dry summer decreased berry size, and probably tonnage in some blocks. It also promoted uniformity in ripening. Crop size was in the 3.5-5.5 T range, with excellent quality in most blocks. Late harvested varieties had varying degrees of botrytis infection.

**Wine Quality.** Winemakers report good balance of acidity, pH, and sugar levels. Small berry size should promote more intense flavors, particularly in red varieties. Before it rained, winemakers were concerned about flavor development. Following the rainfall, however, wines were able to resume leaf function. Mature flavors developed soon thereafter—which should produce quality wines. Some vineyards have had to harvest selectively to eliminate botrytis. Bunch rot affects red wines more than whites because of an enzyme that can destroy color and reduce fruit flavors. This means that heat treatment may be necessary in some cases. Another potential concern for some white varieties is a wine condition called ‘atypical aging’ that shows up sometimes in vineyards with drought stress during veraison. For late varieties, recent cooler temperatures—particularly at night—are good for producing and retaining aromatic compounds responsible for varietal character of Riesling and Gewürztraminer, in particular.

**2000 Outlook.** Dry sunny weather during bloom should result in fruitful buds for 2000 despite the drought. However, the drought undoubtedly restricted root growth, and the average to higher-than-average crops will have depleted vine reserves. Drought-affected sites will probably go into the winter with fewer reserves, and some blocks may see reduced winter hardiness. These conditions may set the stage for the return of fruit set problems or ‘millerandage’. Growers with drought stress will want to retain fewer buds to offset potential problems with reserves. Early harvest will reduce drought-related effects to the extent that vines retain functioning leaves after harvest. Let’s hope for a late frost.
MARKETING

1999 Grape Price Summary

Timothy F. Martinson

Our annual listing of grape prices showed continued gains in prices for red hybrids, limited-acreage native varieties, and many white varieties. Prices of other categories remained stable, or declined slightly.

The accompanying table summarizes changes in prices paid from 1998 to 1999. The prices paid by individual processors were listed in a previous issue of Finger Lakes Vineyard Notes. The table summarizes results from 19 processors and wineries that sent price lists to our office. From these prices, high, low, and average prices were calculated. These averages are not adjusted by the tonnage purchased by each processor, so they do not reflect average prices received by growers. The number of wineries responding is listed in the right-hand column. This provides an indication of how much information each of the price ranges is based on.

Processors are increasingly listing different prices for different quality or maturity levels. Canandaigua listed higher prices for early Concord and Catawba—providing an incentive for many growers to harvest some acreage early. Others paid more for hand-harvested, head-pruned, vertical shoot-positioned, or organic grapes.

- **Native Varieties.** Prices for widely-planted varieties remained stable or declined slightly. Concord and Catawba prices declined slightly, while Niagara, Elvira, and Delaware remained unchanged. Range was $200 to $350. Varieties with minor acreage saw price increases of 5-7%, with prices ranging from $300 to $510.

- **Red Hybrids.** Red Hybrid prices showed average gains from 8-10% over 1998. Prices for Baco, Chambourcin, and Chancellor increased most. Vincent prices again rose sharply, reflecting interest by several processors as a 'color-enhancing' blending agent. Prices ranged from $300 for Dechaunac to $825 for Chambourcin.

- **White Hybrids.** Prices gained overall by 8%. Traminette again posted highest prices, reflecting its scarcity and popularity. Aurora prices remained unchanged, while Seyval and Vignoles posted 20 and 13% increases in low prices. Range was $225 to 650 (not including Traminette).

**Vinifera** prices remained relatively unchanged. Reds ranged from $1000 to $1700/ton, and whites ranged from $800 to $1600 per ton. Low prices listed for some major varieties probably reflected increased internal supply by some of the processors.

Our thanks to the following wineries and processors that provided copies of their price lists for inclusion in this report:

- Anthony Road Wine Company
- Bully Hill Winery
- Canandaigua Wine Company
- Cliftstar, Inc.
- Eagle Crest Winery
- Dr. Konstantin Frank Vinifera Wine Cellars
- Fall Bright Winemakers Shop
- Fox Run Vineyards
- Fulkerson's Winery and Juice Plant
- Glenora Wine Cellars
- Hazlitt 1852 Vineyards
- Heron Hill Winery
- Hunt Country Vineyards
- LakeShore Winery
- LakeWood Vineyards
- Lucas Vineyards
- Royal Kedem/Spring Ledge Farms
- Swedish Hill Vineyards
- Widmer's Winery

<table>
<thead>
<tr>
<th>AID BY PROCESSORS FROM 1998 TO 1999</th>
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<tbody>
<tr>
<td><strong>Variety</strong></td>
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<tr>
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<tr>
<td>Native</td>
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<td>Elvira</td>
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<td>Delaware</td>
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<td>Concord</td>
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<td>Catawba</td>
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<tr>
<td>Catawba, Early or low brix</td>
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<td>Concord, Early</td>
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<td><strong>Average (Majors)</strong></td>
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<td>Diamond</td>
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<td>Delaware Premium</td>
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<td>Isabella</td>
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<td>Ives</td>
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<td>Dutchess</td>
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<td>Golden Muscat</td>
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<td><strong>Average (Others)</strong></td>
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<tr>
<td><strong>Red Hybrid</strong></td>
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<tr>
<td>Baco Noir</td>
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<td>Cascade</td>
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<td>Colobel</td>
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<td>Vincent</td>
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<td>Lakemont</td>
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<td><strong>Average</strong></td>
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<td>Ave. w/o Traminette</td>
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<td><strong>Vidal Late Harvest</strong></td>
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<td><strong>Vignoles Late Harvest</strong></td>
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<td>Pinot Noir</td>
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<td>Sangiovese</td>
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<td>Gewurztraminer</td>
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<td>Pinot Gris</td>
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<tr>
<td>White Riesling</td>
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<tr>
<td>White Riesling (Premium)</td>
</tr>
<tr>
<td>Viognier</td>
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<tr>
<td><strong>Average</strong></td>
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Grape and Wine Situation at Harvest

Jerry White
Department of Agricultural, Managerial, and Resource Economics, Cornell University

Grape Production. The national grape crop was expected to be 6.3 million tons, if realized, this would be 10 percent below the record crop of 1997, but seven percent higher than the average crop of the last five years. California's production recovered from its short crop last year, and in addition most other grape producing states, including Washington, New York, and Pennsylvania, had higher crops forecast. California growers reported generally good fruit quality for their wine grapes.

The New York grape crop was estimated at 186 thousand tons, up 45 percent from a year ago and 34 percent above 1997. If realized, the state's grape crop would be 16 percent above the average of the past five years.

The Big Picture—The US Market. Although final figures for 1999 are not yet available, it appears that wine consump-

Grape production increased nationwide in 1999. (Photo courtesy of Paul Gost)

tion in the US will show very little, if any, increase. Performance in this sector is being driven by increased table wine consumption (Figure 1), which now accounts for 87 percent of wine consumed in the US. In the previous five years, wine consumption grew, but the rate of growth slowed substantially in 1998 (at 1.4 percent) from recent years when growth rates varied from 2.3 to 5 percent. Sparkling wine and champagne also experienced a modest growth rate in the last two years; most experts were predicting a surge in consumption in 1999 for end of the millennium celebrations. So far, wine shipments of champagne and sparkling wine in '99 are up about nine percent above a year ago.

There is mounting concern in the industry that half of all wine is consumed by persons aged 50 or over. Furthermore, market research indicates that eleven percent of consumers drink 88 percent of all wine consumed.

Last year marked the appearance of new, fruit-flavored varietal wines which are more of an upscale product than wine coolers which were a fast growth category in the mid '80s. In the current market, consumers are image and brand conscious. That fact, coupled with a strong economy, has meant that consumers are willing to spend more for wine and other products that have prestige value. In addition to the growth in fruit flavored varietals, the market for wines priced at $10 and over remains strong.

Retail wine price increases moderated in 1998 following the big California vintage of '97. Overall, wine prices at the consumer level increased by only 1.2 percent in 1998, after two years of four percent growth. I expect to see relatively small increases in retail wine prices for the remainder of '99 and for the year 2000 as the impact of large plantings in California are felt, especially for wine in the so-called "popular" price class of $4.26 - $5.75 per 750 ml per bottle class. Nevertheless, total retail wine sales, which reached $14.5 billion in '98, should pass the $15 billion mark for '99. Even though total wine consumption is nearly static, consumers are on average buying higher-priced wines and this should provide a modest boost to retail sales.

The U. S. wine industry has experienced tremendous growth in exports, increasing at an annual rate of 24 percent in value and 15 percent in volume in the last five years (ending in 1998). The U. S. exported over 70 million gallons, compared to imports of 109 million gallons in 1998. The decline in imports of nearly 10 percent along with the increasing exports and slightly increased total consumption helped to keep the wine supply and demand equation in balance even as the crush increases from new California plantings. Bearing acreage of wine grapes increased 10 percent in California from '96 to '98, and more new acreage came into production with the '99 crop. (See last year's Grape and Wine
Situation article for a discussion of the potential impacts of recent California plantings on grape and wine markets.) Here again, there is some sign of weakness as exports in '99 may be off compared with '98.

According to Eileen Fredrickson of Gomberg, Fredrickson, and Associates in California, wine shipments from that state are flat compared to a year ago. That is partly due to the domestic market, but also due to a big decrease in shipment to Japan, which is the second leading foreign market for U.S. wine, behind the UK. The Japanese market is now overloaded with wines from South America and Europe, as well as from California, and this inventory needs time to work its way through the distribution system.

The slowing of wine shipments could be a harbinger of more difficult times for the wine industry in the immediate years ahead, after several years of robust performance.

New York Wine Consumption. New York wine consumption has been relatively flat since bottoming out at 16.8 million cases in 1993 (Figure 2). Partly this is due to the fact that growth in New York's population has been virtually nil, showing only one percent growth from 1990 through 1998. The Finger Lakes small wineries are nearly totally dependent upon New York for sales through traditional retail chains; nevertheless, these wineries report growth in winery residents and out-of-state tourists. With approximately two thirds of sales occurring at the winery, the slow population growth has not been a large constraining factor. The structure of the wine industry in New York (dominated by small wineries selling most of their wine at the winery) makes it somewhat immune to the weaknesses now evident in the "big picture".

Finger Lakes Grape Prices. For growers selling to large wineries, prices were similar to last year. Canandaigua Wine Company, the major buyer of grape varieties in New York, listed lower prices for Catawba and Concord; otherwise Canandaigua's prices were identical to last year. Canandaigua did, however, offer higher prices for early Concord and Catawbas, providing an incentive to harvest some acreage early.

Prices for Hybrids, both red and white, advanced by about eight percent. The average price for vinifera in the state of New York, when weighted by volume of purchases, will probably be about $1,225 per ton. Thus vinifera prices stabilized at a high level with three years consecutively above $1,200 per ton (Figure 3). More buyers offered premiums for higher quality grapes this year, probably a trend for the future.

The highest rated factors indicated by buyers were the price expected for a bottle of wine and the prices their competitors would pay for grapes. The prices paid last year and the estimated tonnage produced in the region were also important. Less important factors were inventories and disease severity.

<table>
<thead>
<tr>
<th>FACTORS AFFECTING PRICE</th>
<th>% OF RESPONDENTS RANKING THE FACTOR AS 4 OR 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated tonnage produced in the FL</td>
<td>Chardonnay  Seyval</td>
</tr>
<tr>
<td>The inventory of wine in tanks</td>
<td>62% 40%</td>
</tr>
<tr>
<td>The inventory of wine in bottles</td>
<td>38% 30%</td>
</tr>
<tr>
<td>Disease severity</td>
<td>25% 11%</td>
</tr>
<tr>
<td>The prices you paid last year</td>
<td>62% 60%</td>
</tr>
<tr>
<td>The prices your competitors will pay</td>
<td>77% 60%</td>
</tr>
<tr>
<td>Expected price for a bottle of wine</td>
<td>69% 80%</td>
</tr>
</tbody>
</table>

Small wineries with quality wines and good marketing skills will experience strong sales growth again for the year 2000.

Research on Grape Pricing and Implications for the Future. The market for grape varieties going into premium wine has been extremely tight in the Finger Lakes during the past three years, as indicated by the prices shown in Figure 3. Grape markets, as are all agricultural markets, are cyclical. Given the less robust wine situation discussed in the "big picture" above, the next three years may not be characterized as a "seller's market" as the last three years have been.

What advice can be given to growers who sell their grapes to wineries? Last fall we conducted interviews with 14 wineries that purchased grapes from Finger Lakes growers. (The surveys included representatives from Canandaigua Wine Company as well as 13 small wineries.) The wineries in our survey crushed about 32,000 tons of grapes in 1997, which was 71 percent of the in-state crush of grapes for wine that year. Buyers were asked to rate the importance of various factors as they affected the price they offered for two varieties (Chardonnay and Seyval). Results from the survey are shown in Table 1.

With considerably more grapes to process, better than average quality, and a continued growth in winery visitation, it will be a good year for the state's small wineries.

Figure 2. Consumption of Total Wine, New York State, 1987-1998

Source: Adams Wine Handbook, 1999

Figure 3. Average Price of V. Vinifera Grapes, New York State, 1990-1995 and 1999 (Projected)

MARKETING

2000 Juice Grape Outlook

Barry Shafer
Lake Erie Regional Grape Program

Concord and Niagara production are up in both New York and Pennsylvania for 1999. Concord harvest is around the halfway point as this article is written. Announced cash prices for Concord were in the $245-260 range.

Most growers should have higher profits in 1999 than 1998. Cooperative growers with light 1998 crops may show reduced income in 1999 and improve profits in 2000 from their 1999 crop. This year should allow growers to financially strengthen their operations. Debt reduction or adding to a nest-egg ought to be explored by every grower.

Other Growing Areas. Michigan growers had some winter injury, but had a decent crop. Washington State Concord harvest is behind our harvest! Indications are for an above average crop with a possibility of a killing frost before harvest is done.

Juice grape production in New York and Washington State was up sharply from 1998.

California red grape concentrate (RGJC) should be in high demand and help keep a floor under Concord concentrate prices.

2000 Outlook. With increased tonnage from 1999 production, inventories should recover to a more normal amount. Sales are increasing and inventories won't be burdensome.

I'm expecting good bud fruitfulness in Eastern production areas. Root growth has been hampered by drought so far this year. In aggregate, I expect juice grape production to be at least average next year. Finger Lake production may be no better than average.

Washington production may be down due to cool cloudy weather during the early season (including bloom). Besides, 2000 is supposed to be the off year in production out in Washington (even years).

Prices could remain steady or go up if Washington suffers a below average crop. Most growers can stay profitable at these prices. Growers should take this opportunity to improve their operations while prices are favorable.

LET US KNOW YOUR E-MAIL ADDRESS

With the Finger Lakes Grape Program making information available through e-mail updates, I would like to make sure that these services are available to as many program enrollees and subscribers as possible.

If you have an internet account and are interested in receiving e-mail program updates, please fill out this form and return it to us.

OR: Send an e-mail message to me at tem2@cornell.edu Be sure to include your name in the body of the message. Distribution of the e-mail updates is limited to enrollees of the Finger Lakes Grape Program and subscribers of Vineyard Notes.

Finger Lakes Grape Program
Cornell Cooperative Extension • 110 Court St. • Penn Yan, NY 14527

Name:

Address:

E-mail address:

Check one:

[ ] Subscriber
[ ] Enrollee of the Finger Lakes Grape Program
RESEARCH
1999 Cooperative Research/
Demonstration Experiments in the
Finger Lakes

Timothy E. Martinson

We in the Finger Lakes are fortunate to have the New York State Agricultural Experiment Station nearby in Geneva, NY. Each year, researchers and extension personnel complete many of their experiments and projects in area vineyards with industry cooperators. Here is a listing of extension and research experiments in progress during the 1999 growing season. Thanks to all the industry cooperators that provided the locations and support to do this work.

- **Biological Control of Grape Crown Gall.** Tom Burr, Plant Pathology, Geneva. We have been investigating the biological control of crown gall. If a nontumorigenic strain of (Agrobacterium vitis), called F2/5, is applied to wounds on grape before pathogenic strains have had a chance to infect, biological control is achieved. Research is underway in the lab to determine how the biological control works. Field experiments are underway at the Geneva Experiment Station and in three commercial vineyards. These field experiments are expected to take between 3-5 years to determine how effective the control will be under field conditions. (Cooperators: Swedish Hill Winery, Lakewood Vineyards, Harry Humphreys.)

- **Role of early season infections in the development of Botrytis bunch rot.** Wayne Wilcox and Robert Seem, Plant Pathology, Geneva. The need to control Botrytis infections from bloom through bunch closure is unclear. We are assessing the occurrence of latent infections during this period, the conditions under which they occur, and their relationship to disease severity at harvest. The objective is to determine if and when early season sprays are warranted for Botrytis control. (Cooperator: Standing Stone Vineyards.)

- **Predatory mites, which provide biological control of European red mite, were released in 10 area vineyards by placing apple blossoms or leaves with high numbers of predators into vineyards.**

- **Factors affecting the development and control of black rot.** Wayne F. Wilcox, David Gadouros, and Robert Seem, Plant Pathology, Geneva. The role of inoculum density, hand vs. mechanical pruning, and stage of crop development are being investigated with respect to the need for fungicidal control of black rot at different times of the season. (Cooperator: Canandaigua Wine Company.)

- **Wine Quality of Red Hybrids.** Thomas Henick-Kling, Food Science, Geneva. We are planning to evaluate the wine quality of several red hybrids with fruit donated by Swedish Hill Winery. We will be testing Frontenac, Chambourcin, 70.809.10, and 73.136.17. (Cooperator: Swedish Hill Winery.)

- **Nitrogen Content of Grape Musts.** Thomas Henick-Kling, Food Science, Geneva. We will collect samples from various vineyards to determine available nitrogen for yeast fermentation. Vineyards will be contacted by us directly. We are planning to survey the major wine grape varieties which have shown fermentation problems due to nitrogen deficiency in the past: Seyval Blanc, Cayuga White, Vidal Blanc, Riesling, Chardonnay, Pinot Noir, Cabernet Franc. (Cooperators: Area Wineries.)

- **Resistance management programs for sterol inhibitor fungicides.** Wayne Wilcox, Plant Pathology, Geneva; Gerald White, Ag Resource and Managerial Economics, Ithaca. Programs for slowing the further development of resistance to the sterol inhibitor fungicides by the powdery mildew fungus were evaluated for the fourth year in a commercial 'Seyval' vineyard. For the second year, the commercial impact of various resistance management programs also is being evaluated. (Cooperator: Canandaigua Wine Company.)

- **New Yeast Strains.** Thomas Henick-Kling, Food Science, Geneva. This vintage Lallemand Inc. made available four new red wine yeasts for tests. Wineries which are interested in evaluating at least two next to their 'standard' yeast should contact Thomas Henick-Kling. (Cooperators: Area Wineries.)
- Flower “Malady” and Poor Fruit Set Of Grapes. Martin Coffinet, Horticultural Sciences, R. Durst, Ph. Troop, T. Martinson, T. Bates, A. Lakso, J. Saenz, W. Stiles, R. Pool. In a continuing project on grape set malady, trials continued evaluating cultural practices for reducing set problems. Other studies looked at the role of carbohydrate reserves in causing floral abnormalities—carbohydrates were measured along with floral anatomy at a Finger Lakes vineyard and an alternate bearing ‘Concord’ vineyard at the Fredonia Laboratory. (Cooperators: Jim & Vince Bedient, Branchport)

- Powdery mildew and wine quality. David M. Gadouga, Dept. Plant Pathology, Geneva. Robert C. Seem, Thomas Henick-Kling, and Wayne F. Wilcox. Conspicuously mildewed berries produce bad wine. However, there are other, more insidious effects of powdery mildew that are poorly understood. We are investigating how diffuse infections that are invisible to the naked eye impact wine quality and bunch rots. Minor (but important) changes in our approach to controlling powdery mildew could yield major benefits in disease management and wine quality. (Grower/Cooperator: Mark Wagner, Lamoreaux Landing Wine Cellars.)

- Evaluation of a controlled droplet sprayer to control disease and insects on grapes. Andrew Landers, Dept. Agric. Biol. Engineering, Cornell University, Greg English-Loeb, Wayne Wilcox, and T. Martinson. The goals were to compare and evaluate the physical and biological effectiveness of the Proprtec controlled droplet sprayer with an air blast sprayer. Physical effectiveness at deposition and drift reduction was evaluated using an iron foliar feed and water sensitive cards. Biological effectiveness at disease and insect control was also assessed. A similar trial was carried out in Forestville, Western NY. (Grower/Cooperator: Canandaigua Vineyard Crew at Naples.)

- Biology and control of banded garden snails. T. Martinson, National Grape Cooperative. Banded garden snails have appeared in several vineyards as harvest conaminants. Snails climb the vines, where they are knocked off by the harvester. Several potential treatments, including insecticides and snail baits were evaluated, and biology relating to summer dormancy was investigated. (Cooperator: Gage family, Bristol.)

- Grafted Vines for Tomato Ringspot. T. Martinson, D. Gonsalves, Plant Pathology. Baco noir and Vidal blanc vines grafted to 309 or 5C and own-rooted vines were interplanted into existing vineyards affected by tomato ringspot virus. Growth and establishment of these vines will be compared, and vines will be tested each year for virus over the next several years. In an additional commercial vineyard, grafted Baco noir were interplanted in an existing vineyard. Vines will be evaluated over the next few years. (Cooperators: Canandaigua Vineyards at Dresden, Keith Egriesi.)

- Comparison of three training systems for Cabernet Franc. T. Martinson, B. Pool. Two methods for producing vertically-divided canopies were established in single rows of three-year-old Cabernet Franc. Modified Scott-Henry and Smart Dyson systems will be compared to existing shoot positioned grapes. (Cooperator: John Wagner, Wagner Winery & Vineyard.)

- Establishing Predatory Mites in Vineyards for European red mite control. Ian Nyrop, Dept. of Entomology, Geneva; Greg English-Loeb. Ten vineyard blocks were split into two treatments—‘mancozeb’ and ‘non mancozeb’, to test whether this fungicide affected establishment of the predatory mite Typhothromus pyri. Each block was ‘seeded’ with predatory mites collected from apples. (Cooperators: Canandaigua Pulkeney vineyards, Tom Prejean and Jim Zimar-Prejean Winery, Erne Daggett. Tones vineyards, Jim Hazlett, Lindsay Wickham-Standing Stone vineyards, Canandaigua Valois vineyards, Mark Wagner-Lamoreaux Landing.)

- Managing grape leafhopper in an organic vineyard. R. Figiel & T. Martinson. The use of botanical pyrethrum and insecticidal soap, along with predator releases was evaluated for controlling grape leafhopper in an organic vineyard. SARE program ‘grower grant’ awarded to Rich Figiel. (Cooperator: Rich Figiel, Silver Thread Vineyards.)
EXTENSION

1999 Field Meetings

Timothy E. Martinson

**Spring Pest Management Update.** May 19. Fullager Vineyard Supplies. This annual event featured updates on pest management topics by researchers, industry representatives, and regulatory officials. A highlight of the 1999 program, organized by Dr. Andrew Landers of the Agricultural Engineering Dept. at Cornell, was demonstration of several novel herbicide sprayers, featuring low-volume and shielded boom sprayers, and an electronic 'weed' sensor. A local grower demonstrated shielding devices he made for his herbicide sprayer.


**Floor management machinery demonstration.** June 22, Hector. The Mill Creek Row Mulcher, for applying mulch under the trellis, and the Imants Spading Machine, for row middle tillage, were demonstrated.

Participants: Duane Witmer—Mill Creek Manufacturing, and George Leidig—Imants, Inc., Bill, Don, and Ed Dalrymple.

**Pro tec Sprayer Demonstration.** July 7, Naples. A novel 2-row sprayer manufactured by Slawson Safety Equipment and Ledebuhr Industries, built to Canandaigua Wine Co's specifications, was demonstrated. Dick Slawson and Mark Ledebuhr described technical details of the machine's construction. Andrew Landers discussed preliminary results comparing coverage from airblast and prop-tee sprayers, and also demonstrated 'air-inclusion' nozzles for herbicide sprayers.

Participants: Andrew Landers, Dick Slawson-Slawson Safety Equipment, Mark Ledebuhr—Ledebuhr industries, Tom Collins and Naples vineyard crew, Canandaigua Wine Company.

**Irrigation Twilight Meeting.** July 22, Branchport. This meeting took place at Jim and Vince Bedient's, where they have installed extensive irrigation, including drip and overhead sprinklers in their vineyard. Fran Dellamano, from Dellamano Supply in Oswego, discussed design and cost considerations. A tour followed, illustrating various components of their system, including an overhead sprinkler, pond, filtering system, and drip lines in a young Cabernet franc vineyard.

Participants: Fran Dellamano, Jim & Vince Bedient.
Equipment Demonstrations in 1999

New concepts in spray and vineyard floor management equipment were demonstrated at 3 field meetings.

Drift-reducing shielded herbicide sprayers were demonstrated at the spring pest management meeting, including: Enviromist sprayers A, B, and Mantis C sprayers use special 'spinning-disk' nozzles for low-volume controlled-droplet size application of herbicides. The weedseeker D has an electronic sensing unit that distinguishes weeds from soil, and sprays only the weeds.

Canandaigua's new prop-tec sprayer E, demonstrated at Naples in July, covers two rows at 30 gallons per acre. Conventional herbicide sprayers can be fitted with 'air inclusion' nozzles F, which dramatically reduce drift.

The Imants spading machine G and Mill Creek Row Mulcher H were demonstrated at Hector in late June.
EXTENSION

The Food Quality Protection Act - What is the Grape Industry's Response?

Tim Weigle
Lake Erie Regional Grape Program

By now, most of you are aware of the Food Quality Protection Act (FQPA) and the loss of Permethrin for grape production during the first round of the FQPA review. According to an EPA press release dated 8/29/99, "The EPA has laid out a rigorous 18-month schedule for completing its review of all the "organophosphates," a group of 39 older, common pesticides. A question that has been asked repeatedly is, what is Cornell doing to protect the grape growers?

The EPA has made it clear that they would like research-based information to use in making decisions on pesticide registrations during the FQPA review. To provide this type of information, the Grape Team (extension and research) has been working with industry groups such as the New York Wine Grape Growers Association and the Lake Erie processors group to develop commodity, pest, and chemical profiles for use by the EPA. When first developing the profiles, it was felt that lumping all grapes into one category would produce "averages" which would not clearly reflect the differences in pest management found between vinifera, hybrid and Labrusca varieties.

Profiles have been developed based on disease management strategies, with varieties broken into two groups along those lines: Vinifera and French Hybrids (more intensive disease management) and Labrusca-type varieties (less intensive disease management). For each pest, a detailed information (see box) on occurrence and control measures was developed.

It has been said that information is power. With the information we now have in the form of crop, pest and chemical profiles, the New York grape industry can provide the EPA with the information that they need to make informed decisions when reviewing products used in all grape growing regions of New York State. For example, instead of basing estimates of "risk" on maximum use rates listed on labels, the EPA can base their estimates on actual usage—often as much as 80% lower than theoretical maximum use rates.

This information has been developed for every primary, and most secondary, insect pests and diseases which can be found in New York vineyards. Weeds were broken down into broadleaf and grasses categories for the development of a profile. This information will be forwarded to the Cornell Pesticide Education Program for review prior to being sent to the EPA for use in evaluating pesticides under the FQPA standards.

Tom Mitchell, President of the New York Wine Grape Growers Association, and Tom Collins, Canandaigua Wine Co., have been especially helpful in coordinating efforts between the Grape Team and wine grape growers. With the large number of varieties currently planted for use in the wine industry, coming up with an average spray schedule and average losses would have been difficult, if not impossible, for the Grape Team to accurately assess. Members of the New York Wine Grape Growers completed a survey developed by Tom Mitchell which provided the information needed to make a better assessment of pesticides used and potential for crop damage if the materials currently under review are restricted from our use.

While we were eventually able to prepare the profiles, we found that information for the V. vinifera and French Hybrids was scanty or missing. Juice processors have supplied spray records in a standard format, but no comparable record base is available for wine varieties. The New York Wine Grape Growers Association has offered to work with the Grape IPM Program in developing a Grape Matrix, which is simply a database of pest damage and pesticide use information that can quickly be accessed should the need arise in the future. Participants in the project will be asked to provide spray records and fill out a survey of pest damage for each growing season. All records will be kept confidential and participants will receive a copy of the yearly summary that is prepared. This is very similar to the Grape Matrix that has been developed for Concord growers in the Lake Erie region.

If you would like to participate in this project with us, please contact Tim Weigle (716) 672-6830 or e-mail him at timweigl@netsync.net. Tim Martinson (315) 536-5134 (or e-mail him at tem2@cornell.edu) or talk to Tom Mitchell directly.
Update on Agricultural Environmental Management in the Keuka Lake Watershed

Tom Eskildson
Yates Co. Soil and Water Conservation District

The Agricultural Environmental Management program (or AEM program) has been running in the Keuka Lake watershed for over two years. As you may recall, the AEM program runs on a voluntary basis and is aimed at improving or maintaining water quality, while maintaining the economic viability of agriculture in the watershed.

AEM starts with an assessment in which farmers and soil conservation personnel fill out worksheets detailing conservation practices. Based on the assessment, an AEM plan is put together to address areas of concern. To date, 50 farms in the watershed have participated in the program. Of them, 26 have been vineyard farms or wineries. The farms that have participated have ranged in size from small 20-acre farms to large 600+ acre vineyard operations. Vineyard farms are among the most environmentally friendly operations in the watershed.

Pesticide storage, mixing and loading areas reduce the risk of accidental spills and water contamination.

These plans have identified many conservation practices in use in area vineyards. Other practices aimed at controlling many different types of potential pollutants to the watershed ranging from soil erosion to winery wastewater to pesticides have been identified. Many farms are going to be installing pesticide handling facilities. These will include a pesticide storage building along with a mixing and loading pad. The storage facility will be a self-contained building that will keep pesticides safe and protected from children, animals, and the environment. The mixing and loading areas will be designed to contain any spills that may occur during mixing and loading of sprayers.

Some other practices that are being installed are diversion ditches and winery wastewater treatment facilities. Many diversion ditches have been constructed, re-dug, and cleaned through the AEM program. Over time, ditches tend to fill in with sediment and shrubs if not mowed and begin to lose their water control function. Winery wastewater is also an issue that has come up on some farms around the watershed. The EPA is beginning to require all wineries to obtain a SPDES permit for their wastewater treatment through DEC. The main treatment method for winery wastewater is through a septic tank and leach field if suitable soils can be found.

Grant money has been used to help cost-share many conservation practices. The money has come from many different sources including EQIP money from NRCS, Environmental Bond Act money, Environmental Protection Fund money, and DEC 319 money. Overall, over $300,000 have been spent or obligated on planning and implementation in the Keuka Lake Watershed. The latest has been an EPF implementation grant consisting of $144,000. This grant will provide cost sharing to implement practices including pesticide handling facilities and secondary containment on petroleum tanks, on 12 vineyard operations around the watershed.

If you would like any further information about AEM in your watershed, call your local Soil and Water Conservation District for assistance.
ENVIRONMENT/CONSERVATION

Grape And Other Fruit Growers To Be Surveyed on Chemical Use

R.R. Scranton
New York Agricultural Statistics Service

To gather reliable, objective information about pesticides used on fruit and nut crops, the National Agricultural Statistics Service (NASS) of the U.S. Department of Agriculture (USDA) will be surveying fruit and nut growers in 14 states during late 1999. The Fruit and Nut Chemical Use Survey will be conducted by the New York Agricultural Statistics Service. The information gathered from growers will be used to set state and national estimates of producers’ use of pesticides on 30 fruit and nut crops.

"USDA has an obligation to provide reliable data on pesticide use and this Survey gives NASS the information necessary to do that," according to USDA spokesman Doug Klawen. "Accurate and complete responses from farmers will provide information on which pesticides are used and how they are used."

A local interviewer from the New York Agricultural Statistics Service will contact local producers over the next several weeks to gather information on fruit crops — chemicals used, acres treated, rates applied, and integrated pest management practices. Individual grower information is strictly confidential and individual reports are combined to set State and National estimates.

Important benefits farmers gain from responding to the survey are:

- Growers have a chance to tell how they use agricultural chemicals responsibly to produce a safe and abundant food supply for the United States and the World.
- The Survey results are official USDA estimates and help to clarify the facts about chemical use in agriculture. [Editor’s Note: In light of the Food Quality Protection Act review of pesticide registration, the information obtained through this survey takes on more importance. See Tim Weigle’s article. TEM]
- Accurate and timely information on actual usage can be used in the decision-making process for the Food Quality Protection Act (FQPA) which has an impact on the product registration, re-registration, and product alternatives.
- NASS will publish the resulting state and national estimates of fruit and nut growers’ use of agricultural chemicals in July 2000.

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Spaces Still Available For Australian Grape Trip

Barry Shaffer
Lake Erie Regional Grape Program

The Lake Erie Regional Grape Program is sponsoring a trip to Australia in January, 2000. The trip will be primarily geared towards grape and wine production in Australia. This trip is planned around the Fifth International Symposium on Cool Climate Viticulture & Oenology held in Melbourne, Australia from January 16-20, 2000. Two different touring modules will be offered for people not attending the Symposium.

The Australia tour will include staying in Melbourne for the Cool Climate Viticulture & Oenology Symposium. Other highlights will include visiting two wine regions, Canberra, and finishing in Sydney. Estimated price for this package including 23 meals is $3,750 pp. plus $300 pp. for the Symposium (delegate cost). The dates for this leg would be January 11-27, flying out of Buffalo.

We have a wonderful add-on tour of New Zealand for people that can take the extra time away from home. We will visit both major islands including Christchurch, Queenstown, Milford Sound, and Auckland. Estimated price for this deluxe tour is $5,150 pp. plus Symposium fees this includes the Australian portion. The dates would be January 11-February 3, flying out of Buffalo. Participants can, for an additional fee, stop over in a number of Pacific islands including Hawaii on the return leg.

The Vineyard Lab is located at 412 East Main Road, Fredonia, NY 14063. For more information, please call Barry Shaffer at (716) 679-3185 or RoseAnn Falcone of Vacation Station at (716) 934-2518.

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NEWSLETTER NO. 9 15
UPCOMING EVENTS

November 12, 1999


January 23–27

Unified Wine and Grape Symposium. Sacramento CA. Industry and research-oriented talks and large trade show. Sponsored by American Society of Enology and Viticulture and California Association of Winegrowers. Contact: 530-753-3142 email: society@asev.org

February 16–17, 2000

Ontario Horticultural Crops Conference. Vineland, ONT. Includes grape industry meeting. Call 905-562-1639 for more information.

February 18 & 19, 2000

Viticulture 2000. Adam’s Mark Hotel, Buffalo, NY. A two-day meeting combining the Lake Erie Grape Growers’ Convention and the Finger Lakes Grape Growers Convention. This two-day conference will bring local, nationally and internationally known industry, research, and extension experts together to focus on the future of the New York and Eastern grape industry. Sponsored by Cornell Cooperative Extension, Cornell University, and the NY Wine & Grape Foundation. Registration information will be mailed out in November. Contact Finger Lakes Grape Program 315-536-5134 or NY Wine and Grape Foundation 315-536-7442 for more information.

March 13–16, 2000

Winery Unlimited 2000. Lancaster, PA. Seminars and Trade Show. Sessions include ‘newcomer’ session, winemaking techniques for red hybrids, financial management, riesling production, barrel room and retail room management. For information call 800-335-5670.

November—March

Computer Training for Grape Growers. Small, hands-on training sessions designed for grape growers will be held throughout the winter. Sessions are being organized in computer basics, internet and e-mail, accounting & business management software. Sponsored by NY Wine & Grape Foundation and the Finger Lakes Grape Program. Watch for further announcements.

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