The Externalities of Finger Lakes Wine.

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# Table of Contents

Acknowledgements .................................................................................................................. 3  
Objective .................................................................................................................................. 3  
Introduction ............................................................................................................................. 4  
Economic Impacts .................................................................................................................... 12  
Environmental Impacts .......................................................................................................... 18  
Weighing the Impacts ............................................................................................................. 23  
Moving Forward – What Can Wineries Do Better? ................................................................. 25  
Conclusion .............................................................................................................................. 28  
Bibliography ............................................................................................................................ 30  
  
  
  
I. References of Photos, Tables, and Figures ....................................................................... 32

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# Table of Figures

Figure 1. Satellite View of Snow Fall Along the Finger Lakes .................................................. 6

Figure 2. Map of Wineries on Seneca Lake .............................................................................. 8

Figure 3. Fox Run Vineyards 2008 Drink New York Riesling ................................................... 26

Table 1. The Primary Finger Lakes for Grape Production ....................................................... 7

Table 2. Annual Economic Impact: $3.76 Billion ................................................................. 14

Table 3. Fatalities in Crashes Involving an Alcohol-Impaired Driver .................................... 16
Acknowledgements

Without the help of a few experts, I would not have been able to acquire the resources to do this report effectively. That being said, I would like to take this opportunity to thank those who helped with my research: Jenna LaVita ’08 of Ventosa Vineyards, Scott Osborn of Fox Run Vineyards, Nancy Irelan of Red Tail Ridge Vineyards, Jim Trezise of New York Wine and Grape Foundation, Tim Martinson of the New York State Agriculture Station and the Cornell Cooperative Extension, and Blair Smith of the USDA NASS NY Field Office - all of whom gave great information regarding the wine industry in the Finger Lakes. Thanks for all your help and putting up with my questions.

Objective

The wine industry in the Finger Lakes is on the path for continued growth. Once the industry was revitalized in the 1980s, there has been no stopping. The information provided in this paper will identify the economic and environmental impacts the Finger Lakes wine industry pose on the surrounding communities. To accomplish this I will include the history of winemaking in the Finger Lakes, the ecological benefits of the region, the economic and environmental impacts of viticulture, a comparison of the impacts, and suggestions for the future and concluding remarks. Specific emphasis will be placed on wine-related information regarding Seneca Lake when it is necessary. At times an even broader scope will be analyzed when the state of New York as a whole is considered. The context will be defined carefully in order to avoid confusion. I hope you will enjoy reading what I have had a good time learning about!
Wine produced in the Eastern United States adds diversity to the global market of wine. "An advantage of growing wine in the East is that the [cool] climate produces fresh-tasting wines, with higher acidity and lower alcoholic content than most of California, the largest wine producing state” (Klees 7). New York State, specifically the Finger Lakes Region, is one of the leading players in wine production of the East. Of the 277 wineries found in New York, 102 are found alone the shores of the Finger Lakes (Economic Benefits Handout). They mainly lie on the four major lakes: Seneca, Cayuga, Canandaigua, and Keuka (Finger Lakes Wine Country website). The art of wine making dates back to the late 1800’s in New York State, but it has been since the 1980’s when the Finger Lakes was granted American Viticulture Area (AVA) status (Whitesell 58). “The first bonded Finger Lakes Region winery was Pleasant Valley Winery,…which began commercial production of wine in 1860 in Pleasant Valley, south of Hammondsport, NY [along Keuka Lake]” (Klees 16).

The development of a wine industry in the East struggled through much of its early history. In the late 1600’s William Penn tried to start a vineyard along the Schuylkill River in Philadelphia. Unfortunately, his trial failed after pests and viruses inebriated his vineyard. Vines brought over from Europe continued to be planted through the 1800’s in Virginia, Pennsylvania, and Ohio. However, due to lack of pesticides and herbicides, avoiding disease and cross-pollination was nearly impossible at the time. For the next hundred years, vineyards continued to struggle to make ends meet. The worst of it all came in the 1920’s with Prohibition. Once Congress banned alcoholic beverages, vineyards were scrambling to stay afloat. In the Finger Lakes Region alone, 27 wineries went out of business; only the largest wineries survived by
producing grape juices and sacramental wine. It was not until 1933, when Congress repealed the Volstead Act to make alcoholic beverages legal again in the U.S. (Klees 10-17).

With the help of technological advances and new procedures, winemakers were starting to understand the interesting opportunities of producing wine in the Finger Lakes. The climate and soils were no longer the obstacles to grow decent grapes, but the key ingredients to allow certain grapes to flourish. “The terrior\(^1\) of the region is special because of the macroclimate created by the lakes; extreme cold weather in the winter is avoided and warm, breezy days during the summer help ripen the grapes” (Finger Lakes Wine Country website). In order to allow grapes to mature, the climate of a given region must follow certain requirements. The growing season must have a minimum of 180 frost-free days for the grapes to ripen. If the growing season has less than 170 frost-free days, grapes with the shortest growing season will not survive. The lakes buffer temperature abnormalities so that grapes can grow well year round (Martinson 1-3).

\(^1\) Terrior is the French term for the outside factors which affect a wine’s quality, taste, and character. Indeed, the elements of the environment can be found in a glass of wine.
Figure 1. Satellite view of snow fall along the Finger Lakes. Note: The longer and deeper lakes have the least amount of snow fall. Source: http://keckgeology.org/files/pdf/symvol/18th/fingerlakes/whitesell.pdf

The largest of the Finger Lakes are Seneca, Cayuga, Canandaigua, and Keuka. The majority of wineries in the Finger Lakes are found along these lakes because of their length, depth, and topographical features. All of these lakes range from 180 to 620 ft in depth so most rarely freeze over in winter, “…and therefore provide local temperature moderation on slopes immediately surrounding the lakes. The lakes also vary in elevation (see table below) with the lowest elevation lakes generally being warmer” (www.nyvineyardsite.org). Commonly known as the “lake effect” the deeper the lake the more climatic and temperature extremes are avoided. This is why the most wineries are found along the deepest lakes in the Finger Lakes (Seneca, Cayuga, Canandaigua, and Keuka); the weather is more accommodating to viticulture (Whitesell 58-59).
<table>
<thead>
<tr>
<th>Lake</th>
<th>Length (mi)</th>
<th>Maximum Depth (Ft)</th>
<th>Elevation (Ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canandaigua</td>
<td>16</td>
<td>276</td>
<td>688</td>
</tr>
<tr>
<td>Keuka</td>
<td>20</td>
<td>183</td>
<td>715</td>
</tr>
<tr>
<td>Seneca</td>
<td>38</td>
<td>618</td>
<td>445</td>
</tr>
<tr>
<td>Cayuga</td>
<td>40</td>
<td>435</td>
<td>382</td>
</tr>
<tr>
<td>Owasco</td>
<td>11</td>
<td>177</td>
<td>711</td>
</tr>
<tr>
<td>Skaneateles</td>
<td>15</td>
<td>315</td>
<td>863</td>
</tr>
</tbody>
</table>

Table 1. The Primary Finger Lakes for Grape Production. Source (www.nyvineyardsite.org)

The Finger Lakes were formed by glaciers some two million years ago. The glaciers carved old stream valleys to form these lakes through a series of movements. Episodes of glacial retreatment and convergence helped to carve the lakes in different ways. Remnants of glaciation can still be found today in the varying forms of sedimentation along some of the Finger Lakes; for example drumlins and gravel deposits. The “Ice Age” has created the ideal environment for grapevines to grow on sloping shores with plenty of water, nutritious soils, and moderated temperatures. All of which comprise the terroir of the Finger Lakes and what gives the region the ability to produce high-quality, distinctive wines. (The Paleontological Research Institution – Formation of the Finger Lakes).

In order to get a sense of how wineries are distributed along a lake, a map of Seneca Lake is provided below. Of all of the Finger Lakes, Seneca Lake boasts the most wineries along its shores. Seneca Lake hosts 35 wineries along its eastern and western shores. 20 wineries reside along the western shore and 15 along the east. One can see they are not concentrated in one area.
This means that all the communities surrounding the lake will be affected by the wineries (Seneca Lake Wine Trail website).

Figure 2. Source: Wine Trail Maps. 
The Finger Lakes specialize in a variety of different wines. From sweet, fruity whites to full-bodied reds, the Finger Lakes produce wines to fit anyone’s palate. Vinifera (grapes native to Europe) varieties like Riesling, Gewurztraminer, Pinot Gris, Chardonnay, Cabernet Franc, Cabernet Sauvignon, Lemberger, Pinot Noir and Merlot, are commonly found in the Finger Lakes. Sweeter wines are also produced from many native and hybrid (mixed between vinifera and disease-resistant American varieties) grape varieties, which many wineries produce. Since the climatology and topography of the land surrounding many of the Finger Lakes is quite diverse; winemakers are able to produce wines that are comparable to many wines made in Europe or California. Many varieties of Riesling have won world class awards (Finger Lakes Wine Country website).

Two types of soil can be found in the Finger Lakes Region. Each have a different effect on the wines produced at any given winery. “When the glaciers that formed the Finger Lakes receded, they left behind salt beds, shells, and decayed organic material. As these substances broke down, they created two types of soil” (Underhill, 35). Seneca and Cayuga lakes are at lower elevations and have “chalky, high-lime soil.” Since temperatures normally decrease as elevation increases, lakes with lower elevations will have better and more diverse outputs of wine. This is why vinifera varieties are often grown along Seneca and Cayuga lakes. At higher elevations, the soil becomes more acidic. This means for lakes like Keuka and Canandaigua, Native American varieties are normally grown since they can handle lower temperatures. This may be the reason why the first grapes of the area were grown around small lakes. These glacial soils help to produce wines of distinctive character and quality (www.nyvineyardsite.org).

A group of Cornell Cooperative Specialists have developed a website (www.nyvineyardsite.org) that identifies the necessary qualities a vineyard site needs in order to
grow grapevines. Information about climate, soil quality, elevation, drainage, growing seasons, freeze-free days etc. are thoroughly discussed to provide a potential winemaker with the tools to decide if his or her land is appropriate to grow healthy grapes to produce wine. An interesting function of the website is under the “Data Layers” tab. A map interface is developed through Microsoft Virtual Earth and shows the geographic and climatic features of each region in the state of New York that host lakes. The features that can be viewed spatially on the virtual map are pH levels, amount of drainage, percent slope, hillside, and lake effect to name a few. This program is helpful to anyone who wants to know more about the ecological features of various regions in New York (www.nyvineyardsite.org).

The topography of the land surrounding the lake has a lot to do with the reason wineries are built up in the first place. Much of the land surrounding the lake has very steep slopes which is ideal for vineyards to be built upon. Steeply sloped hills allow for “air drainage.” This is important for moving cool air. Downward sloping hills push the cool air away from the grapevines. Flat land might allow cool air to sit. Winemakers do not want cold air to sit on their crops for too long. The growing process will be less productive if the cool air does not drain off towards the lake. As stated previously, grapes are constrained to a certain number of frost-free days. So it continues to be a struggle for winemakers to ensure there is proper air drainage and no frost pockets on their vineyards (Longstroth 2009).

The revitalization of the wine industry came in 1976 under the Farming Winery Act. This allowed very small wineries (those who produce less than 150,000 gallons per year) to sell their wines directly to consumers, retailers, and restaurants without having to go through wholesalers. Since the majority of wineries in the Finger Lakes are very small this act gave wine makers the ability to distribute their wines in many different ways. The market of wine was diversified and
expanded from the passage of this act. It is one of the key factors that have allowed wineries in the Finger Lakes region to be so successful today (MFK Research 2005).

Grapevines are interdependent upon the climate, temperature, geology, and topography of the region they are grown in. This makes the environment quite important in the growth process. If the environment is not suitable for the grape then wine makers are out of luck. Analysis of the ecological features is necessary for growth assurance. Wine can never be produced in an environment that does not have the appropriate temperatures, climates, topography, or soil quality for grapevine prosperity. Since the deeper lakes meet most of these environmental requirements, wineries around Seneca, Cayuga, Keuka, and Canandaigua Lakes continue to achieve great success.

The role of the environment in economic progress is essential when it comes to winemaking. If the climate, soil quality, weather patterns, and topography allow for grape growing, the economic impetus to do it will follow. The Finger Lakes offers all the incentives to produce wine and since the 1980’s people have taken advantage of it. As the wine industry has grown and prospered in the Finger Lakes, local communities have been affected. Rates of tourism, employment, sales, and business development have all increased as a result. Is it safe to say that everyone has been positively affected by the wineries? That is what the next few sections will try to unravel.
Economic Impacts

After California and Washington, New York is the third largest grape-producing state. “There are approximately 1384 grape farmers in the state with 31,000 bearing acres, which produced more than 142,000 tons of grapes in 2004 for a total market value of just over $30 million – the third highest value fruit crop in New York after apples and cherries” (MFK Research 4). The Finger Lakes is New York’s largest wine producing region, accounting for about 85% of the state’s total production and grows over 70 varieties across 10,000 acres. Of the 277 wineries in the state of New York, 102 are in the Finger Lakes (Grape Production in New York and “Economic Benefits Handout”).

The wine industry has become a very important part of the economy of New York. From the taxes generated to the wine sales, tourism rates, and other positive externalities, New York wineries are a key part of the economic stability of the state. Whether a townsperson knows it or not, they indirectly depend upon the wine business. As Scott Osborn, the owner of Fox Run Vineyards can attest “one dollar spent on local wine returns $10 back to the community through employees spending their wages at local businesses and taxes paid.” Buying and supporting local growers and industry in turn supports the local community. Differently he describes “for every dollar spent on out of state wine, only 72 cents comes back to the community.” That is a huge difference. Buying locally is the better option. The benefits extend from state and local municipalities to other businesses and finally into the pockets of the local citizens (S. Osborn, Wine Class, Oct. 2010).

Winemaking is a risky business. People have to invest a lot of money in the beginning phases to operate and/or build a vineyard. With steep upfront costs the ensuing debts can be
extremely daunting if they are not paid off within the next few years. Winemakers have to ensure they tend to their grapes attentively in order to guarantee profit. As with any venture, there is no guarantee for success. Trial and error is the best default, because once a person can get it right, they will be rewarded. A winemaker must trust the investment will follow through.

Wineries facilitate new money-making opportunities for businesses of the Finger Lakes. This includes limo or transit services to and from the wineries, hotel packages, restaurants deals etc. It allows new businesses to prosper as well as to discourage drunk driving. This is definitely a bonus to any community. No one wants more accidents to happen because of drunk driving. There are many ways an existing business can transition or create itself to be visible to the many wine-tourists the Finger Lakes region receives each year. The opportunities to stay afloat in harsh economic times are easier where the wine industry continues to thrive.

Tourism is crucial for the national, state, and local economies. In 1985 the number of tourist visits to wineries in the state of New York was 384,000. In 2008 this number has grown to 4.986 million. This is an indication that more people from other states are venturing to the Finger Lakes to get a feel of wine made in the Eastern United States. The greatest increase in visits has happened recently. From 2000 to 2008 visits increased by 85%. As more people visit the wineries it means more wine is likely to be sold. This is true, spending per person rose by 76% between 2000 and 2008. This means more and more revenues are being driven back into the community. The following table was generated by the New York Wine and Grape Foundation to show the annual economic impact of grape juice and wine products in the state of New York. It highlights the great achievements this industry made in 2008 (Economic Benefits Handout).
Annual Economic Impact: $3.76 Billion

New York’s grape juice and wine products, and related industries produced more than $3.76 billion of economic value in New York State in 2008.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time Equivalent Jobs</td>
<td>17,000</td>
</tr>
<tr>
<td>Wages Paid</td>
<td>$802 million</td>
</tr>
<tr>
<td>Farm Gate New York Winery Sales</td>
<td>$508 million</td>
</tr>
<tr>
<td>Grape Sales</td>
<td>$36.5 million</td>
</tr>
<tr>
<td>Grape Juice Product Revenues</td>
<td>$32.7 million</td>
</tr>
<tr>
<td>Number of Wine Related Tourist Visits</td>
<td>4.98 million</td>
</tr>
<tr>
<td>Wine-Related Tourism Expenditures</td>
<td>$376.5 million</td>
</tr>
<tr>
<td>Taxes Paid (State and Local)</td>
<td>$230 million</td>
</tr>
</tbody>
</table>

(Total economic impact reflects direct, indirect, and induced economic activity. When non-New York wine sales of $1.9 billion and related economic activity are included, total economic impact of grape and wine industries is $7.02 billion.)

Table 2. Source: “Economic Benefits Handout” from Jim Trevize, New York Wine and Grape Foundation.

Much of the successes from the table above comes from the number of new wineries that were opened from 2000 to 2008. 161 new wineries opened in the state of New York, this is more wineries than in the previous 170 years. It shows the wine business in New York is definitely something to get involved in. Who ever said cool-climates could not produce creditable wines was obviously wrong. The wine industry in New York has transformed into something greater.

As the number of wine sales in New York drive through the roof, the amount of sales tax collected has considerably increased as well. “In 2008 the sales tax collected on sales at wineries exceeded $4.85 million for the state and $3.63 million for localities, up 605% since 1995”
(Economic Benefit Handout). This means the state and local governments have more money to utilize for other projects and initiatives that could benefit the community. This is a positive realization. The more tax wineries are required to pay back to the state and local governments, the more money can be used to relieve budgets in a multitude of sectors.

As the wine industry grows, the need for more employees also grows. This means more people within the community are paid wages; therefore, benefitting themselves, their families, and unconsciously the rest of the community. It is easy to presume that employees from the area will spend their wages at grocery stores, restaurants, movie theaters, etc. This pushes money back into the greater community and then the rest of the state. All of what is needed to start a winery requires outside businesses and government to make it possible. For example, to get a mortgage a prospective winery owner must seek out banks and lawyers and by purchasing farm equipment the manufacturer, supplier, and shipper will be benefited. Everything is inter-dependent.

Wineries create incentives. Everyone likes the chance to enjoy a glass of wine in a fun setting. This has become one of the leading factors luring people to the Finger Lakes. Fortunately, wineries are not the only benefactors of wine-related tourism. Wineries along the Finger Lakes have encouraged new businesses to start and others to grow stronger. Hotels, restaurants, grocery stores, shops, museums, historical attractions, and many others will see benefit out of more tourists. In economic terms this is normally referred to as the “multiplier effect.” In the simplest of terms this means “how an increase in some economic activity starts a chain reaction that generates more activity than the original increase” (“Multiplier effect” definition). It becomes easy to see how wineries have the ability to revitalize rural communities.
Wine has also been strengthened through the passage of the Direct-Shipping Law. The Direct-Shipping Law has allowed wineries to gain more momentum not only out of their tasting rooms but across the nation. When the law was passed in New York in 2004 it gave wineries the ability to ship wine directly to its customers. This was another way of adding economic value to the wine industry in New York and to the Finger Lakes. Now people across the country and the world can order and receive Finger Lakes wine at any time. They do not have to make the journey to the Finger Lakes to get a great, cool-climate wine (The Wine Institute – State Shipping Laws: New York).

I also wanted to consider the social or behavioral costs that could be related to an increase in the wine business. I decided to focus this upon drunk-driving accidents. Assuming there are more tourists and more wineries this means more traffic and alcohol-induced accidents, right? Well, it seems logical but as one can see in the table below, drunk-driving accidents have remained relatively stagnant in recent years in counties where the most wineries are located.

<table>
<thead>
<tr>
<th>County Name</th>
<th>Fatalities</th>
<th>Fatalities Per 100,000 Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steuben County</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Ontario County</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Yates County</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Schuyler County</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Seneca County</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

The number of fatalities for the years 2005-2009 in the six counties presented above seems to be relatively low. They only seem more drastic when the fatalities are considered per 100,000 of the population. The numbers are also skewed because many of these counties are much smaller; many have less than 100,000 people. Therefore, it is hard to make conclusions about this table. The circumstance and how it relates to wineries is unknown. Since there are not great numbers of fatalities, the wine business must not be increasing the social and anthropologic costs to the community. Another thing to consider: most of the wineries are only open until 5 or 6 pm. Most drunk driving accidents occur during the night so the tasting rooms may not be to blame.

Overall, the economy is boosted through the wine industry. The “multiplier effect” allows local businesses to grow and diversify. Gateways of opportunity are opened up and the local community is benefited. If the wine industry is profitable then local citizens can be profitable as well. The best success story would be that wineries achieved profitability through sustainable practice. It shows the world that being sustainable is extremely beneficial.
Environmental Impacts

Economic success is something to be excited about in many different ways, but the other ramifications of winemaking need consideration. With more people traveling to the Finger Lakes, the environment and its resources will be compromised. To say if that impact is negative or not depends upon how socially and environmentally conscious the person is. It is my subjective opinion that with the wineries declaring a sustainable and “think globally, act locally” platform, the environment will not be harmed to the same extent.

Seneca Lake is the major participant in its ecological community. Citizens of Geneva, New York and other towns along its shores use it for drinking water, fishing, and other recreational activities. Seneca Lake does not only possess anthropogenic value but also value for the organisms and creatures that live within it. Fish, mussels, algae, and other fauna/floras depend upon the nutrients in the lake to be self-sufficient and reproductive. Contamination is a scary word. If a watershed is contaminated with “unnatural” byproducts (fertilizers/pesticides etc.) all of those who depend upon the lake will be negatively affected.

As people demand more wine, food, energy, water, etc. the environment will be altered. In order to produce higher yields an increase in pesticides, fertilizers, and greenhouse gas emissions will normally follow. With much of the farming activity around Seneca Lake being done along its shores these harmful chemicals will runoff into the lake directly or by way of its surrounding tributaries. Growing demands sacrifice ecosystems.

The impact of fertilizer and pesticide on a watershed can be extreme. If the proper procedures are not followed, many things will be affected. The noxious ingredients of many fertilizers and pesticides can harm nearby rivers and lakes if they leave the soil at alarming rates.
Fertilizers with synthetic nitrogen can have the worst effect on waterways. A process of eutrophication begins as various algae are fertilized, coating rocks, beaches, and piers in green muck. In result, the oxygen is sucked out creating “dead zones” or massive fish-killing zones. Geneva, NY might not be able to use the slogan “Lake Trout Capital of the World” any longer if eutrophic processes become more prevalent (Roberts 217).

Grape production along Seneca Lake and the rest of the Finger Lakes has grown faster than ever before. Unfortunately, the National Agricultural Statistics Service (NASS) does not publish fertilizer or pesticide data for grapes grown in the Finger Lakes region. The only information, Blair Smith, the Deputy Director at the USDA NASS office in Albany, NY, could find for me was either the total usage of fertilizer/pesticide in a certain county in New York or the use at the multi-state level or for the state of California. It might be useful to compare the total usage of fertilizer/pesticides for each county within the Finger Lakes, but it would be hard to conclude anything concrete since many of these counties do not solely produce grapes but many other crops as well (B. Smith, Personal Communication, Nov. 2010).

Vineyard and grape production represents a small cohort of all the farm activity in the Finger Lakes. “In 2007, there were 6,417 farms and 1.5 million acres of farmland in the Finger Lakes” versus 9,000 acres devoted to wineries (Office of the State Comptroller – *The Role of Agriculture in the New York economy*). By this fact alone, fertilizer and pesticide runoff will come from farming more often than vineyards. But it is still important to be aware of fact that a small percentage of the amount of fertilizer and pesticide that is spread across a field will escape. Fortunately, associates from Cornell and the New York Agriculture Station have been working together to determine the effectiveness of new fertilizers and pesticides on grapevines.
The environmental impacts of producing grapes and other crops along the Finger Lakes is something of great concern to scientists and researchers connected to Cornell and state-run organizations. A recent report discusses new “environmentally-benign” herbicides and pesticides that would be better for vineyards and all other farms in the state of New York to utilize. Not only are these new herbicides safer for the environment, but also possess traits that are more resilient and effective. One of the problems with older herbicides is that through more use they become more resistant and as a result, ineffective. The research proves the weed varieties were more resistant to the newer herbicide in the first testing year. In order to see if there is continued success, the herbicide must be used for two more testing years (Bellinger et.al. 1).

The various programs, research teams, and scientists that are affiliated to Cornell University are an asset to the wine industry in the Finger Lakes. “Grape growers and wine producers benefit directly from Cornell programs, and consumers and the service industry benefit indirectly” (Cornell University College of Agriculture and Life Sciences – Wine Fact Sheet). The Cornell Cooperative Extension offers a collection of publications regarding wine to keep the grape growers informed. From the wealth of information and educational opportunities Cornell offers to winemakers, the wine business becomes less daunting (Cornell Fruit: Grape website).

The Cornell Cooperative Extension has a program specifically structured around the needs of winemakers in the Finger Lakes; the Finger Lakes Grape Program. One of things this program can do for a winery is to do a petiole test. From this test, they will be able to determine the amount of nitrogen that is found in the soil. Future recommendations of fertilizer type and
usage can be suggested from this sort of test. All it requires of the winemaker is to send soil
samples to the Finger Lakes Grape Program headquarters in Penn Yan, NY. After a few weeks
they will be able to assess how nutritious the soil is and what it may need in the future. This test
is imperative for the vitality of the grapevine and the wine
(http://flg.cce.cornell.edu/petiole1.html).

Another area of environmental concern with winemaking is the amount of waste that is
created. Jenna LaVita , a 2008 graduate of William Smith and current winemaker at Ventosa
Vineyards, shed some light on the topic for me. She notes that for every acre of land on Ventosa
they get about 2-4 tons of grapes. So when they de-stem the grapes before putting them into the
press, there are a lot of leftover stems that need to go somewhere. “Technically New York State
has no compliance level for waste, yet. However, the Finger Lakes region has progressed
enough so that our consumers now demand (and love) farms/vineyards that are going green” says
LaVita ’08. The impetus to “be green” in every way possible is becoming a necessary part of the
business structures for wineries in the Finger Lakes.

Ventosa Vineyards has become more “green” through composting, recycling, and
growing vegetables. All of the stems generated from the “crushing and processing” of grapes are
put into a compost pile on the property. The pile is regularly turned and spread over the vineyard
every couple of years to give some nutrients back to the soil. Jenna also said they perform
regular testing of the soil to see what is lacking and how composting may be of more assistance.
Aside from composting to increase the nutritional value of the vineyard, they also have a small
garden to grow vegetables for the winery’s café. To ensure a healthy harvest all summer and fall
long, manure from the vineyard’s donkey is spread throughout the garden. This helps to offset
the wineries food costs and their “ecological footprint.” Finally, all the glass bottles and cardboard are recycled (J. LaVita ’08, personal communication, November 8, 2010).

Every winery has their respective “ecological footprint.” This single value includes the costs a particular activity or product incurs. This includes the amount of energy, chemicals, and waste disposal that are needed to perform the activity or produce the product. For wineries this means the land use, water, energy, etc. that is needed to grow the grapes to crush to process to ferment to bottle and to ship the wine. This footprint is important to bear in mind. How can resources from the vineyard itself be used to accomplish what needs to be done? Businesses change their structures all the time to accommodate new demands and challenges they may face. What is to say changing a winery’s business structure to be more sustainable is any less difficult? (Roberts, 232).

Winemakers are changing the way they do things. In order to ensure birds, which eat a lot of the grapes, are off the field, timed cannons and scarecrows are used. These preventative measures are not harmful to the environment and are quite effective. Freeing a vineyard of pests and diseases is always a struggle for winemakers. Finding new and effective ways to do this is always something winemakers strive for. Thankfully, much of the programs Cornell offers are targeted around making winemakers successful (S.Osborn, Tour of Fox Run Vineyards, Sept. 2010).

It is difficult to know how much the wineries are impacting the Finger Lakes in terms of the rate of fertilizer or pesticide run off and waste. But from what people have told me and from what I have read, the environmental impact does not seem huge. The research-based information and assistance the Enology and Viticulture Programs at Cornell provide are a very big help. They
are dedicated to growing the industry through sustainable practices. “Researchers provide answers to what cultivars can be grown, how to grow them, how to manage pests, soils, and water, how grapes should be managed to achieve desired flavor maturity, what wine flavor profile can be expected, and how consistent wine quality can be achieved” (Cornell University College of Agriculture and Life Sciences – Wine Fact Sheet).

**Weighing the Impacts**

Winemaking will never be a dying trade. Though it is not a commodity essential for survival, the experience of consuming wine is satisfying. Drinking wine is enjoyable and many times can provide for a better social experience. As humans we try to seek excitement. The anthropological benefits of drinking wine are endless. The wineries of the Finger Lakes offer something different; distinguished and unique wines made in a cool-climate. Many of the wines produced in the Finger Lakes cannot be found anywhere else in the world with the same characteristics and quality. That is why many varieties have received national and international recognition.

The wine business is dependent upon “mother nature.” If she decides to lessen the harsh conditions, then the winery, state, and local businesses are in for a profitable year. These all originate from the complexity of the multiplier effect, where one occurrence will inevitably affect many other things. Since the wineries incentivize people to the Finger Lakes, if they do not have a good year this could negatively hurt the surrounding community.

It is in a winery’s best interest to treat the environment with the greatest respect. Consumers love it and the fish do too. Consumers should not just think that a winery is
sustainable or environmentally-sound, they should know. Promotion and advertisements are the answers. Every wine business plan should include how they dedicate themselves to the environment. Without a healthy environment, how would wineries be there in the first place? The inter-dependent relationship the winery and the environment share is sacred. Since the environment is only changed through anthropologic influence, it is the wine owner’s obligation to participate in sustainable practice.

There is no excuse either. Wineries in the Finger Lakes have resources available; it is just a matter of using them. The resources the Cornell University College of Agriculture and Life Sciences and the New York State Agricultural Experiment Station have to offer are an asset to the wine community. They encourage wineries to be sustainable. One successful program is the Finger Lakes Grape Program. This was developed through the Cornell Cooperative Extension in order to educate “the region’s grape growers about vineyard and pest management practices, new vineyard establishment, farm business management and marketing and business development as a means of supporting the industry’s growth and long-term sustainability” (Finger Lakes Grape Program). The program offers research-based information relative to the area so that all the grape growers are informed of the happenings of the greater wine community. From regular meetings they host to the annual conference at the end of the year, the Finger Lakes Grape Program is dedicated to keeping the grape growers of the Finger Lakes up-to-date on new ways to effectively produce wines.
Moving Forward– What can Wineries do Better?

A sound environment is the key for economic success. This is especially true for any winery around the world. Within the Finger Lakes, many wineries are marking themselves as being sustainable and efficient at the same time. Winemakers understand their responsibility to the environments they are working with. The quality and character of the wine is reminiscent of where it has been grown. Two and two must work together.

As stated earlier, I spoke with the winemaker at Ventosa Vineyard along the east side of Seneca Lake, Jenna LaVita ’08 about what they have done to be proactive about sustainability and environmental consciousness on their vineyard. She told me that the staff, proprietors, and other authoritative figures are completely dedicated to making Ventosa as sustainable as possible. Being “green” is cool. May it be composting, recycling, or growing vegetables for their café, Ventosa is making a mighty effort to do better. Ventosa is not the only diamond in the rough. Many wineries in the Finger Lakes are changing their identities to encourage sustainability. For example, Fox Run Vineyards recently introduced a wine that has a distinctive label promoting local wine. A picture of the 2008 Drink New York Riesling is below.
This wine is a physical declaration of the stance Fox Run Vineyards is taking on wine. They are encouraging their customers to think twice about their purchases; by asking, “Is buying local wine a better idea? It must be!” Of course putting a replica of “Rosie the Riveter,” the famous cultural icon from World War II, will turn heads. The famous slogan associated with Rosie is “we can do it.” So this must be the connection Fox Run is trying to extend from the original meaning of women’s rights to the necessity of buying local; this is a very interesting and eye-catching way to get a point across.

Located along the western shore of Seneca Lake is a winery that has taken their devotion to be more sustainable to a whole other level. The owners of Red Tail Ridge Winery, Nancy Irelan and Mike Schnelle, wanted to find a way to build a winery that was environmentally friendly and cost-effective at the same time. The owners worked with New York State Energy Research, Sustainable Performance Consulting Inc, and Edge Architecture to “design and construct an energy efficient winery” (Red Tail Ridge Winery-Brochure). They wanted to build the first LEED-certified winery in the state of New York. LEED stands for Leadership in Energy and Environmental Design. “All heating and cooling for the building, as well as for wine
processing, is provided by Geothermal energy” (Red Tail Ridge Winery-Brochure). They also have holding tanks on site for their wastewater to be reused for irrigation the next growing season. The winery was completed in 2009 (Red Tail Ridge Winery – Brochure and information online).

According to the U.S. Green Building Council website, there are many desirable benefits by working towards a LEED-certification. These buildings need to be designed to lower costs and lessen the impact the particular commercial building might cause to the environment. Many cities offer “tax rebates, zoning allowances and other incentives” for those who have chosen to build a LEED-certified building. It also marks your business as a steward of sustainability and environmental responsibility. In terms of a winery, a socially conscious consumer may be more encouraged to taste and/or purchase wine from such an establishment (U.S. Green Building Council – Project Certification).

On all ends it seems a LEED-certified winery is the best of both worlds and I think any new winery should consider building towards a certification. Since Red Tail Ridge is the only winery in the state of New York to attain LEED-certification, it sets them apart. It makes their business more appealing than the next winery up the road. They have made themselves more competitive. By Red Tail Ridge setting itself apart from the other 34 wineries around Seneca Lake and the rest of New York, they are on the path to success. Being LEED-certified is definitely something that should be advertised (U.S. Green Building Council – Project Certification).

Winerys should also strive to purchase locally. All the supplies, machinery, bottles, employees, etc. should be sought through the local economy. The ensuing economic benefits will
be enormous for every community member. If things are purchased locally more and more, money will be driven back into the community. It is amazing what a winery can do to boost the local economy. This is something wineries need to advertise to people. It will be important to get people excited about wine, especially if they know how they will be personally benefited.

**Conclusion**

Winemaking has become a prominent activity along many of the Finger Lakes. Upstate New York has long been an area of commerce, trade, and activity. Once agriculturists figured out the potential for grapes in the area and the potential for tourism, winemakers began to rush in. With suitable topography, geologic, and weather patterns, many different types of grapes continue to flourish in the Finger Lakes.

It is difficult to say if the economic benefits and environmental costs measure up. The evidence for the economic benefits is strongly apparent. As previously stated, Scott Osborn from Fox Run Vineyards finds spending “one dollar on local wine will return $10 back into the local economy” (S.Osborn, Wine Class, October 2010). Buying out-of-state will not boost the same returns to the community. The money returned to the community via winery sales and operations is phenomenal. But with every enterprise and endeavor, the ability to do better is always there.

By my empirical judgment, I believe the wineries in the Finger Lakes are extremely beneficial to local community members. Through tourism, winery employment, wine sales, taxes, etc. money continues to be pushed back into the local economy. Hotels, restaurants, grocery stores, gift shops, historical attractions, etc. are all benefited from the wine business.
However, with respect to the environment, growth should be monitored. If new wineries come in they should be held to high standards, high sustainability standards that is. If the current wineries are showcasing the need to be green, the new wineries will have to follow. Taking the next leap like Red Tail Ridge did with their LEED-certified winery is an interesting way to set the sustainability bar even higher.

The wineries are an asset to New York and the Finger Lakes. Through the development of more sustainable practices, the wineries will become even more marveled and a spotlight of the future. Winemakers care about the place they live. It is in their job description. If the vineyard is not healthy then their pockets are not either. It is a win-win situation to be sustainable and to care about the environment for a winemaker.

Utilizing the resources the Cornell Cooperative Extension has to offer will be especially useful. From educational programs to publications about new environmentally-sound herbicides, Cornell affiliates are working hard to improve viticulture practice in the Finger Lakes, the state of New York, and the rest of the world. Going “green” is the next best thing and wineries have a great opportunity. People will always consume wine no matter how it is produced. By forecasting a platform of sustainability, wineries will be more successful. More and more people may visit the Finger Lakes as a result, both boosting the economy and learning how sustainable wineries in upstate New York are truly making a difference. As Gandhi said “be the change you wish to see in the world.” Wineries have that chance.
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### Photo, Figure, and Table References

**Photo 1** (on first page):


**Photo 2** (on first page):


**Figure 1**:


**Figure 2**:

Wine Trail Maps. Accessed at:


**Figure 3**:


**Table 1**: College of Agriculture and Life Sciences at Cornell University and the Institute for the

(www.nyvineyardsite.org)

Table 2: Annual Economic Impact. Accessed at:

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