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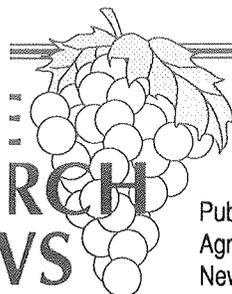
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Published and distributed periodically by the New York State Agricultural Experiment Station and sponsored by the New York Wine and Grape Foundation.

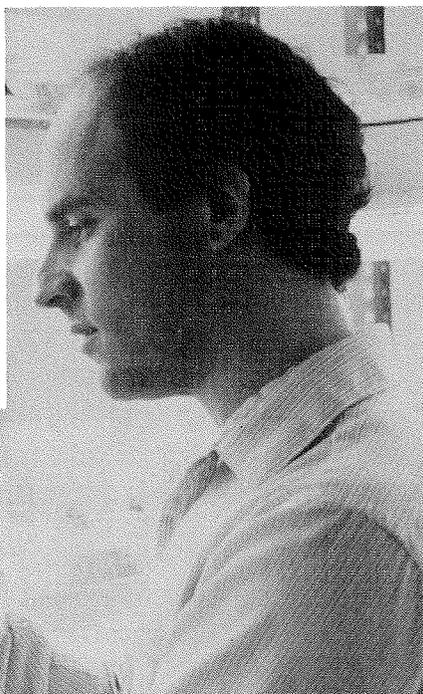
Vol. 1 No. 2 APRIL 1990

MAR 1991



SUPERIOR GRAPE VARIETIES UNDER DEVELOPMENT FOR NEW YORK

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Bruce Reisch

Geilweilerhof. Other crosses have been made combining the adaptation of hybrid varieties of this region with the wine quality of 'Pinot noir', 'Chardonnay', and 'Riesling'. More recently, a group of high quality red wine grapes has been identified and is being examined closely for combinations of viticultural and enological characteristics.

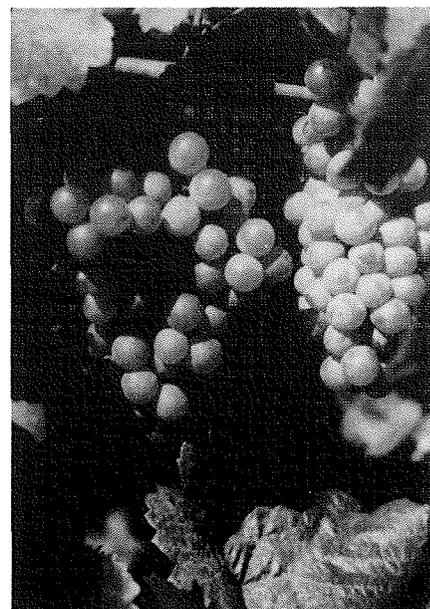
Several wine selections presently under evaluation are highly promising and may merit naming in the near future. These include:

1. **GW9**—(Seyval x Chardonnay) - Excellent white wine, good sugar/acid/pH balance, medium

(continued on Page 2)

Grape breeding began centuries ago when the domestication of wild grapes led to the selection of such classical varieties as 'Pinot noir' and 'Chardonnay.' Recent programs have resulted in the naming of successful varieties such as 'Flame Seedless', 'Perlette', 'Muller-Thurgau' and 'Cayuga White', a Geneva, New York introduction. The breeding processes of hybridization followed by selection and propagation of elite seedlings require 10 to 30 years before a new variety can be named. Many of these years are spent observing vines for consistent performance at several locations. New grapevine varieties must be consistently productive for the life of the vineyard, often in excess of 30 years. Vines with clearly superior characteristics which outperform their competitors for quality, disease resistance, cold hardiness, etc., are selected for distribution and further testing prior to naming.

Each year, potential parents are carefully chosen for hybridization. These parents have certain outstanding features which would be desirable when combined in a new variety. Recent wine grape crosses include several in which selections from New York were matched with disease resistant selections developed by programs in West Germany at Freiburg and



NY65.533.13, a promising wine selection.

(SUPERIOR GRAPES Cont.)

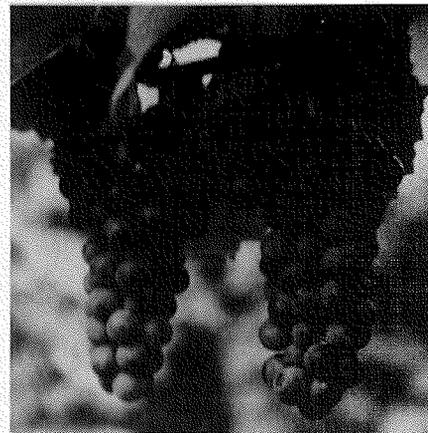
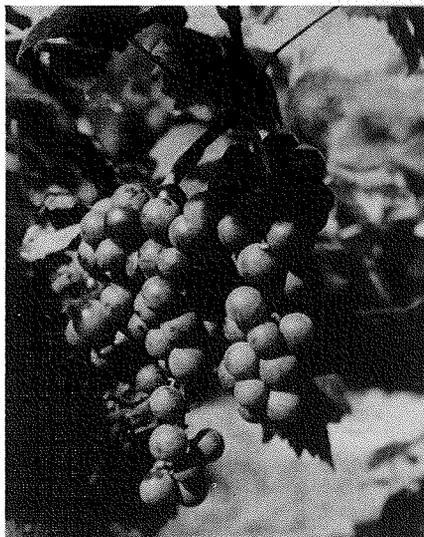
hardy but more hardy than Chardonnay, productive, to be named in September 1990.

2. **NY65.533.13**—(JS23-416 x Gewurztraminer) - Highly rated Gewurz-like wine, medium hardy, medium vigor, moderate resistance to powdery mildew.

3. **NY62.122.1**—(C299-35 x Muscat Ottonel) - Excellent vinifera-style white muscat wine, low to medium vigor on own-rooted vines, probably requires grafting.

In addition, there are several recently named wine grapes from Eastern breeding programs which merit attention. These include 'Melody' and 'Horizon', white wine grapes from the New York breeding program, and 'Vivant' from Vineland, Canada. 'Vivant' and 'Melody' should be considered for varietal white wine production, while 'Horizon' is an easily grown, winter hardy, and productive variety with excellent potential for blending. The flavor is quite neutral. 'Melody' is just slightly susceptible to powdery mildew and botrytis bunch rot, and requires no cluster thinning while maintaining high levels of productivity.

Table grape breeding has been carried out at Geneva continuously since 1888. The recent resurgence of interest in table grapes for roadside, pick-your-own and supermarket sales has sparked a more thorough examination of recent table grape varieties including 'Einset Seedless', a flavorful red selection released in 1985. Some of our

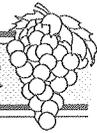


NY65.483.2 (left) and NY65.479.1 (above), two interesting table grape selections recommended for further testing by growers.

recent approaches include: (1) the use of very early ripening parents, (2) seedless x seedless crossing (via embryo rescue) to obtain high percentages of seedless progeny, (3) crossing with giant-berried Japanese grapes to obtain large-berried types, and (4) crossing with new *vinifera* selections of extremely high quality from California breeding programs. Three important selections which are being distributed for testing include:

1. **NY65.483.2**—(NY10782 x Muscat Hamburg) x Suffolk Red - Blue muscat seedless, sweet crisp flavorful berries, medium sized clusters, probably best suited for pick-your-own sales and backyard gardens.
2. **NY64.029.1**—(Athens x Emerald Seedless) - Large-berried white seedless, attractive large clusters, sweet mild American flavor, occasional tendency to crack - requires further evaluation.
3. **NY65.479.1**—(Muscat Hamburg x Hubbard) x (Ontario x Black Monukka) - A blue, early ripening seedless with good winter hardiness and large, attractive clusters. This seedless selection has rated well for resistance to downy mildew, powdery mildew and black rot.

New selections such as these and many others are under trial around the state with the partial support of the New York Wine and Grape Foundation and the New York State Grape Production Research Fund. New methods for grapevine improvement via genetic engineering techniques are also being developed with support from these organizations and others. Growers are urged to plant some of the new selections and varieties described above on an experimental basis. Some of these selections have the potential to be significant varieties in the future, so gaining experience with them now will be advantageous. The numbered selections listed above are available through the New York State Fruit Testing Cooperative Association, Geneva, New York 14456. Named varieties from Geneva are sold by this Cooperative as well as by commercial nurseries. ■



Back in January, I sent out a survey through the regional grape specialists and Cornell Cooperative Extension. This survey asked you what sorts of information you would like to see in *Grape Research News*, by checking choices of 31 subjects and by offering other ideas for consideration. Response was very good, there being 268 returns as of this writing.

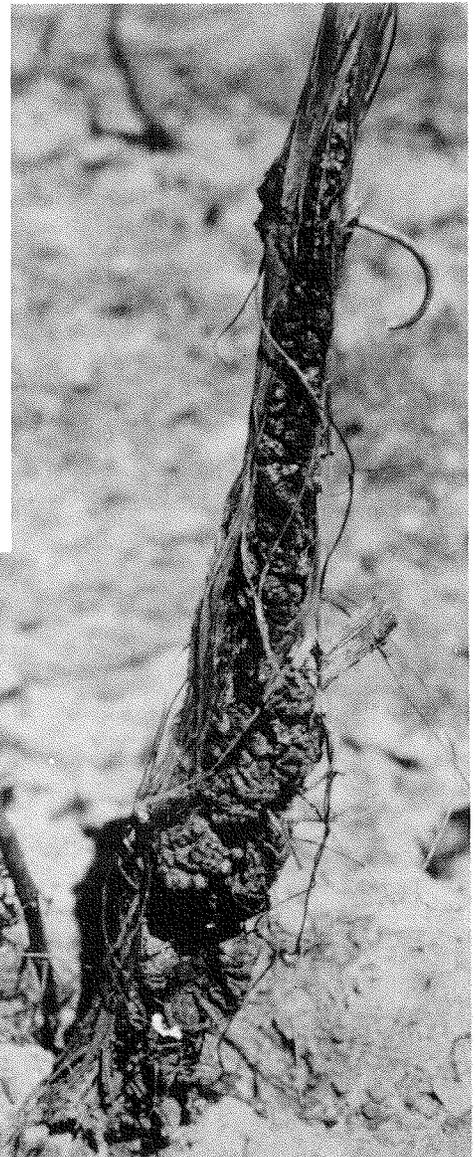
The table on page 7 shows what you told us you'd like to see. The major areas of New York are listed across the top. There were also several responses from out of state. All regions are pooled in the last two columns. Responses relating to each subject are listed by region in actual number of responses and by the proportion (%) of the total surveys returned for each region. These totals are listed in the last row.

Common across all regions of the state is the fact that growers and processors are very anxious to have any information they can get relating to grape pests and diseases and ways to manage them. This is especially true for the fungal pathogens, with 65 per cent of responses from all regions wanting more information. It is of interest to note, however, that growers want little information about the environmental impacts of pesticides (8% response) or the views of consumers of grapes and grape products (4%). Perhaps all this means is that most of our potential readership sees no place for such information in a research-

(Continued on page 6)

FACTORS THAT AFFECT CROWN GALL DEVELOPMENT AND FUTURE MANAGEMENT STRATEGIES

by Tom Burr
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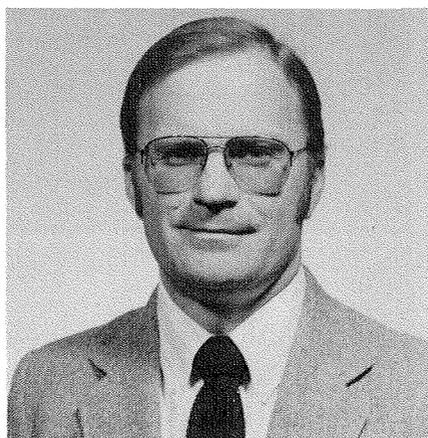
Crown gall bacterial disease on grapevines.

Crown gall is the most important bacterial disease of grapevines in the world. It occurs on over 200 species of plants. On grape, it is caused by a specific biovar (group) of *Agrobacterium tumefaciens* called biovar 3. The disease is most common on the lower trunks of winter injured vines. It can also occur in nurseries and vineyards on grafts, disbudded points, or may be associated with other wounds. When heavy galling develops on young vines it affects vine vigor, and portions of the vine above the gall may weaken and die.

One factor that makes it difficult to control the disease is that *A. tumefaciens* survives systemically in vines. We have developed methods for indexing propagation material that involve the isolation of the bacterium from cuttings and positively identifying it using a specific antibody procedure. Indexing has been done with material from New York as well as from other areas of the United States, Australia, and Europe. We have detected the pathogen in

many important scions and rootstocks that appear to be healthy. Therefore, nurserymen and growers may obtain propagation material or plants that are systemically contaminated with the pathogen, although they appear to be healthy. In general, the most serious disease develops on *Vitis vinifera* cultivars; however, French-American hybrids and some American cultivars and rootstocks may also become heavily infected and may carry the pathogen systemically.

Vineyard soils may become contaminated with the crown gall pathogen and provide a source of disease inoculum. Biovar 3 has not been detected in non-vineyard soils; however, once contaminated vines are planted into soils, the pathogen will persist in contaminated roots even after the vine has been removed. We are now determining how long the pathogen can survive in decaying grape root tissue.



Tom Burr

Our research also involves the development of ways to produce crown gall-free plants. Growing plants from shoot tips using tissue culture methods has resulted in the exclusion of the pathogen from the plants. Vines grown in this way have been planted in non-vineyard soils for four years and have not become re-contaminated with the pathogen.

Another approach that we are testing is the use of hot water treatments as a means of eradicating the pathogen from dormant cuttings. We demonstrated that, in many cases, all of the pathogen was eradicated by submerging dormant cuttings in a water bath at 50 C (123 F) for 30 minutes. Very little or no bud mortality was observed with this treatment. In those cases where all of the pathogen was not eradicated, it is possible that we did not uniformly treat all of the cuttings, since in some cases over 1,000 cuttings were treated at one time. Another possibility is that some strains of the pathogen are more tolerant of heat than others. It is also possible that the pathogen surviving in cuttings is more tolerant to heat than the same pathogen growing in laboratory cultures. We are now testing these possibilities. We are also testing the use of longer treatment times and higher temperatures. In January, buds of 'Chardonnay' and 'Riesling' that were exposed to 56 C (133 F) for 30 minutes showed no detectable bud mortality. Since the tolerance of buds to heat may change over the winter dormant period, we tested these different parameters in January and again in late March. Our preliminary findings indicate that the crown gall pathogen is quite sensitive to heat. We are very optimistic that we can develop an effective method for eradicating the pathogen by this hot-water submersion of cuttings.

What are the prospects for *controlling* crown gall in the future? Several chemicals have been tested against crown gall and a few are commercially available. Unfortunately, since the pathogen is systemic in the vine, surface treatments will not eliminate the pathogen within the vine. Biological control of crown gall is another possibility; however, the only commercially available biological control that is very effective for crown gall of some crops is not effective in grape. Our laboratory and others are searching for an effective biological control on grape. Crown gall will probably be managed in the future by using planting material that is not contaminated with the pathogen and by either planting into non-infested soils or treating plants so that they don't become re-contaminated from soil inoculum.

I would like to thank the New York State Wine and Grape Foundation and U. S. Tobacco Co. for the financial assistance which made this research possible. ■

Correction: The caption at the top right on Page 5 should read, "Tom Mitchell (right)..." not Tom Chadwick. We regret the error.



**New York
Wine & Grape
Foundation
Honors Four Men**

Nelson Shaulis extending results of research to growers.

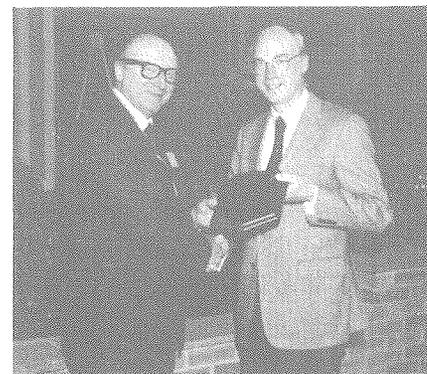
Four men were recently honored by the New York Wine and Grape Foundation for their distinguished contributions to the New York wine and grape industry. The four were Dr. Nelson Shaulis, Charles Fournier (deceased), Dr. Konstantin Frank (deceased), and Bertram Silk. These awards were presented at the Foundation's annual meeting in Albany on March 7, and were the first in the foundation's five-year history.

Nelson Shaulis, Professor Emeritus of Viticulture at the New York State Agricultural Experiment Station at Geneva, was honored for his lifetime contributions to viticulture. He has served the grape industry since the 1940s. Much of his research efforts included nutritional requirements, pruning responses, effects of cold on grapes, vineyard replanting, and canopy systems that maximize light exposure. The Geneva Double Curtain was an important outcome of this work. Shaulis also helped to advance development of the mechanical harvester. His research has been an important key to the constant growth in the New York wine and grape industry. He ranks among the world's leading viticulturists. Since his retirement in 1978, he has continued active involvement in the industry as a speaker and consultant.

Charles Fournier, a native Frenchman, came to the United States in the 1930s. As winemaker at Gold Seal Vineyards in Hammondsport, he did much to improve the wines of the native American grapes and he also began experimentation with French-American hybrids. Fournier, in his association with Konstantin Frank, initiated some of the early efforts to grow



Tom Chadwick (right) accepts award from John Dyson honoring the late Charles Fournier of Gold Seal Vineyards.



John Dyson (right) making presentation to Willy Frank in memory of Konstantin Frank.



Gene Pierce (left) congratulates Bertram Silk for his contributions to the New York Wine and Grape Foundation.

vinifera grapes in New York. His work helped to make New York's name in winemaking.

Konstantin Frank was a Russian emigre with viticultural and wine-making experience. He was hired

by Fournier as a researcher at Gold Seal. Over the years, the two men sought out winter-hardy rootstocks for the cold-sensitive *vinifera* varieties. This effort led to *vinifera* wine production in New York State. Frank followed through with his commitment to *vinifera* wines in founding Konstantin D. Frank & Sons Vinifera Wine Cellars, Ltd.

Bertram Silk has been in the wine industry for 30 years. He was honored for his efforts in guiding the New York Wine and Grape Foundation through its formative years. He served as the Foundation's first Board Chairman and has done much to ensure its success. Silk left New York recently to become President of the California Fruit Products division of Canandaigua Wine Company. ■

The Annual Meeting of the American Society for Enology and Viticulture will take place June 28–30, at the Los Angeles Convention Center in Los Angeles, California. For more information about programs, tours available, accommodations, transportation, and registration, you may write the American Society for Enology and Viticulture, P.O. Box 1855, Davis, California 95617-1855. Phone: 916-753-3142.

The Annual Meeting of the Eastern Section of the American Society for Enology and Viticulture will take place July 11–13 at the Holiday Inn in Rochester, NY. For more information contact Jake Makepiece, Widmer's Wine Cellars, Inc., One Lake Niagara Lane, Naples, NY 14512. Phone: 716-374-6311.

The International Merlot Symposium will be July 6–9 at Fox Hill Country Club, Baiting Hollow, Long Island. Contact Phil Nugent. Phone: 516-447-1004, or 516-537-7878.

The International Pinot Noir Celebration will occur July 27–29 in McMinnville, Oregon. Contact Susan Blosser, P.O. Box 1310, McMinnville, OR 97128.

The New York Red Wine Symposium takes place August 9–10 at the Culinary Institute of America, Hyde Park, NY. Contact Thomas Henick-Kling, Department of Food Science and Technology, New York State Agricultural Experiment Station, Geneva, NY 14456. Phone: 315-787-2277.

(EDITOR Cont.)

oriented newsletter. In contrast, your fellow growers are extremely interested in vineyard fertilization and nutrition, with 55 per cent response for all regions combined.

As expected, total responses were low in the subject areas of wine, juice, and enological research. Our readers have available to them in New York several excellent publications, newsletters, and workshops on enological subjects. We do expect, however, to include pertinent articles on research in these subjects in *Grape Research News*. Also expected was a low response to economic news in a research-oriented newsletter. The one exception is a perceived need for reducing costs in the vineyard operation, which is a major practical focus of much of the research done by Cornell faculty and staff.

Seventy-five additional comments or suggestions were hand written on the survey forms. Comments ranged from "The newsletter is a great idea," to "Any grower worth his salt already knows what you are wasting time and money telling us." That most of you do need more research-based knowledge about grapes became obvious as I scanned your comments. A brief account includes the following ideas: tailoring pesticides to specific need; cultivation versus sod; genetic improvement of vines by both traditional methods and by genetic engineering; site and soil characteristics; vineyard nutrition; spray calibration; loss of pesticides; pesticide alternatives; reviews of "basic" information; mechanization, including shoot positioning

Gratitude is expressed to those organizations whose support makes possible ongoing and valuable research activities for the benefit of the State's grape industry. Major funding is provided by the **New York State Wine & Grape Foundation; the Grape Production Research Fund, Inc.;** and, the **J.M. Kaplan Vineyard Research Program.**

New York Wine & Grape Foundation
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Penn Yan, NY 14527

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Got A Question? We are trying to address the many questions from grape growers and processors that come to Cornell's grape research community. We invite you to write to us at *Grape Research News* to bring to our attention any questions you have about grapes. We will see to it that those questions are answered by someone knowledgeable in the area of your concern.

Save yourself a long distance phone call. Put it in writing on the back of form below, cut it out, and send it to us.

Name _____
Address _____

PLACE
STAMP
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Mail to:

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