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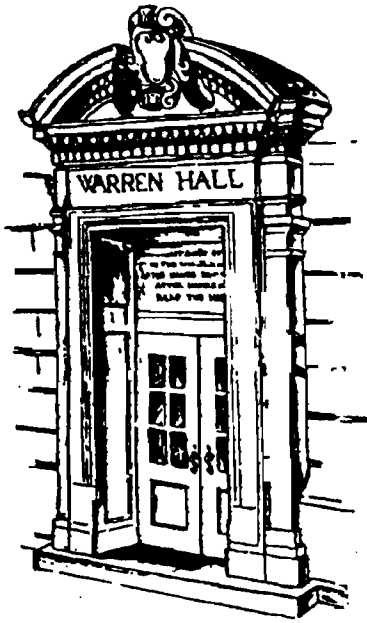
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# Staff Paper

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**FUTURE OF THE GRAPE INDUSTRY:  
AN EASTERN PERSPECTIVE**

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## Introduction

Eastern grape growers and vintners face many challenges over the next decade. Among these challenges, perhaps the greatest are increased competition from other producing regions and/or nations, and changing consumer preferences for some of the products we produce. Changing consumer preferences are especially having an impact in wine markets. This directly affects prices growers receive now, and will affect the profitability of grape growing in the future.

The purpose of this paper is to look into the future of the eastern grape industry and at some of the competitive forces affecting it. First, I will review key trends in the juice industry and then in the wine industry. Factors or forces affecting these key trends are analyzed. Will the direction of these key trends change in the future? The paper concludes with some observations regarding issues in the future and implications for eastern growers if they are to survive, if not prosper, in the next decade.

The utilized farm value of the Michigan crop has averaged \$52 million over the last three years (1992-94), and only about three percent of the crop is utilized for wine (NASS). Ninety-five percent is used for grape juice and other non-fermented products, and almost 80 percent of that market is National Grape Cooperative, Inc. and the Welch's label. Does it make some economic sense for some acreage to be converted from juice grapes to wine grapes, or for some new acreage to be planted into wine grapes? I will address this question at the end of the paper.

## Trends in the Juice Industry

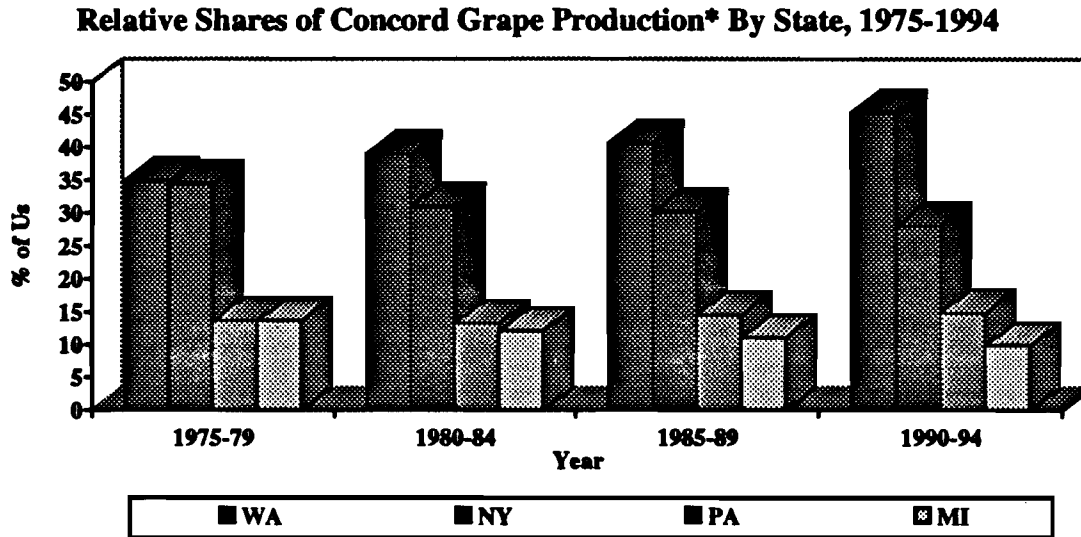
The per capita consumption of single-strength grape juice shows moderate growth of approximately 2-3 percent annually. Nevertheless, supplies have shown a tendency to move upward at least as fast, putting pressure on prices. Exports to Japan, as well as new product development, helped immensely beginning in the mid-80s to fuel a recovery from cash prices that had fallen to approximately \$120 per ton in 1984. In the early 80s, there were a series of large crops that resulted in large carryover inventories in 1983 and 1984. There is a close (inverse) relationship between months of carryover in August of each crop year and the cash prices for that year.

There is a general tendency toward a price cycle in the juice industry. With the Cooperative playing a major role (receiving over 50 percent of the national crop of Concord and Niagaras), and with the storable nature of the crop, year to year fluctuations are evened out so that prices tend to move cyclically, rather than showing large variations from year to year with fluctuations in production. An important point is that the price since 1980 has tended to move around \$200 per ton.

Carryover decreased in 1995 going into harvest for the first time since 1989, so that bodes well for prices next year; however, there was yet another large crop this fall. Nationwide, the crop could decrease next year. With inventories at more reasonable levels, and with strong product movement in the coming nine months, next year could be a turning point in prices. Nevertheless, growers of juice grapes should make cash flow projections on the basis of prices in the range of \$200 to \$230 over the next five years.

Why will prices be expected to move only in the \$200 to \$230 range in the next few years? Washington state has been steadily gaining market share (US) from eastern producers for at least the past 25 years. Figure 1 shows the relative shares of Concord production for Washington, Michigan, New York and Pennsylvania.

Figure 1:



Source: USDA, NASS

\*Beginning in 1992, NASS reported utilization, not total production.

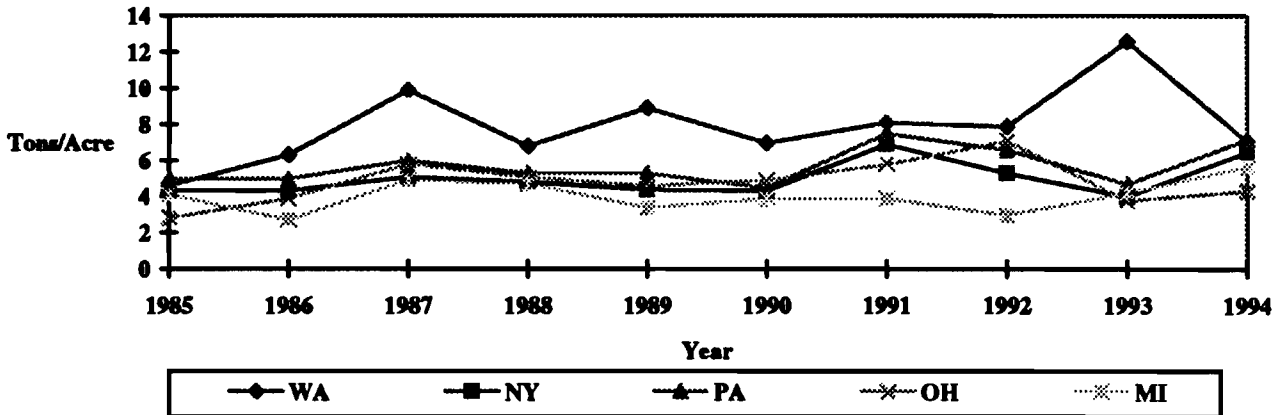
Washington's share increased from an average of 35 percent in the 1975-1979 period to 45 percent during 1990-94. During the same period, New York's share fell from 34 percent to 28 percent, and Michigan's share from 13 percent to 10 percent. Pennsylvania held its own, moving from a share of 14 percent in 1975-79 to 15 percent in 1990-94. The important factor here is that the more efficient producers (i. e. Washington State) are able to supply grapes at a profit for about \$175 per ton; when the price exceeds that amount, it is a signal to western growers to plant more juice grapes. Since the Eastern pool coop price still exceeds the Western pool price, I regard \$200 per ton (Eastern pool) as an approximate "industry equilibrium" price.

The most important determinant of efficiency in this context is yield per acre.

Figure 2 indicates that average yield of National Grape's growers in Washington State is considerably higher than for eastern growers. In the last five years through 1994, Washington coop members averaged 8.5 tons per acre, while yields were 6.1 for Pennsylvania, 5.3 for New York, and 5.1 for Ohio. Even though many Michigan growers regularly attain yields of 7 or 8 tons per acre, the state average of coop growers is 4.1 tons per acre.

Figure 2:

**Yield (Tns/Ac) for Concord Variety, National Grape Cooperative Association, Inc. Members, WA, NY, PA, OH, MI, 1985-1994**



Source: Co-op News, National Grape Cooperative Ass'n, Inc. Newsletter, Various Issues, 1985-1994.

Why do Michigan yields per acre lag even behind other eastern growers? I have never been in a vineyard in Michigan, so there are people in the audience who are better able to answer that question than I. However some reasons that have been suggested to me are the following (1) more diversification, meaning that growers are less likely to concentrate on a single crop; (2) there are many part-time growers for whom grape receipts are not the primary source of income; and (3) a substantial portion of acreage is on somewhat poorer sites (e.g. on sandy soils or on sites distant from the lake) than in other states. The diversification argument implies that growers reduce variability in annual incomes, and make more efficient use of fixed inputs and labor because these inputs can be used on several crops with peak demands at different times. This reduces fixed costs for the grape enterprise. Furthermore growers, particularly those within a few years of retirement, can cover all variable costs and return something to fixed resources, even though these farms are not competitive (i. e. are not on prime sites) for the long run. In these instances, capital investment such as new machinery can be deferred until the operator retires or moves into some other livelihood.

Table 1 shows the estimated cost of producing Concord grapes in Southwestern Michigan (Kelsey et al).

Table 1:

**Total Cost of Producing Concord Grapes in Southwestern Michigan, 1989 and 1995**

<u>Yield (tns/acre)</u>	<u>Cost/Ton(1989)<sup>1/</sup></u>	<u>Cost/Ton(1994)<sup>2/</sup></u>
4.0	\$353	\$419
8.0	\$194	\$230

<sup>1/</sup>Source: Kelsey, Thomas, Search, and Kniese.

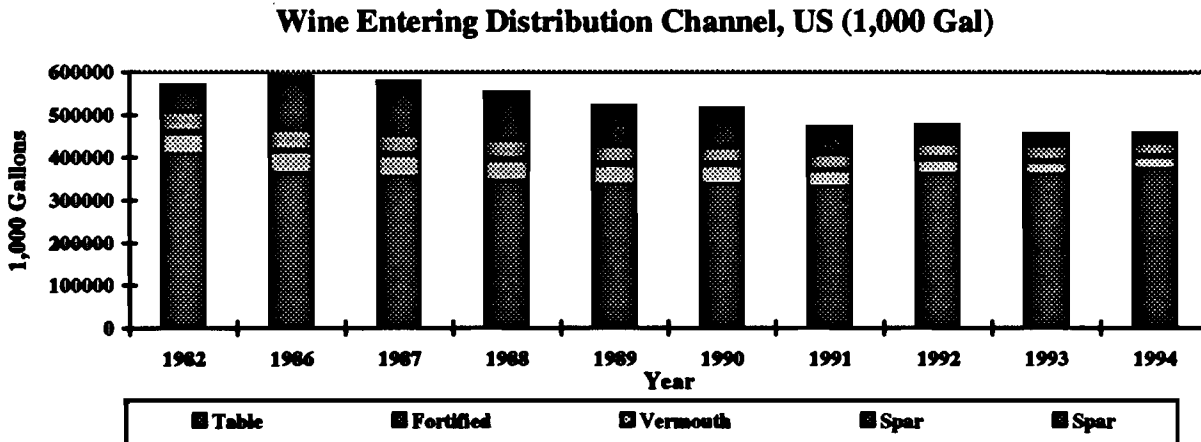
<sup>2/</sup>Updated by Index of Prices Paid, US Farmers, for items purchased off farm (USDA, ERS)

These costs are adjusted for inflation in input prices to 1994 by the index of Prices Paid by US Farmers, an adjustment that probably overstates actual cost increases experienced in Michigan vineyards. These estimates show an inflation-adjusted cost of \$353 for a vineyard yielding 4 tons per acre, far above the market price for Concord and Niagara grapes. It should be realized that all labor has been assessed a cost, even that supplied by the owner, so cash costs on many farms would actually be lower than the total variable cost of \$189 per ton for a 4 ton per acre yield reported in this study. This study suggests that growers would need to attain yields of about 8 tons per acre to attain long run competitiveness. These results are similar to findings in New York in which estimated costs in 1989 were \$200 per ton at the 7 ton per acre yield level (White and Kamas).

### Trends in the Wine Industry

Total wine consumption in the US (measured by the amount of wine entering distribution channels) declined each year from 1986 through 1991.

Figure 3:



Source: Wine & Vines (Steve Barsby and Associates)

Consumption rose in 1992 due to special technical factors that arose from inventory building, but also due to the CBS 60 Minutes broadcast of the "French Paradox" in late 1991 which touted the positive health benefits of moderate wine consumption, especially of red wine. Consumption rose again in 1994. One could ask whether the increases in consumption in two of the last three years mean that the US wine market is entering a new era of growth?

There are several factors which suggest that total US wine consumption will continue to grow over the next five to ten years. First is the growing importance of table wine in the total. In 1986, table wine accounted for 62 percent of total US consumption, while in 1984 it accounted for 82 percent. Table wine is the only category showing capacity for growth (increasing 9.4 percent in 1992 and 3.6 percent in 1994), so as it becomes more important in the total, it pulls total wine consumption along with it.

Secondly, the aging of "baby boomers" (that generation of people born between 1946 and 1964) means that the oldest persons of this generation are just now entering the prime wine consuming years of ages 50 to 54, and baby boomers will be concentrated in peak consumption age groups through 2010. This group of the population has relatively high income and education levels, prime determinants of wine consumption (White).

A third positive factor is that good news regarding the health effects of alcohol in general, and wine in particular, has meant that attitudes about wine consumption are changing finally for the benefit of the industry. In addition to the afore-mentioned influential "French Paradox" broadcast, recent studies such as one from Harvard University released in mid-November reported that any alcoholic beverage, when consumed in quantities of one to two drinks per day, cut the risk of heart attacks by about half (New York Times). While this may have the effect of increasing consumption of spirits (which has been in a state of decline for years), it is also likely to be a positive factor in promoting wine consumption. Previous reports had emphasized the effects of red wine consumption; this report could boost white wine consumption as well. Just this past weekend, an article by Jean Carper, author of a best-selling book "Stop Aging Now!" wrote a column for the USA Weekend supplement to newspapers with a circulation of 39 million. The article's conclusion: "IF YOU DRINK ALCOHOL, consider switching to wine in moderation, especially red wine of any type. Drink red wine or purple grape juice with meals; it may help counteract detrimental elements in food, especially in meat and fatty foods. Restrict wine to one or two glasses a day. IF YOU DON'T DRINK ALCOHOL NOW, don't start. Stick to purple grape juice; black, purple and red grapes; and raisins."

The other categories of wine shown in Figure 3 all have downward trends for various reasons. Fortified wine (including dessert wine) is perceived to be too sweet, or a low quality product, or too high alcohol in a market that has favored lower alcohol wines in recent years. Vermouth declined because much of it is consumed in martinis, and spirits have also been in a period of declining consumption. Maybe Vermouth will make a comeback now that research is showing that all alcohol is beneficial when consumed in moderation! Sparkling wine, which is mainly consumed away from home, is hurt by enactment and more stringent enforcement of DWI laws. Wine-based coolers have virtually disappeared, having been replaced by malt-based coolers as a result of an increase in the federal excise tax that affected wine more than beer.

Now let's look at the wine markets in the Great Lakes region. The four states of New York, Pennsylvania, Ohio, and Michigan comprise about 20 percent of US population, and about 17 percent of the consumption of table wine. All states show reduced per capita consumption over the last ten years, with annual declines of (-)2 to (-)5 percent, with Michigan showing the greatest rate of decline. This compares to a (-)3 percent decline in per capita consumption for the entire US market. Total consumption has of course declined as well, with declines of (-)4.5 percent in Michigan and Ohio, (-)3.6 percent in New York, and (-)1.7 percent in Pennsylvania. This compares to a (-)2.4 percent decline in the US market.

Should these statistics present a picture of gloom and doom? Retail sales present a different picture. Steve Barsby and Associates in Wines & Vines magazine estimate the 1994 value of retail sales for wine in Michigan to be \$340 million. The annual decline over the last five years has been about (-)4 percent, but in the last year there was an increase of 3 percent, compared to an increase in total consumption of just 1 percent. While these are modest increases to be sure, there is hope that wine markets are turning around in Michigan as well.

The source of optimism is the fact that, in a number of markets in the world, consumers are drinking less wine in total, but are willing to pay more per bottle. The current structure of market share of wine by price per bottle is shown in Table 2.

Table 2:

**Market Share of Wine by Price Class, US Market,  
1994, Percent of Sales**

	<u>750 ML. Equiv.</u>	<u>1994</u>
Lowest	Under \$2.75	1.2%
Economy	\$2.76 - 4.25	8.0%
Popular	\$4.26 - 5.75	40.5%
Premium	\$5.76 - 7.50	24.9%
Super-Prem.	\$7.51 - 10.00	16.6%
Ultra Premium	\$10.01 & Up	8.8%

Source: Jobson's Wine Handbook, 1995.

The largest category in terms of sales dollars is the so-called popular price of \$4.26 to \$5.75 per bottle; this category has a 41 percent market share. However the greatest growth is occurring in the more expensive categories as shown in Table 3.

Table 3:

**ACGR, Market Share of Wine by Price Class, US Market,  
1985-1994**

<u>750 ML. Equiv.</u>	<u>APGR*</u>
Under \$2.75	-28%
\$2.76 - 4.25	-24%
\$4.26 - 5.75	+10%
\$5.76 - 7.50	+12%
Over \$7.50	+16%

\*Annual percentage growth rate.

The two less expensive bottle categories both show annual declines of greater than 20 percent; the three price categories over \$4.26 per bottle all show double digit growth. These are US data. Unfortunately, such data at the state level are not available to my knowledge. However, I believe that the same thing is happening in our eastern markets. This is a promising development for eastern vintners who make premium vinifera wines of excellent quality.

Total volume of sales (gallons) by Michigan wineries is currently decreasing; current sales, to include wine made from grapes grown outside Michigan, was 319 thousand gallons or about 133 thousand cases in 1994. As recently as eight years ago, the volume sold was over 400 thousand gallons. However anecdotal evidence seems to suggest that Michigan wineries are also selling less wine, but are upgrading their product mix into greater sales of vinifera and favored French-American hybrid varieties.

The real potential for increased sales is captured by the fact that of Michigan's current consumption of 12 million gallons, the state's wineries account for only about 3 percent of the total quantity consumed. The state's largest winery may find out of state sales or exports to be viable options, but for the rest of the wineries, Michigan's own market is barely being tapped. Since the laws governing alcoholic beverage sales of each state in the US serve as barriers for the smaller wineries, the home state looks to be the most attractive alternative. In the eastern states, even with the declining consumption in recent years, there is plenty of room to grow! Another positive aspect for Michigan wineries is the proximity to cities of the midwest such as Chicago, which means that sales to tourists can be a springboard for future sales growth.

I can summarize this section of the paper by saying that the future looks bright for Michigan wineries which meet the following criteria: (1) have adequate capital resources; (2) have a well-thought out marketing strategy; and (3) pay paramount attention to producing a quality product.

### Some Issues for the Future

In this paper, I have argued that the eastern juice industry is being squeezed by slow growth in demand and strong competitive forces from other states, particularly Washington. These pressures are forcing consolidation into larger units in order to make more efficient use of fixed resources. Average acreage per farm in southwest counties in Michigan has increased from 16 in 1982 to 24 in 1994 (Michigan Fruit Survey). Enterprises of that size (24 acres) are large enough if part of a diversified operation with significant acreage of other crops; however, if grapes are the only enterprise, farm size needs to approach 100 acres in order to permit efficient use of machinery, equipment, and owner's labor. In the last tree fruit survey, there were 24 farms recorded with 100 acres or more of grapes.

Furthermore, average yields will have to increase substantially to allow most of the farms growing juice grapes to attain long run competitiveness. While striving for higher yields, growers will have to be cognizant of the need to design cultural practices which permit the attainment of processor quality standards. Processors are not interested in low sugar Concord.

Continued planting of the Niagara variety will be necessary to meet the growing demand for white grape juice.

We can attach a relatively high degree of certainty that the growers who make these adjustments will make a stable, comfortable living growing juice grapes.

The opportunities and challenges for wine grape production have a different character. In this market, we have seen declining consumption since the mid-80's. The decline in consumption has apparently halted, and there is the real possibility for growth from higher value added sales from consumers who are willing to pay more for a bottle of high quality wine.

In this segment of the industry, even though the quantity of wine sold by Michigan wineries has been decreasing, the sales potential would be greater with more plantings of Vinifera and favored French-American Hybrid varieties, provided that the wine production is accompanied by an adequate financing, a well-designed marketing strategy, and premium quality. To this scenario, I would attach the possibility of greater profits, but the risk is higher than with the production of juice grapes.

One example is the risk that occurs with varieties that have excess supply in local markets. At this time, with only about 1,500 tons of all varieties being used for wine in Michigan (NASS), and with relatively few buyers, the market for wine grapes is quite thin. This means that temporary imbalances of certain varieties, even vinifera and favored hybrids, are sure to occur. In these instances, growers may be unable to sell their grapes unless they have a contract, or the price of certain varieties could fall to unprofitable levels for a period of time. This happened, for example, with Chardonnay grapes in the Finger Lakes in recent years.

What is the profit potential for wine grapes? David Peterson and I prepared cost estimates for the production of vinifera grapes planted in the Finger Lakes Region of New York for 1993. We estimated establishment costs of \$7,742 per acre to bring the vineyard through the first three years. Using a real in-

What is the profit potential for wine grapes? David Peterson and I prepared cost estimates for the production of vinifera grapes planted in the Finger Lakes Region of New York for 1993. We estimated establishment costs of \$7,742 per acre to bring the vineyard through the first three years. Using a real interest rate of 6 percent and depreciating the vineyard for 22 years gave an annual capital recovery charge (for interest and depreciation) of \$643 per acre. When incorporated into a cost analysis of the mature vineyard, the following results were obtained:

Table 4:

**Cost Per Ton at Varying Yields Vinifera Grapes,  
Finger Lakes Region of New York, 1993**

<u>Yield Tons/Acre</u>	<u>Cost/Ton*</u>
2.0	\$1,351
2.5	1,104
3.0	939
3.5	821
4.0	733
4.5	664
5.0	609

\*Cost at different yield levels adjusted for custom harvesting and hauling at \$50/ton.

Source: White

The average price for vinifera in New York has been about \$1,000 per ton, although the prices for some varieties, particularly for red varieties, have been higher. This means that we need at least 3 tons per acre to realize a profit.

This raises an issue. If the problem of the Michigan industry is that yields average only 4.0 to 4.5 tons per acre on Concorde and Niagaras, what is the prospect for achieving yields of 3 tons or more on vinifera varieties? Growing premium wine grape varieties is more demanding in terms of attention to cultural practices and in terms of site characteristics.

### Conclusions

Eastern growers in general, and Michigan growers in particular, need to increase efficiency to remain competitive. Especially, yields per acre need to increase, but not at the expense of quality standards. The juice industry offers stable returns, but less profits in the next 5 to 10 years. Profits from wine grape production offer higher potential, but a higher degree of risk.

New investment capital will be needed in both sectors - to expand Niagara acreage and possibly to convert to GDC on good sites in order to increase yields, but maintain quality standards in the juice sector. Those considering expansion of wine grape acreage need to carefully consider whether their sites and management are up to the task of growing varieties that are less forgiving of marginal resources, and in markets where the risk is substantially greater.

**References**

Carper, Jean, "The Ways of Wine are Rosy", USA Weekend, December 1-3, 1995, p. 8.

Coop News, National Grape Cooperative Association, Inc., various issues, 1985-1994.

Jobson's Wine Handbook 1995, Jobson Publication Corp., New York, NY, 184 pp.

Kelsey, M.P., T.M. Thomas, W.C. Search, and U. Kniese, "Cost of Producing Concord Grapes in Southwestern Michigan", Ext. Bul. E-2189, Cooperative Extension Services, Michigan State University, October 1989, E. Lansing, MI.

Michigan Agricultural Statistics Service, Michigan Fruit Survey 1995.

"Any Alcohol Will Suffice to Aid Heart", New York Times, p. A26.

White, G.B. and J.S. Kamas, "The Economics of Concord and Niagara Grape Production in the Great Lakes Region of New York, 1989", A.E. Ext. 90-3, Department of Agricultural, Resource, and Managerial Economics, Cornell University, Ithaca, NY, 15 pp.

White, G.B., "Recent Developments in Wine Markets in the United States", Proceedings of the International Symposium on the Vine and Wine Economy, Kecskemet, Hungary, June 1990, pp. 163-172.

White, G.B., "Economics of Vinifera Wine Grape Production in New York", Proceedings of the Wine Industry Workshop, Geneva, NY, March - April, 1993, pp. 129-130.

Wines & Vines, the 52nd Annual Statistical Issue, the Haring Company, San Rafael, CA, pp. 16-44.

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