

*Profile Analysis of Regional Variations Among  
Virginia Winery Visitors*

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(Abstract)

This research is concerned with examining market segments and regional variations associated with winery visitors in the state of Virginia. The tourism literature published by the state of Virginia for wineries indicates that there are five wine regions. In this research, data were collected from interviews conducted at wineries in each of the five wine regions. The first phase of analysis sought to create market segments using a factor-cluster approach. Segments were created using cluster analysis and multiple discriminant analysis. Three distinct market segments based on benefits sought by the visitor emerged from these data. Regional variations were examined in the second part of this study. The data were classified into individual regions based on the locations of the wineries examined. Distinct differences in the regional profiles were revealed. Weak significant relationships among the segments and regions were also revealed through analysis indicating a spatial component to the segments. This research proposes the use of three regions for market research purposes, while retaining the five existing regions for promoting an organized structure to visiting wineries in the state.

## **Dedication**

To my Father Raymond H. Adams and  
Grandfather Horace J. Rogers.

For their dedication to my pursuits and teaching me the value of hard work

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## Table of Contents

ACKNOWLEDGMENTS .....	iv
Chapter 1 Introduction .....	1
1.1 Wine as an Expression of the Landscape .....	4
1.2 Wine in the History of Virginia .....	5
1.2.1 Present Day Winescape of Virginia .....	7
1.3 Literature Review .....	7
1.3.1 Special Interest, Rural, and Farm Tourism.....	8
1.3.2 Defining Visitation versus Tourism .....	10
1.3.3 Segmentation Literature .....	12
1.4 Methodology.....	17
1.4.1 The Study Area.....	17
1.4.2 Interview Instrument .....	17
1.4.3 Data Collection.....	22
1.4.4 Analysis of the Small and Large Scale.....	22
1.5 Summary.....	23
Chapter 2 Statewide Profile of Winery Visitors .....	25
2.1 The Viticulture Landscape of Virginia.....	25
2.2 Results of the Analysis .....	25
2.2.1 Factor Analysis Results .....	25
2.2.2 Cluster Analysis .....	26
2.2.3 Discriminant Analysis .....	26
2.3 Results of the Profile Analysis .....	27
2.3.1 Wine Rating Variables .....	27
2.3.2 Trip Attribute Variables .....	28
2.3.3 Consumption Variables .....	30
2.3.4 Trip Characteristic Variables.....	32
2.3.5 Demographic Variables.....	33
2.4 Segment Profiles of Virginia Winery Visitors .....	34
2.4.1 Profile of Segment One .....	34
2.4.2 Profile of Segment Two .....	35
2.4.3 Profile of Segment Three.....	36
2.5 Summary.....	37
Chapter 3 Regional Profiles Of Winery Visitors .....	39
3.1 Profile Analysis .....	39
3.1.1 Wine Attribute Variables.....	39
3.1.2 Trip Attribute Variables .....	41
3.1.3 Consumption Variables .....	42
3.1.4 Trip Characteristic Variables.....	45
3.1.5 Demographic Variables.....	46
3.2 Regional Profiles .....	48
3.2.1 Central Virginia.....	48
3.2.1.1 The Study Area .....	48

3.2.1.2 Profile of Central Virginia Winery Visitors.....	48
3.2.2 Eastern Virginia.....	50
3.2.2.1 The Study Area .....	50
3.2.2.2 Profile of Eastern Virginia Winery Visitors .....	52
3.2.3 Northern Virginia .....	53
3.2.3.1 The Study Area .....	53
3.2.3.2 Profile of Northern Virginia Winery Visitors.....	53
3.2.4 Shenandoah Valley.....	55
3.2.4.1 The Study Area .....	55
3.2.4.2 Profile of Shenandoah Valley Winery Visitors .....	55
3.2.5 Southwest Virginia .....	57
3.2.5.1 The Study Area .....	57
3.2.5.2 Profile of Southwest Virginia Winery Visitors.....	59
3.3 Summary.....	60
 Chapter 4 Discussion and Conclusion .....	 62
4.1 Examination of Relationship Between Segments and Regions.....	62
4.2 Variations Among Winery Visitors .....	67
4.3 Implications of this Research.....	68
4.4 Weaknesses of This Study .....	70
4.5 Future Research Directions .....	70
 Reference List.....	 72
 Appendix A.....	 76
 Vita.....	 79

## Tables

Table 1.1 Data Collection Log.....	19
Table 2.1 Number of Cases in Each Cluster Based on Trip Attribute Variables.....	26
Table 2.2 Wilks' Lambda of Discriminant Functions.....	27
Table 2.3 Canonical Correlation of Discriminant Functions.....	27
Table 2.4 Perception of Quality of Virginia Wine Compared to Quality of Wine from Other Regions, by Segment (Mean Likert Scores).....	28
Table 2.5 Results of ANOVA for Importance of Trip Attribute Variables in Decision to Visit a Virginia Winery, by Segment (Mean Likert Scores).....	29
Table 2.6 Distribution of Consumption Variables, by Segment (in percents).....	32
Table 2.7 Distribution of Trip Length, by Segment (in percents).....	33
Table 2.8 Distribution of Demographic Variables Categories, by Segment.....	33
Table 2.9 Segment One Profile <sup>a</sup> .....	35
Table 2.10 Segment Two Profile <sup>a</sup> .....	36
Table 2.11 Segment Three Profile <sup>a</sup> .....	37
Table 3.1 Perception of Quality of Virginia Wine Compared to Quality of Wine from Other Regions, by Region (Mean Likert Scores).....	39
Table 3.2 Results of ANOVA for Importance of Trip Attribute Variables in Decision to Visit a Virginia Winery, by Region (Mean Likert Scores).....	41
Table 3.3 Distribution of Consumption Variables, by Region (in percents).....	43
Table 3.4 Distribution of Trip Characteristic Variables, by Region (in percents).....	45
Table 3.5 Results of ANOVA for Trip Length, by Region (in days).....	46
Table 3.6 Distribution of Demographic Variables, by Region (in percents).....	46
Table 3.7 Results of ANOVA for Distance Traveled, by Region (in miles).....	47
Table 3.8 Central Virginia Profile.....	50
Table 3.9 Eastern Virginia Profile.....	52
Table 3.10 Northern Virginia Profile.....	53
Table 3.11 Shenandoah Valley Profile.....	57
Table 3.12 Southwest Virginia Profile.....	59
Table 4.1 Relationship Measures of Segments to Regions.....	63
Table 4.2 Distribution of Segments Within Each Region (in percents).....	63



## Maps

Map 1.1 State Wine Regions .....	2
Map 1.2 Early Vineyards of Virginia .....	6
Map 1.3 Virginia Wineries Per County, 2000 .....	8
Map 1.4 Research Wine Regions.....	18
Map 1.5 Interview Sites .....	19
Map 3.1 Perception of Virginia Wine Quality Compared to Wine Quality From Other Areas, by Region (Mean Likert Scores) .....	40
Map 3.2 Importance of Winery Attributes in the Decision to Visit a Virginia Winery, by Region(Mean Likert Scores) .....	43
Map 3.3 Central Virginia Study Area .....	49
Map 3.4 Eastern Virginia Study Area.....	51
Map 3.5 Northern Virginia Study Area .....	54
Map 3.6 Shenandoah Valley Study Area.....	56
Map 3.7 Southwestern Virginia Study Area.....	58
Map 4.1 Segment One Distribution of Respondents .....	64
Map 4.2 Segment Two Distribution of Respondents.....	65
Map 4.3 Segment Three Distribution of Respondents.....	66

## **Charts**

Chart 2.1 Comparison of Respondents' Perceptions of Virginia Wine Quality in Relation to Wine Quality From Other Regions (Mean Likert Scores).....	29
Chart 2.2 Importance of Winery Attributes in the Decision to Visit a Virginia Winery (Mean Likert Scores) .....	31

## **Chapter 1 Introduction**

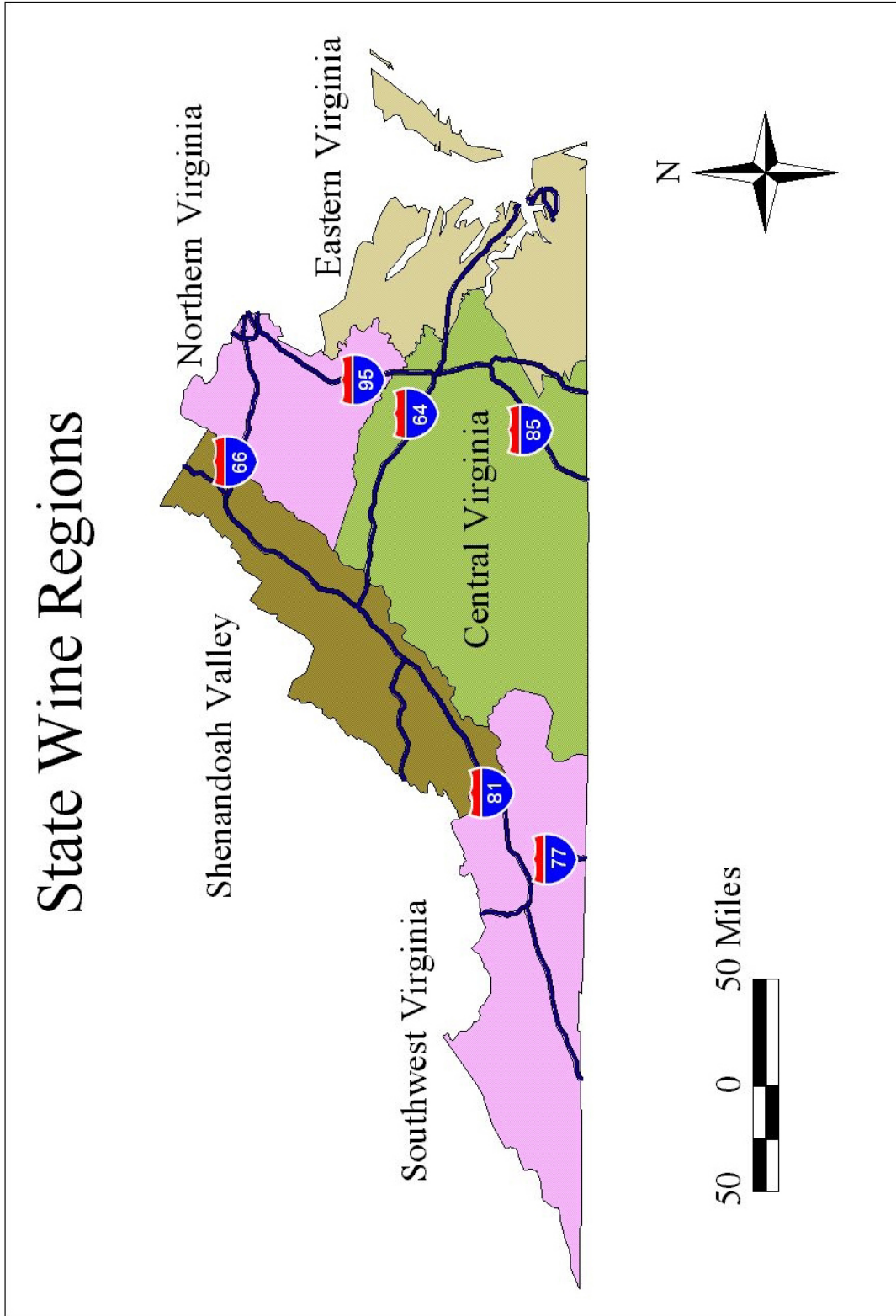
Today Virginia has a bustling wine industry with over sixty wineries in operation and more planned to open within the next couple of years, offering tourists and visitors alike a wonderful recreational activity. The following research addresses wine-related recreation in the state of Virginia through the examination of winery visitor profiles. Research addressing wine tourism and wine-related recreation in the United States is limited in general and even more limited for Virginia (Getz 2000). Research specifically studying wine visitor profiles is extremely narrow (Hall and Mitchell 2000) and greatly needed to address the issues of demarcating wine regions in the United States or other countries; however, there is a large body of literature dealing with visitor and tourists profiles across the spectrum of leisure and tourism studies. Hall and Mitchell (2000, 447) acknowledge the lack of adequate research into the behavioral, demographic, and attitudinal aspects of wine tourists. This research is concerned with creating visitor profiles of winery visitors across different regions in the state of Virginia, thus addressing this deficiency in the literature (see Map 1.1).

This chapter will introduce the context of the following work within the larger framework of wine geography. It will begin by looking at wine as an expression of the landscape addressing how contemporary wine tourism began in nineteenth century Europe. Next I will discuss the history of the wine industry in Virginia. The following section will review the literature on rural and farm tourism, defining key terms relevant to this research, and also consider the segmentation analysis literature. Finally, the methodology will be discussed highlighting data collection techniques, the interview instrument, and the study area.

The following chapters will examine the profiles of Virginia winery visitors based on regions defined by the Virginia Wine Marketing Program (see Map 1.1). Chapter Two will develop statewide profiles of winery visitors, using data collected from personal interviews. Next, Chapter Three will examine the underlying differences across regions and then present five regional profiles for the state of Virginia. The final chapter will discuss the implications of this research for the state's wine industry, address the weaknesses of this research, and suggest some directions for future research.

In Virginia, rural economic hardships are an ever increasing reality. Tobacco farmers, for example, have been faced with decreasing quotas for several years, as competition from overseas producers has lowered the world price of tobacco (Crawford 2001). The industrial landscape of

Map 1.1  
State Wine Regions



Source: Virginia Wine Marketing Program: Virginia Wineries Festivals and Tour Guide 2000.

rural Virginia has undergone many changes as well during the past decade. The signing of the North American Free Trade Agreement (NAFTA) has encouraged many of Virginia's textile facilities to close and move south in search of cheaper labor. While the economic hardships caused by plant and farm closings are easy to criticize, the pressure to restructure the rural economies of many Virginia localities has begun.

Research on wine in Virginia has been mostly concerned with enology methods, or production-side pursuits (Boyer 1998; Wolf and Warren 2000; Boyer and Wolf 2000a; Boyer and Wolf 2000b), a point made about wine research in general (Hall and Mitchell 2000; Getz 2000). Boyer (1998) used geographic information systems (GIS) to evaluate land for suitability for growing grapes. His study examined elevation, slope, aspect, soil characteristics, and landuse data to rate land on a pixel basis for grape-growing potential. Such a study is necessary because wine-producing regions in the old world have had centuries to find the best locations for vineyards. In contrast, wine production in Virginia and many other new world regions is still relatively recent, and wine growers here cannot afford to be placed in unsuitable locations (Boyer 1998). Other studies from the Virginia state viticulturist office have made many advances in terms of yield and quality of grapes in the state (Wolf and Warren 2000; Boyer and Wolf 2000b).

Johnson and Wade (1993) offer one exception in the literature about Virginia's wine industry. Their article address's the economic impact of Virginia's farm wineries on the rural economy of the state. This article summarizes a study conducted by the Southeastern Institute of Research in 1991. The authors produced a profile of attitudes toward wine and wine-related consumption habits of Virginians. Some of the findings from the Southeastern Institute of Research showed regional variations in wine consumption patterns across the state, indicating the need for "different marketing and promotional efforts" (Johnson and Wade 1993, 7). Their study was concerned with Virginia residents, whereas my study includes out-of-state residents as well.

Johnson and Wade (1993) present data highlighting national alcohol consumption trends. They indicate that per capita consumption of premium table wines decreased during the 1980's from 3.2 gallons to 2.34 gallons per person (Johnson and Wade 1993, 3). Other data indicate that women are more likely to be wine consumers than are men, and that six states account for more than 50 percent of U.S. wine consumption (California, New York, New Jersey, Illinois,

Florida, and Texas). Importation of wine also declined during the 1980's, according to Johnson and Wade (1993), due in part to increased taxes and currency fluctuations.

The economic importance of wine to the Virginia economy is also discussed in the article by Johnson and Wade (1993). They use an input-output model to examine the farm wine industry in the state, highlighting that the farm wine industry in Virginia provided revenues of \$65 million to the state economy. Their model reveals the many linkages Virginia's wine industry has with the larger economy of the state. As the wine industry increases its impact on the state's economy, it will produce more jobs, increase tax revenue, and enhance the potential for rural recreation.

### **1.1 Wine as an Expression of the Landscape**

Visiting vineyards had its beginning, for contemporary society, in the mid-nineteenth century in Europe for several reasons according to Hall and Macionis (1998, 200). These reasons were improvements in transportation, growth of the middle-class emulating the aristocracy, and the publication of *Classification of the Wines of the Gironde* in 1855, a work that eventually led to the French system of *appellations*<sup>1</sup>.

Wine is an important expression of a region's cultural landscape because of the link between vines, the wine that they produce, and the local environmental influence on this process (Hall and Macionis 1998, 199). Wine, according to de Blij (1987, 115), is the "summation of its region of origin, a capsule of culture". It is closely tied to the landscape. Wine is very often noted for where it is grown and the regional characteristics of the vineyards, making wine more geographical than other agricultural products. The design of vineyards in general is an expression of the environment; methods of pruning, density, and training of vines often vary by region (Hall and Macionis 1998, 198).

Traveling across the state of Virginia one comes across different vineyard systems. For example, the training of vines at Valhalla Vineyards is radically different from the system used by Rockbridge Vineyards about 70 miles away. This supports de Blij's (1983) notion of the importance of viticulture in portraying a region's cultural landscape.

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<sup>1</sup> *Appellations* are officially designated areas with similar growing conditions, soil type, and micro-climate for distinguishing wines by quality associated with a particular region.

The system of *appellations* in France and other prominent wine-producing regions around the world continually reminds the consumer of where the product comes from, reinforcing the geographic quality of wine. The creation of such specialized regions is highly controlled in France and California, with small changes in micro-climates delimiting the boundaries of *appellations*, which are characterized by very noticeable differences in growing characteristics.

## **1.2 Wine in the History of Virginia**

The early viticulture history of Virginia can be traced back to the first British colonial settlement at Jamestown in 1609. Here, settlers began fermenting native *Labrusca* grapes (Boyer 1998, 2). Early attempts at vinifying from the native North American varieties produced a wine of poor taste to the European palate, and repeated attempts for the next two centuries resulted in continued disappointment. The repeated failures resulting from planting the Old World *Vitis Vinifera* and the poor taste of New World varieties continued, until nature and time led to the appearance of hybrid varieties based on European and North American grapes, providing the foundation for successful wine production in North America. The production of wine in the Eastern United States since the appearance of the first hybrids has depended on American Hybrids, French Hybrids, and most recently *Vitis Vinifera*.

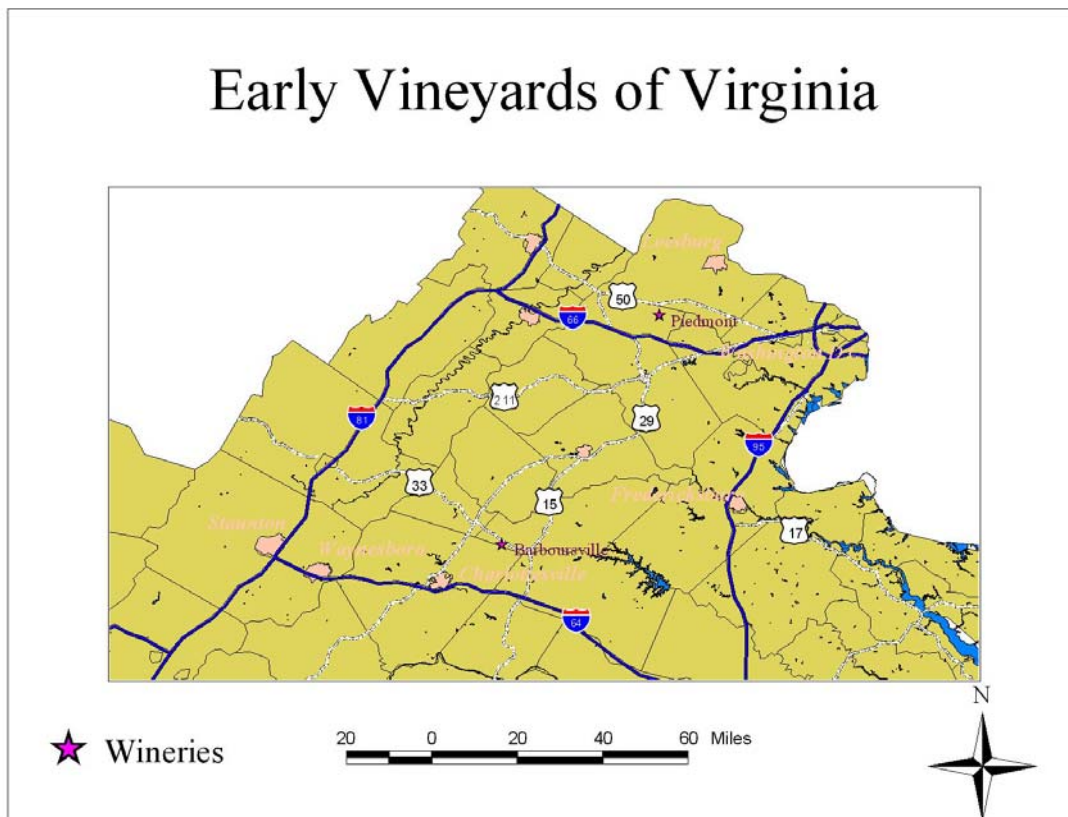
The production of wine was so important to the early colonist that repeated attempts and failures to produce European quality wine led to a legal mandate, passed by the Virginia House of Burgesses, requiring all Virginia householders to plant and upkeep ten vines each year (Lee and Lee 1993, 9). The harsh Mid-Atlantic climate, along with New World diseases, was just too much for the European *Vitis Vinifera* to survive for more than a couple of seasons outside of its native Mediterranean climate. Hybrid varieties, which evolved naturally, allowed vintners to produce palatable wines with traits similar to the *Vitis Vinifera*.

During the years after repeal of prohibition, the planting of vineyards for wine production was not supported by the state and federal government in the same way that other agricultural commodities were. This resulted in a lack of federal aid to farmers who wished to plant wine grapes, a pattern contrasting with aid given to farmers for planting other crops, such as tobacco or wheat. The attitude within the Virginia state and federal governments in relation to vineyards led to a steady decline in the acres of grapes planted in Virginia. In the 1960's, before the rebirth

of today's wine industry, there were only 15 acres of grapes in the entire state, and such grapes were grown for table consumption only (Lee and Lee 1993, 20).

The development of Virginia's present day wine industry is the result of hard work and vision by a few pioneers during the 1970s. During the rebirth of viticulture in Virginia in the 1970s, the grapes of choice were French Hybrids, in contrast to American Hybrids, which had previously enjoyed popularity in the nineteenth century. In the early days of Virginia viticulture, the European *Vitis Vinifera* fell victim to the Mid-Atlantic's climate and exotic diseases, but subsequently it had grown more hardy in Europe. Diseases in North America that affected the *Vitis Vinifera* crossed the Atlantic Ocean and caused extensive damage in the nineteenth century to European vineyards. Techniques developed in Europe to cope with the diseases were successful, creating hardier varieties. Such improved varieties were then reintroduced into the United States, which facilitated the growth of the present-day wine industry in Virginia. The first successful vineyards during Virginia's wine renaissance were planted in the 1970s at Piedmont Vineyards and later at the Barboursville Plantation (see Map 1.2). In 1985, the

**Map 1.2**





Virginia State legislature passed the Virginia Wine Growers act, which led to increased state funding for research into grape cultivation and wine-producing techniques, including the research conducted on the campus of Virginia Tech and by the state Viticulturist office. Today, over seventy percent of Virginia wine is vinified from *Vitis Vinifera*, producing wine that Thomas Jefferson, the county's first wine connoisseur, predicted and dreamed was possible (Lawrence 1976).

### **1.2.1 Present Day Winescape of Virginia**

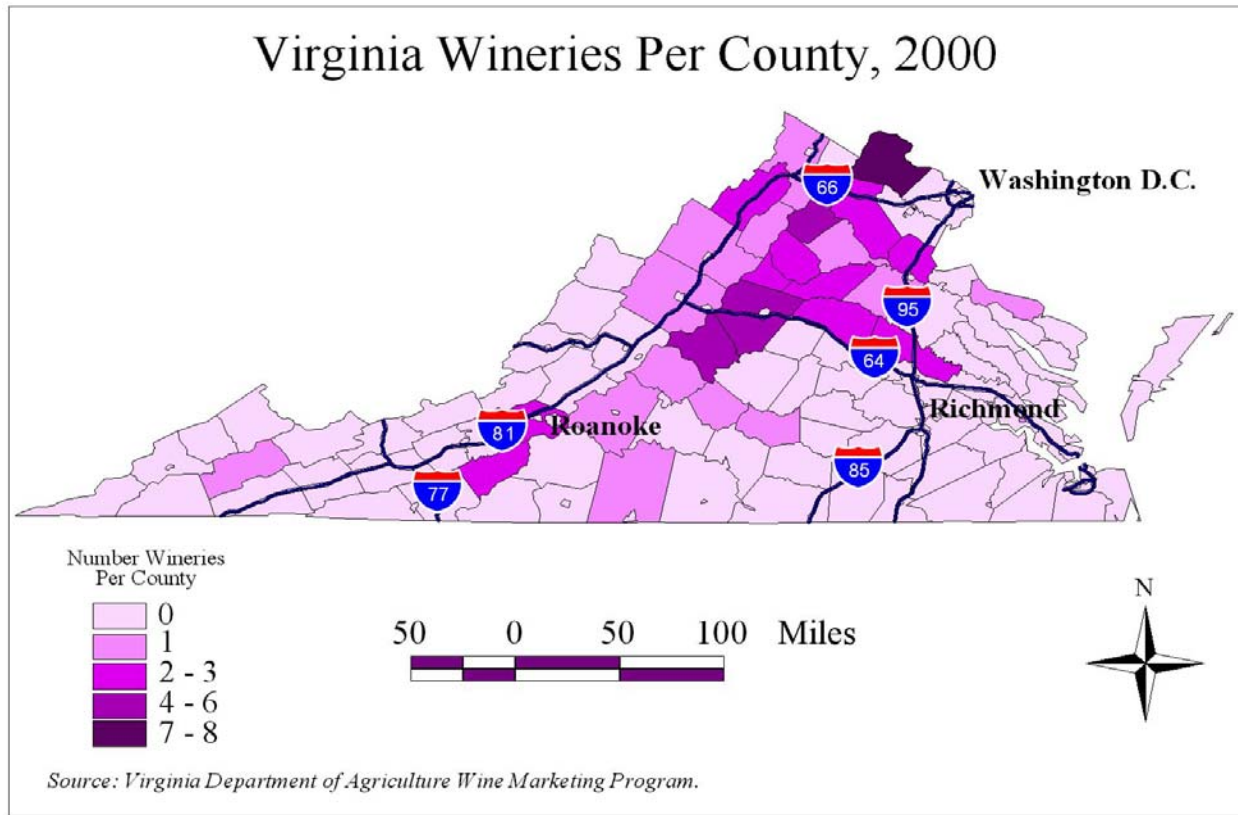
The Virginia wine industry has experienced rapid growth during the 1990's. Virginia outnumbers all other Southeastern States in relation to number of wineries and ratio of *Vinifera* to *non-Vinifera* (de Blij 1987). Grape acreage in the state has grown from 623 acres in the early 1990s to over 1,950 acres in cultivation by 2000. Production levels have seen similar increases as well. By the end of the 1990s, Virginia had become the sixth largest producer of wine in the United States and tenth for tons of grapes harvested and acres cultivated (U.S. Department of Agriculture 1999).

The impact of Virginia farm wineries on the state's tourism industry is small but growing. In 1992 three percent of tourism in the state was wine related and five percent of tourists polled stated that visiting a winery was on their agenda of things to do (Johnson and Wade 1993; Boyer 1998). Map 1.3 indicates the number of wineries per county in Virginia. The wine industry has the potential to provide a high quality rural recreational activity in the state and portray a positive image for Virginia agriculture (Johnson and Wade 1993).

### **1.3 Literature Review**

The following sections discuss special interest, farm, and rural tourism as it applies to wine-related tourism and recreation in Virginia. The literature addresses many issues on rural development that are important to the development of Virginia's wine recreation industry. While this study does not examine tourism in relation to its traditional definition, the literature is very appropriate because it is concerned with images of the rural landscape and economic redevelopment of rural areas. I then examine definitions of tourism and visitation, distinguishing between the two and setting the stage for the remainder of this study. Finally, the segmentation literature within the field of tourism is explored. This body of literature is extensive and based mainly on data analysis techniques.

Map 1.3



### 1.3.1 Special Interest, Rural, and Farm Tourism

The literature on special interest tourism is of particular importance because of the specialized nature of wine tourism and recreation. Read (1980) forecasted that special interest tourism would grow in importance economically as the world continues to shrink, consumers seek adventure and authenticity in their leisure experiences, and per capita spending increases (Read 1980, 194; Hall and Weiler 1992). A study by Stebbins (1982) predicted that work weeks would decrease, providing the time and desires for individuals to seek such new tourism and recreation activities. According to Stebbins, leisure would take on a new role as people begin to dedicate more time to such personal growth pursuits.

In Hall's (1989) analysis on the state of farm and adventure tourism, he asserts that special interest tourism is an important segment of the tourism industry. Farm tourism incorporates the tourism experience into the everyday workings of an operational farm (Hall 1989, 83). Wine tourism falls within the realm of farm and special interest tourism because vineyard owners are producers of an agricultural product and most winery visitors have a interest

in wine. In Virginia, many wineries (including Valhalla Vineyards, Rockbridge Vineyards, Windy River Winery, and Barboursville Vineyards) are located on former dairy farms or orchard locations. The transformation of a farm into a producer of wine can be seen as a pathway to “alternative farm enterprises” (Ilbery et al. 1998).

Wine-related tourism and recreation have also been a growing industry in the past decade as old and new wine regions are recognizing the importance of leisure activities. However, not all winery operators are embracing the idea of wine-related tourism and recreation; for example, in Italy, vintners have been reluctant to even consider winery visitors as tourists, making few accommodations that would expedite the development of a tourism industry centered on wine (Hall and Mitchell 2000, 447).

The encroachment of non-farm land uses upon the rural landscape has forced many farms to disappear during the past several decades. Although this is not a new phenomenon, it has increased significantly in recent decades. Rural and farm based tourism are seen as a method to bring about economic development to the rural landscape without destroying its authenticity, while at the same time increasing land values to be more competitive with non-farm uses, providing additional income to farmers and creating jobs (Bowen, Cox, and Fox 1991; Oppermann 1998). Promoting tourism in a rural region can have positive effects. More valuable agricultural commodities replace less valuable ones, new markets for farm products are created, and regional recognition is promoted by a particular product. Wine production is a positive direction for rural development schemes because of its value-added potential and the geographical dimension associated with it.

The image of the rural landscape has a certain romantic quality of independence and hard work. Butler and Hall (1998, 117) list four characteristics of what they term “rural imaging programs” to promote these romantic images of the rural landscape. The development of the wine industry in Virginia during the past fifteen years can be placed within the context of these four characteristics. The publication of the wine guide by the state wine marketing board to promote this resource to a growing audience meets the first characteristic of “development of critical mass visitor attractions and facilities.” The guide lists each winery in the state with a description of each one, directions to the winery, and a complete listing of the festivals and activities that occur throughout the year, which is relevant to characteristic two, “hosting events and festivals.” In several locations across the state, Rockbridge county for example, wineries are

involved in the local hospitality community by promoting recreational activities and selling products approved by the Virginia Finest program. This program promotes agricultural products produced by Virginia's farmers. Lastly, the promotion of special vacation programs, such as "Virginia Wine Country" packages, is a rural tourism strategy designed to promote the romantic quality of Virginia's rural landscape. Characteristics three and four, which are "development of rural tourism strategies" and "development of leisure and cultural services and projects to support the regional effort" are represented in these activities.

### **1.3.2 Defining Visitation versus Tourism**

Winery tourism has been classified under several genres, from industrial heritage tourism to hobby tourism (Dodd and Bigotte 1997, 47). As mentioned above, many in the wine industry, particularly those in the Mediterranean, refuse to see winery and vineyard visitors as tourists at all (Hall and Mitchell 2000, 447). Industrial tourism is visitation by a tourist to an industrial complex or site of production where educational tours and sampling can take place, thereby creating the link between wine and industrial tourism (Dodd and Bigotte 1997, 47). Wine tourism can also be seen as special interest tourism in which the main incentive for the visit is controlled by the tourists' high level of interest. Other genres of tourism that can claim a piece of the wine tourism pie include farm, agriculture, and rural tourism.

While vineyards are operations that are conducted on a farm, and for the most part occur in rural regions, a concrete definition of wine tourism must be created in order to bring substance and coherence to this form of tourism. The lack of a concrete and coherent definition for farm tourism had led to problems in research (Busby and Rendle 2000, 635). For this reason I will define wine tourism as:

visitation to vineyards, wineries, wine festivals, and wine shows for which grape-wine tasting and/or experiencing the attributes of a grape-wine region are the prime motivating factors for the visitors (Hall and Mitchell 2000, 447; see also Hall and Macionis 1998, 267; Telfer 2001, 21).

This is a clear definition that raises wine tourism out of the tangled web of tourism discourse pertaining to industrial, special interest, farm, and rural tourism. By highlighting the motivational factor for the visit as a desire to experience the "attributes of a grape-wine," (Hall and Mitchell 2000, 447) the definition highlights a genre based on wine interest and not industrial or farm interest.

With this definition we can answer, “Who is a wine tourist?” Does an individual have to have a spatial dimension (distance traveled from home) or a temporal dimension (length of trip) to be considered a tourist; or is anyone, regardless of distance from home or length of trip, a tourist as long as they are participating in tourism activities? Such issues are relevant to whether we must consider visiting a winery as a tourism activity or merely a form of recreation.

A tourist is defined in the Merriam Webster tenth edition Collegiate Dictionary as: “one who makes a trip for pleasure or culture” (Merriam Webster Collegiate Dictionary, 10<sup>th</sup> ed., s.v. “tourist” ) This definition leaves out any mention of a spatial or temporal dimension, leading to the conclusion that any type of visit by an individual, regardless of distance from home or time taken, is an example of tourism, if the activity in which they are participating is for pleasure or culture. There is the additional problematic nature of this definition through its use of the word “culture”. What does culture mean? This is a complex word, considered to be one of the most complicated words in the English language (Price and Lewis 1993, 1), one that offers only confusion when attempting to define it.

Those in the field of tourism have constructed definitions of tourism that deal directly with the issue of spatial and temporal dimensions. Butler, Hall, and Jenkins (1998, 4) define tourism as travel that is away from home and requires a duration of at least 24 hours. Tourism is therefore an activity that is constrained by spatial and temporal limitations. First it is an activity that is away from the home, meaning an extended distance and not within one's community. The temporal component that outlines a minimum duration of 24 hours translates into an overnight stay. By this definition, a Saturday visit to a local museum is not a tourism activity and would be more appropriately defined as a leisure or recreation activity. Leisure and recreation activities do not necessarily include a spatial and temporal component. Wine tourism is therefore a very complicated form of tourism, recreation, or leisure activity to define. Since many winery visits in Virginia do not include an overnight stay, application of the term “tourism” can be misleading. What is called wine tourism in Virginia is therefore more aligned with recreation or leisure than tourism.

From my research, many Virginia wine visitors do not meet the spatial and temporal requirements of a tourist specified by Butler, Hall, and Jenkins (1998); visits to wineries are mostly a form of recreation or leisure in the state that attracts tourists from across the nation as well as many local Virginians interested in exploring Virginia's growing wine industry. Due to

the nature of the typical winery visitor, I cannot use the term tourist within this research and will therefore use the term “winery visitor,” who is anyone who visits “vineyards, wineries, wine festivals, and wine shows for which grape-wine tasting and/or experiencing the attributes of a grape-wine region are the prime motivating factors for the visitors” (Hall and Mitchell 2000, 447).

### **1.3.3 Segmentation Literature**

In the field of tourism, market segmentation has been widely used and accepted as a method for researchers to discover the underlying homogeneity and heterogeneity of groups (Abbey 1979; Bryant and Morrison 1980; Cha, McCleary and Uysal 1995; Loker and Perdue 1992; Shoemaker 1989; Uysal and McDonald 1989). This literature has provided researchers and tourism promotion agencies with valuable information about the composition of the market, benefits desired from the leisure experience, and behaviors exhibited by tourists and visitors. Market segmentation can be defined as the act of dividing a heterogeneous market into meaningful homogeneous subgroups based on commonalities among demographic, socioeconomic, and trip characteristics (Loker and Purdue 1992; Davis and Sternquist 1987).

Abbey (1979) began to question the traditional approach to segmentation analysis by emphasizing the importance of lifestyle variables -- variables that incorporate information about the benefits tourists desire, attitudes tourists have about a destination, characteristics a destination has which attracts tourists, and motivational factors that influence the decision to visit a particular destination. Prior to this, many studies used purely demographic and socioeconomic variables, with the assumption that such types of variables could produce the most accurate segments. Abbey's (1979, 8) intention was to test the “relative effectiveness of lifestyle” variables. He found these variables to be useful predictors for segmentation development, but acknowledged the lack of empirical evidence at the time. The issue of difficulty and cost required to gather such data was also addressed, but Abbey concluded that such data were superior to demographic and socioeconomic data, and he proposed that future research should address questions surrounding methods of data collection for such lifestyle-oriented data. Many studies since Abbey's (1979) work have successfully used lifestyle variables for segmentation studies of tourist markets.

The range of variables explored within this field has been wide and varied; demographic and geographic characteristics, once seen as adequate identifiers of market segments, have lost importance as identifiers of market segments as Abbey (1979) stated. Segmentation research within tourism has incorporated lifestyle variables to gather information about benefits tourists enjoy during their travel experience (Loker and Perdue 1992; Shoemaker 1989), attributes that make a destination desirable (Davis and Sternquist 1987), and characteristics of a particular destination that attract tourists (Cha, McCleary and Uysal 1995; Formica and Uysal 1998). Geodemographic information systems -- large computer database systems with consumer behavioral patterns and georeferenced records -- are being used by industry to create complex marketing models, incorporating data from many different sources, such as the United States Census and credit reporting agencies (Goss 1995a;1995b)<sup>2</sup>.

The factor-cluster<sup>3</sup> technique is a very common method utilized by researchers interested in segmentation analysis. This method has been widely accepted within the literature for studying a wide range of variables, but Sheppard (1996) questions the appropriateness of factor-cluster analysis in certain situations. He argues that if the purpose of a study is to find as much underlying variance as possible with a single instrument, then a factor-cluster approach will be appropriate. However, to identify the best clusters, Sheppard (1996) recommends that cluster analysis run with all available variables should precede any factor analysis operation. The results from Sheppard's (1996) study tend to support his hypothesis, but he is careful to point out that neither method has been proven better than the other.

Bryant and Morrison (1980) used factor-cluster analysis with vacation activity variables; however, the resulting segment membership was fuzzy and not mutually exclusive, decreasing the ability of their analysis to develop highly useful target markets. The overlapping tendency in the work of Bryant and Morrison (1980) has drawn criticism from Loker and Perdue (1992), who

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<sup>2</sup> See Goss (1995a) for a very thorough discussion of geodemographic information systems and applications for these systems in market research.

<sup>3</sup> Factor-cluster analysis is a method of data analysis that performs a factor analysis on the data, assigning factor scores to each individual case. It is these factor scores that are used to run a cluster analysis algorithm. Factor analysis is a standard analysis in statistical packages such as SPSS or NCSS. The cluster analysis portion of this method has several different methods. The K-means, or quick cluster, methods was developed by J.A. Hartigan and M.A. Wong of Yale University designed to create a small number of clusters from a large data set. Other methods use more complex algorithms such as hierarchical or fuzzy clustering. It should be noted that cluster analysis is a form of data analysis that is not based on any theoretical framework in the way that statistical operations are. Many studies have used the K-means clustering with very successful results (Davis and Sternquist 1987; Cha, McCleary, and Uysal 1995; Dodd and Bigotte 1997).

question the study's usefulness. Loker and Perdue (1992, 30) cite Weinstein (1987), who stated that good segments must "be distinctive from one another." In contrast, Bryant and Morrison's (1980) segments were not distinctive. The variables used by Bryant and Morrison support Abbey (1979) because they use more lifestyle-based variable types. Bryant and Morrison (1980, 4) looked at individual preferences to build market segments. Concentrating on why people travel from one place or another, they addressed what they considered a weakness of previous segmentation studies, which placed more importance on demographic and geographic variables.

The lack of mutual exclusivity in Bryant and Morrison's (1980) segments can be explained in relation to issues their critics overlooked. Although the idea of segmentation analysis is to produce mutually exclusive, homogeneous groups, Bryant and Morrison (1980) found that fuzzy segment membership may provide more accurate segments because of the wide ranging interests that many people have. Bryant and Morrison's (1980) segments are precisely defined in the types of activities in which segment members participate. For example, the "outdoorsman hunter" segment may include a disproportionate number of men, explaining travel among men, but the same men could belong to the "sightseer type" segment when travel includes the family. Therefore, marketing activities geared at both these segments could produce desirable increases in tourism activity by addressing the needs of a person who falls into both segments.

A later study by Shoemaker (1989) explored the creation of segments of the elderly travel market as a response to what they considered an "inaccurate stereotyped view of the elderly" (Shoemaker 1989, 14). This study produced three segments based on motivations for pleasure travel and benefits sought by the tourist using K-means cluster analysis. The three segments were: 1) "family travelers" who travel mainly for family visitation and light activities, such as golf and shopping; 2) "active resters" who travel mostly for pleasure and participate in activities such as socializing, personal enrichment, and visiting historic sites; and 3) "older set" who appeared to be older, preferred resorts, and travel the least in frequency, usually less than once a year (Shoemaker 1989). The significance of this study was that it showed the senior travel market to be a dynamic market that consisted of different needs among the members.

Loker and Perdue (1992) used the factor-cluster framework, but took a rather critical approach to past segmentation studies for their lack of benefit-based segmentation schemes, which incorporate lifestyle variables designed to determine the benefits a tourist is seeking from



a vacation experience. Their study used variables to rate the importance of benefits sought by a tourist rather than variables that create purely descriptive segments. They added to this a “systematic evaluation of the resulting segments” (Loker and Perdue 1992, 31). According to the authors this method produced better segments than other segmentation studies that relied on purely descriptive methods of segment development.

Using push and pull factors as a means to uncover different travel segments was the object of Cha, McCleary, and Uysal (1995) in their study of the Japanese overseas travel market. Factor-cluster analysis was used in this study to produce six factors that explained over 50 percent of the total variance resulting in three clusters. The variables employed in this study were motivational variables meant to discover reasons for overseas travel within the Japanese travel market. This study took a different approach by using multiple discriminant analysis<sup>4</sup> to analyze each cluster and identify motivational factors that describe each group (Cha, McCleary, and Uysal 1996, 36). Three clusters of different motivations were created; for example, cluster one was more attracted by sports and athletic activities, cluster two’s interest was in novelty, and cluster three was attracted to activities that are relaxing and involve the family.

Formica and Uysal (1998) used factor-cluster analysis to build market segments of the Spoleto Festival in Italy. This study resulted in six factors that explained 61.8 percent of the sample variance (Formica and Uysal 1998, 19) and two clusters, one consisting of 22.8 percent and the other of 77.2 percent of the sample. Similar to Cha, McCleary, and Uysal (1996), Formica and Uysal (1998) utilized multiple discriminant analysis of the motivational factors to describe the resulting segments. The result was fourteen motivational factors, which best explain differences among the segments. Demographic variables were examined to determine if the two segments were statistically different along demographic lines. Formica and Uysal (1998, 21) found age, income, and household income to be significantly different among the segments.

Others have used different methods of segmentation analysis to generate segments. Davis and Sternquist (1987) were interested in the attitudes that tourists had toward the Traverse City, Michigan area. This study utilized Fishbein’s (1967) concept that “beliefs are the cognitive foundation upon which attitudes are based” (Davis and Sternquist 1987, 27). The use of this model produced attitude scores that were examined using the K-means cluster analysis,

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<sup>4</sup> Multiple discriminant analysis is a statistical method used to predict group membership based on observed characteristics of individual cases.

but without any type of factor analysis. Resulting segments were based on attitudes of tourists and the trade offs they were willing to make in the decision-making process to visit Traverse City, Michigan. The inclusion of the trade offs tourists are willing to make is a key difference between the research of Davis and Sternquist (1987) and other segmentation studies, such as that of Loker and Perdue (1992), which relied solely on benefits sought and the factor-cluster methodology.

Segmentation analysis has been applied to winery visitors in Texas by Dodd and Bigotte (1997). They conducted interviews at six wineries across the state of Texas and used K-means cluster analysis to create two statistically significant segments based on demographic variables. Analysis of additional variables, within the two segments, yielded further information about each group's perceptions of wine, winery attributes, and differences in winery service. This method contrasts with the other segmentation studies in the tourism literature of the past twenty years because of their focus primarily on demographic variables to generate segments. However, the results show that adequate segments can be produced from demographic variables and explained through the analysis of attitude and benefits.

Leisure has become more important during the past couple of decades as Americans are putting in more hours at work contrary to Stebbins (1982) prediction. Segmentation analysis allows tourism and recreation promoters to reach the most profitable segments of the population for any specific activity. The tourism segmentation literature is important because it has helped researchers explore the needs of tourists by using data analysis techniques, such as factor and cluster analysis, to find distinct market segments using a broad range of variables to profile tourists and visitors. The use of variables that uncover motivations for travel, benefits desired by the participant, and consumption habits will allow industry professionals to improve the leisure experience for both the visitor and provider.

My research incorporates lifestyle, demographic, and geographic variables to create segments of the Virginia winery visitor market. The use of lifestyle variables will allow better segments to be created, while the use of demographic variables will result in a demographic profile. The use of geographic variables will aid in the search for regional variations of segments.

## **1.4 Methodology**

### **1.4.1 The Study Area**

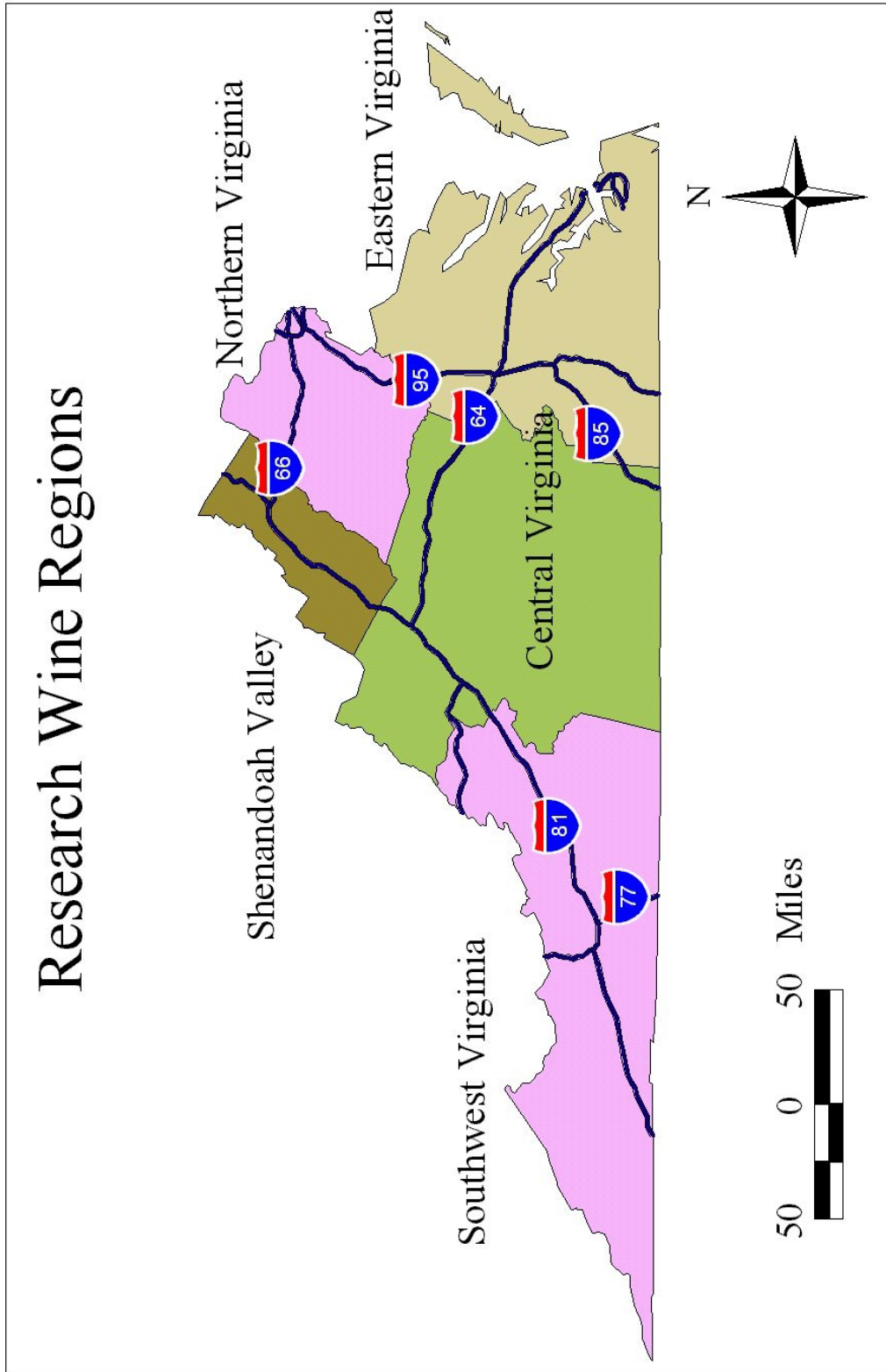
The regions for this study are based on the wine regions delimited by the state wine marketing program, with some modifications required to create more representative regions. Map 1.1 shows the wine regions according to the state marketing program. However, some wineries listed in one region are actually located in a different region. Therefore, I have modified these regions to provide a more accurate representation of how the wineries are classified within the marketing literature (see Map 1.4). The Eastern Virginia region was expanded to incorporate Richmond and two wineries that are advertised as Eastern Virginia wineries. The Central Virginia Region was extended through part of the Shenandoah Valley to capture one winery which is also advertised as being in Central Virginia.

One winery was chosen from each region in order to have a representative sample of the state (Map 1.5). Wineries were selected on the basis of their willingness to participate in this study and convenience of their location. All the wineries considered had yearly production levels below 10,000 cases a year. Because only a few of the state's wineries are capable of higher production levels, this limit was chosen in order to be consistent. The Northern Virginia winery selected, however, expects to exceed this capacity in 2001, while the other wineries range from around 2,500 cases per year to upwards of 7,500 cases per year. The number of visitors to each winery was important as well. Each winery had to have enough visitor traffic for me to be able to collect a sample in just two or three days of interviewing (see Table 1.1 for the data collection dates). Winery selection in Southwest and Eastern Virginia was very limited due to the small number of wineries and low visitation numbers. Central Virginia and the Shenandoah Valley wineries chosen were both close to Interstate 81 and had steady visitation during most of the year.

### **1.4.2 Interview Instrument**

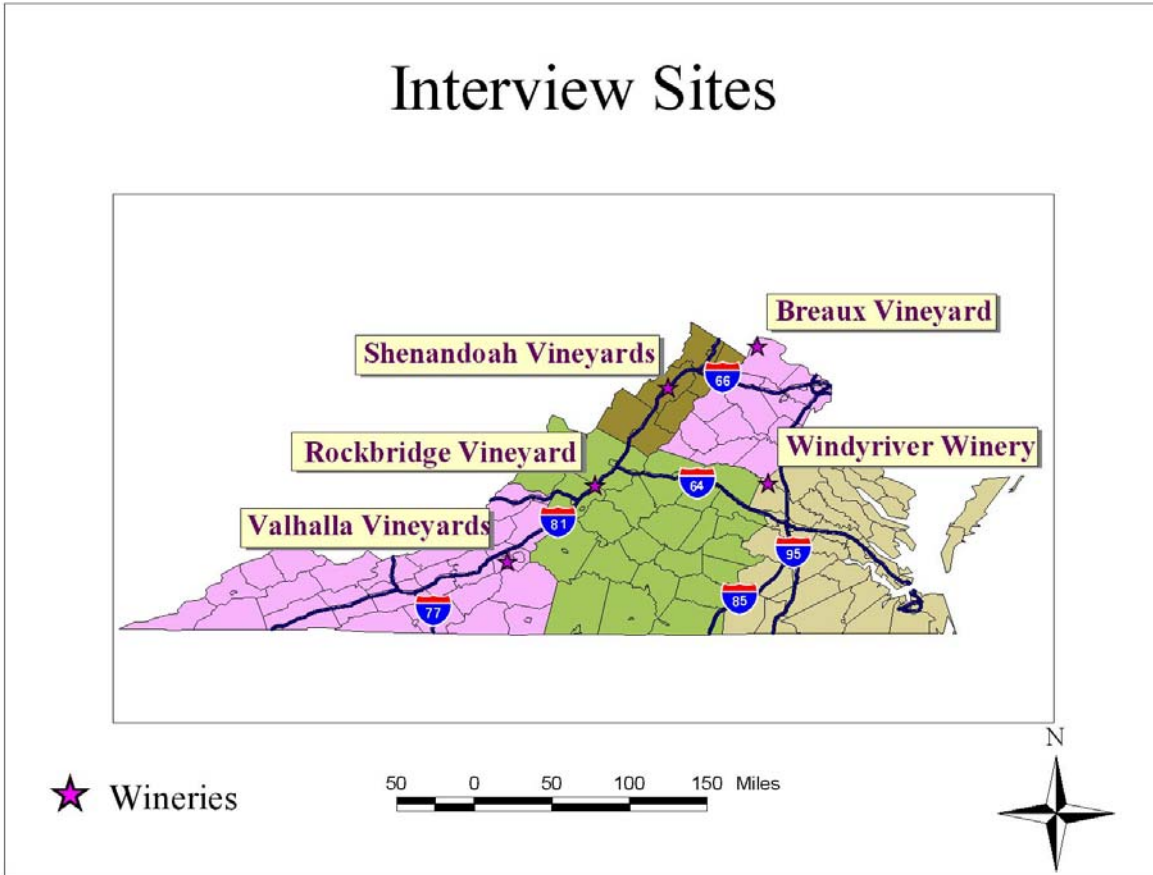
The data collection process began in September 2000 and concluded in February 2001. I designed a 32 question instrument (see appendix A) consisting of 6 sections. Each section addressed a different class of variables. The first class of variables, termed "Wine Rating Variables," asked the respondent to rank wine in overall quality compared to that of seven broad wine regions around the world. The seven questions in this factor explored very broad categories

Map 1.4  
Research Wine Regions



Map 1.5

# Interview Sites



**Table 1.1**  
**Data Collection Log**

Winery	Dates of Interviews	Interviews Completed
Breaux Vineyards	10 February 2001	31
Rockbridge Vineyards	14 October 2000 15 October 2000	19 11
Shenandoah Vineyards	9 September 2000 19 November 2000	23 7
Valhalla Vineyards	1 October 2000 7 October 2000 8 October 2000	7 17 6
Windy River Winery	28 October 2000 18 November 2000	20 11
<b>Total Interviews Completed</b>		<b>152</b>

of personal opinions concerning the quality of Virginia wine compared to that of wine from other regions around the world, such as the west coast of the United States and Australia. One region, “East Coast wine,” includes wine from all states east of the Mississippi River, excluding Virginia. I designed these questions to examine how the quality of Virginia wine is assessed by winery visitors in the state. This set of questions used a six point Likert scale to rate the strength of the respondent’s opinions about the relative quality of Virginia wine. The use of a six point Likert scale was decided upon to include a “no opinion” option for those respondents who had never had wine from a specific region (Mitra and Lankford 1999). ANOVA with the Tukey post hoc test is used to test for inter-segment and regional variation for these variables in Chapters Two and Three.

The second class of variables, termed “Trip Attribute Variables,” asked the respondent to rank the importance of seven winery attributes. These questions gathered information about the importance of the attributes in the decision to visit the particular winery. These variables described the opinions of what a respondent considers important in the decision process and fell within the realm of benefits sought variables. Respondents were asked questions about their interest in Virginia “wine history,” “wine tasting,” and opportunity to spend time with “friends and family.” A five point Likert scale was used to rate each attribute on a scale of “very unimportant” to “very important.” These variables are tested using ANOVA with the Tukey post hoc test to reveal inter-segment and regional variations in Chapters Two and Three.

The question concerning the importance of Virginia “wine history” seeks to measure the interest a respondent has in the history of wine in the state’s history in their decision to visit a winery. Importance of the winery’s “location” measures how important the location was in the decision-making process. Importance of “architectural design” measures the degree to which a respondent considers a winery’s architecture in the decision-making process. The importance of the winery’s “reputation of quality” measures how important winery reputation is in the decision-making process. Interest in “wine tasting” measures how important tasting wine is in the decision-making process to visit a winery. Interest in “wine production” measures the importance of touring and seeing wine production facilities in the decision-making process to visit a winery. Lastly, the ability to be with “friends and family” measures the importance of this variable in the decision-making process.

The third class of variables, termed “Consumption Variables,” asked seven questions to gather lifestyle and consumption data about the respondents. These questions were designed to collect information about wine-purchasing habits and winery-visiting patterns of visitors. This section included questions about the amount of wine purchased during a three-month period in 2000 and Virginia winery visits made during 1999. The statistical tests performed on these variables are ANOVA and Pearson Chi-square. The ANOVA, using the Tukey post hoc test, is used on the raw data collected. Pearson Chi-square test is performed on variables collected as categories or recoded into categories.

The first question of this section asked the respondent how many Virginia wineries were visited in 1999. The next question asked if the respondent visited wineries in other states, and if so, which states. These two questions were designed to collect information about the winery visiting patterns of the respondents. The next two questions collected information about the wine-purchasing habits. The questions asked for wine purchases between June and August 2000. The next two questions asked about purchase type and purchase place. In Johnson and Wade (1993) the purchase type (either bottle or case) appeared to vary across the state. The purchase place was significant because many wineries depend on direct sales of their wine as a major source of income. The last question in this section asked if the respondent had a home wine cellar.

The fourth class of variables, termed “Trip Characteristic Variables,” asked questions concerned with the specific trip that each visitor was taking. It began with a question designed to determine if the purpose of the trip was to visit a winery and further examined specific aspects of the trip. The next question asked for a list of other activities planned during the current trip. The respondents were asked if the trip included an overnight stay, the length of the trip in days, and accommodation type most commonly used by respondents who stayed overnight. These questions also collected lifestyle information concerned with trip and vacation patterns. The types of analysis performed on these variables are ANOVA and Pearson Chi-square, following the same rules as in the case of the Consumption Variables.

The final two sections termed, “Demographic Variables” and “Address Information,” asked for demographic and address information. The demographic section collected information about four demographic variables found within the literature to be useful in profiling winery visitors. These variables were “age,” “gender,” highest level of “education” completed, and

annual “household income.” The only demographic variable in the interview not commonly used in the literature is “length of residence” in the respondent’s current state. Johnson and Wade (1993) report that people who have lived in Virginia over 20 years and are over 55 years of age tend to purchase fewer bottles of wine than do younger people who have lived in the state for a shorter time. The purpose of these variables was to test assumptions in the literature that winery visitors are highly educated and have higher than average household incomes (Getz 2000). Chi-square analysis is used on the variables of this section, except for the “length of residence” variable, which was collected in the form of continuous numbers. “Length of residence” is analyzed using ANOVA with the Tukey post hoc test. The address information included street and intersection location, city, state, and zip code. However, analysis revealed weaknesses in the address data that limited their usefulness.

Straight-line distance from the winery to the home zip code was calculated for each case. This variable was used to determine if there are distance variations in trips among visitors to the five different regions. This is only straight-line distance from winery to home zip code. Problems with geocoding the cases and the requirements to build a road network capable of calculating actual driving distances prevented such data from being obtained.

### **1.4.3 Data Collection**

I collected data through personal interviews with winery visitors at five wineries across the state of Virginia. Thirty interviews were conducted at each winery, with exceptions at Windy River Winery and Breaux Vineyards, where additional visitors requested to be interviewed, creating a total sample size of 152 interviews. The interview was conducted with each respondent in the tasting area, except for the first day of data collection at Windy River Winery. Here data collection had to be conducted outside due to the Halloween festival, which caused the tasting facilities to be moved outside. People were approached during a wine tasting and asked if they would like to participate in an interview for research on Virginia wine tourism. I attempted to alternate between male and female respondents when possible.

### **1.4.4 Analysis of the Small and Large Scale**

Analysis for this research is composed of two parts that are distinguished by scale. The study will begin by profiling the small-scale and then moves to a large-scale profile of the different regions. The small-scale focus of this research is concerned with creating visitor



profiles. The analysis at this level ignores any regional variations that may exist. Factor-cluster analysis is used to create distinct segments within the data. The factor analysis produces factor scores for each case, which the K-means clustering procedure uses. The resulting clusters are analyzed for statistical significance using discriminant analysis. Profile analysis is performed using analysis of variance (ANOVA) and chi-square analysis of each cluster's member cases.

The large-scale component brings the study down to a regional level. From this scale, the research produces regional profiles comparing differences across the identified wine regions of the state. Due to small sample sizes from each region, factor-cluster analysis is not used. Profiling is performed using ANOVA and Pearson Chi-square cross tab tests on the member cases divided by region.

## **1.5 Summary**

This research addresses an area of wine tourism and recreation that has been virtually ignored within the tourism and geography literature in spite of its growing importance to rural economies (Hall and Mitchell 2000). Wine is an integral part of the expression of a region's cultural landscape. In Virginia, wine has been a part of the state's history since the first English settlers landed at Jamestown in 1609. However, the native American grape species has since proven inadequate to the palate of most wine drinkers and today has a very limited market, focused predominately on local populations. This is the case in North Carolina, where scuppernon and muscadine wine is still produced and consumed (Boyer 2001). Most table wine produced in the United States is from the *Vitis Vinifera*.

Rural tourism today is a growing industry that has the potential to improve the economic condition of many rural people. In Virginia, over 1,500 people are employed in the state viticulture industry, with many involved in service sector jobs, working in tasting rooms across the state. As the number of wineries increases, the importance of farm wineries to the state's rural economy will grow. Wine has great value-added potential for farmers, and land cultivated under grapes has higher values than land under other agricultural commodities, allowing farms to compete with non-farm land uses.

Factor-cluster analysis has been proven in many studies to provide results that accurately reflect the perceptions of respondents. By applying this approach to the Virginia farm winery

industry, a profile of different market segments can be developed to aid marketing programs and better address the challenges of increased participation in this rural industry.

Understanding the characteristics of people who visit Virginia's farm wineries is very important if the industry wants to tap into the vast market potential of winery recreation. Tourism and recreation have grown to such an extent in the Napa Valley, California, that it is now being discouraged because of disruptions to the local environment (Getz 2000). While this consequence is not desirable, Virginia has the ability to greatly increase the numbers involved in wine-related recreation without degrading the authenticity of the localities that can benefit from farm wineries. The Virginia wine industry is growing dramatically each year, proven by the fact that two of the wineries used in this study are currently constructing larger tasting room facilities.

## **Chapter 2 Statewide Profile of Winery Visitors**

This chapter will present the results of the statewide profile of Virginia winery visitors. The first section will introduce the viticulture landscape of the state. It will highlight the distribution of wineries and the major metropolitan areas that patronize them. The next section will discuss the results from the segmentation development. Lastly, this chapter will discuss the results of the profile analysis and determine whether distinct market segments exist in relation to winery visitors in Virginia.

### **2.1 The Viticulture Landscape of Virginia**

Every region of the state has at least one winery in operation. The Northern and Central Virginia regions have, by far, the most wineries open to the public. Loudon county in Northern Virginia has the most wineries, with eight currently in operation (see Map 1.3). Within an hour's drive of the western suburbs of Washington D.C., there are 17 wineries. The Charlottesville area in Central Virginia has 13 wineries in the surrounding countryside. The other regions of Virginia have fewer wineries, but those in these regions are mainly located close to a major urban center, except for the Shenandoah Valley region. The Eastern Virginia region is centered on Richmond with all five wineries in the region within an hour drive of that city. Wineries in Southwest Virginia are more dispersed across the region compared to the pattern in other regions. A majority of the wineries in this region are located in its eastern portion, within an hour and a half drive of Roanoke, but some are located in far southwest Virginia. The five wineries of the Shenandoah Valley region all have the advantage of being in close proximity to Interstate 81, which is a major north-south Interstate highway, and the Shenandoah National Park.

### **2.2 Results of the Analysis**

#### **2.2.1 Factor Analysis Results**

Factor analysis was performed to find underlying dimensions within the "Trip Attribute Variables" because these variables measure reasons for visiting a winery with a standardized scale. The goal of this analysis was to find which variables best explain the variance within the sample. Principal components analysis with varimax rotation was performed because this method has been used and supported in the literature (Cha, McCleary, and Uysal 1995; Loker and Perdue 1992). Five of the seven variables resulted in two factors with eigenvalues greater than 1.0 and 55 percent of the total variance explained. The reliability scores for these factors

were not adequate; both were below 0.05, indicating poor reliability of the factors to account for variance within the sample. Because of the low reliability scores, it was determined that factor analysis was not a suitable form of analysis for these data. Other methods of factor analysis were attempted, but the results were even less acceptable.

### **2.2.2 Cluster Analysis**

K-means cluster analysis was performed on the trip attribute variables. Sheppard (1996) found that cluster analysis on the raw data can produce results that explain group differences better than the factor-cluster method. K-means cluster analysis was performed with a two- and three-cluster solution that was tested using multiple discriminant analysis. Segments that resulted from the cluster analysis were statistically different from one another based on the variables used to create the segments. Table 2.1 shows the cluster size for each cluster performed in the analysis.

**Table 2.1**  
**Number of Cases in Each Cluster Based**  
**on Trip Attribute Variables**

Cluster	Number of Cases
1	68
2	26
3	58

### **2.2.3 Discriminant Analysis**

Results of the K-means cluster analysis were tested for accuracy using multiple discriminant analysis. The three-cluster solution was found to represent the data better than a two-cluster solution. Box's M was significant at the  $\alpha=0.05$  level of confidence, and the Wilk's Lambda scores were 0.1 for both discriminant functions, indicating that the group means were significantly different (Table 2.2). The canonical correlation results were both above 0.7, supporting the hypothesis that there are strong relationships between the discriminant score and the cluster membership (Table 2.3).

The use of cluster analysis and multiple discriminant analysis to discover distinct clusters of data has been employed in previous studies within the tourism literature (Cha, McCleary, Uysal 1995). The failure of factor analysis to find reliable relationships among the variables of

**Table 2.2**  
**Wilks' Lambda of Discriminant Functions**

Test of Functions	Wilks' Lambda	P
1 -2	0.1	.000
2	0.1	.000

**Table 2.3**  
**Canonical Correlation of Discriminant Functions**

Function	Eigenvalue	% Variance	Cumulative %	Canonical Correlation
1	3.6	74.1	74.1	0.88
2	1.2	25.8	100	0.74

the trip attribute scale forced a different approach to cluster development. These results support Sheppard's (1996) argument that using cluster analysis before factor analysis can create meaningful segments.

### 2.3 Results of the Profile Analysis

After the clusters were developed, the next step was to build profiles of each segment as a method to describe and understand distinct marketable groups within the wine recreation market in Virginia. Profile analysis, which uncovers the differences and similarities among the segments identified by K-means cluster analysis and tested with multiple discriminant analysis, was performed. Segment membership from the discriminant analysis matched the K-means membership 97.4 percent of the time. The profile analysis was performed using ANOVA and Pearson Chi-square tests on the variables to find differences among the three segments. This section will report the results of the variables that yielded significant differences among the segments using the Tukey and Pearson Chi-square tests to build the segment profiles.

#### 2.3.1 Wine Rating Variables

These variables were designed to rate respondents' opinions of Virginia's wine quality compared to their opinions about wines from other regions of the world. In the profile analysis these questions showed some distinct differences of opinion about Virginia's comparative wine quality among segments. Significant cluster differences in relation to variables ratings were found in five of the seven wine attribute variables using the mean Likert score. Table 2.4

presents the comparison of ratings of Virginia wine quality to perceptions of wine quality from other regions around the world where significant differences were revealed. There are significant differences in the perception of Virginia wine quality compared to East Coast wine in Segments Two and Three. Segment Two ranked Virginia wine “somewhat higher” in quality while the remaining two segments ranked Virginia wine “equal in quality.” Segment Two ranked Virginia wine quality “somewhat lower” in quality to French wine, while the other segments ranked Virginia wine “much lower in quality.” Virginia wine was ranked “equal in quality” to German wine by Segment Two, while Segments One and Three ranked Virginia wine “somewhat lower in quality.” Segment Two ranked Australian wine just slightly better than Virginia wine, while Segments One and Three ranked Virginia wine “somewhat lower in quality” to Australian wine.

**Table 2.4**  
**Perception of Quality of Virginia Wine Compared to Quality of Wine from Other Regions, by Segment (Mean Likert Scores)**

Variable	Segment 1	Segment 2	Segment3	F -ratio	P -value
East Coast wine	4.07	4.85 <sup>a</sup>	3.91 <sup>b</sup>	3.31	.039
French wine	2.60 <sup>a</sup>	3.41 <sup>b</sup>	2.84	3.23	.042
German wine	2.93 <sup>a</sup>	4.00 <sup>b</sup>	3.07 <sup>a</sup>	4.54	.012
Australian wine	2.62 <sup>a</sup>	3.63 <sup>b</sup>	2.56 <sup>a</sup>	4.96	.008

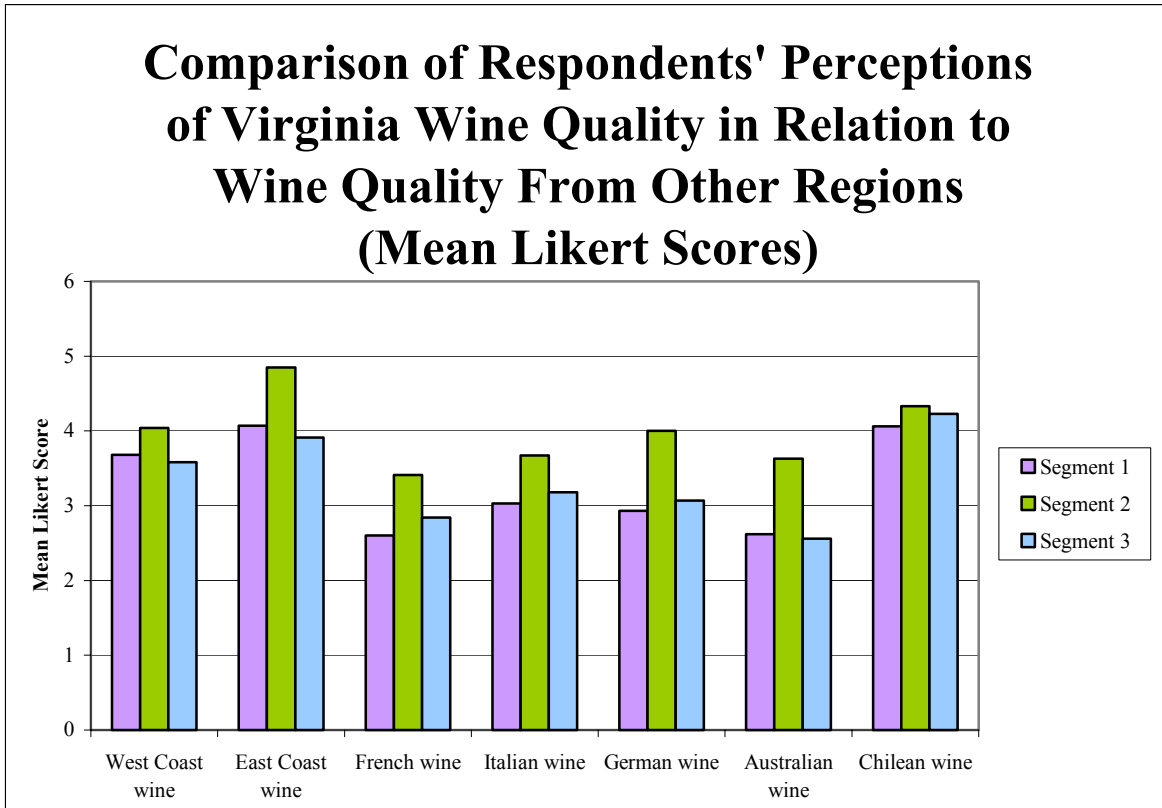
Note: Superscripts with different letters are significant at 0.05 or better probability levels

The remaining three wine regions were not ranked differently among the three segments. Virginia wine was ranked equal in quality to West Coast wine among all three segments. The ranking of Virginia wine to Italian wine was “somewhat lower in quality” in all three segments. Virginia wine was considered “equal quality” to “somewhat higher in quality” to Chilean wine when the “no rating” option was taken into account among the three segments. The number of respondents who checked “no rating” for Chilean wine made up 38 percent of the sample, which skewed the results to lower the ranking of Virginia wine. Chart 2.1 presents a graphical representation of respondents’ perceptions of Virginia wine quality compared to their views about wines from other regions around the world.

### **2.3.2 Trip Attribute Variables**

All seven variables in this section were ranked significantly differently among the three segments. Table 2.5 shows the significant differences among segments for the seven trip

Chart 2.1



attribute variables. Segment Three ranked the importance of winery location as “very important” in the decision-making process. Segment Two considered location an important attribute as well. However, Segment One reported location as having no influence.

**Table 2.5**  
**Results of ANOVA for Importance of Trip Attribute Variables in Decision to Visit a Virginia Winery, by Segment (Mean Likert Scores)**

Variable	Segment 1	Segment 2	Segment3	F -ratio	P -value
Location	3.62 <sup>a</sup>	4.41 <sup>b</sup>	4.60 <sup>b</sup>	16.87	.000
Wine History	1.94 <sup>a</sup>	2.30	2.68 <sup>b</sup>	7.61	.001
Architectural Design	1.87 <sup>a</sup>	1.70 <sup>a</sup>	2.72 <sup>b</sup>	15.92	.000
Reputation of Quality	2.62 <sup>a</sup>	3.52 <sup>b</sup>	4.28 <sup>c</sup>	50.85	.000
Wine Tasting	4.01 <sup>a</sup>	4.15	4.49 <sup>b</sup>	5.79	.004
Wine Production	2.69 <sup>a</sup>	3.11	3.54 <sup>b</sup>	9.93	.000
Friends and Family	4.56 <sup>a</sup>	1.78 <sup>b</sup>	4.56 <sup>a</sup>	258.86	.000

Note: Superscripts with different letters are significant at 0.05 or better probability levels

In the decision to visit a winery, Virginia's wine history was ranked unimportant by all three segments. However, Segment Three gave this attribute more weight than either of the other segments, which viewed wine history as "very unimportant."

While the importance of architectural design in the decision-making process resulted in inter-segment differences, this variable was "very unimportant" in the visitors' decision to visit a winery. Segment Three gave the highest ranking to this variable as "somewhat unimportant"; the other two segments (One and Two) ranked this variable as "very unimportant."

The winery's reputation of quality was ranked differently by all three segments. This was the only variable to have a significant difference among all three segments. All three segments had a similar composition of in-state and out-of-state cases, so differences in the importance of winery reputation were seen as very significant in the interpretation of segment profiles. Segment One considered this attribute as neither important nor unimportant. Segment Two gave this attribute a slightly more important rating. Segment Three ranked winery reputation of quality as important in the decision to visit a winery.

Interest in wine tasting was ranked important by all three segments; however, a difference in the degree of importance among the segments did exist. Segments One and Two ranked this attribute important, while Segment Three considered an interest in wine tasting "very important" in the decision-making process to visit a winery.

There was a significant difference in the importance of the wine production variable among segments. Segment One ranked this attribute slightly unimportant, while Segment Three ranked this attribute slightly important.

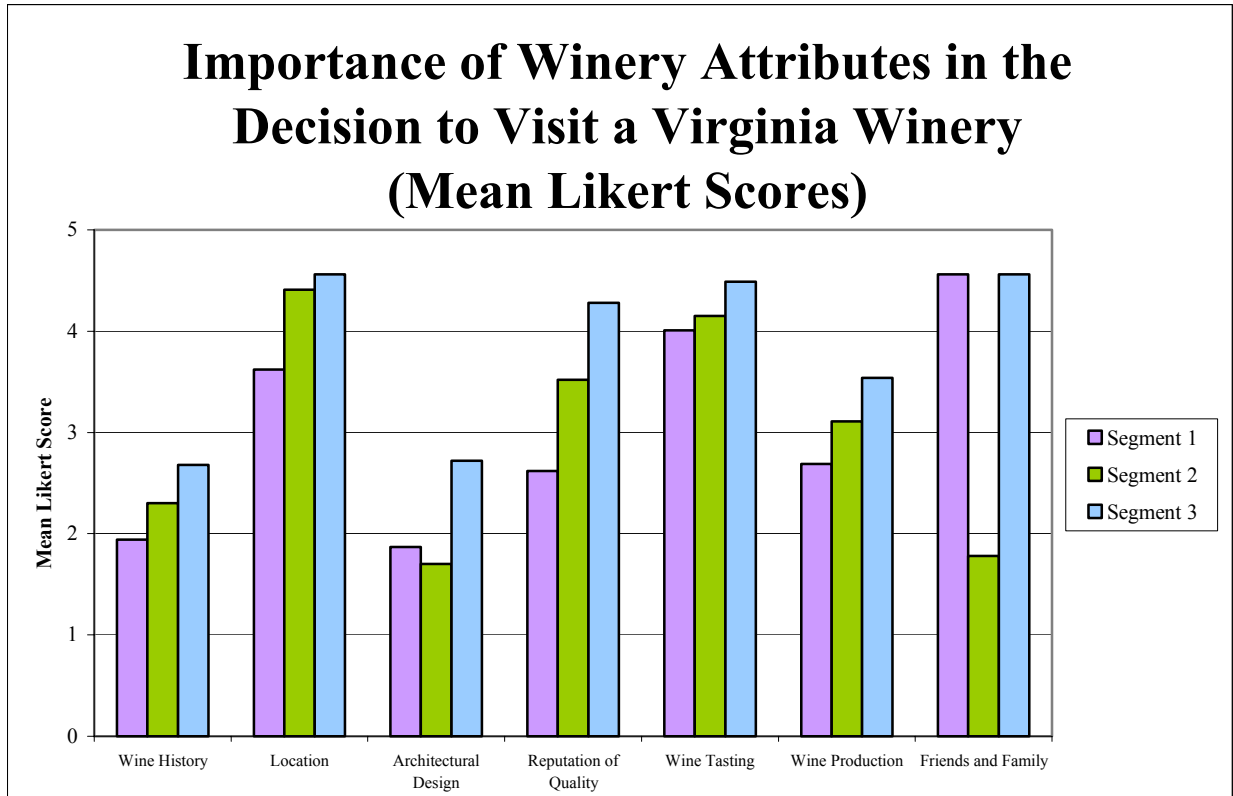
Lastly, differences existed among the segments with regard to the importance of the ability to be with friends and family in the decision-making process to visit a winery. Segment Two considered this attribute to be "very unimportant" while Segments One and Three considered it to be "very important." Chart 2.2 displays the ranking of each variable by segment.

### **2.3.3 Consumption Variables**

Results of the profile analysis on the consumption variables showed two of the variables had significant differences among segments using the Pearson Chi-square test (see Table 2.6). The purchasing habits among the segments were significantly different at the  $\alpha=0.05$  level of confidence. Segment Two had the highest percentage of purchases in the range of "11-30



Chart 2.2



bottles” between June and August 2000. Segment One was most heavily concentrated in the “1-5 bottles” purchased category. Segment Three was evenly distributed in the “1-5 bottles” and “11-30 bottles” purchased ranges.

There was no significant difference in the amount of Virginia wine purchased among the three segments. Table 2.6 shows that a high percentage of the respondents did not purchase any Virginia wine during the period asked about in the interview. When Virginia wine was purchased, the amount was usually less than five bottles. Segment Three is the largest consumer of Virginia wine, followed by Segment One and lastly, Segment Two.

There was a significant difference in the number of out-of-state winery visits among the segments. Segment Two had the highest percentage (63) of out-of-state winery visits. Over sixty percent of Segments One (62 percent) and Three (64 percent) reported no visits to wineries in other states in 1999.

**Table 2.6**  
**Distribution of Consumption Variables, by Segment (in percents)**

Variable	Segment 1 <sup>a</sup>	Segment 2 <sup>b</sup>	Segment 3 <sup>c</sup>	Chi Square	P -value
Wine Purchases (June to August 2000)*				17.115	.029
0 Bottles	5.9	3.7	0.0		
1-5 Bottles	30.9	11.1	38.6		
6-10 Bottles	23.5	18.5	10.5		
11-30 Bottles	26.5	59.3	38.6		
> 30 Bottles	13.2	7.4	12.3		
Virginia Wine Purchases (June to August 2000)				7.797	.253
0 Bottles	36.8	44.4	22.8		
1-5 Bottles	39.7	22.2	49.1		
6-15 Bottles	16.2	22.2	15.8		
> 15 Bottles	7.4	11.1	12.3		
Visit Wineries in Other States (1999)*				6.402	.041
Yes	38	63	36		
No	62	37	64		

Note: \* Significant at the 0.05 level or better

<sup>a</sup>n=68 <sup>b</sup>n=26 <sup>c</sup>n=58

### 2.3.4 Trip Characteristic Variables

The analysis of the trip characteristic variables did not reveal significant differences among segments. The responses to the question asking if the purpose of the trip was to visit a winery varied among the segments, but not significantly (see Table 2.7). For 72 percent of Segment One respondents, the purpose of the trip was not to visit a winery. Similar to Segment One, 68 percent of Segment Three reported the trip purpose was not to visit a winery. Only 48 percent of Segment Two reported that the purpose of the trip was not to visit a winery, much lower than the other two segments. This seems to suggest that a winery visit is just one activity in a number of recreational experiences in which the visitors are participating. This question was followed by one asking what other types of activities the respondent was participating. Sightseeing was a common response to this question, along with enjoying the fall foliage and visiting other recreational sites in the area of the winery.

The length of the trip was not significantly different either. However, people in Segments One and Three are more likely to participate in day trips to wineries while those in Segment Two are most likely to stay overnight on their trip. Trip length for Segment Two is usually greater than three days, averaging a little over five days.

**Table 2.7**  
**Distribution of Trip Length, by Segment (in percents)**

Variable	Segment 1 <sup>a</sup>	Segment 2 <sup>b</sup>	Segment 3 <sup>c</sup>
Day Trip	72.1	48.1	68.4
2 Days	5.9	18.5	14.0
>3 Days	22.1	33.3	17.5

### 2.3.5 Demographic Variables

Profile analysis revealed no significant differences among segments in relation to the demographic variables (see Table 2.8). The typical winery visitor in Virginia is over 40 years old. Winery visitors to Virginia are highly educated; 58 percent have Bachelor’s degrees, and 31 percent have graduate degrees -- a total of 89 percent being college educated. Reported annual household income levels over \$100,000 account for 32 percent of winery visitors, and another 44 percent have annual household income levels above \$50,000.

No significant differences exist among the segments in relation to length of residence. Sixty-five percent of winery visitors have lived in their current state of residence for less than 30 years. Within this group, 34 percent have less than 10 years of residence in their current state. The “greater than 45 years” category had a high percentage (33) in Segment Two. The distribution in the other categories was even among the segments.

**Table 2.8**  
**Distribution of Demographic Variables Categories, by Segment**

Variable	Segment 1 <sup>a</sup>	Segment 2 <sup>b</sup>	Segment 3 <sup>b</sup>	Chi Square	P -value
Age (in percents)				2.795	.834
21 to 29	17.6	11.1	22.8		
30 to 39	25.0	18.5	21.1		
40 to 49	26.5	37.0	26.3		
50 and above	30.9	33.3	29.8		
Length of Residence (in years)				6.961	.324
< 10 Years	30.9	29.6	38.6		
11 to 30 Years	35.3	22.2	29.8		
31 to 45 Years	20.6	14.8	15.8		
> 45 Years	13.2	33.3	15.8		

Note: <sup>a</sup>n=68 <sup>b</sup>n=26 <sup>c</sup>n=58

## **2.4 Segment Profiles of Virginia Winery Visitors**

This section will present a profile of each segment. The profile will describe the characteristics of each segment based on the results of the previous profile analysis in Section 2.3.

### **2.4.1 Profile of Segment One**

The overall opinion of Virginia wine among members of this segment is one of lower quality compared to wine from other parts of the world. When compared to West Coast wine, East Coast wine, and Chilean wine, Virginia wine is considered equal in quality. On the other hand, Virginia wine is thought to be lower in quality than wine from Europe and Australia.

The two attributes that have the most influence on the decision to visit a Virginia winery are an interest in wine tasting and the ability to share the experience with friends and family. Location, reputation of quality, and an interest in wine production are also important, but to a lesser degree. The attributes that ranked lowest were interest in Virginia's wine history and the architectural design of the winery.

Members of Segment One purchase approximately 5 bottles of wine a month, and 1.5 bottles of Virginia wine per month. These people tend to purchase their wine from grocery stores, and to a lesser extent, ABC stores and convenient stores, which capture a sizable portion of the market.

Segment One members visit approximately three Virginia wineries a year and most likely do not visit wineries in other states. The winery visit is typically a day trip for this segment, but when the visit is part of a multi-day trip, this group prefers a hotel or motel to other forms of accommodations.

The typical Segment One member is over 40 years of age and college educated. Thirty percent have graduate degrees and the average annual household income is over \$75,000 a year. These people have lived in their current state of residence an average of 24 years. Table 2.9 presents a condensed version of the Segment One profile.

**Table 2.9**  
**Segment One Profile <sup>a</sup>**

Variable	Result
Typical Age	> 40
Graduate Degrees	30%
Most Typical Annual Household Income	> \$70,000
Mean Length of Residency	24 Years
1999 Winery Visits	3 Visits
Length of Trip	1 Day
Mean Monthly Wine Purchases	5 Bottles
Mean Monthly Virginia Wine Purchases	1.5 Bottles
Most Typical Purchase Place	Grocery Store

Note: <sup>a</sup> n = 68

### 2.4.2 Profile of Segment Two

Those classified as being in Segment Two consider Virginia wine to be “somewhat lower in quality” compared to wine from other regions of the world. Virginia wine is considered to be “somewhat higher in quality” compared to East Coast wine and Chilean wine. West Coast wine and German wine are considered “equal in quality” to Virginia wine. However, Virginia wine is considered “somewhat lower in quality” compared to wine from France, Italy, and Australia.

Segment Two members consider an interest in wine tasting and the location of the winery to be important in their decision to visit a winery. The reputation of the winery and an interest in wine production are neutral in the decision-making process. Contrary to the other two segments, the ability to be with friends and family, an interest in Virginia’s wine history, and the architectural design of the winery are considered “unimportant”.

Members of Segment Two purchase about 6 bottles of wine a month and 2 bottles of Virginia wine per month. The most common purchase places of wine among members of this segment are specialty shops and wineries.

Segment Two members visit approximately 3 Virginia wineries a year, and 63 percent visit wineries in other states. Over 50 percent of this segment stay overnight when visiting a winery in Virginia, and the average trip length is 5.5 days. This segment prefers to lodge in bed and breakfasts or other types of accommodations, but not hotels or motels.

This segment is typically over 40 years old; 37 percent are in their forties and 33 percent are over 50. Segment Two has the highest percentage of graduate degree holders (40 percent) and those with no college degree (18.5 percent). The annual household incomes for this segment are mostly over \$75,000 a year. Only 25 percent reported an annual household income less than

\$75,000 a year. This segment has the longest length of residence of the three segments, with an average of 29 years residence in their current state. Table 2.10 presents a condensed version of the Segment Two profile.

**Table 2.10**  
**Segment Two Profile <sup>a</sup>**

Variable	Result
Typical Age	> 40
Graduate Degrees	40%
Most Typical Annual Household Income	> \$75,000
Mean Length of Residency	29 Years
1999 Winery Visits	3 Visits
Length of Trip	5.5 Days
Mean Monthly Wine Purchases	6 Bottles
Mean Monthly Virginia Wine Purchases	2 Bottles
Most Typical Purchase Place	Specialty Shop and Winery

Note: <sup>a</sup> n = 26

### 2.4.3 Profile of Segment Three

Segment Three gives Virginia wine the lowest rating of the three segments. But Virginia wine is considered equal in quality to East Coast wines and Chilean wine, if the “no rating” option is accounted for in the evaluation of Chilean wine. Virginia wine is considered “somewhat lower in quality” compared to that from the other wine regions.

This segment considers the reputation of the winery and an interest in wine tasting more important than did the other two segments. The ability to be with friends and family is considered “very important,” and an interest in wine production was considered “important” in the decision to visit a Virginia winery. Location is also “very important” in the decision to visit a Virginia winery. The only two attributes that were considered “unimportant” were wine history and architectural design.

Segment Three members purchase approximately 6 bottles of wine a month, of which 2.25 bottles are Virginia wine. The most common purchasing places for wine among members of this segment are the grocery store and a winery.

Members of this segment visits 4 Virginia wineries a year, more than the other segments, and they are not likely to visit wineries in other states. The winery visit is reported as a day trip by 68 percent of this segment. When the visit is part of a multi-day trip, the average length is 2

days. The accommodation types that are most commonly used by this segment are friends and family, RV parks, and camp grounds.

The demographic profile is similar to that of the other segments. This segment is most likely to be over 40 years of age. However, 44 percent of this segment is under 40. Over 60 percent of this segment have a Bachelor’s degree, and 26 percent have a graduate degree. The annual household income for this segment is below \$75,000 a year. The average length of residence of this segment is 23 years, the shortest time of the three segments. Table 2.11 presents a condensed version of the Segment Three profile.

**Table 2.11**  
**Segment Three Profile <sup>a</sup>**

Variable	Result
Typical Age	> 40
Graduate Degrees	26%
Most Typical Annual Household Income	> \$75,000
Mean Length of Residency	23 Years
1999 Winery Visits	4 Visits
Length of Trip	1 Day
Mean Monthly Wine Purchases	6 Bottles
Mean Monthly Virginia Wine Purchases	2.25 Bottles
Most Typical Purchase Place	Grocery Store and Winery

Note: <sup>a</sup> n = 58

## 2.5 Summary

The failure of factor analysis to produce usable results led to a change in the methodology. Cluster analysis was run on the raw data, indicating that there are three distinct segments of the Virginia winery visitor market. The creation of these segments was based on the of importance of seven attributes (wine history, location, reputation of quality, tasting interest, production interest, and friends and family). A longer, more detailed list of questions could have produced more distinct segments and should be attempted in the future. This chapter created segments that are not related to regional variations of the cases -- meaning that no segment is clustered in one geographic location more than another. However, analysis in Chapter 4 shows a weak geographic relationship between the segments created in this chapter and the wine regions analyzed in the next chapter. If more accurate data on the location of each respondent could

have been collected, then spatial clustering based on socioeconomic variables could possibly have produced stronger relationships between segments and wine regions.

These results clearly show that the visitors to Virginia's wineries can be clustered into distinct market segments. While the composition of these segments is not radically different in relation to the variables used in this study, additional research into the existence of such market segments may yield more distinct segments if more variables are incorporated into the analysis. All three segments are composed overwhelmingly of individuals over 40 years old. Being college educated is also characteristic of most respondents in the three segments. The presence of graduate degrees varies among the segments, ranging from a high of 40 percent in Segment Two to a low of 26 percent in Segment Three. The average length of residence is over 20 years for all three segments, with a high of 29 years in Segment Two. There are no real differences among the segments in relation to the number of Virginia winery visits. However, 63 percent of Segment Two members report that they visit wineries in other states. Segment Two members are also most likely to spend time away from home using accommodations, with an average trip length of 5.5 days.

The next chapter will explore regional variations in this data set. Each region will be profiled and differences will be explored based on the region in which each interview was conducted. Results of this analysis will determine the validity of the market regions defined in this study. Subsequently, I plan to discuss in my conclusions the relationship between the segments presented in this chapter and the wine regions discussed next.



## Chapter 3 Regional Profiles Of Winery Visitors

This chapter will present the results from the profile analysis of the visitors to the five wine regions used in this study. The first section will present the results of analysis of variance (ANOVA) and Chi-square tests performed on the data for each region. The remaining sections will present results for each wine region, introducing the study area and visitor profiles based on the data collected from on-site interviews in each region.

### 3.1 Profile Analysis

ANOVA and Chi-square tests were used to discover regional variations of wine-related visitation patterns. Variables that were found to have significant differences among regions based on the ANOVA were examined using the Tukey post hoc test, which exposes differences among regions. Cross-tab analysis, testing significance with Chi-square, was performed on the variables that were not suitable for ANOVA.

#### 3.1.1 Wine Attribute Variables

ANOVA revealed a significant regional difference for only one of the wine quality variables, German wine. Virginia wine is considered to be lower in quality compared to German wine across all five regions (Table 3.1). Eastern Virginia respondents rated Virginia wine the lowest in quality, while Central Virginia respondents rated Virginia wine the highest. The visitors to the remaining three regions tended to rate Virginia wine lower in quality as well.

**Table 3.1**  
**Perception of Quality of Virginia Wine Compared to Quality of Wine from Other Regions, by Region (Mean Likert Scores)**

Variable	Central Virginia	Eastern Virginia	Northern Virginia	Shenandoah Valley	Southwest Virginia	F -ratio	P -value
German wine	3.7 <sup>a</sup>	2.4 <sup>b</sup>	3.4	3.0	3.4	3.02	.020

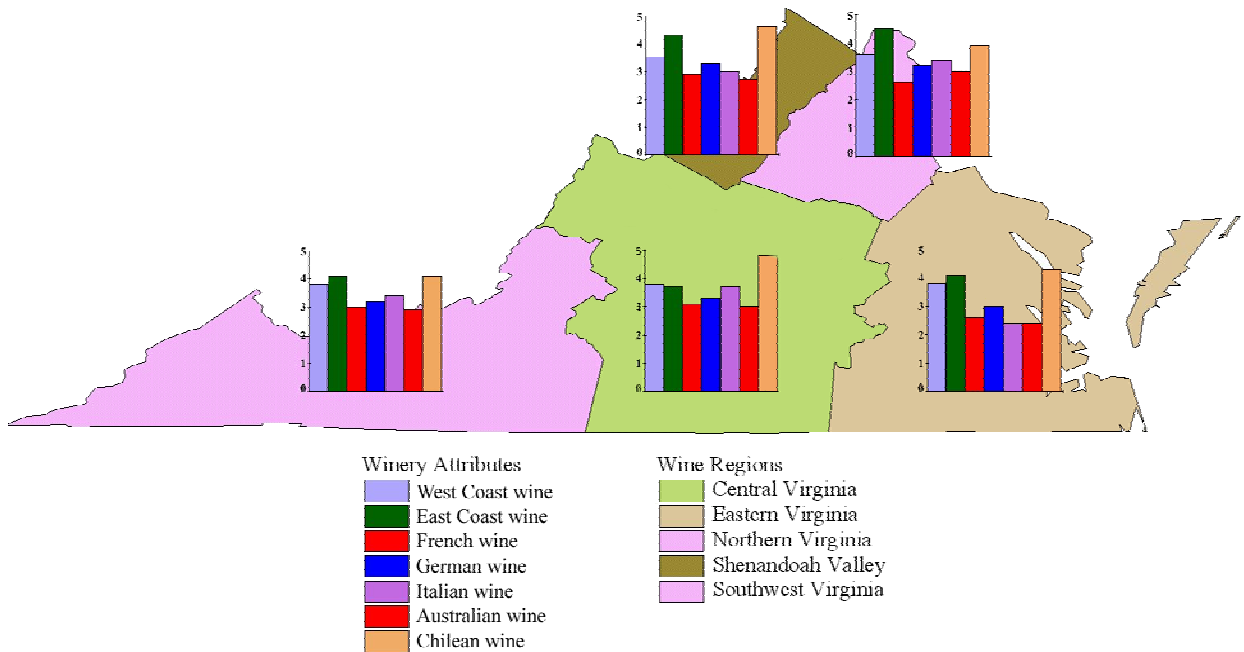
Note: Superscripts with different letters are significant at 0.05 or better probability levels

When compared to other United States wines, Virginia wine is considered to be comparable in quality by visitors in all regions. When compared to European wines, Virginia wine is considered to be lower in quality by visitors in all regions as well. Respondents had a

low level of familiarity with wine from Australian and Chile, which has the potential to skew the results for these two regions in the analysis of differences in the five regions of this study.

Over 50 percent of the respondents from Central Virginia, Northern Virginia, Shenandoah Valley, and Southwest Virginia rated Virginia wine higher in quality compared to East Coast wine, whereas it was overwhelmingly considered equal in quality to West Coast wine by respondents from all regions. This could be partly explained by the low percentage, only 6.6 percent, of respondents who selected the “no rating” option for West Coast wine, indicating a high degree of familiarity with West Coast wine. Map 3.1 shows the mean Likert scores of Virginia wine quality compared to perceived quality of wine from other parts of the world.

**Map 3.1**  
**Perception of Virginia Wine Quality**  
**Compared to Wine Quality from Other Areas, by Region**  
**(Mean Likert Scores)**



Virginia wine is considered “much lower in quality” in relation to wine from Europe. In comparison to wine from the three European countries (French, Italian, and German), Virginia wine was ranked poorly. There was no significant regional variation of opinions in relation to

the perceptions of the quality of French and Italian wine, but wines from both regions are considered superior in quality compared to wine produced in Virginia.

Chilean wine received the lowest rating due, in part, to the high number of respondents, over 50 percent, that selected “no rating” for this region. Removal of the “no rating” option for Chilean wine resulted in a mean score of 4.3, indicating Virginia wine to be equal in quality to Chilean wine, with no regional differences evident. Australian wine also had a high percentage, 38 percent, of respondents who selected the “no rating” option. When this option is accounted for, Australian wine still ranked higher in quality than Virginia wine.

### 3.1.2 Trip Attribute Variables

Significant differences among respondents in the regions were found in four of the seven variables in the trip attribute variable section (see Table 3.2). The level of importance of Virginia wine history as a reason for visiting wineries was generally unimportant across all regions. Eastern Virginia respondents had the lowest rating for importance of wine history. Shenandoah Valley respondents rated history highest, but still considered it unimportant.

**Table 3.2**  
**Results of ANOVA for Importance of Trip Attribute Variables in Decision to Visit a Virginia Winery, by Region (Mean Likert Scores)**

Variable	Central Virginia	Eastern Virginia	Northern Virginia	Shenandoah Valley	Southwest Virginia	F -ratio	P -value
Wine History	2.3	1.9 <sup>b</sup>	2.0	2.7 <sup>a</sup>	2.6	3.21	.015
Architectural Design	1.7 <sup>a</sup>	1.8 <sup>a</sup>	2.4	2.6 <sup>b</sup>	2.2	3.97	.004
Reputation of Quality	3.3	2.7 <sup>a</sup>	3.6 <sup>b</sup>	3.8 <sup>b</sup>	3.7 <sup>b</sup>	4.73	.001
Friends and Family	3.8 <sup>a</sup>	4.0	4.6 <sup>b</sup>	4.0	4.0	2.23	.068

Note: Superscripts with different letters are significant at 0.05 or better probability levels

Importance of architectural design to visitors as a reason for visiting the winery was significantly different across the regions. Central and Eastern Virginia respondents rated this attribute the lowest, while Shenandoah Valley respondents rated it the highest. Overall, interest in architectural design was not very important in the decision to visit a winery.

Importance placed on the reputation of quality also differed significantly among regions. Eastern Virginia respondents rated this attribute lower than did all the respondents from the other regions, while Southwest Virginia respondents rated this attribute the highest. There was less

concern with winery reputation among Eastern Virginia respondents due to a lack of knowledge about state wineries. A common answer to this question was that reputation was not important because respondents had never heard anything previously about the winery they were visiting. However, Southwest Virginia, Northern Virginia, and Shenandoah Valley respondents rated this variable “somewhat important” in their decision because of recommendations from friends. Respondents from Central Virginia tended to rate reputation as neither important nor unimportant. Because of the high percentage of out-of-state visitors in the Central Virginia region, 40 percent compared to an average of 22 percent for the other regions, many visitors to wineries in this region have no previous knowledge of the winery they were visiting.

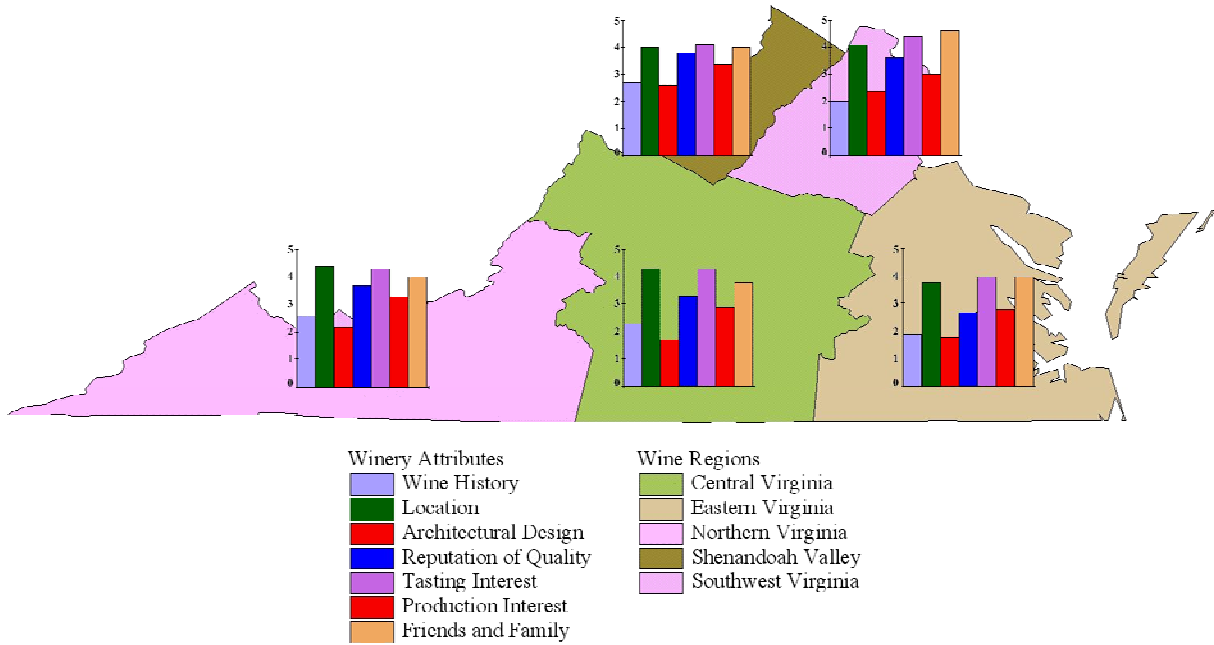
Lastly, the importance of the ability to be with friends and family differed among the regions’ respondents. While there were differences in relation to this attribute, unlike several of the previous attributes, this one was rated important in all five regions. Central Virginia respondents tended to rate this attribute between “no opinion” and “somewhat important.” Northern Virginia respondents rated ability to be with friends and family as a very important attribute of the experience.

The analysis of the three remaining attributes (location, wine tasting, and wine production) resulted in no regional variations. The importance of winery location can be seen in the fact that 82 percent of the respondents gave it a high rating. Interest in wine tasting was also viewed as important across all regions. Ninety percent of the respondents rated an interest in wine tasting as important to very important. Not a single respondent viewed this attribute as “very unimportant,” and only seven percent viewed it as “somewhat unimportant.” Interest in wine production, however, tended to be average, with a mean score of 3 and standard deviation of 1.1, indicating “no opinion” on this production attribute in the decision-making process. Map 3.2 displays the mean Likert scores of the winery attributes across the five regions.

### **3.1.3 Consumption Variables**

There were no significant differences among regions in the number of Virginia winery visits in 1999 (see Table 3.3). Respondents in Northern Virginia had the highest number, with a mean score of 5 visits, and Central Virginia had the least, with a mean score of 2 visits. Respondents in the other three regions averaged about 3 visits each in 1999.

**Map 3.2**  
**Importance of Winery Attributes**  
**in the Decision to Visit a Virginia Winery, by Region**  
**(Mean Likert Scores)**



**Table 3.3**  
**Distribution of Consumption Variables, by Region (in percents)**

Variable	Central Virginia <sup>a</sup>	Eastern Virginia <sup>b</sup>	Northern Virginia <sup>b</sup>	Shenandoah Valley <sup>a</sup>	Southwest Virginia <sup>a</sup>	Chi Square	P -value
Wine Purchases (June to August 2000)*						33.164	.007
0 Bottles	0.0	6.5	3.2	3.3	3.3		
1-5 Bottles	13.3	19.4	25.8	50.0	43.3		
6-10 Bottles	23.3	25.8	9.7	20.0	10.0		
11-30 Bottles	60.0	41.9	41.9	20.0	20.0		
> 30 Bottles	3.3	6.5	19.4	6.7	23.3		
Virginia Wine Purchases (June to August 2000)						13.989	.301
0 Bottles	40.0	25.8	29.0	33.3	36.7		
1-5 Bottles	26.7	42.0	35.5	53.3	43.3		
6-15 Bottles	30.0	16.1	19.4	10.0	10.0		
> 15 Bottles	3.3	16.1	16.1	3.3	10.0		
Purchase Place for Wine						6.935	.862
Grocery Store	43.3	35.5	45.2	40.0	46.7		
Specialty Shop	16.7	29.0	12.9	10.0	23.3		
Winery	16.7	16.1	22.6	26.7	13.3		
Other	23.3	19.4	19.4	23.3	16.7		

Note: \* Significant at the 0.05 level of significance or better

<sup>a</sup> n=30 <sup>b</sup> n=31

Wine consumption was measured by asking how many bottles of wine the respondent had purchased between June and August of 2000. Analysis of wine consumption resulted in no significant regional variations. Respondents in the Southwest Virginia region had the highest consumption level, with an average of 24 bottles. But respondents in this region had a standard deviation of 40, indicating a very loose distribution among the sample caused by the presence of one individual with an extremely high consumption level of 200 bottles. Respondents in Northern Virginia consumed an average of 17 bottles, while the Shenandoah Valley respondents had the lowest level, with only 10 bottles consumed on average.

The results for the bottles-purchased variable were grouped into four categories to account for outlying values. When a Chi-square analysis was performed, significant regional variations appear. Respondents from Southwest Virginia stand out as consuming the smallest amounts in the state, but they also represent the highest percentage of those who purchased more than thirty bottles of wine. These results support Johnson and Wade's (1993) finding that residents in Southwest Virginia purchase small amounts of wine.

Respondents in Southwest Virginia and the Shenandoah Valley had the lowest purchase levels. Respondents from Central, Northern, and Eastern Virginia had the highest purchase levels, with over 40 percent falling into the "11-30 Bottles" purchased category.

Purchase amounts of Virginia wine did not vary significantly across regions, but 40 percent of the total respondents reported purchasing between "1-5 bottles" of Virginia wine between June and August 2000. Eastern and Northern Virginia respondents had the highest percentages of Virginia wine purchases, contrary to the findings of Johnson and Wade (1993), who reported that Northern Virginia and Tidewater area residents were less receptive to Virginia wine than were Central Virginia residents. However, due to the small number of Virginia residents interviewed in the Central Virginia region, these results cannot imply that Central Virginia residents are less receptive to Virginia wine today than they were in the early 1990s.

Overwhelmingly, the grocery store was the most typical place of purchase, accounting for over 40 percent of wine purchases. Specialty shops and wineries each accounted for approximately 20 percent of total wine purchases.

The remaining two variables were extremely skewed toward one answer. The question that asked the most common purchase type yielded a 95 percent response rate for bottle

purchases over case purchases. Finally, responses to the question that asked whether or not the respondent had a home wine cellar were “no” 88 percent of the time.

### 3.1.4 Trip Characteristic Variables

There was a significant difference in the Chi-square analysis among regions in relation to the question concerning whether the purpose of the trip was to visit a winery (Table 3.4). Central Virginia visitors were the least likely to consider the winery visit the purpose of the trip, while visitors in Northern Virginia were the most likely to answer “yes” to this question. The respondents in the remaining three regions were similar in their responses to this question, with between 47 to 65 percent stating that the winery visit was the purpose of their trip.

The occurrence of overnight stays varied among regions, with visitors from Central Virginia having the highest number of nights spent. Eastern and Northern Virginia visitors were most likely to be on a day trip, while Central Virginia visitors were most likely to be on a vacation. Results for Southwest Virginia and Shenandoah Valley regions were both mixed, with 40 percent of visitors from each region reporting spending at least one night away from home.

Central Virginia visitors were the most likely to have an overnight stay, with the average reported trip length being three days (see Table 3.4 and 3.5). This result is significantly different from that of the other four regions, which were more likely to attract visitors involved in day trips. The average trip length for respondents from the other four regions was 1.6 days. Eastern and Northern Virginia had the highest number of day-trip respondents, with over 90 percent reporting the outing as a day trip. Southwest Virginia and the Shenandoah Valley each had about 60 percent of their respondents reporting trip lengths of one day.

**Table 3.4**  
**Distribution of Trip Characteristic Variables, by Region (in percents)**

Variable	Central Virginia <sup>a</sup>	Eastern Virginia <sup>b</sup>	Northern Virginia <sup>b</sup>	Shenandoah Valley <sup>a</sup>	Southwest Virginia <sup>a</sup>	Chi Square	P -value
Trip Purpose (To visit a winery)						22.463	.000
Yes	26.7	64.5	83.9	46.7	60.0		
No	73.3	35.5	16.1	53.3	40.0		
Overnight Stay						46.556	.000
Yes	76.7	6.5	6.5	40.0	40.0		
No	23.3	93.5	93.5	60.0	60.0		

Note: Significant at the 0.05 level of significance or better

<sup>a</sup> n=30 <sup>b</sup> n=31

**Table 3.5**  
**Results of ANOVA for Trip Length, by Region (in days)**

Variable	Central Virginia	Eastern Virginia	Northern Virginia	Shenandoah Valley	Southwest Virginia	F -ratio	P -value
Trip Length	3.3 <sup>a</sup>	1.3	1.6	1.9	1.7	5.26	.001

Note: Superscripts with different letters are significant at 0.05 or better probability levels

Accommodations used varied among regions. However, it is difficult to make judgments about this variable due to the small number of people reporting trips in excess of one. Visitors to the Central Virginia region, which had the highest number of overnight guests, preferred bed-and-breakfasts, followed closely by hotels and motels.

### 3.1.5 Demographic Variables

Age and length of residence were the only demographic variables to vary significantly among regions (see Table 3.6). Age was significantly different (at the  $\alpha=0.05$  level) using the Chi-square test. Northern Virginia attracted the youngest group, with most visitors being in their twenties. Central Virginia visitors were the oldest group, with most visitors to this region being in their fifties. Southwest Virginia, Eastern Virginia, and Shenandoah Valley visitors were very similar to one another in relation to age, with most visitors being in their thirties or forties.

**Table 3.6**  
**Distribution of Demographic Variables, by Region (in percents)**

Variable	Central Virginia <sup>a</sup>	Eastern Virginia <sup>b</sup>	Northern Virginia <sup>b</sup>	Shenandoah Valley <sup>a</sup>	Southwest Virginia <sup>a</sup>	Chi Square	P -value
Age						49.691	.000
21 to 29	0.0	6.5	54.8	23.3	6.7		
30 to 39	16.7	25.8	19.4	16.7	33.3		
40 to 49	26.7	38.7	12.9	33.3	30.0		
50 and above	56.7	29.0	12.9	26.7	30.0		
Length of Residency						40.622	.000
< 10 Years	23.3	16.1	64.5	33.3	30.0		
11 to 30 Years	20.0	35.5	32.3	26.7	40.0		
31 to 45 Years	16.7	32.3	3.2	13.3	23.3		
> 45 Years	40.0	16.1	0.0	26.7	6.7		

Note: Significant at the 0.05 level of significance or better

Note: <sup>a</sup> n=30 <sup>b</sup> n=31



Length of residence was also significantly different across the regions. Central Virginia visitors, the oldest visitors, also had the highest number of years residing in their current state of residence. Northern Virginia exhibited the opposite pattern, with the youngest visitors having the fewest number of years spent residing in their current state.

The remaining demographic variables (education and household income) indicated mostly college-educated visitors. Over 85 percent reported earning a Bachelors’ or graduate degree in all five regions. Over 70 percent of the respondents across all regions reported incomes over \$50,000 a year. Respondents in Eastern Virginia had the highest incomes, with 85 percent reporting over \$50,000 a year. Most from the four remaining regions (75 percent) reported having incomes greater than \$50,000 a year.

The last characteristic examined was straight-line distances in miles from the wineries to the zip code centers for 132 of the 152 interviews (Table 3.7). The 20 interviews not included in this analysis were outliers from across the United States that would have greatly skewed the results. Outliers were considered as any case located outside of Virginia, Maryland, Washington D.C., North Carolina, and West Virginia<sup>1</sup>. One third of the respondents from Central Virginia were not included in this analysis because their residences were scattered across the country. Northern and Eastern Virginia had the most respondents remaining, with 29 and 30 interviews, respectively. ANOVA from this test resulted in three significant distance zones: Central Virginia respondents with an average distance of 101 miles from winery to home zip code center; Eastern Virginia respondents, with an average distance of 25 miles; the Shenandoah Valley respondents, with an average of 63.5 miles; and respondents from the remaining two regions having no significant differences in distance from winery. It should be remembered that these distances are straight-line distances from the winery to a zip code center, and that the actual driving distance traveled is different from this value.

**Table 3.7**  
**Results of ANOVA for Distance Traveled, by Region (in miles)**

Variable	Central Virginia	Eastern Virginia	Northern Virginia	Shenandoah Valley	Southwest Virginia	F -ratio	P -value
Distance Traveled	100.97 <sup>b</sup>	24.99 <sup>c</sup>	30.40	63.50 <sup>a</sup>	45.22	10.515	.000

Note: Superscripts with different letters are significant at 0.05 or better probability levels

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<sup>1</sup> One case from Charles Town, West Virginia was used because of its close proximity to the Washington D.C. The other case from West Virginia was excluded because of its location in the far western portion of the state.

## **3.2 Regional Profiles**

The following sections present the regional profiles for each of the five wine regions in Virginia. Each section will discuss the study area and then provide a profile of the typical winery visitor. The previous sections highlighted regional variations; this section will present the characteristics of respondents in each region independent of the other regions.

### **3.2.1 Central Virginia**

#### **3.2.1.1 The Study Area**

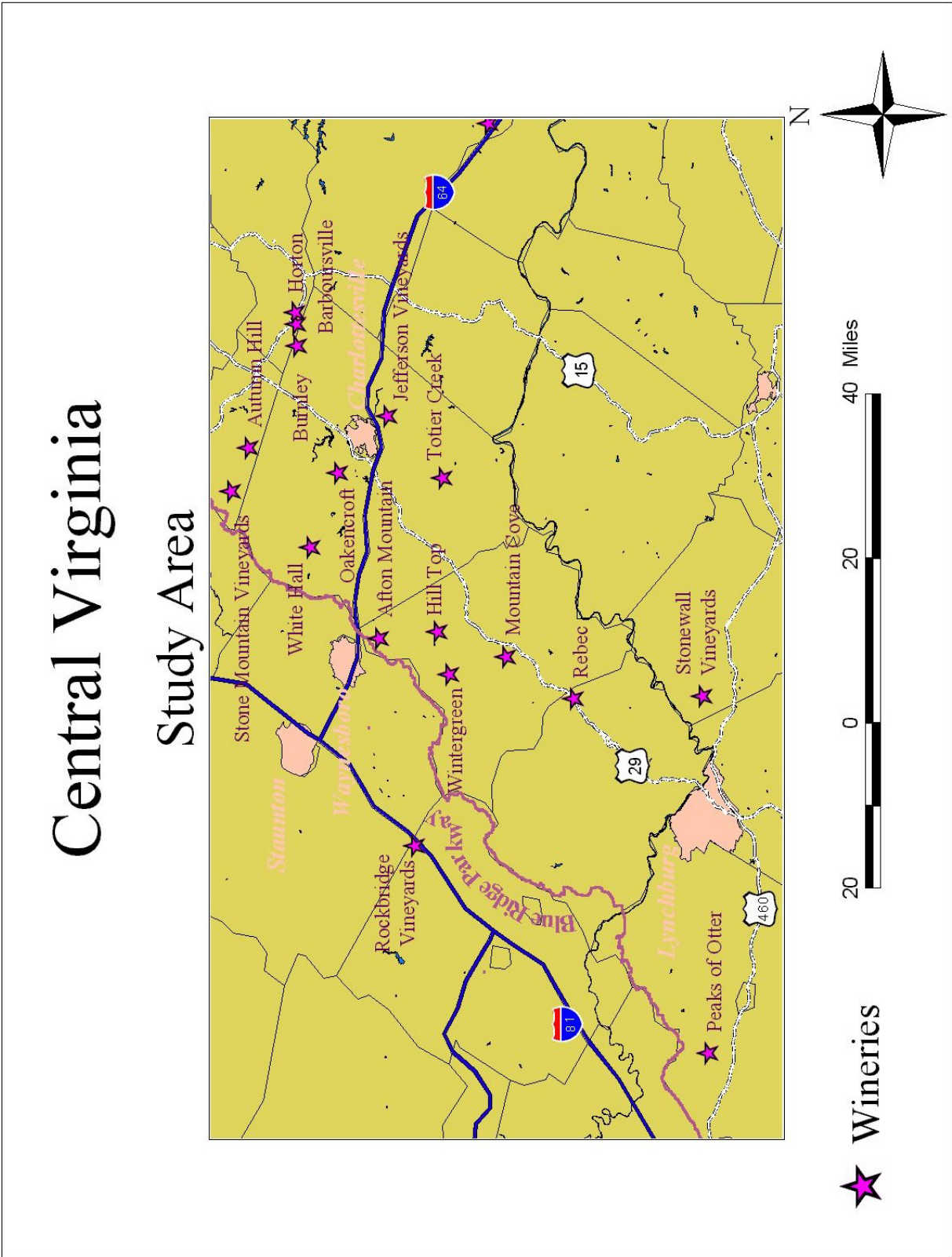
Rockbridge Vineyards is located in Raphine, Virginia, one mile off Interstate 81, and was selected as the winery for the central Virginia region (Map 3.3). Although Rockbridge Vineyards is located outside of the major collection of Central Virginia vineyards, its proximity to Interstate 81 brings in many visitors and tourists from the surrounding area. The Central Virginia region is centered around Charlottesville, Virginia, which is home to over twenty wineries, including some of Virginia's largest and most well-known vineyards. Rockbridge, while outside the main grouping of vineyards in the region, is located close to historic Lexington, Virginia, which has many tourist attractions, such as Natural Bridge, Wades Mill, and Virginia Military Institute.

#### **3.2.1.2 Profile of Central Virginia Winery Visitors**

Central Virginia has the highest percentage of tourists compared to the other regions, which had mainly visitors (Table 3.8). However I will use the term visitor interchangeably with the term tourist in this section. Visitors to this region are older than visitors to the other four regions, the typical winery visitor being over 50. Visitors in this region are the most likely to have graduate degrees; 50 percent of the respondents have graduate degrees, and another 37 percent have a Bachelors' degree. The wealthiest visitors are also found in this region, as 43 percent of the respondents report annual household incomes over \$100,000 a year. Average length of residence in their current state is 33 years, the longest of all respondents in the five regions.

Three quarters of the visitors in this region spend an average of two nights in Virginia, preferring bed-and-breakfasts as the accommodation type. The decision to visit a winery is

Map 3.3



secondary and not the main purpose of the trip. However, the location of the winery and a general interest in wine tasting are important attributes in the decision to visit the winery.

**Table 3.8**  
**Central Virginia Profile**

Variable	Result
Typical Age	> 50
Graduate Degrees	50%
Typical Annual Household Income	> \$100,000
Mean Length of Residency	33 Years
Mean 1999 Winery Visits	2 Visits
Mean Visit Wineries in Other States	43%
Mean Length of Trip	2 Days
Mean Weekly Wine Purchases	1 Bottle
Mean Monthly Virginia Wine Purchases	1.5 Bottles
Most Typical Purchase Place	Grocery Store and Specialty Shop

Note: n = 30

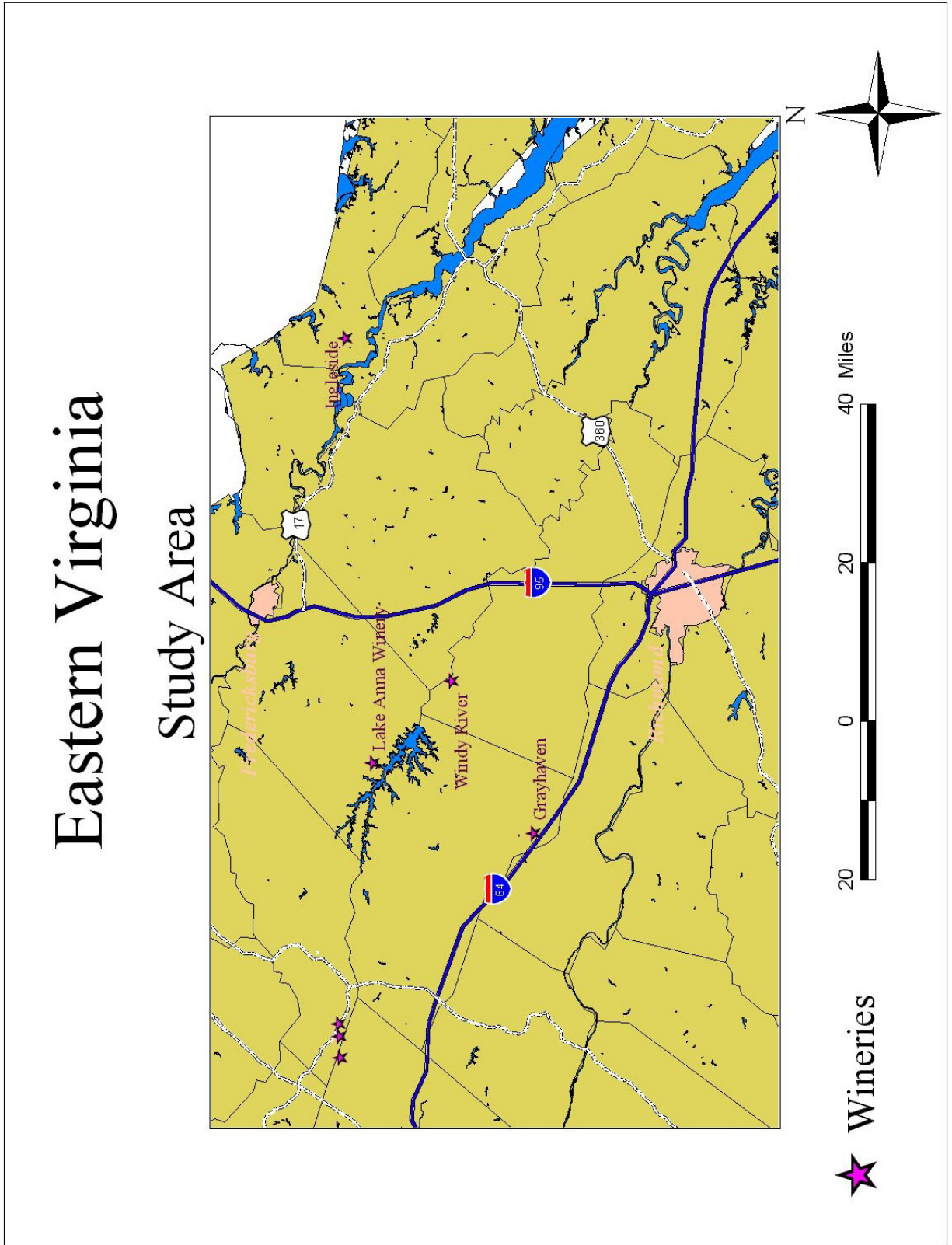
Central Virginia visitors purchase little more than 1 bottle of wine a week and 1.5 bottles of Virginia wine a month on average. One third of their wine purchases tend to be from a winery or specialty shop, while 43 percent of purchases are from grocery stores. The overall opinion of the quality of Virginia wine compared to that of wine from other world wine regions is highest in Central Virginia. Visitors to Central Virginia tend to visit only two Virginia wineries a year, the lowest of respondents of the five regions, and 43 percent visit wineries in other states.

### **3.2.2 Eastern Virginia**

#### **3.2.2.1 The Study Area**

Windy River Winery in Beaver Dam, Virginia was selected for the Eastern Virginia region (See Map 3.4). Windy River Winery is located about 45 minutes north of Richmond, Virginia, the state capital. This region of the state has few wineries, and only one within an easy drive of Windy River Winery. Richmond is centrally located within an easy drive to all the wineries in this region. Wineries in the eastern portion of this region are closer to the Virginia Beach metropolitan area, and the winery located in the northern part of this region is closer to Washington D.C. than Richmond.

Map 3.4



### 3.2.2.2 Profile of Eastern Virginia Winery Visitors

Visitors to the Eastern Virginia region are not the oldest in terms of visitor age, but the average visitor is over 40 years old (Table 3.9). Visitors are also overwhelmingly college educated, with 29 percent having graduate degrees and 58 percent having Bachelor’s degrees. Household income

in the region is characteristic of the upper middle-class, with 58 percent of visitors earning over \$75,000 a year. The average length of residence in their current state is 27 years.

Visiting a winery in Eastern Virginia is mostly a day trip activity. Sixty-six percent of the respondents reported that visiting the winery was the purpose of the trip, and 93 percent reported the outing as a day trip. An interest in tasting wine was the only attribute identified as important by visitors in this region. The location of the winery and ability to be with friends and family were neutral in their level of importance.

Purchasing habits in this region are approximately 1 bottle a week, and less than 1 bottle a month on average of Virginia wine. When people from this region do purchase wine, they tend to visit a grocery store and, to a lesser degree, specialty shops. Eastern Virginia winery visitors tend to visit about three Virginia wineries a year, and 39 percent visit wineries in other states. Eastern Virginia respondents rate Virginia wine as “somewhat lower quality” compared to wine from other regions around the world.

**Table 3.9  
Eastern Virginia Profile**

Variable	Result
Typical Age	> 40
Graduate Degrees	29%
Typical Annual Household Income	> \$75,000
Mean Length of Residency	27 Years
Mean 1999 Winery Visits	3 Visits
Mean Visit Wineries in Other States	39%
Mean Length of Trip	1 Day
Mean Weekly Wine Purchases	1 Bottle
Mean Monthly Virginia Wine Purchases	1 Bottle
Most Typical Purchase Place	Grocery Store and Specialty Shop

Note: n = 31

### 3.2.3 Northern Virginia

#### 3.2.3.1 The Study Area

Breaux Vineyards, which was selected for the Northern Virginia region, is located on a 400-acre estate in northern Loudon county, about a one-hour drive from Washington, D.C. (Map 3.5) Loudon county, with eight wineries, currently has the most wineries of any county in Virginia. Visitor traffic to Northern Virginia wineries benefits from its proximity to the Washington, D.C. suburbs that have grown to encompass large portions of Northern Virginia. Within a one hour drive of Breaux Vineyards are seven other Northern Virginia vineyards.

#### 3.2.3.2 Profile of Northern Virginia Winery Visitors

Northern Virginia attracts the youngest visitors of any region in the state, with over 50 percent of winery visitors being in their twenties (Table 3.10). Visitors in this region are young professionals with four-year college degrees, of which 29 percent have graduate degrees. Average annual household incomes tend to be over \$75,000 a year, with 65 percent reporting incomes in excess of this amount, similar to that in other regions across the state. The number of years respondents lived in their current state of residence is significantly lower than that of all the other regions, with an average of 10.5 years.

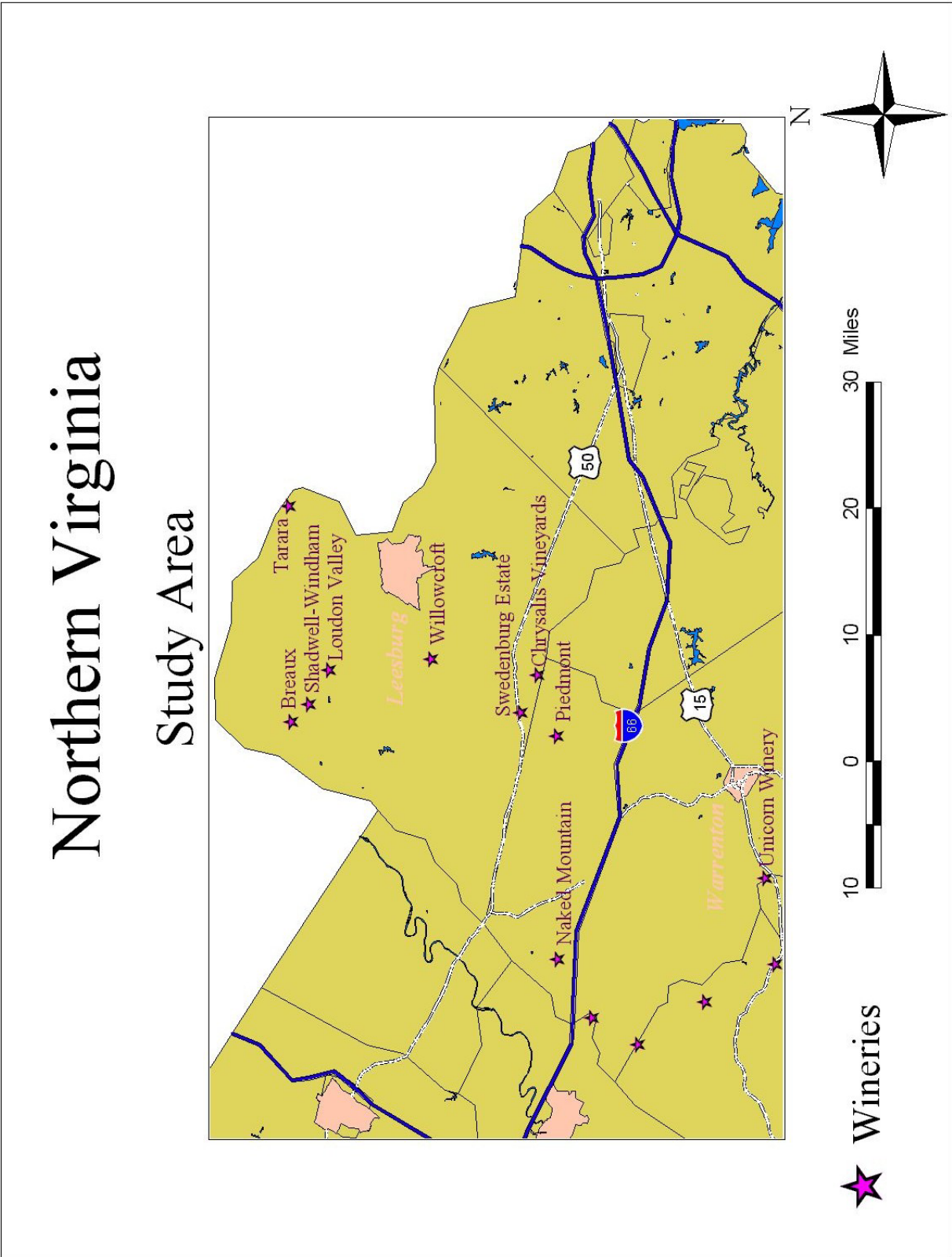
**Table 3.10**  
**Northern Virginia Profile**

Variable	Result
Typical Age	< 30
Graduate Degrees	29%
Typical Annual Household Income	> \$75,000
Mean Length of Residency	10.5 Years
Mean 1999 Winery Visits	5 Visits
Mean Visit Wineries in Other States	55%
Mean Length of Trip	1 Day
Mean Weekly Wine Purchases	1.3 Bottles
Mean Monthly Virginia Wine Purchases	2 Bottles
Most Typical Purchase Place	Grocery Store and Winery

Note: n = 31

Similar to the findings for Eastern Virginia, visiting a winery here is considered a day trip for visitors, and the winery is the purpose of the trip. The attributes that attract visitors to

Map 3.5





wineries in Northern Virginia are location, interest in wine tasting, and the ability to be with friends and family. Other attributes, such as reputation of the winery, are not important.

Northern Virginia winery visitors purchase the most wine of all those in the sample. The average amount of wine purchased is 1.3 bottles of wine a week and over 2 bottles of Virginia wine a month. Purchasing of wine is mostly done at grocery stores, but 23 percent also reported that most of their wine is purchased directly from the winery. Visitors from this region also visit Virginia wineries more than those in any other region, averaging 5 a year, and 55 percent visit wineries in other states. Virginia wine is considered to be somewhat lower quality compared to wine from other regions around the world.

### **3.2.4 Shenandoah Valley**

#### **3.2.4.1 The Study Area**

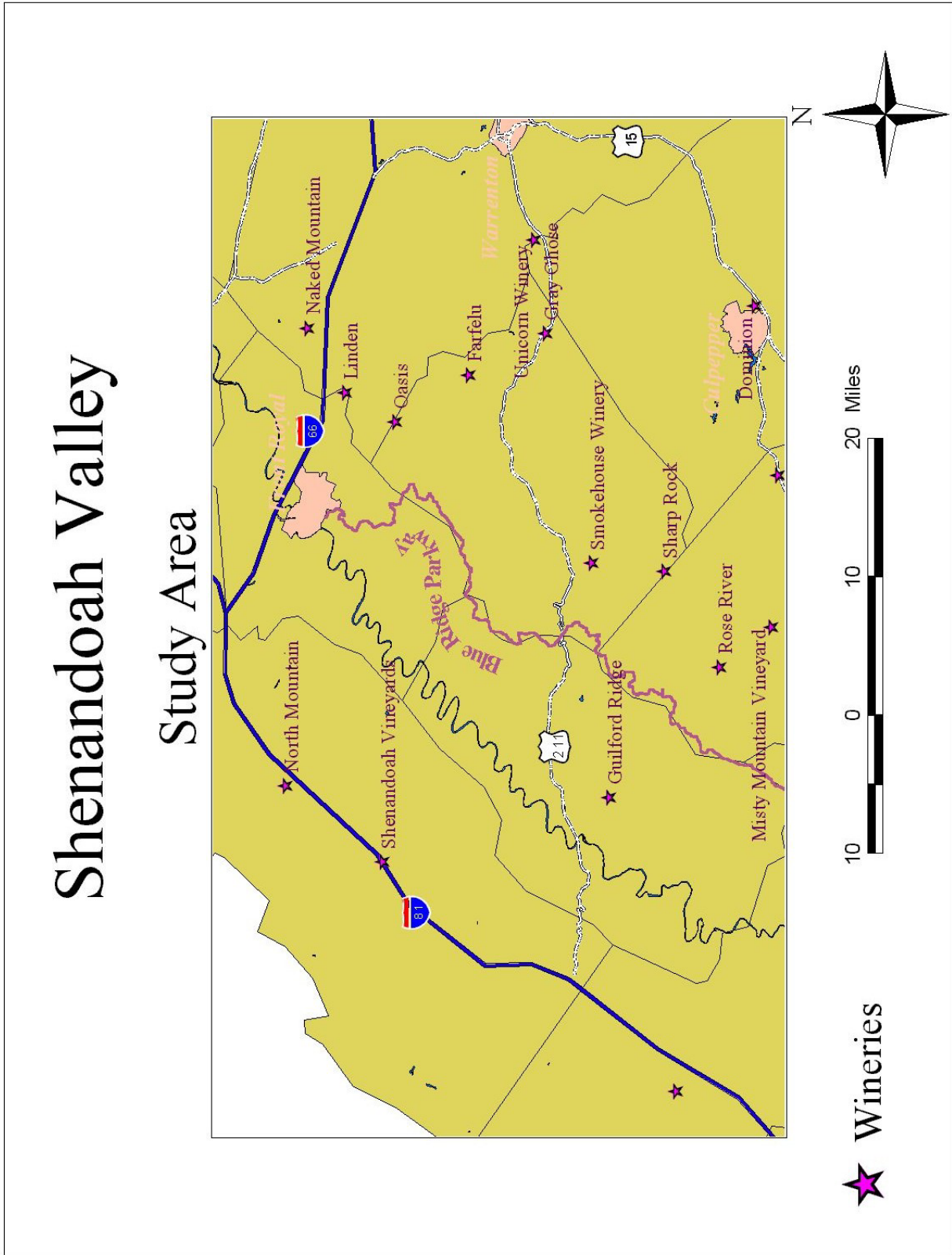
Shenandoah Vineyards was selected for the Shenandoah Valley region (Map 3.6). Shenandoah Vineyards is located in Edinburg, Virginia, about one and a half miles from Interstate 81 and is the fifth oldest winery in the state. Shenandoah Vineyards is located close to the Northern Virginia region and to other tourist attractions in the Shenandoah Valley. The Shenandoah Valley is home to one of the largest national parks east of the Mississippi River and attracts visitors year round.

#### **3.2.4.2 Profile of Shenandoah Valley Winery Visitors**

The Shenandoah Valley attracts an older group of visitors, most of whom are over 40 years of age, but a substantial number are in their twenties (Table 3.11). Similar to the situation in the other regions, the vast majority are college educated, and 20 percent have graduate degrees. This group tends to have an annual household income between \$50,000 to \$75,000 a year, and 37 percent have annual household incomes in excess of \$75,000 a year. The average length of time visitors have lived in their current state is 28 years; only Central Virginia visitors, on average, have lived in their current state of residence longer.

Visiting a winery is the reason of the trip for many in this region. Most visitors are participating in a day outing that includes visiting a winery and enjoying other attractions in the area. Visitors to this region ranked the location of the winery, interest in wine tasting, and the ability to be with friends and family as the most important attributes when making the decision to

Map 3.6



**Table 3.11**  
**Shenandoah Valley Profile**

Variable	Result
Typical Age	> 40
Graduate Degrees	20%
Typical Annual Household Income	> \$75,000
Mean Length of Residency	28 Years
Mean 1999 Winery Visits	3 Visits
Mean Visit Wineries in Other States	37%
Mean Length of Trip	1 Day
Mean Weekly Wine Purchases	1 Bottle
Mean Monthly Virginia Wine Purchases	1 Bottle
Most Typical Purchase Place	Grocery Store and Winery

Note: n = 30

visit a winery. The reputation of the winery was not important in the decision, nor was an interest in wine production. The ability to taste wine was considered more important than an interest in the actual production process.

Winery visitors to the Shenandoah Valley purchase the least amount of wine of all those in the sample, less than 1 bottle a week, and they average 1 bottle of Virginia Wine a month. Grocery stores are the most typical place to purchase wine, followed by the winery, the latter accounting for 26 percent of wine purchases. Visitors to the Shenandoah Valley visit an average of 3 wineries a year in Virginia, and 37 percent visit wineries in other states. Shenandoah Valley respondents also rate Virginia wine lower in quality compared to wine from other parts of the world.

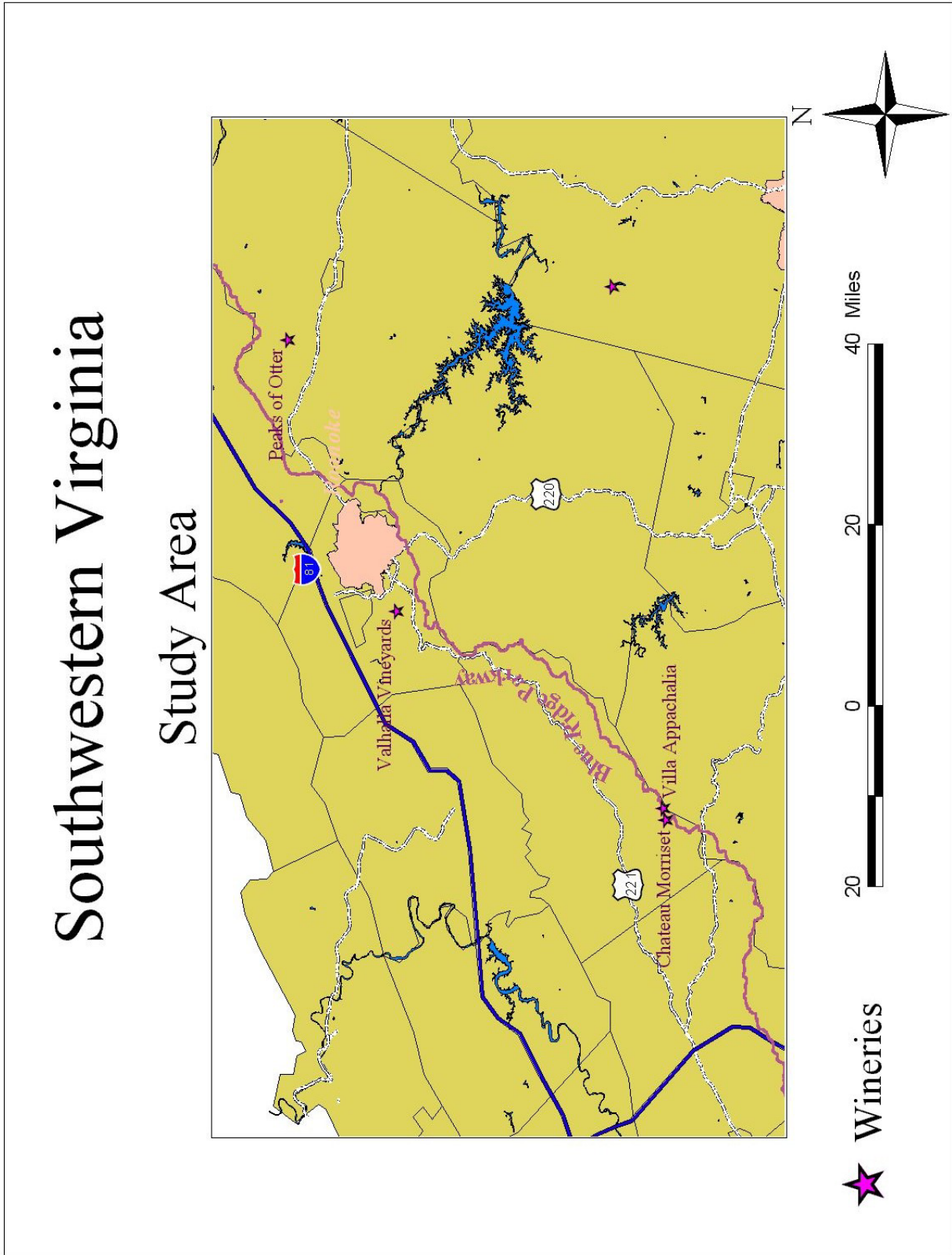
### **3.2.5 Southwest Virginia**

#### **3.2.5.1 The Study Area**

Southwest Virginia has the second fewest number of wineries of the five regions (Map 3.7). There are nine wineries in the region, and most are located in its far eastern portion, an easy drive from Roanoke, Virginia.

For Southwestern Virginia, Valhalla Vineyards was selected as the site to conduct interviews. Valhalla Vineyards is located in Roanoke County overlooking the city of Roanoke, at close to 2,000 feet in elevation. The amount of visitation to the winery is a result of its close proximity to the Roanoke metropolitan area, with several neighborhoods within one mile of the vineyards.

Map 3.7



Valhalla Vineyards benefits from the temperature inversion phenomenon caused by the city of Roanoke on the valley floor. Before the current owners purchased the property, it was a peach orchard. According to a study by Boyer (1998), fruit orchards in the state of Virginia have traditionally been planted in areas that are equally adequate for grape production. The temperature inversion phenomenon increases the growing season of the vineyards, allowing the grapes additional time to fully mature.

### 3.2.5.2 Profile of Southwest Virginia Winery Visitors

Visitors to Southwest Virginia wineries are evenly distributed in relation to age, with most being in their thirties (Table 3.12). Similar to the case in the other regions in the state, this is mostly a college-educated group, with 60 percent having a Bachelor’s degree and 27 percent having graduate degrees. Annual household incomes tend to be over \$75,000 a year, which accounts for 57 percent of the respondents. On average, visitors in this region have lived in their state of residence for 24 years.

**Table 3.12**  
**Southwest Virginia Profile**

Variable	Result
Typical Age	Thirties
Graduate Degrees	27%
Typical Annual Household Income	> \$75,000
Mean Length of Residency	24 Years
Mean 1999 Winery Visits	3 Visits
Mean Visit Wineries in Other States	33%
Mean Length of Trip	1 Day
Mean Weekly Wine Purchases	1.1 Bottles
Mean Monthly Virginia Wine Purchases	2 Bottles
Most Typical Purchase Place	Grocery Store and Specialty Shop

Note: n = 30

Visiting a winery is the purpose of the trip for most visitors. However, for 40 percent, it is just one stop on a list of activities. There are very few overnight visitors to this region, with those reporting an overnight stay usually spending one night away from home. Similar to the pattern found in the other regions, the winery’s location, interest in wine tasting, and ability to be with friends and family were important in the decision to visit the winery.

Visitors also report purchasing approximately 1.1 bottles of wine a week and average purchasing 2 bottles of Virginia wine a month. Southwest Virginia winery visitors make an average of 3 visits to Virginia wineries a year. The grocery store is the most typical purchase place, followed by specialty shops. Southwest Virginia visitors, similar to visitors to other regions, rate Virginia wine lower in quality compared to wine from other parts of the world.

### **3.3 Summary**

Results of the regional analysis indicate that eight variables had significantly different results among the five wine regions, supporting the idea that wine regions based on visitor profiles exist. The remaining variables are not significantly different across regions, but are used in the creation of profiles of each region. The regional profiles reveal that some regional variation exists among visitors to Virginia's wineries, which may indicate a need for target marketing schemes to attract more visitors to the wineries of a particular region.

The results of the analysis of the Trip Attribute Variables show some definite issues that marketing can address to increase awareness of Virginia's wineries. Virginia's wine history is not considered very important when a person is making the decision to visit a winery. This finding suggests that one method of advertising Virginia's wineries can be to raise awareness of the history of wine in the state. Architectural design was considered unimportant by respondents in all regions. The assumption can be made that visitors expect the winery to have a pleasing environment conducive to spending time with friends and family. The reputation of the winery was considered important by respondents from all regions. For marketing a winery, it should be considered essential to send a message of high standards of quality in wine production by advertising awards won. Many respondents mentioned that they visited a winery on a recommendation from a friend or relative. Lastly, any marketing campaign for wineries in Virginia should stress the activity as one that is welcoming for friends and family to spend time together. This is significant because most winery visitation takes place on weekends when many people have time to spend with friends and family.

Johnson and Wade (1993) establish a goal for the Virginia wine industry; 20 percent of total wine consumption in Virginia should be Virginia wine. Results of this study show that in all regions, Virginia wine comprises approximately 20 percent of total consumption among winery visitors in this study. Further research should be conducted to explore consumption

patterns in more detail to evaluate what percentage of total wine consumption in the state is Virginia wine. These results show that consumption of Virginia wine among those who visit Virginia wineries is at or near the target specified by Johnson and Wade (1993).

The typical winery visitor is not a tourist visiting Virginia; rather they are people in the local area usually out for a day of leisure activity. Central Virginia is the exception to this rule, with over half of the visitors interviewed fitting the definition of a tourist. The winery visit for people in the Central Virginia region was part of a vacation experience, centered around rural and cultural-based tourism activities in the area. For people in the other four regions a winery visit is a day trip that is either the only planned activity or part of a list of leisure activities planned for the day. The rural setting of most of the wineries in the state should be stressed when advertising to go hand in hand with a leisurely drive into the country-side or to invoke the romantic images of the country-side held by many people. The winery experience can be portrayed as an escape from the fast-paced urban lifestyle many people experience today.

The demographic characteristics of the regional profiles are very similar to one another, except for the age composition of the Northern Virginia winery visitors, which is composed mainly of people under thirty. This research supports results from other studies (Johnson and Wade 1993; Dodd and Bigotte 1997) that winery visitors are overwhelmingly college educated. The percentage of visitors with graduate degrees ranges from a low of 20 percent in the Shenandoah Valley to a high of 50 percent in the Central Virginia region. Annual household incomes are above average as well. Central Virginia visitors report the highest incomes, with 43 percent over \$100,000. A high percentage of visitors to the other regions also report incomes over \$75,000 a year. These results support findings in other research on the composition of winery visitors (Dodd and Bigotte 1997; Getz 2000; Hall and Mitchell 2000; Johnson and Wade 1993).

Not only does the profile analysis point out differences among the regions, but it also reveals weaknesses in this questionnaire. Several questions, such as that asking what is the most common type of wine purchase and that asking if the respondent has a home wine cellar, received answers so skewed that they would not be adequate questions for any future study of this nature.

## **Chapter 4 Discussion and Conclusion**

This research has profiled Virginia winery visitors at two scales, using two different approaches and based on data collected through on-site interviews. In Chapter Two, variation was analyzed based on the data itself, independent of spatial concerns, and a methodology supported throughout the tourism segmentation literature was utilized. Chapter Three analyzed regional variations in the sample to determine if there were any statistical differences in the habits and perceptions of winery visitors in different parts of the state. Segmentation of the data was based on region and therefore did not need to undergo cluster analysis.

The factor-cluster methodology used in Chapter Two failed to produce usable results. Therefore, the methodology in Sheppard's (1996) work, which found that cluster analysis may produce better results if run before factor analysis, was utilized, and the factor analysis was abandoned due to poor results. The segments generated using the K-means cluster procedure were verified using multiple discriminant analysis and were found to be statistically independent in data space without any consideration to spatial differences. As the next section indicates, a weak relationship between the occurrence of the segments and the regions was found to exist. The presence of distinct segments within this data set supports the idea that the visitors to Virginia's wineries can be segmented into meaningful market segments.

Chapter Three applied a regional component to the data, based on the winery where the interview was conducted. The idea was to look for regional variations among the visitors in each region. There were five regions used and variations were found within some of the data collected. The methodology for this section was less complex, due to the inherent presence of segments within the data, based on region. ANOVA and Chi-square tests were used to uncover the regional differences present in the data. Profiles were created for each region, enabling industry promoters to draw conclusions about the typical winery visitor to each region in the state.

### **4.1 Examination of Relationship Between Segments and Regions**

Analysis of the segments and regions for any significant relationship shows that one may exist (Table 4.1). The Chi-square was significant at the  $\alpha=0.05$  level, indicating a relationship



between the segments and the regions. Cramer’s V<sup>1</sup> and Contingency Coefficient<sup>2</sup> tests support the existence of the relationship, but low values of both of these (below 0.35) reveal the weakness of this relationship. The Goodman Kruskal tau<sup>3</sup> and the Uncertainty Coefficient tests support the presence of a relationship between the segments and regions, but also reveal the weakness of this relationship indicated by Cramer’s V.

**Table 4.1**  
**Relationship Measures of Segments to Regions**

Measure	Value	P -value
Goodman and Kruskal tau		
Region Dependent	0.03	.016
Segment Dependent	0.07	.009
Cramer's V	.249	.016
Contingency Coefficient	.332	.016

People classified as being in Segment One were found mostly in the Northern and Eastern Virginia regions (see Table 4.2 and Map 4.1). Those in this segment also have a noticeable presence (below 17%) in the Shenandoah Valley, Southwestern Virginia, and Central Virginia regions. Those in Segment Two do not have a marked presence in any region (see Map 4.2). Those in Segment Three were found mainly in Southwest Virginia (25.9 percent), Shenandoah Valley (24.1 percent), and Northern Virginia (24.1 percent) (see Map 4.3).

**Table 4.2**  
**Distribution of Segments Within Each Region (in percents)**

Variable	Central Virginia <sup>a</sup>	Eastern Virginia <sup>b</sup>	Northern Virginia <sup>b</sup>	Shenandoah Valley <sup>a</sup>	Southwest Virginia <sup>a</sup>	Chi Square	P -value
Relationship of Segment to Region *						18.782	.016
Segment One	16.2	30.9	23.5	14.7	14.7		
Segment Two	30.8	23.1	3.8	23.1	19.2		
Segment Three	19.0	6.9	24.1	24.1	25.9		

Note: \* Significant at the 0.05 level or better

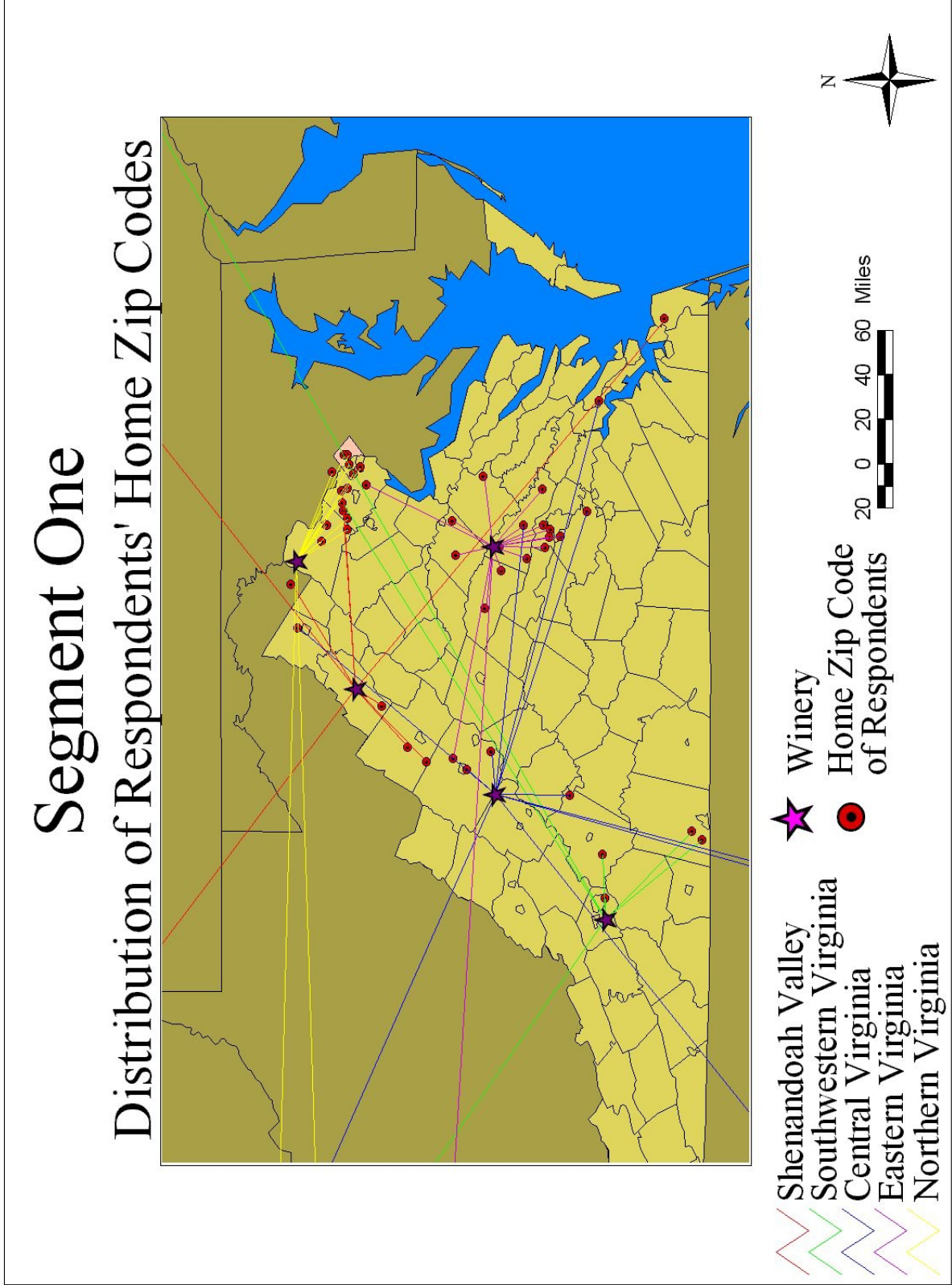
<sup>a</sup> n=30 <sup>b</sup> n=31

<sup>1</sup> Cramer’s V is a statistical test that measures the association between two variables (row and column). The values for this test ranges between 0 and 1. Zero indicates no relationship and 1 indicates a very strong relationship.

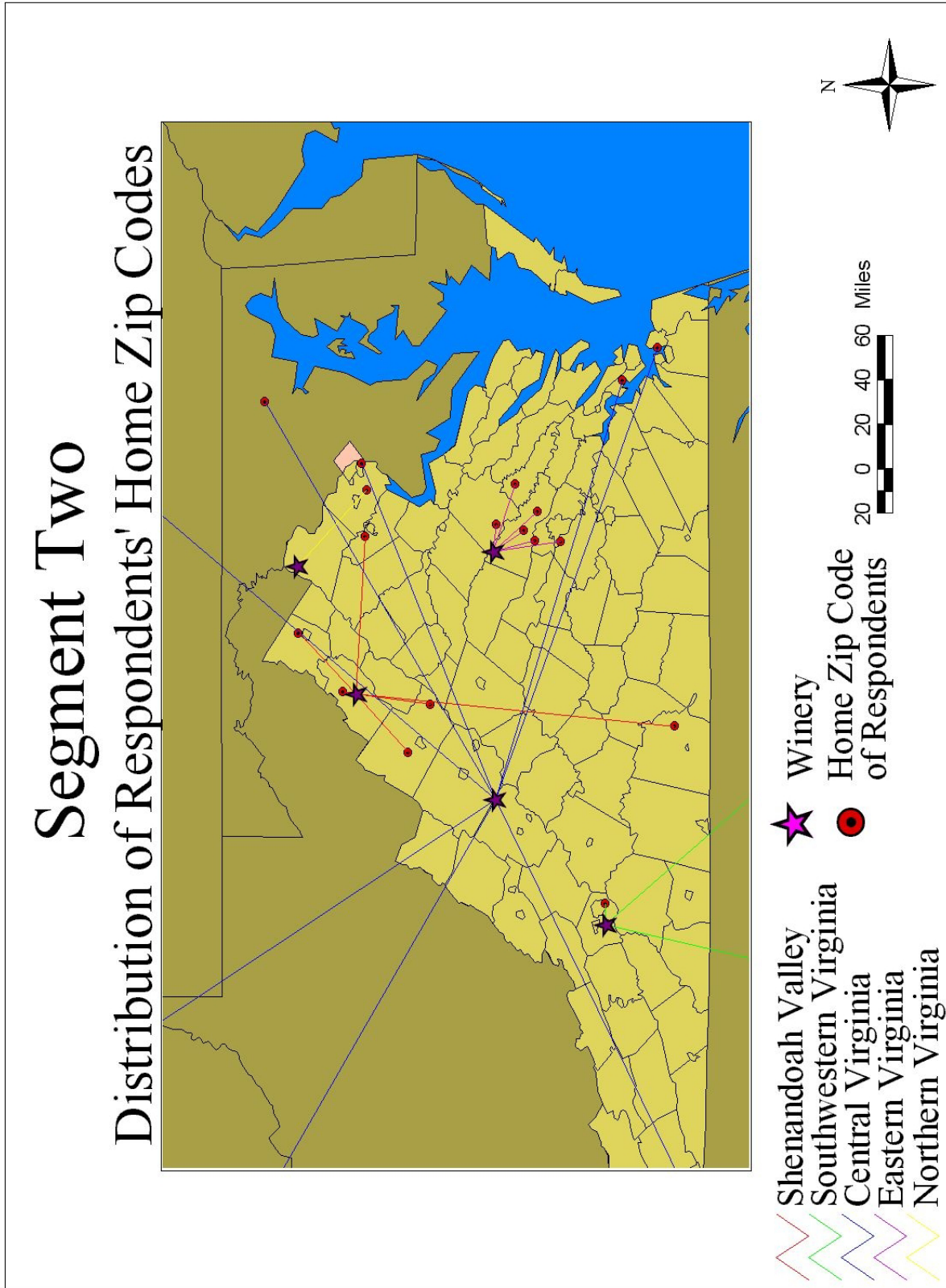
<sup>2</sup> The Contingency Coefficient is a measure similar to Cramer’s V. This test returns a value ranging from 0 to 1, with 0 indicating no relationship and 1 indicating a strong relationship.

<sup>3</sup> The Goodman Kruskal tau test indicates the reduction in error when values of the independent variable are used to test the dependent variable. In the example shown in Table 4.1 a reduction of 0.3 percent would be achieved.

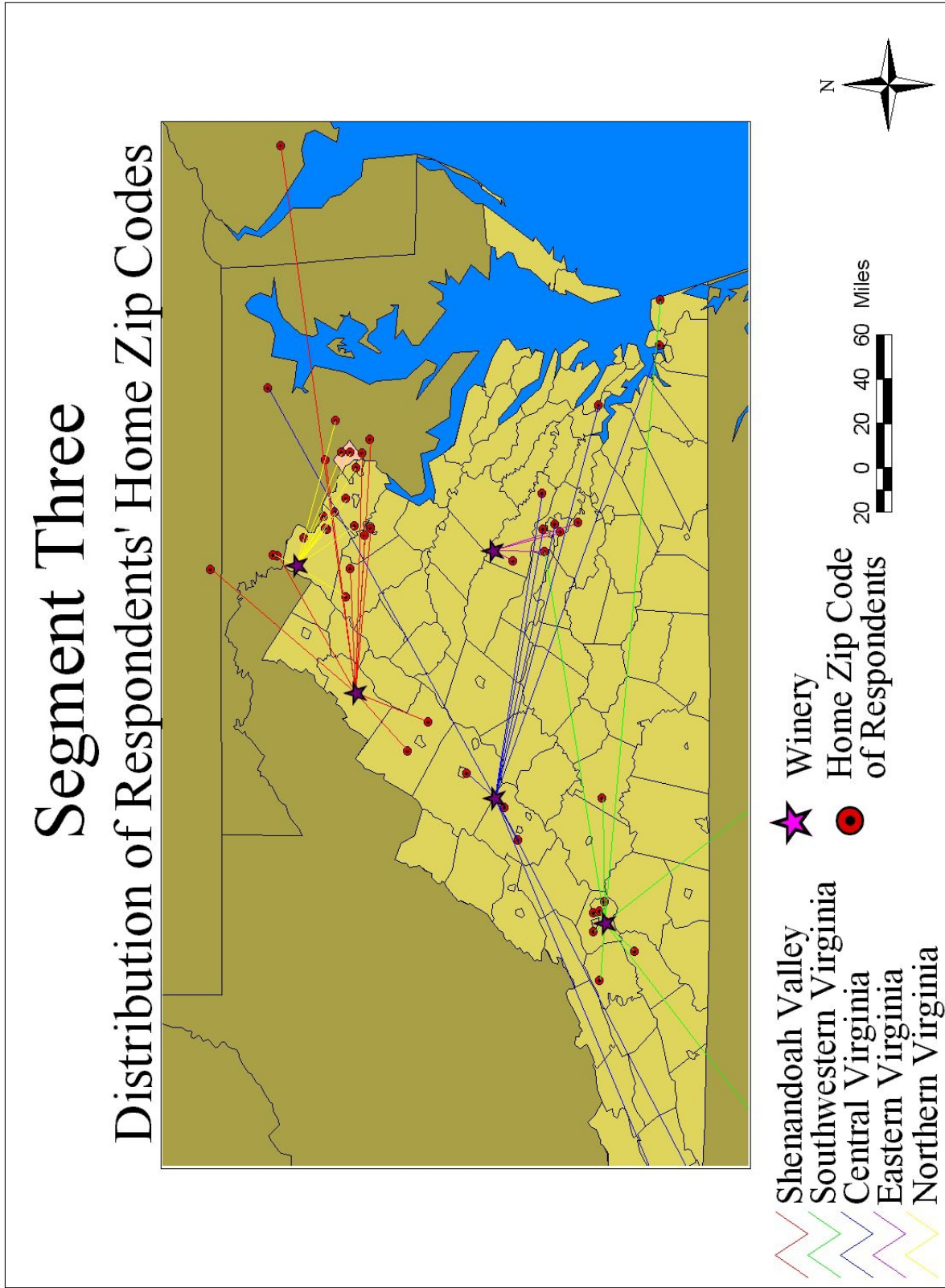
Map 4.1



Map 4.2



Map 4.3



The next test performed on the segments was nearest neighbor analysis. The purpose of this test is to determine if the data have a tendency towards either a regular (clustered) or random pattern. The home zip codes of those in Segments One and Two show a random pattern in their distribution supporting the null hypothesis which indicates that the data are random in nature. The home zip codes of those in Segment Three show a tendency towards a regular pattern, which indicates a rejection of the null hypothesis. The home zip codes of those in Segment One had two agglomerations, one in Northern Virginia and another in the Richmond area. However, home zip codes in this segment were also scattered in other states and similar to the pattern in Segment Two. The home zip codes in Segment Two were very scattered, with a small agglomeration in the Richmond area. However, the small size of this segment may account for some of its random nature. Many of the members of Segment Three were from the Northern Virginia and Richmond sections of the state. The significance of this indicates that those in Segment Three tend to live in similar geographic regions and can more easily be targeted for winery promotions.

#### **4.2 Variations Among Winery Visitors**

These results have proven that Virginia winery visitors and tourists can be successfully grouped into meaningful segments. Profile analysis of the results from the cluster analysis showed several differences among the segments. The size of the winery did not appear to influence the results of this study. The differences in the wineries I selected for this study were so minimal that no influence upon the results was evident.

One striking difference was the importance of the ability to be with “friends and family” in the decision to visit a winery. Segment Two considered this attribute to be “very unimportant,” while the other two segments considered this attribute to be “important.” This result shows that the reasons for visiting a winery are more complex than a simple desire to be with “friends and family.”

There are distinct differences within some regions of the state. This research showed that the Northern Virginia and Central Virginia regions have the greatest differences between one another compared to their differences with Eastern Virginia, Shenandoah Valley, and Southwestern Virginia. For example, most visitors in the Central Virginia region fit the definition of a tourist, more than those in any of the other regions. This group also has the

highest percentage of graduate degree holders and highest incomes. However, their wine consumption was not reflective of their higher incomes or level of education. The Central Virginia region has many historical sites to tour, which may explain the higher percentage of tourists in this region. Rockbridge county, home to Rockbridge Vineyards, has many tourist sites and a well-developed tourism industry. Rockbridge Vineyards has been able to tap into this tourism market and attract visitors, becoming a stop-along-the-way to other attractions in the area. Many people with whom I spoke here were touring the area for a few days and staying at local bed and breakfasts or hotels.

Northern Virginia winery visitors are overwhelmingly day visitors; many are under 30, are college educated, and have incomes over \$75,000 a year. Their level of consumption is the highest in the state, supporting existing research, which has reported that the alcoholic beverage industry's main consuming age group is the 20 to 49 year old cohort (Johnson and Wade 1993, 3). The main population center for the Northern Virginia wineries is the Washington D.C. metropolitan area.

This research did not attempt to collect information about the economic value of any market segment. The assumption can be made that Central Virginia winery visitors are more economically important to the region than their counterparts are to the other regions because of the amount of time visitors spend in this region, therefore allocating more time and money in the region. Visitors to Central Virginia wineries are also more likely to visit other local tourist attractions because of the increased time spent away from home. The finding that winery visits are mainly a day trip activity by local residents in Northern Virginia, Eastern Virginia, Southwest Virginia, and the Shenandoah Valley regions is supported in the data on distances to wineries. Visitors in Northern Virginia, Eastern Virginia, Southwest Virginia, and the Shenandoah Valley tend to travel only a short distance to the winery, while Central Virginia respondents average 100 miles of travel each way to the winery. While local popularity is very important for creating an atmosphere of pride and acceptance of local wineries, the economic benefits and external linkages that result are not as significant.

#### **4.3 Implications of this Research**

The results of this research have important implications for professionals involved in promoting wine-based recreation in the state of Virginia. The concept of wine regions based on

socioeconomic characteristics (using lifestyle, demographic, and spatial variables) has been supported by these results. Segmentation research has the ability to help tourism professionals understand the specific markets and leisure experiences that they are promoting. In the case of Virginia wine-based recreation, promoters can begin to understand the purchasing habits of winery visitors and the types of places at which specific segments tend to purchase wine. Grocery stores tend to be the main place for purchasing wine, followed by specialty shops and wineries. Attempts to increase the amount of Virginia wine on grocery store shelves while labeling it as Virginia wine can have two positive results: growth in sales of Virginia wine, which can increase revenues for the producers and taxes for the state; and increases in the awareness of wine as an agricultural product of the state. Such results will contribute to achieving the goal set by Johnson and Wade (1993) of increasing the percentage Virginia wine consumed in the state. However, the low ratings on the opinion of Virginia wine must be overcome if sales are to increase. Results from this study do not provide any insight into the effect of low opinions of quality on wine-based recreation in the state.

The market structure for advertising Virginia wineries is not as organized as it needs to be to attract the optimal number of visitors. While many efforts have been developed, such as the annual winery guide and passport program, additional promotion efforts need to be taken to increase the visibility of Virginia's wineries. Efforts need to be directed at making wineries more visible within the community and to visitors to the state, such as increasing the advertising along the Interstates. Several wineries in Virginia are very close to the Interstates which, with increased signs displayed on the Interstate, could attract many more visitors. Rockbridge Vineyards and Shenandoah Vineyards, for example, are both only one mile off Interstate 81.

This study shows that visiting a winery is not the major reason for planning a vacation to Virginia or a day out with family and friends. The winery visiting experience for many is part of a cluster of activities. In the case of Rockbridge Vineyards many of the visitors interviewed included the visit to the winery as part of a group of activities planned for the day. Making wineries more visible as part of a group of activities has the potential to increase visitation to many wineries across the state

Promotional campaigns for Virginia's wineries can be placed in the most visible places to attract individuals most likely to visit a Virginia winery. By knowing the attributes that visitors consider important, winery owners can find unique ways to accommodate this valuable

component in the wine industry. The ability to spend time with friends and family is considered important by most winery visitors. Therefore, a winery operator can create an aesthetically pleasing environment, conducive to people spending time with those whom they consider close to them.

#### **4.4 Weaknesses of This Study**

During the course of this research project several weaknesses in the study design were discovered. The interview instrument contained several improper questions, which yielded data that could not be used. For example, questions 19 and 21 (see Appendix A) were so badly skewed on one answer that they should have been removed from the instrument or reworded in order to obtain better data. There were also problems with the collection of address information. There was the option to give a street address or intersection as a place of residence. The quality of this data was so poor that geocoding could only be performed to the zip code centroid level. Lastly, the trip attribute section should have been expanded to capture more detailed information about the attributes of the trip and winery, which were important in the decision process to visit a winery in Virginia.

The goal of this interview instrument was to gather as much information from the respondents as possible in the shortest amount of time. While the average winery visitor is very willing to talk with researchers at wineries, every precaution was taken so that the winery visitor would not be too distracted from the winery visiting experience. This instrument, regardless of its weaknesses, succeeded in collecting valuable data about the composition of the Virginia wine recreation industry.

#### **4.5 Future Research Directions**

Future research needs to be conducted on the composition of the wine tourism and recreation market in Virginia and other wine-producing regions around the world. Most of the research to date on wine tourism has been conducted in Australia (Getz, 2000, 8). The Australian research into wine-related tourism and visitation has been concerned with the economic impacts of visitation on the local economy and developing a tourism industry, while this research is concerned with profiling visitors to wineries. A lack of understanding about the wine tourism market has led to problems in some wine regions; for example, tourism in the Napa



Valley has reached such large proportions that conflicts have arisen over landuse patterns and traffic congestion. In most wine-producing regions, such as Virginia, there are limited resources for promoting wineries, and more detailed information about who is visiting wineries and what they expect from the winery visiting experience can help these limited resources be used in the most efficient manner.

This research has shown the usefulness of segmentation and profile analysis within the field of Geography. Much of the segmentation analysis literature is concentrated within the fields of Tourism Studies and Marketing. Future research should be concerned with collecting more detailed data about the types of benefits visitors hope to obtain from the winery visiting experience. Also, collecting data about the importance of winery attributes will aid in the development of better segmentation schemes. Any future research should also be designed to gather better address information about respondents. This type of information will allow researchers to create better segments and define the types of places in which winery visitors reside by incorporating the vast amount of data available from the United States Census. If market segments occur in similar census units (e.g. block, block group, or census tract) then market segments can more efficiently be reached by advertising. The same approach can also be applied to the regional profiles as well. Visitors to wineries in different regions may also live in significantly different census units. For example, the demographic composition of winery visitors in Southwest Virginia could be significantly different from that of winery visitors in Eastern Virginia.

The results of this research indicate that for marketing purposes there appears to be three wine regions (Northern Virginia, Central Virginia, and a combined region of Southwest Virginia, Eastern Virginia, and the Shenandoah Valley). Segmenting the winery visitor market is a justified approach for marketing campaigns to increase visitation numbers and promote the industry. The five wine regions identified by the state Wine Marketing Board are more for convenience of directing visitors to wineries in an organized fashion. Such tourist information on wine regions is important, because unlike the situation in the Napa Valley, where wineries are in close proximity to one another, Virginia wineries are scattered across the state, making it harder to visit multiple wineries in one outing. The five regions are appropriate for these purposes, but it should be realized that for marketing purposes there appear to be only three distinctly different regions.

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## Appendix A The Interview Instrument

Thank you for taking the time to complete this interview. My name is Blaine Adams and I am a graduate student from the department of Geography at Virginia Tech. My research is a study of Virginia winery tourism. All answers in this interview are confidential and will never be used in anyway that would allow anyone to identify you the respondent. The information asked in this interview is for research only. Your cooperation and feedback is very important and wanted. Thank you.

**This set of questions will ask how you rate Virginia wine to wine from other parts of the world. Please select on how you feel Virginia wines compare based on your overall opinion of Virginia wines. The scale for rating is:**

0. NO RATING	1. MUCH LOWER QUALITY	2. SOMEWHAT LOWER QUALITY	3. EQUAL QUALITY	4. SOMEWHAT HIGHER QUALITY	5. MUCH HIGHER QUALITY
-----------------	--------------------------	------------------------------	---------------------	-------------------------------	---------------------------

- |                         |   |   |   |   |   |   |
|-------------------------|---|---|---|---|---|---|
| 1. West Coast US wines? | 0 | 1 | 2 | 3 | 4 | 5 |
| 2. East Coast US wines? | 0 | 1 | 2 | 3 | 4 | 5 |
| 3. French wines?        | 0 | 1 | 2 | 3 | 4 | 5 |
| 4. Italian wines?       | 0 | 1 | 2 | 3 | 4 | 5 |
| 5. German wines?        | 0 | 1 | 2 | 3 | 4 | 5 |
| 6. Australian wines?    | 0 | 1 | 2 | 3 | 4 | 5 |
| 7. Chilean wines?       | 0 | 1 | 2 | 3 | 4 | 5 |

**This section ask how important certain attributes of the winery were in your decision to visit this winery.**

1. VERY UNIMPORTANT    2. UNIMPORTANT    3. NO OPINION    4. IMPORTANT    5. VERY IMPORTANT

- |   |   |   |   |   |   |
|---|---|---|---|---|---|
| 8. How important was Virginia's wine history in your decision?                    | 1 | 2 | 3 | 4 | 5 |
| 9. How important was the winery's location in your decision?                      | 1 | 2 | 3 | 4 | 5 |
| 10. How important was the winery's architectural design in your decision?         | 1 | 2 | 3 | 4 | 5 |
| 11. How important was the reputation of the winery's quality in your decision?    | 1 | 2 | 3 | 4 | 5 |
| 12. How important was interest in wine tasting to your decision?                  | 1 | 2 | 3 | 4 | 5 |
| 13. How important was an interest in wine production to your decision?            | 1 | 2 | 3 | 4 | 5 |
| 14. How important was the ability to be with friends and family in your decision? | 1 | 2 | 3 | 4 | 5 |

**The next set of questions will ask you about your consumption habits related to wine and about this trip.**

15. How many times in 1999 did you visit any Virginia winery? \_\_\_\_\_
16. In 1999 did you visit wineries in other states? 1.YES 2.NO    If yes please list. \_\_\_\_\_
17. Approximately how many bottles of wine did you purchase between June and August of 2000? \_\_\_\_\_
18. Of those purchased, how many were Virginia wine? \_\_\_\_\_
19. What was your most common type of wine purchase?                      1. BOTTLE    2. CASE

**20. Where did you purchase most of your wine between June and August of 2000?**

- |                   |                  |                     |
|-------------------|------------------|---------------------|
| 1. ABC STORE      | 2. GROCERY STORE | 3. CONVENIENT STORE |
| 4. SPECIALTY SHOP | 5. WINERY        | 6. OTHER            |

**21. Do you have a wine cellar in your home?** 1. YES 2. NO

**22. Was the purpose of this trip to visit wineries?** 1. YES 2. NO

**23. What other type of activities are planned during this trip?** \_\_\_\_\_  
\_\_\_\_\_

**24. Will this trip include an overnight stay?** 1. YES 2. NO

**25. What is the length of this trip in days?** \_\_\_\_\_

**26. What type of accommodations have been used most on this trip?**

- |                |                       |                 |
|----------------|-----------------------|-----------------|
| 1. HOTEL/MOTEL | 2. BED & BREAKFAST    | 3. CAMP CABIN   |
| 4. RV          | 5. FRIEND OR RELATIVE | 6. OTHER: _____ |

**The next set of questions will ask demographic and location information. Your answers are confidential and will in no way be used outside the scope of academic research. No information from this interview will be used to identify any individual.**

**27. What is your age?** 1. 21-29 2. 30-39 3. 40-49 4. 50-69 5. 70 and Above

**28. Gender?** 1. MALE 2. FEMALE

**29. What is your highest level of education completed?**

- |                        |                          |                    |
|------------------------|--------------------------|--------------------|
| 1. HIGH SCHOOL OR LESS | 2. ASSOCIATE OR BACHELOR | 3. GRADUATE DEGREE |
|------------------------|--------------------------|--------------------|

**30. What was your annual household income from employment in 1999?**

- |               |                  |               |
|---------------|------------------|---------------|
| 1. BELOW 30K  | 2. 30K TO 49K    | 3. 50K TO 74K |
| 4. 75K TO 99K | 5. 100K OR ABOVE |               |

**31. How many years have you lived in your current state?** \_\_\_\_\_

**32. I need to get address information for the purpose of spatial analysis . This information will only be used for mapping purposes. It will not be used for any other purposes or distributed to anyone. Could I please get your street address or nearest intersection to your home for this purpose.**

**STREET:** \_\_\_\_\_

**INTERSECTION:** \_\_\_\_\_

**CITY:** \_\_\_\_\_ **STATE:** \_\_\_\_\_ **ZIP:** \_\_\_\_\_

ANSWER SHEET

DATE \_\_\_\_\_

WINERY \_\_\_\_\_

- 1. 0 1 2 3 4 5
- 2. 0 1 2 3 4 5
- 3. 0 1 2 3 4 5
- 4. 0 1 2 3 4 5
- 5. 0 1 2 3 4 5
- 6. 0 1 2 3 4 5
- 7. 0 1 2 3 4 5
- 8. 1 2 3 4 5
- 9. 1 2 3 4 5
- 10. 1 2 3 4 5
- 11. 1 2 3 4 5
- 12. 1 2 3 4 5
- 13. 1 2 3 4 5
- 14. 1 2 3 4 5
- 15. \_\_\_\_\_
- 16. YES NO  
\_\_\_\_\_
- 17. \_\_\_\_\_
- 18. \_\_\_\_\_
- 19. 1. BOTTLE 2. CASE
- 20. 1. ABC STORE  
2. GROCERY STORE  
3. CONVENIENT STORE  
4. SPECIALTY SHOP  
5. WINERY  
6. OTHER \_\_\_\_\_
- 21. YES NO
- 22. YES NO
- 23. \_\_\_\_\_

- 24. YES NO
- 25. \_\_\_\_\_
- 26. 1. HOTEL/MOTEL  
2. BED & BREAKFAST  
3. CAMP CABIN  
4. RV  
5. FRIEND OR RELATIVE  
6. OTHER \_\_\_\_\_
- 27. 1. 21-29  
2. 30-39  
3. 40-49  
4. 50-69  
5. 70 and Above
- 28. MALE FEMALE
- 29. 1. HIGH SCHOOL OR LESS  
2. ASSOCIATE OR BACHELOR  
3. GRADUATE DEGREE
- 30. 1. BELOW 30K  
2. 30K TO 49K  
3. 50K TO 74K  
4. 75K TO 99K  
5. 100K OR ABOVE
- 31. \_\_\_\_\_
- 32. STREET \_\_\_\_\_  
\_\_\_\_\_  
INTERSECTION \_\_\_\_\_  
\_\_\_\_\_  
CITY \_\_\_\_\_  
STATE \_\_\_\_\_ ZIP \_\_\_\_\_



## **Vita**

Christopher Blaine Adams was born on May 10<sup>th</sup> 1975 in Jacksonville, Florida. He attended Calhoun Community College in Decatur, Alabama where he earned a Associate of Science degree in Computer Information Systems. He then moved to the University of North Alabama (UNA) where he studied Geography and earned a Bachelor of Science in December 1998. Upon graduation from UNA he accepted a brief job with the Buxton Company in Fort Worth, Texas as an Information Systems Analyst, before attending graduate School at Virginia Polytechnic Institute & State University (VPI&SU). He earned a Master of Science degree from VPI&SU in June 2001. Upon graduation from VPI&SU he accepted a teaching position in the Geography Department of UNA.

Christopher Blaine Adams