



# **MKF RESEARCH**

## ECONOMIC IMPACT OF NORTH CAROLINA WINE AND GRAPES 2005

 **MKF RESEARCH LLC**

A joint venture of  
Global Wine Partners US LLC  
Frank, Rimerman + Co. LLP CPAs



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# **ECONOMIC IMPACT OF NORTH CAROLINA WINE AND GRAPES 2005**

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This report was commissioned by the  
**North Carolina Department of Commerce**

and the  
**North Carolina Division of  
Tourism, Film & Sports Development**

in conjunction with the  
**North Carolina Wine & Grape Council**



**NORTH CAROLINA  
WINE & GRAPE COUNCIL**

# ECONOMIC IMPACT OF NORTH CAROLINA WINE AND GRAPES 2005

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## TABLE OF CONTENTS

### TABLE OF CONTENTS

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|  |    |
|--|----|
| <b>Highlights</b> .....  | 3  |
| <b>Total Economic Impact Table</b> .....                       | 4  |
| <b>Executive Summary</b> .....                                 | 5  |
| <b>Chapter 1 – Grape Industry in North Carolina</b> .....      | 11 |
| <b>Chapter 2 – Winemaking Industry in North Carolina</b> ..... | 17 |
| <b>Chapter 3 – Allied Industries in North Carolina</b> .....   | 20 |
| <b>Chapter 4 – Other Economic Benefits</b> .....               | 23 |
| <b>Methodology</b> .....                                       | 25 |
| <b>Appendix 1 – About MKF Research LLC</b> .....               | 27 |

#### **Tables:**

|     |  |
|-----|--|
| 1   | Total Economic Impact  |
| 2   | Total Employment   |
| 1.1 | North Carolina Public Estimate for Grapes, 2000 – 2005               |
| 1.2 | United States Grape Production, 2005                                 |
| 1.3 | Grape Production, Price and Value, 2002 – 2005                       |
| 2.1 | Size Distribution of North Carolina Wineries                         |
| 2.2 | North Carolina Wine Sales Through Channels, 2005                     |
| 3.1 | Tourism Impact of North Carolina Wine                                |
| 3.2 | Impact of North Carolina Wine on North Carolina Winemaking Suppliers |
| 3.3 | Impact of Wine Related Education and Research                        |
| 4.1 | Estimated Tax Revenues   |

# ECONOMIC IMPACT OF NORTH CAROLINA WINE AND GRAPES 2005

## HIGHLIGHTS

FULL ECONOMIC IMPACT OF WINE AND  
GRAPES ON THE NORTH CAROLINA ECONOMY

**\$ 813.3 Million<sup>1</sup>**

| NORTH CAROLINA WINE AND GRAPES       | ECONOMIC IMPACT               |
|--------------------------------------|-------------------------------|
| Full-time Equivalent Jobs            | 5.7 thousand                  |
| Wages Paid                           | \$158 million                 |
| Winery Revenue                       | \$48.2 million                |
| Cases Sold                           | 470,000                       |
| Retail Value of North Carolina Wine  | \$72.3 million                |
| Vineyard Revenue                     | \$3.7 million                 |
| Number of Wineries                   | 55                            |
| Number of Grape Growers              | 350                           |
| Grape-Bearing Acres                  | 1,300                         |
| Wine-Related Tourism Expenditures    | \$122.4 million               |
| Number of Wine-Related Tourists      | 800 thousand                  |
| Taxes Paid (State and Local)/Federal | \$38.5 million/\$56.2 million |

<sup>1</sup> See Table 1 below.

# ECONOMIC IMPACT OF NORTH CAROLINA WINE AND GRAPES 2005

## EXECUTIVE SUMMARY

**Table 1**  
**Total Economic Impact (Sum of Total Spending) of Wine and Grapes in North Carolina**

|  |                      |
|--|----------------------|
| <b>Revenue:</b>                                |                      |
| Winery Sales                                   | \$48,174,000         |
| Restaurant & Retail Revenues                   | 18,685,000           |
| Distributors Sales                             | 5,480,000            |
| Grape Sales                                    | 3,700,000            |
| Tourism  | 122,361,000          |
| Glass, Cases, Closures, Labels                 | 33,530,000           |
| Tax Revenues - Federal                         | 56,249,000           |
| Tax Revenues - State & Local                   | 38,464,000           |
| Charitable Contributions                       | 720,000              |
| Consulting/Lab work                            | 400,000              |
| Winery Research                                | 466,000              |
| Indirect (IMPLAN)                              | 219,859,000          |
| Induced (IMPLAN)                               | 106,867,000          |
| <b>Total Revenue</b>                           | <b>\$654,955,000</b> |
| <b>Wages (annual):</b>                         |                      |
| Winery Employees                               | 11,299,000           |
| Vineyard Employees                             | 9,890,000            |
| Tourism  | 32,320,000           |
| Glass, Cases, Closures, Labels                 | 5,966,000            |
| Distributors Employees (NC Wine)               | 1,889,000            |
| Grapevines/Nurseries                           | 0                    |
| Retail/Liquor Stores - Wine Specific (NC Wine) | 745,000              |
| Restaurant Wages (NC Wine)                     | 5,047,000            |
| Consulting/Lab work                            | 480,000              |
| Research & Education                           | 375,000              |
| Indirect (IMPLAN)                              | 55,425,000           |
| Induced (IMPLAN)                               | 34,889,000           |
| <b>Total Wages</b>                             | <b>158,325,000</b>   |
| <b>Total</b>                                   | <b>813,280,000</b>   |

# ECONOMIC IMPACT OF NORTH CAROLINA WINE AND GRAPES 2005

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## EXECUTIVE SUMMARY

### EXECUTIVE SUMMARY

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Since 2000, North Carolina's grape acreage has more than doubled to 1300 acres in 350 vineyards. In the same period, total grape production has increased by more than 70%, enabling North Carolina to become both the 10<sup>th</sup> largest wine producer and 10<sup>th</sup> largest grape producer in the US. At the end of 2005, North Carolina had 55 wineries in 31 counties, compared to 21 wineries in 2000. Despite a challenging climate, North Carolina has shown an impressive capacity to grow and sell quality wines.

The wine and grape industry has thus become a valuable source of economic strength and growth to the state:

- North Carolina wine, grape and related industries produced approximately \$813.3 million of total economic value to the state of North Carolina in 2005, as shown in **Table 1** above.
- North Carolina wineries were visited by at least 800,000 tourists in 2005.
- North Carolina-produced wine, grapes and related industries paid approximately \$56.2 million in federal taxes and \$38.5 million in state and local taxes in North Carolina, including more than \$2 million in federal and state excise taxes on wine.

Wine, grapes and related industries account for more than 5,700 jobs in North Carolina, with an associated payroll of more than \$159 million.

**Table 2**  
**Total Employment, Wine, Grape and Related Industries, 2005**

|  |              |
|--|--------------|
| Winery Employees                               | 470          |
| Vineyard Employees                             | 530          |
| Tourism  | 1,596        |
| Glass, Cases, Closures, Labels                 | 215          |
| Distributors Employees (NC Wine)               | 46           |
| Retail/Liquor Stores - Wine Specific (NC Wine) | 25           |
| Restaurants (NC Wine)                          | 324          |
| Consulting/Lab work                            | 4            |
| Education                                      | 7            |
| Indirect (IMPLAN)                              | 1,373        |
| Induced (IMPLAN)                               | 1,137        |
| <b>Total</b>                                   | <b>5,727</b> |

Source: MKF Research LLC, IMPLAN and North Carolina Department of Commerce

# **ECONOMIC IMPACT OF NORTH CAROLINA WINE AND GRAPES 2005**

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## **EXECUTIVE SUMMARY**

Growing grapes and making wine is a long term commitment to a community, both financially and physically. New vineyard plantings require at least three years to produce a full harvest, with another one to three years of aging for wine to be ready for sale. Unlike many industries, once vineyards and wineries have been established they are effectively rooted and tied in place – a North Carolina vineyard cannot simply be relocated to another region or outsourced to another country. Wine and grapes are inextricably tied to the soil from which they are grown.

Moreover, as the rapid growth of North Carolina’s wine industry demonstrates, winegrapes and their products and allied industries diversify local economies and create employment and new market opportunities in rural communities. In areas that previously had diminishing farming of other crops, the planting of grape vines and the creation of wineries is now offering new life while keeping land in agricultural production.

## **CHALLENGES AND OPPORTUNITIES**

### **Trained Labor and Availability of Training**

The recent establishment of viticulture and enology programs at North Carolina State University and Appalachian State University, building upon the strong program offered by Surry Community College since 2000, will enable North Carolina to build its own cadre of trained professionals as its industry grows.

However, as the state’s vineyard acreage increases, the need for skilled vineyard workers grows and has already become a major challenge for vineyard management. The North Carolina Winegrower’s Association recently recommended that the government should reconsider and proactively pursue a viable guest worker program with Mexico.

### **Winegrape Supply**

The volume of Vinifera wine produced in North Carolina far exceeds the production of winegrapes produced in the state, despite the rapid growth of grape production in recent years. Although the majority of North Carolina wineries produce wine made from North Carolina grapes, about one third of the total amount of wine produced is made from grapes or bulk wine brought in from other states, primarily Vinifera grape varieties (traditional European wine varieties) but also some Muscadine grapes<sup>2</sup>. This practice partly reflects the limited grape

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<sup>2</sup> Muscadine grape supplies from other states have partly been sourced as a hedge against severe weather in North Carolina’s Muscadine coastal growing regions. The recent expansion of Muscadine winegrape production has raised concern about grape surplus and price declines in this segment.

# **ECONOMIC IMPACT OF NORTH CAROLINA WINE AND GRAPES 2005**

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## **EXECUTIVE SUMMARY**

supply in North Carolina, but also the availability of quality Vinifera at competitive prices in other states.

The relatively high cost of North Carolina Vinifera, largely a result of small scale production and the expense of winegrape cultivation in North Carolina's particular climate, is also an issue for North Carolina's wine industry. The price of Vinifera grapes, from \$1100 to \$1400 per ton, requires that the resulting wine be sold in the "mid-price" range of \$12-\$15. This price segment is also among the most competitive in the US wine market, should the wineries seek to sell much volume through retail channels and the traditional three-tier system. Competing large winery groups have substantial marketing resources to support their products in this price segment. A consistent high level of wine quality is critical to competing in this market.

### **Climate and Soil**

High humidity, hot summers and winter frost all imperil Vinifera cultivation in North Carolina, restraining yields to an average of three tons per acre or less. Humidity attracts fungus and pests, requiring a substantial investment in spraying, which increases cultivation costs. Native Muscadine grapes, suitable for somewhat sweeter wines than Vinifera grapes, are well-adapted to this climate, producing yields of up to seven tons per acre without extensive spraying or other special care.

Continuing research is aiding growers in identifying the most suitable Vinifera varieties and cultivation techniques for the North Carolina environment. Research and experience has identified the more promising Vinifera varieties, such as Viognier and Chardonnay among whites, and Cabernet Franc and Merlot among reds.

### **Availability of Financing**

The capital-intensive nature of the winery and vineyard sectors is often underestimated, with new entrants to the industry at times unprepared for the extended cash requirements. There are currently few sources of financing for the development of the industry. Few local institutions are familiar with the unique needs of the business of winemaking, which includes an extended growing and aging period and a combination of agricultural and consumer product risks. This lack of financing sources may restrain continued growth.

### **Health Benefits of Grapes**

Various research studies have indicated significant potential health benefits from the antioxidant compound resveratrol in grapes. Both red and white Muscadine winegrapes are reported to contain over five times more resveratrol than Vinifera

# **ECONOMIC IMPACT OF NORTH CAROLINA WINE AND GRAPES 2005**

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## **EXECUTIVE SUMMARY**

red grapes and wines. These perceived benefits appear to have driven the growth of Muscadine wine sales for the last decade. New enterprises also have begun processing Muscadine winegrape seeds into health supplements, adding to the demand for Muscadine grapes and providing income to their producers.

### **Growing Demand for Fresh Muscadine Grapes**

Demand has been steadily growing for fresh Muscadine grapes, with indications of a significant shortage in some regions. Major fruit marketing companies, such as Del Monte and Dole, have been encouraging the market. WalMart also has been actively promoting the product and encouraging local sourcing. Fresh Muscadine varieties are different from Muscadine winegrape varieties, tending to be larger, sweeter and offering longer shelf life. USDA reports prices in the \$1650/ton to \$1800/ton range, substantially higher than those offered for Muscadine winegrapes, suggesting quite attractive grower returns despite the need for more labor intensive cultivation than Muscadine winegrapes.

### **Growth of Tourism**

Tourism is a major industry in North Carolina, with particularly successful state and private sector promotion programs and outstanding facilities. North Carolina's Biltmore Estate is said to be the most visited winery in the US.

A large share of the income generated by wine produced in North Carolina is derived from tourism, primarily through sales to tasting room visitors. Gaining the attention of consumers and retailers in America's crowded wine market is quite challenging for a newly emerging wine region<sup>3</sup>. Tourism enables wineries to introduce their products to a growing community, favorably disposed by the adventure of winery visiting. The continued growth of tourism in the state is thus vital to the health of the wine industry.

North Carolina's winery permit system, under which the state's wineries are entitled to distributor licenses for sale of their products to retailers and restaurants in the state, has been critical to the development of this direct market and thus critical to the emergence of the wine and grape industry.

### **Improving Grape and Wine Quality**

With the help of research and expanded training, the quality of North Carolina's wine and grapes has been steadily improving. Building the market for growing

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<sup>3</sup> The US Alcohol and Tobacco Tax and Trade Bureau (TTB) approved more than 200,000 separate wine labels in just the last three years. Few retailers stock more than 1400 SKUs of wine. Thus, gaining shelf space and retailer or restaurant attention in this crowded market is very competitive.

# **ECONOMIC IMPACT OF NORTH CAROLINA WINE AND GRAPES 2005**

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## **EXECUTIVE SUMMARY**

North Carolina wine production in the crowded and fragmented US wine market will require a relentless focus on quality and value.

### **Strong Support by State and Regional Organizations**

North Carolina's state, regional and private organizations have been particularly effective and well-organized at supporting and promoting the local wine industry. These organizations include the North Carolina Wine & Grape Council (which is part of the North Carolina Department of Commerce), North Carolina Winegrower's Association, Yadkin Valley Winegrowers Association, North Carolina Muscadine Grape Association, and the North Carolina Department of Agriculture and Consumer Services.

### **Rising Demand for Wine among US Consumers**

North Carolina's wine and grape industries will benefit from America's steadily rising demand for wine – and for better wine. Wine is that most sought-after consumer good of this era: an affordable luxury.

The US wine market has grown by 13.7% since 2002 in volume and by more than 15% in dollars. This growing demand for wine derives from a variety of underlying trends among American consumers, including:

- **Demographics:** All generational segments are increasing their wine consumption, led by baby boomers. While wine has long been the favored alcoholic beverage among women, men are increasingly joining them in consuming wine. Wine consumption is also increasing across nearly all ethnic groups and regions.
- **Consumer values<sup>4</sup>:** Americans are increasingly seeking opportunities to socialize in small groups and at meals, for which wine is particularly suitable. Americans are exploring new product experiences and particularly quality products, for which the diversity and quality of American wines are particularly suitable.
- **Retail patterns:** Retailers are responding to this growing interest in wine by expanding the variety, quality and settings of their offerings, although many challenges for wineries still remain in this area.
- **Restaurant patterns:** Offering quality and diverse wine has now become a major marketing and business generation tool for America's restaurant industry, which is itself America's largest employer.

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<sup>4</sup> See Wine Institute Consumer Research Study, 2005.

# **ECONOMIC IMPACT OF NORTH CAROLINA WINE AND GRAPES 2005**

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## **EXECUTIVE SUMMARY**

- **Health Effects:** A variety of studies suggest that consuming wine in moderate amounts with food may positively affect the well-being of healthy adults.

All of these factors will accelerate American demand for wine over the coming decade, expanding the market for the wines of all states including North Carolina.

# ECONOMIC IMPACT OF NORTH CAROLINA WINE AND GRAPES 2005

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## GRAPE INDUSTRY IN NORTH CAROLINA

### CHAPTER 1 – GRAPE INDUSTRY IN NORTH CAROLINA

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North Carolina's history of commercial wine consumption and production can be dated back to the founding of its first winery in 1835 in Halifax County. This winery grew a native Muscadine varietal, known as Scuppernong, a grape hearty enough to handle the indigenous humidity. Today Scuppernong is the official fruit of the state of North Carolina. Muscadine is the dominant grape species in the state.

In the early 1970s, Vinifera grapes began to be planted in North Carolina for wine production. Early believers in these varietals held to their conviction that Vinifera grapes could be viably grown and their success has stimulated the continued expansion of the state's locally-produced Vinifera wine offerings.

There were approximately 350 vineyards operating in the North Carolina wine industry with a combined acreage of 1,300 acres in 2005. This represented a more than doubling of acreage, from 600 acres, since 2000.

**Table 1.1**  
**North Carolina Public Estimate for Grapes**  
**2000 – 2005**

| YEAR | BEARING<br>ACRES | PRODUCTION | PRICE/TON | CROP VALUE<br>('000) |
|------|------------------|------------|-----------|----------------------|
| 2000 | 600              | 2300       | \$1,160   | \$2,661              |
| 2001 | 700              | 2000       | \$1,270   | \$2,532              |
| 2002 | 850              | 2300       | \$1,280   | \$2,934              |
| 2003 | 950              | 2800       | \$1,070   | \$2,989              |
| 2004 | 1100             | 3500       | \$962     | \$3,366              |
| 2005 | 1300             | 3900       | \$937     | \$3,653              |

**Source: North Carolina Grape Council**

North Carolina vineyards produced an average of three tons per acre in 2005, with an average price-per-ton of \$937 and an average income-per-acre of \$2,810. North Carolina ranked 10<sup>th</sup> in the nation for grape production in 2005.

# ECONOMIC IMPACT OF NORTH CAROLINA WINE AND GRAPES 2005

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## GRAPE INDUSTRY IN NORTH CAROLINA

**Table 1.2**  
**United States Grape Production, 2005**

| <b>Rank</b> | <b>State</b>          | <b>Bearing Acreage<br/>(all types of grapes)</b> | <b>Total Production<br/>(Tons)</b> |
|-------------|-----------------------|--|------------------------------------|
| 1           | California            | 800,000  | 6,978,000                          |
| 2           | Washington            | 54,000   | 415,000                            |
| 3           | New York              | 31,000   | 178,000                            |
| 4           | Michigan              | 14,200   | 102,700                            |
| 5           | Pennsylvania          | 12,000   | 90,000                             |
| 6           | Oregon                | 11,800   | 27,000                             |
| 7           | Texas                 | 2,900  | 9,700                              |
| 8           | Ohio                  | 2,200  | 8,500                              |
| 9           | Virginia              | 2,000  | 5,600                              |
| <b>10</b>   | <b>North Carolina</b> | <b>1,300</b>                                     | <b>3,900</b>                       |
| 11          | Missouri              | 1,200  | 3,900                              |
| 12          | Georgia               | 1,100  | 3,500                              |
|             | United States         | 934,850  | 7,828,700                          |

Source: NASS

The number of commercial vineyards in North Carolina has more than tripled since the late 1960s. Programs are being implemented to further grow the support infrastructure for this expanding industry. In addition to Surry Community College's ambitious viticulture and enology program and supporting classes, North Carolina State University and Appalachian State University have recently introduced viticulture and enology programs. These programs will be keys to continuing growth in both scale and quality of North Carolina's wine and grape industry.

In addition, the North Carolina's Golden LEAF Foundation has supported the shift of tobacco farms to vineyards since 1999.

### **GROWING REGIONS**

Wine production is highly sensitive to the climate, soil and terrain in which the grapes are grown.

Wine with at least 75% North Carolina grapes is labeled North Carolina wine. Wines with less than 75% North Carolina grapes are labeled American wine. North Carolina also has one recognized American Viticultural Area (AVA): The Yadkin Valley, for wines containing at least 75% Yadkin Valley grapes.

# **ECONOMIC IMPACT OF NORTH CAROLINA WINE AND GRAPES 2005**

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## **GRAPE INDUSTRY IN NORTH CAROLINA**

North Carolina has four distinctive growing regions that have proven to be conducive to successful cultivation of winegrapes.

- Mountain Region, stretching from the southern border of Virginia to the northern border of Georgia
- Yadkin Valley, 1.4 million acres in northwestern North Carolina, including all of Surry, Wilkes, and Yadkin counties and portions of Stokes, Davie, Davidson and Forsyth counties
- Piedmont Region, east of Winston-Salem, in the Piedmont area bordered by Virginia on the north and extending well into the central part of the state
- Sand Hill/Coastal Region, an area of varied microclimates, particularly suited to the growing of Muscadine.

## **NORTH CAROLINA VARIETALS**

North Carolina produces native grape varieties such as Muscadine, Chardonel, Norton, and Niagara; French-American hybrid varieties including Chambourcin, Seyval Blanc, and Vidal Blanc, and European Vinifera varieties such as Cabernet Sauvignon, Syrah, Merlot, Cabernet Franc, Petit Verdot, Chardonnay, Viognier, and Muscat.

The most promising and successful Vinifera varieties have been Cabernet Franc, Merlot, Chardonnay and Viognier. Although the majority of wineries are pursuing the development of Vinifera, the traditional European wine grape varieties, production of Muscadine wine remains a major and growing activity in the state and is the principle product of North Carolina's oldest and largest winery, the Duplin Winery.

## **VITICULTURE PRACTICES**

Given advancements in viticulture – the quality of the plantings, matching rootstock and clone type to location, and improved trellis systems – the vineyards of today are of a much higher quality than even ten years ago. Research on vine propagation and management has advanced significantly. Growers and winemakers are learning to work together to produce higher quality fruit, which is resulting in a larger variety of wines of competitive quality.

In-state resources, such as researchers, teachers, and consultants, are also providing a benefit to growers and producers through newer techniques of vineyard management specific to the region that will improve profitability and sustain growth.

# ECONOMIC IMPACT OF NORTH CAROLINA WINE AND GRAPES 2005

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## GRAPE INDUSTRY IN NORTH CAROLINA

### FRESH GRAPE PRODUCTION

**Table 1.3**  
**GRAPE PRODUCTION, PRICE AND VALUE, 2002-2005**

|                     | 2002 | 2003 | 2004 | 2005 |
|---------------------|------|------|------|------|
| <b>Winegrapes</b>   |      |      |      |      |
| Tons '000           | 2000 | 2500 | 3300 | 3700 |
| Price per ton \$    | 1200 | 1000 | 920  | 890  |
| Crop value \$'000   | 2400 | 2500 | 3036 | 3293 |
| <b>Fresh Grapes</b> |      |      |      |      |
| Tons '000           | 300  | 300  | 200  | 200  |
| Price per ton \$    | 1780 | 1630 | 1650 | 1800 |
| Crop Value \$'000   | 534  | 489  | 330  | 360  |

**Source: NASS**

North Carolina also produces a small amount of fresh Muscadine grape varieties, which command a substantial market price. The actual crop is likely to be larger than that reported by NASS, as much of the product is sold directly by farmers at farm stands, “pick-your-own” sites or farmers markets.

Demand for these grapes has been steadily increasing, along with prices. Nevertheless, there has been relatively little new planting of these varieties, which require somewhat more cultivation than Muscadine winegrape varieties. Shortages have emerged in some regions, such as the Piedmont and Mountain areas of the state where relatively few Muscadine have been planted.

### GRAPE PRICES

Muscadine winegrape prices average \$534 per ton. The varietal favors the hot and humid weather of North Carolina’s coastal plain and has proven highly resistant to the fungal attacks that reduce yields of *Vinifera*, thereby allowing organic cultivation of Muscadine. With a yield of seven tons per acre, a planting cost of about \$5200 per acre and little need for hand cultivation or extensive spraying for pests, Muscadine winegrape production offers attractive levels of farm income, explaining the addition of some 140 acres of new Muscadine vineyards in just the last year.

Prices for Muscadine fresh grape varieties have been rising and USDA reports of prices as high as \$1800/ton have been confirmed by producers. Despite somewhat more demanding harvesting, regulation and grading requirements than Muscadine wine grapes, Muscadine fresh grapes can provide returns of up to \$1300 per ton to the farmer.

# **ECONOMIC IMPACT OF NORTH CAROLINA WINE AND GRAPES 2005**

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## **GRAPE INDUSTRY IN NORTH CAROLINA**

Prices for Vinifera grapes tend to range from \$1100 to \$1400/ton<sup>5</sup> – fairly high prices on a national basis, reflecting the high cost of Vinifera cultivation in these soils and climates.

The different varieties also reflect quite different viticulture practices. The combination of climate and quality management practices may reduce Vinifera yields to 2.5 tons per acre or less, supported by careful pruning and trellis investment and management. Thus, while Vinifera grapes claim far higher prices than natives and hybrids, it would be a mistake to assume their production ensures higher returns for farmers. Far higher farming costs, need for greater handwork and higher sensitivity to climate may make Vinifera less profitable than the low maintenance and hardy native and hybrid grapes.

### **VINEYARD EMPLOYMENT**

Grape production uses seasonal labor for harvests and vineyard development and full-time positions for maintenance of currently-bearing acres and development of new vineyards yet to bear fruit, as well business management staff for finance, sales and other functions.

However, as the state's vineyard acreage increases, the need for finding and keeping skilled vineyard workers grows and has already become a major challenge for vineyard management.

A total of 530 persons were employed by vineyards in North Carolina in 2005 with wages totaling \$9.3 million.

### **VINEYARD DEVELOPMENT**

Vineyard development is the process of converting land into a developed vineyard. The land must be prepared to plant vines. Once the vine is planted it must be trellised and trained. From the time a vine is planted in the ground it can take between two and four years before the vine bears fruit. During this time, pre-productive (non-fruit bearing) vines must be tended and cared for in accordance with sound viticultural practices to ensure healthy productive (fruit bearing) vines.

The vineyard development process is very capital and labor intensive. Development costs for Vinifera average \$10,000 to \$15,000 per acre, depending on the specific location of the vineyard and planting layout, not including land acquisition costs. The most important determinant of the cost of planting a vineyard is the vine spacing. Grape growing regions use various vine spacing patterns based upon environmental site attributes, desired grape flavors, and

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<sup>5</sup> The average statewide price of \$937 reflects the far lower prices for hybrid and Muscadine cultivation.

# **ECONOMIC IMPACT OF NORTH CAROLINA WINE AND GRAPES 2005**

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## **GRAPE INDUSTRY IN NORTH CAROLINA**

development cost considerations. Development costs for Muscadine, whether winegrape or fresh grape, average and about \$5200 per acre.

The majority of vineyard development in North Carolina is done by the vineyard owners and employees, with the assistance in some cases of vineyard development consultants.

## **GRAPE SUPPLY AND DEMAND**

About one third of the wine produced in North Carolina is made from Vinifera, Muscadine or bulk wine brought in from other states. The growth of wineries in the state has outpaced the growth of Vinifera grape production, especially given the long gestation period for winegrapes and the quality requirements of some wineries. However, the decision to bring in grapes, especially in the case of Vinifera<sup>6</sup>, also often reflects lower prices for comparable or higher quality grapes leading to some occasional weakness in the local grape market.

The North Carolina wine and grape industry is still in early stages of development. As the quality of Vinifera produced in the state improves and vineyards expand, the share of wine produced in North Carolina from locally produced grapes is likely to grow.

While Muscadine wine sales have been steadily growing – increasing by 9% from 2005 to 2006 – planting of Muscadine grapes has accelerated, with more than 140 acres of new planting in the past year, suggesting a potential surplus of such grapes. However, the growth of alternative demand for Muscadine, from fresh grapes to nutritional supplements may absorb this new planting by the time a full crop develops in four years.

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<sup>6</sup> To some extent, Muscadine grape supplies are encouraged in other states to hedge against severe weather in North Carolina's growing regions.

# **ECONOMIC IMPACT OF NORTH CAROLINA WINE AND GRAPES 2005**

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## **WINEMAKING INDUSTRY IN NORTH CAROLINA**

### **CHAPTER 2 - WINEMAKING INDUSTRY IN NORTH CAROLINA**

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#### **WINE PRODUCTION**

In 2005, there were 55 wineries, across 31 counties, in North Carolina. Duplin Winery is the oldest and largest in the state, producing close to 200,000 cases of Muscadine wine. Biltmore Estate Winery is the second largest, producing about 140,000 cases of Vinifera wines. The next two largest wineries, Shelton Vineyards and Childress Vineyards, each produce approximately 30,000 cases . The remaining wineries are quite small, as indicated below.

**Table 2.1  
Size Distribution of North Carolina Wineries**

| <b>Cases Produced</b> | <b>Number of Wineries</b> |
|-----------------------|---------------------------|
| More than 100,001     | 2                         |
| 20,001 - 100,000      | 2                         |
| 10,001 - 20,000       | 1                         |
| 4,001 - 10,000        | 9                         |
| 2,001 - 4,000         | 4                         |
| 1,501 - 2,000         | 5                         |
| 1,500 and less        | 31                        |

**Source: MKF Research LLC and Triad Business Journal**

Total production in North Carolina was approximately 470 thousand cases. MKF Research LLC estimates that North Carolina wineries' revenues from wine sales total \$48.2 million taking into account both direct sales and the wineries' share of revenue for wine sold through the three-tier system.

In 2005, North Carolina was the tenth largest wine producer in the United States. A marked increase in wine tourism has been a strong driver of this production increase.

The North Carolina Wine and Grape Council reports that, since 2004, new wineries are said to have opened at the rate of approximately one per month.

# **ECONOMIC IMPACT OF NORTH CAROLINA WINE AND GRAPES 2005**

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## **WINEMAKING INDUSTRY IN NORTH CAROLINA**

### **WINERY EMPLOYMENT**

Wineries employ full and part-time workers as labor for bottling, storage, maintenance, and winemaking needs as well as hospitality, finance, sales and marketing functions. Some wineries also employ seasonal labor. 470 people are directly employed by wineries in North Carolina, with wages totaling \$12.4 million.

### **DISTRIBUTION CHANNELS**

North Carolina's largest wineries sell a significant share of their wines through the three-tier distribution system, possibly accounting for more than 50% of the volume of wine produced in North Carolina.

However, the primary distribution channel for North Carolina smaller wineries is direct-to-consumer through winery tasting rooms followed by self-distribution to local retailers and restaurants. Wineries are able to receive the full retail value of their products when selling in tasting rooms and up to 80% of the retail price through self-distribution, while they receive only about 50% of the retail price when selling through three-tier distribution. Consequently, direct sales are easily the major source of income to the industry, as shown below.

**Table 2.2**

| <b>NORTH CAROLINA WINE SALES<br/>THROUGH CHANNELS, 2005</b> |              |
|---|--------------|
| WINERY REVENUE  | \$48,174,063 |
| of which Direct Sales                                       | \$29,907,742 |
| of which 3 Tier   | \$18,266,321 |
| DISTRIBUTOR INCOME  | \$5,479,896  |
| RETAILER INCOME   | \$10,721,822 |
| RESTAURANT INCOME   | \$7,963,466  |
| TOTAL RETAIL VALUE  | \$72,339,248 |

**Source: MKF Research**

The North Carolina General Assembly passed five laws in 2005 in an effort to streamline long-standing distribution laws, some of which had been in place since the 1930s. Wineries are now permitted to ship product directly to consumers, both within the state and nationally, allowing wineries to retain a higher share of retail revenues and opening markets to wineries which may not have been attractive to distributors.

The new legislation increased allowable quantities of wine for transport without special permits to support the growing special event and catering market.

# **ECONOMIC IMPACT OF NORTH CAROLINA WINE AND GRAPES 2005**

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## **WINEMAKING INDUSTRY IN NORTH CAROLINA**

Application fees also have been dropped for companies shipping directly to customers.

### **SHORTAGE OF TRAINED LABOR FORCE**

As the North Carolina wine industry continues to expand, it is experiencing a growing need for trained viticulturalists and winemakers with an understanding of the varieties grown in the region, growing conditions in the region and the styles of wine enjoyed by the local population. A continued shortage of these professionals will constrain the ability of the wine industry to continue its current pace of growth and efforts to improve product quality. The development of new programs at Appalachian State and North Carolina State Universities, building on the strong program operated by Surry State Community College, should help fill this demand. It will also be critical that these new graduates gain experience and mentorship at established wineries and vineyards.

# ECONOMIC IMPACT OF NORTH CAROLINA WINE AND GRAPES 2005

## ALLIED INDUSTRIES IN NORTH CAROLINA

### CHAPTER 3 - ALLIED INDUSTRIES IN NORTH CAROLINA

This chapter discusses the impact of the wine and grape industry on a variety of industries which either provide products or services to the industry or benefit directly from the presence of related facilities and services. These include: tourism, trucking, equipment and supplies, testing, education and research. It estimates employment, wages and revenues and provides additional economic data where available.

The scale of allied industries for wine and grape sectors is currently relatively small, with many supplies and equipment coming from out of state. As the number of vineyards and wineries expands, this network of local suppliers will also grow, as has been seen in other winemaking states.

#### TOURISM

Table 3.1

#### Tourism Impact of North Carolina Wine

|                          |                      |
|--------------------------|----------------------|
| <b>Direct Employment</b> | <b>1,596</b>         |
| <b>Total Wages</b>       | <b>\$32,320,000</b>  |
| <b>Total Revenues</b>    | <b>\$122,361,000</b> |

Source: MKF Research LLC

Tourism is a major element in North Carolina wine's overall economic impact. It is estimated that more than 800,000 visitors visited North Carolina wineries in 2005. Supporting these visitors is a diverse labor force of approximately 1,596 employees with total wages of over \$32 million.

The on-site winery at the Biltmore Estate<sup>7</sup>, the most visited winery in the country, contributes substantially to these numbers. However, other wineries are also aggressively building their visitor programs, with active support of the state's Division of Tourism. North Carolina's wine tourism promotion program is one of the more effective in the US.

Given that much of their sales are direct-to-consumer, wineries have focused meaningful effort on enticing consumers to come and visit their facilities. Wine tasting tours are being widely promoted with positive sales results. There has been an expansion of related-product offerings and events, private parties, and concerts held on winery properties. Wineries note that these efforts have all benefited on-

<sup>7</sup> Only a share of the total visitors to the Estate are included as winery visitors, after discussions of visitor patterns with the staff.

# **ECONOMIC IMPACT OF NORTH CAROLINA WINE AND GRAPES 2005**

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## **ALLIED INDUSTRIES IN NORTH CAROLINA**

premises case wine sales. As these sales methods have become the industry norm, the winery's function has evolved past simple production. The new wineries being designed and built in North Carolina incorporate this new blend of functions with traditional facilities to take full advantage of these profitable ancillary activities.

## **WINEMAKING EQUIPMENT, SUPPLIES AND SERVICES**

**Table 3.2**  
**Impact of North Carolina Wine on North Carolina Winemaking Suppliers**

|                          |                     |
|--------------------------|---------------------|
| <b>Direct Employment</b> | <b>215</b>          |
| <b>Total Wages</b>       | <b>\$5,966,000</b>  |
| <b>Total Revenue</b>     | <b>\$33,530,000</b> |

Source: MKF Research LLC

The number of in-state suppliers or distributors of winemaking equipment, supplies and services is relatively small. To protect the confidentiality of included suppliers, we are consolidating the data for multiple suppliers. Types of businesses which exist in North Carolina that supply the wine and winegrape industry as a portion of their overall business include farm equipment and material suppliers, a box and package manufacturer, brokers of bottles and closures, barrel and oak-alternative suppliers, a producer of wine labels and a synthetic cork manufacturer.

An industry leader in the wine closure manufacturing sector is Nomacorc. The company is located in Zebulon, North Carolina and produces a synthetic co-extruded closure. Their products are sold in over 35 countries. The company sold over 800 million units worldwide by 2004 and their sales plan sets their goal at 3 billion units total production by 2010. Nomacorc estimates that less than one percent of their sales are to wineries in North Carolina.

Cooperage refers to the use of wooden barrels, usually made of oak, for the aging of wine. The average cost of a French barrel is in excess of \$800, while American barrels average \$300. There are currently no barrel makers (coopers) in North Carolina, but there two companies in-state that either broker new barrels or renew old barrels. New barrels are imported from other states or from overseas.

Approximately four individuals act as vineyard and winery consultants within the state. Vineyard equipment and supplies are generally bought locally through dealers who specialize in farming equipment but not necessary vineyard equipment.

# **ECONOMIC IMPACT OF NORTH CAROLINA WINE AND GRAPES 2005**

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## **ALLIED INDUSTRIES IN NORTH CAROLINA**

### **EDUCATION AND WINE INDUSTRY RESEARCH**

**Table 3.3**  
**Impact of Wine Related Education and Research**

|                              |                  |
|------------------------------|------------------|
| <b>Direct Employment:</b>    | <b>7</b>         |
| <b>Total Wages</b>           | <b>\$375,000</b> |
| <b>Research Expenditures</b> | <b>\$466,000</b> |

Source: MKF Research LLC

Approximately seven people are employed on a full time basis in North Carolina in wine and viticulture education and research, with a payroll of over \$375 thousand.

The state of North Carolina has recently increased funding for the Surry Community College's enology and viticulture programs. Currently, a 50 million dollar vineyard/winery facility is in the planning stage and is slated to be built on the Surry campus itself. The facility will provide students with experience in vineyard operations, microbiology, fermentation science, and winery management.

North Carolina State University has recently introduced a specialized program in viticulture within its agricultural program. Appalachian State University, in Boone, North Carolina, has also introduced a viticulture and enology program, focused on high elevation varietals and their unique growing challenges. The University has also received federal funding for the first wine laboratory in the state.

# ECONOMIC IMPACT OF NORTH CAROLINA WINE AND WINEGRAPES 2005

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## OTHER ECONOMIC BENEFITS

### CHAPTER 4 - OTHER ECONOMIC BENEFITS

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This chapter discusses other benefits derived from the grape and wine industry, including tax revenues, charitable contributions, and other indirect and induced economic benefits not specifically addressed elsewhere in this report. We have not attempted to estimate financing revenues for the industry, although bank and other institutional financing for the industry appear to be quite limited.

#### TAX REVENUES

The wine and winegrape industry generates significant tax dollars, benefiting federal, state and local governments. Tax dollars are raised through sales taxes, excise taxes, income taxes, estate and gift taxes, payroll taxes, property taxes and other business taxes and fees, such as licenses, and import duties. North Carolina's wine, grape and allied industries paid \$38.5 million in state and local taxes and \$56.2 million in federal taxes in 2005, including more than \$5 million in state and federal excise taxes.

**Table 4.1**  
**Estimated Tax Revenues**

| <b>Tax Type</b>      | <b>Total</b>        |
|----------------------|---------------------|
| Federal tax revenues |                     |
| Excise               | \$4,915,000         |
| Payroll              | \$19,344,000        |
| Income               | \$23,663,000        |
| Other                | \$8,327,000         |
| State tax revenues   |                     |
| Sales                | \$15,254,000        |
| Payroll              | \$331,000           |
| Income               | \$4,839,000         |
| Excise               | \$875,000           |
| Other                | \$17,165,000        |
|                      |                     |
| <b>Total</b>         | <b>\$94,713,000</b> |

Source: IMPLAN, MKF Research LLC

# **ECONOMIC IMPACT OF NORTH CAROLINA WINE AND GRAPES 2005**

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## **OTHER ECONOMIC BENEFITS**

### **CHARITABLE CONTRIBUTIONS**

The MKF Research LLC Survey found wineries and growers throughout the state of North Carolina have donated in excess of \$720,000 to charities in 2005, including gifts of wine, employee time and cash. The amount of charitable contributions is likely underestimated as many wineries do not track in-kind contributions, which are often substantial.

# ECONOMIC IMPACT OF NORTH CAROLINA WINE AND GRAPES 2005

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## METHODOLOGY

### METHODOLOGY

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#### DATA COLLECTION

Data for this study was collected from a variety of public sources supplemented by primary research with wineries, suppliers, growers and other economic entities and supported by a variety of studies undertaken by industry and professional organizations. For several data items the numbers provided are only partial, given the limited availability of information, and therefore are considered conservative.

#### DIRECT, INDIRECT AND INDUCED EFFECTS (IMPLAN)

All economic activities have “ripple” effects: employment of one person creates economic activity for others, whether the salesman who sells the employee a car or the restaurant where she eats lunch. Economic impact studies endeavor to measure those “ripples” as well as the direct activity, to help assess the impact of the potential gain or loss of an industry.

Economic impact studies estimate the impact of an industry in a defined geographic region by identifying and measuring specific concrete and economic events, such as the number of jobs, the wages, taxes and output generated by each job.

IMPLAN<sup>8</sup> is the acronym for “**IM** impact analysis for **PLAN**ing.” IMPLAN is a well established and widely used economic model that uses input-output analyses and tables for over 500 industries to estimate these regional and industry-specific economic impacts of a specific industry.

The IMPLAN model and methodology classifies these effects into three categories, Direct Effects, Indirect Effects and Induced Effects.

Direct Effects are economic changes in industries *directly* associated with the product’s final demand. Thus, direct effects consider the direct employment and spending of wineries, vineyards, distributors and immediately allied industries.

Indirect Effects are economic changes – income created through job creation in industries that supply goods and services to the directly affected industries noted above. For example, the purchases of electricity and gasoline by wineries and of cash registers purchased for a tasting room.

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<sup>8</sup> IMPLAN is the standard economic model for economic impact studies, developed by the University of Minnesota and the US Forestry Service in the 1980s and currently used by over 1500 organizations, including most federal, state and local organizations. For more information on IMPLAN, go to [www.implan.com](http://www.implan.com).

## **ECONOMIC IMPACT OF NORTH CAROLINA WINE AND GRAPES 2005**

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### **OTHER ECONOMIC BENEFITS**

Induced Effects are the effects of these new workers spending their new incomes, creating a still further flow of income in their communities and a flow of new jobs and services. Examples are spending in grocery and retail stores, medical offices, insurance companies, and other non-wine and grape related industries.

# ECONOMIC IMPACT OF NORTH CAROLINA WINE AND GRAPES 2005

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ABOUT MKF RESEARCH LLC

## APPENDIX I: ABOUT MKF RESEARCH LLC

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MKF Research LLC is the leading research source on the US wine industry. We continue to strive to raise the bar on the quality of information and analysis available to the wine industry.

MKF Research LLC conducts original research on the business of wine and wine market trends, publishes a number of industry studies and provides business advisory services and custom business research for individual companies and investors. MKF Research LLC also conducts a number of industry seminars on its research work including the annual invitation-only MKF Research Executive Wine Summit as well as various smaller open workshops on key industry issues.

### MKF RESEARCH LLC CUSTOM PROJECTS

The major part of MKF Research LLC's business is providing confidential custom consulting to wine industry enterprises, investors and suppliers. Recently, MKF Research LLC consulting projects have included:

- Feasibility, market studies and due diligence;
- Consumer and trade surveys and focus groups;
- Market analyses, marketing strategy development and market, brand and financial and operational benchmarking;
- Economic impact studies for a variety of wine and vineyard related businesses and public and private organizations in the industry; and
- Market and strategic studies of potential new import and export products.

MKF Research LLC conducts the leading research on Winery Direct Sales and Winery Direct consumers and the benchmarking of winery direct activities and has expanded its consumer and trade research capabilities to among the best in the industry.

In 2005 MKF Research LLC was the principal consultant on the Wine Institute's first consumer research in twenty years, a large scale survey of wine consumers conducted by Yankelovich Inc., whom MKF Research LLC introduced to the wine industry. The report produced by MKF Research LLC, *Wine Institute Market Research: Implications for California Wineries*, is available to members of the Wine Institute.

# **ECONOMIC IMPACT OF NORTH CAROLINA WINE AND GRAPES 2005**

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## **ABOUT MKF RESEARCH**

### **MKF RESEARCH LLC PUBLICATIONS**

#### ***MKF Research Monthly***

The *MKF Research Monthly* provides in-depth analysis of the critical business challenges facing the wine industry today. This targeted, concise report reflects the questions and concerns MKF Research LLC hears daily from its wine business clients and industry analysts.

#### ***Economic Impact Reports***

MKF Research LLC has completed the first study of the Impact of Wine, Grapes and Grape Products on the American Economy 2007, for Wine America, the Wine Institute, Winegrape Growers of America and the National Grape and Wine Initiative, to be presented in Washington DC on January 17<sup>th</sup>, 2007. Wine and grape impact studies are underway for Texas, Illinois, Virginia, Tennessee and Missouri, to be completed in January-February 2007.

Existing Economic Impact Studies published by MKF Research LLC include the following, all available for purchase from MKF Research LLC:

- ***Economic Impact of California Wine Update 2006***
- ***Economic Impact of Wine and Winegrapes in Illinois 2005***
- ***Economic Impact of Michigan Grapes, Grape Juice and Wine 2005***
- ***Economic Impact of New York Grapes, Grape Juice and Wine 2005***
- ***Economic Impact of Pennsylvania Wine and Winegrapes 2005***
- ***Economic Impact of Wine and Vineyards in Sonoma County 2005***
- ***Economic Impact of Wine and Vineyards in Napa County 2005***
- ***Economic Impact of California Wine 2004***
- ***Economic Impact of the Washington State Wine and Winegrape Industries***
- ***Economic Impact of the Wine and Winegrape Industries in Santa Barbara County***

Visit our website at [www.mkfresearch.com](http://www.mkfresearch.com) to stay informed of our new research projects.

# ECONOMIC IMPACT OF NORTH CAROLINA WINE AND GRAPES 2005

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## ABOUT MKF RESEARCH

### **MKF RESEARCH LLC OWNERSHIP**

MKF Research LLC is jointly owned by Global Wine Partners US, LLC and Frank, Rimerman + Co. LLP, CPAs.

#### *Global Wine Partners US, LLC*

**Global Wine Partners**, The Global Wine Investment Bank, with offices in Napa, Paris and Sydney, is the only investment bank dedicated exclusively to the wine industry.

Specialists in wine industry mergers and acquisitions, valuation and corporate finance, the firm provides clients with a wide range of corporate advisory services related to wine industry mergers, acquisitions, joint ventures, strategic alliances, distribution arrangements, winery valuation services and fairness opinions related to M&A and financing. They also provide corporate finance services including wine industry debt and equity-raising and underwriting and investment management services with wine investment funds and trading in wine investments.

#### *Frank, Rimerman + Co. LLP, CPAs*

**Frank, Rimerman + Co. LLP**, founded in 1949, is the largest, locally-owned provider of accounting and consulting services in California. With offices in San Jose, Palo Alto, San Francisco and St. Helena and over 170 professionals, Frank, Rimerman + Co. LLP offers strategic business and information consulting services, tax consulting and planning, audit and financial reporting, accounting services, litigation and valuation services.

Frank, Rimerman + Co. LLP continues to build its wine industry practice, based in St. Helena (formerly the CPA practice of Motto, Kryla and Fisher), committing the full resources of this major professional services firm to the industry.

MKF Research Economic Impact Reports are published by MKF Research. As leading wine business advisors, MKF Research provides deep and broad analysis of U.S. wine and grape market trends so business executives can manage the present and plan for the future with confidence.

 **MKF RESEARCH LLC**

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