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# Vineyards and Wineries in Minnesota

## A STATUS AND ECONOMIC CONTRIBUTION REPORT

Authored by: Brigid Tuck, Extension Center for Community Vitality, and William Gartner, Department of Applied Economics



IN PARTNERSHIP WITH: NORTHERN GRAPES PROJECT



Department of  
**APPLIED  
ECONOMICS**



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June 2013

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**Partners/Sponsors:**

Northern Grapes Project

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## **NORTHERN GRAPES PROJECT**

The emergence of cold hardy wine grape cultivars in the 1990s created a new and rapidly expanding industry of small vineyard and winery enterprises in states across New England, northern New York, and the Upper Midwest. While the North American ancestry of these cultivars confers exceptional climatic adaptation and disease resistance, other challenges to production, processing, and marketing have slowed their successful commercialization in regional and national markets. Because their growth habit and fruit composition differ from traditional grape hybrids, new viticulture and enological practices are needed. Marketing tools are also required to educate consumers unfamiliar with the grapes and the wine styles they produce. Consequently, the long-term viability of these new businesses requires coordinated research and extension to optimize viticulture, enological (winemaking), business management, and marketing practices. To meet the needs articulated by industry stakeholders, the United States Department of Agriculture funded the Northern Grapes Project.

The Northern Grapes Projects brings together researchers, Extension specialists, and industry professionals from 13 states to address viticulture, enological, business management, and marketing issues related to growing cold hardy grapes. After five years, the project teams intend to have accomplished the following goals: 1) production and sales of wines made from cold climate cultivars will have doubled, 2) improved quality resulting from better growing and winemaking practices will have improved customer retention and driven repeat sales, 3) enhanced breeding and cultivar evaluation will have resulted in an accelerated pace of cultivar release, 4) cold climate cultivars will establish unique regional marketing identities in their area, 5) wineries will have understood and applied business and tasting room management practices that drive sales and profitability, and 6) wineries and vineyards will have successfully transitioned from “startup” to “sustainably profitable.”

To measure progress on these goals, one of the first tasks of the project team was to conduct a baseline survey. This survey, sent to grape growers and wineries in the participating states, gathered data on the current status of the grape and wine industry in general and on cold-hardy grape and wine production, specifically. Questions were asked pertaining to sales and production (wineries and vineyards), growing practices (vineyards), and operating practices (wineries).

This document reports the results of the baseline survey for vineyards and wineries in Minnesota. It also quantifies the economic contribution of the industry.

## VINEYARDS AND WINERIES IN MINNESOTA: EXECUTIVE SUMMARY

- In spring 2012, grape growers and winery owners in 13 states were surveyed under the Northern Grapes Project. Questions asked pertained to sales and production (wineries and vineyards), growing practices (vineyards), and operating practices (wineries). The goal was to establish an industry baseline and quantify the economic contribution of the industry. This report presents the results for Minnesota.
- In total, 101 vineyards and 34 wineries in Minnesota provided full answers to the surveys.
- In 2011, the grape growing and winery industries contributed \$59 million in economic activity in Minnesota. Of this, \$16.4 million was generated by vineyards, \$22.1 million by wineries, and \$20.5 million by winery tourists.
- In 2011, the grape growing and winery industries supported 3,250 employees in Minnesota. Employees received \$19.7 million in labor payments.
- Rapid growth continues in the industry in Minnesota. Nearly half of Minnesota's vineyards have been established in the last five years. Forty-four percent of wineries have begun operations since 2007.
- In addition, the volume of grapes on the market continues to increase substantially. Nearly half of all planted acreage has been established since 2007. Since grapes need three to four years to mature, there is a lag with those grapes being available for market. The Marquette grape has gained wide acceptance. Since being released in 2006, the variety has come to represent over half of planted cold-hardy red cultivars.
- Wineries and vineyards are demonstrating increasing sophistication in their interactions. The most common method for marketing grapes is via a contract with a winery. Wineries are active in vineyard management.
- Wineries have opportunities for further market development. Over two-thirds of sales are made from the tasting room. The majority of a winery's sales (86%) are of the wine itself.
- Wineries view their own wine branding as their most important marketing strategy. Hosting special events and working with local organizations are second and third most important.
- Wineries are concerned about government policies and regulations. They also view sales as a future challenge to the growth and development of their winery.
- Vineyard owners view pests, insects, and diseases as the largest challenge to the future growth and development of their vineyards.



## SURVEY METHODOLOGY AND RESPONSE RATES

In early 2012, project researchers at the University of Minnesota sent a survey to grape growers and wineries in the participating states. Grower and winery lists were provided to the University of Minnesota by industry associations in each state (see appendix 1 for a list of participating associations). An email was sent to all members of these lists, resulting in 2,746 invitations to participate in the survey. Of these, 501 responded, for an overall response rate of 18 percent. In addition, links to the survey were available allowing individual growers and wineries not directly associated with an industry group, and thus not receiving a direct email invitation, to participate in the survey. These links were also announced during the Northern Grapes Project webinars. The survey links generated 110 responses. Therefore, in total, there were 611 total responses to the survey.

Table 1-1 lists the participating states, the number of wineries and growers invited based on the industry association lists, the number of respondents using the open links, and the response rate. Minnesota has the highest membership totals.<sup>1</sup> South Dakota had the highest response rate.

The Minnesota Grape Growers Association provided e-mail addresses for its membership. In total, 1,012 invitations to participate in the survey were sent to potential Minnesota growers and wineries. Of those, 167 individuals responded, for a response rate of 17 percent.

<b>State</b>	<b>Total Number of Contacts from Industry Associations</b>	<b>Number of Responses</b>	<b>Response Rates</b>
Connecticut	32	5	16%
Illinois	272	52	19%
Iowa	222	66	30%
Massachusetts	28	10	36%
Michigan	164	36	22%
Minnesota	1,012	167	17%
North Dakota	54	14	26%
Nebraska	172	46	27%
New Hampshire	51	14	27%
New York	202	32	16%
South Dakota	14	11	79%
Vermont	47	18	38%
Wisconsin	476	97	20%

<sup>1</sup> Responses were categorized by state the grower or winery owner indicated as the state in which their operation is located.

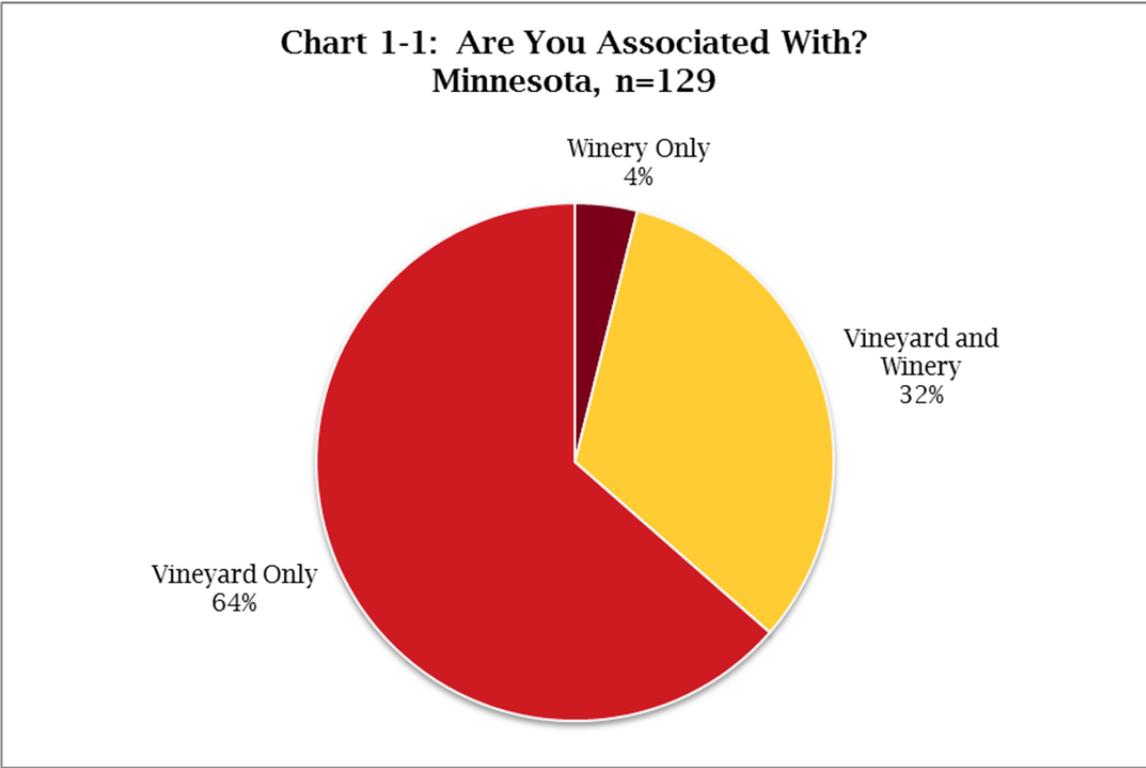
Not all of the survey responses were applicable to the baseline survey. Association memberships are generally open to all interested parties and therefore membership lists include individuals who may be considering growing or producing wine, or individuals who previously grew grapes or produced wines. The lists may also contain people associated with the industry in other capacities than growing and wine-making. Knowing this, the survey was designed to capture basic information on these individuals, even if they did not complete the full survey.

The first survey question asked “Are you associated with....1) a vineyard (past, present, or future), 2) a winery, 3) both, or 4) other. Those responding “other” were directed to the end of the survey.

Those responding “vineyard (past, present, or future)” were asked a follow-up question. Survey takers who indicated they grew grapes in the past or planned to grow grapes in the future were directed to the end of the survey.

The focus of the Northern Grapes Project is on commercial scale grape growers and wineries. Thus, grape growers were asked “Do you grow grapes for commercial sale or use? If you grow grapes exclusively for use in your own winery, answer yes”. Those responding “no” were directed to answer a series of questions about the size of their vineyard and then directed to the end of the survey.

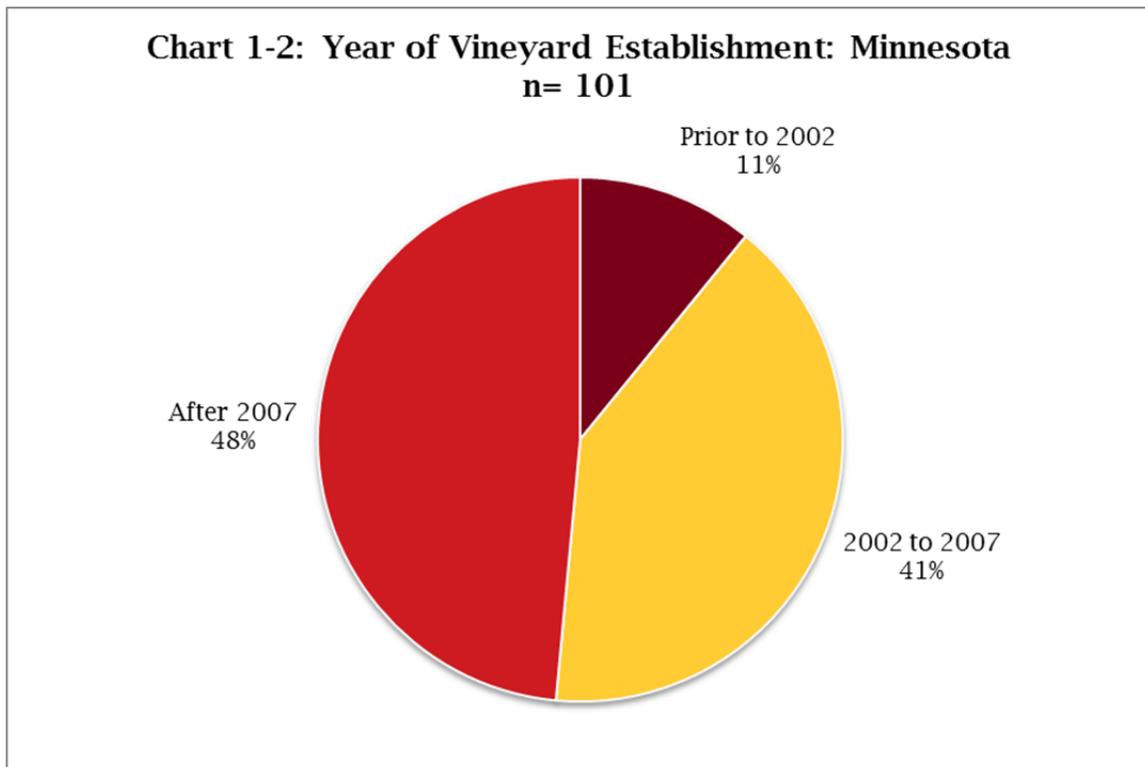
Survey participants could be vineyard operators, winery operators, or operators of a joint vineyard-winery business (see chart 1-1). Over two-thirds (64 percent) of survey respondents in Minnesota operate a vineyard only. Among winery owners, it is more common to operate a combination of a winery-vineyard operation, with approximately one-third (32 percent) of survey respondents reporting this arrangement. In total, the survey includes 34 wineries and 101 vineyards.



## VINEYARD CHARACTERISTICS

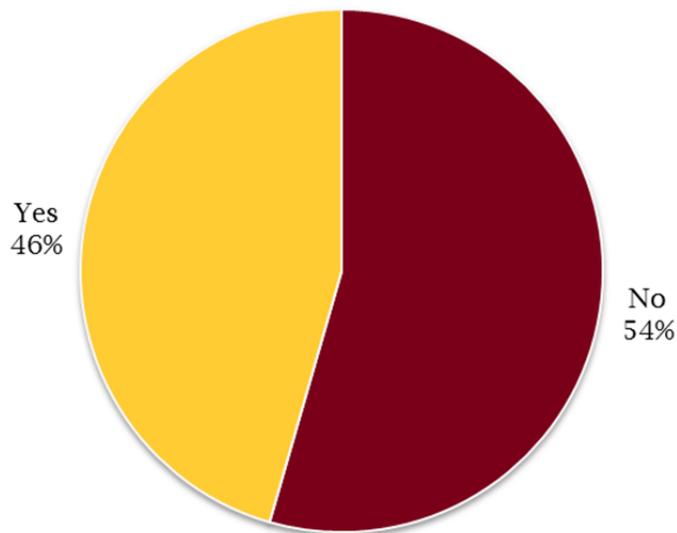
Of the 129 total useable survey responses, 101 indicated they owned and operated a vineyard in Minnesota. Based on the number of members of the Minnesota Grape Growers Association and on responses in the survey, there are 632 vineyards in Minnesota. Therefore, the response rate for this study is 16 percent.

The Northern Grapes Project baseline survey results reinforce the observed trend of rapid growth in the grape growing industry in Minnesota (see chart 1-2). Nearly one of every two responding vineyards has started since 2007. Only one in five vineyards existed prior to 2002. These trends have important implications for the industry. Typically, a vineyard does not reach full production capacity until three to four years after planting. Vines planted after 2007 are just now or have yet to reach maturity and yield to their full potential.



In addition to new vineyards being established, current vineyards continue to expand their planted acreage. Forty-six percent of responding vineyards indicated they had planted additional acreage since the original founding of their vineyard, chart 1-3.

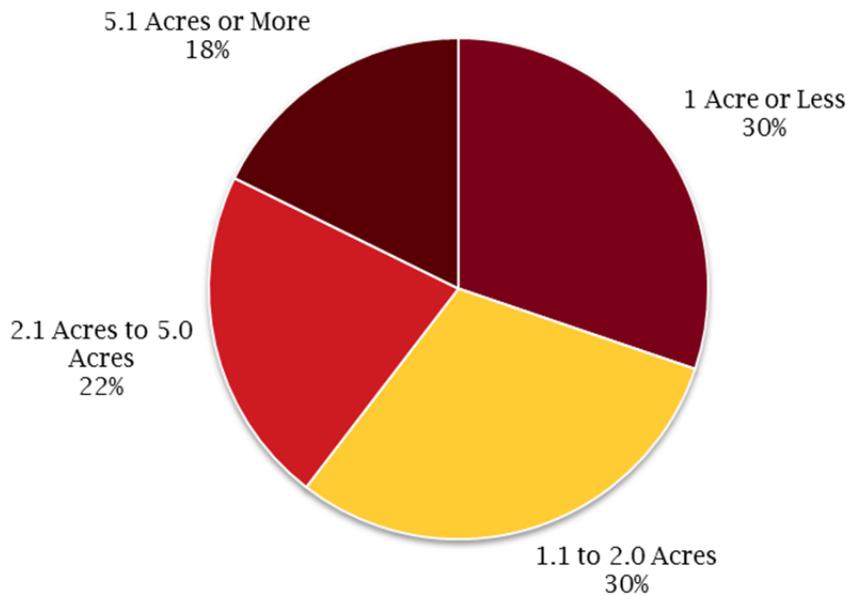
**Chart 1-3: Have You Added Acreage Since Your Vineyard Was Established? Minnesota n= 101**



The majority of responding vineyards (60 percent) are less than 2.0 acres in size, as shown in chart 1-4. Less than 20 percent of the vineyards reported having more than 5 acres planted in grapes. The largest responding vineyard had 20 acres planted.

Our survey results, extrapolated out to the entire population of vineyards, indicate there are 2,000 acres planted in grape vines in Minnesota. Survey results show that 98 percent, or 1,970 acres, of the planted vines are of the cold-hardy varieties defined in this study. The varieties classified as “cold-hardy” for purposes of this report are listed in appendix two.

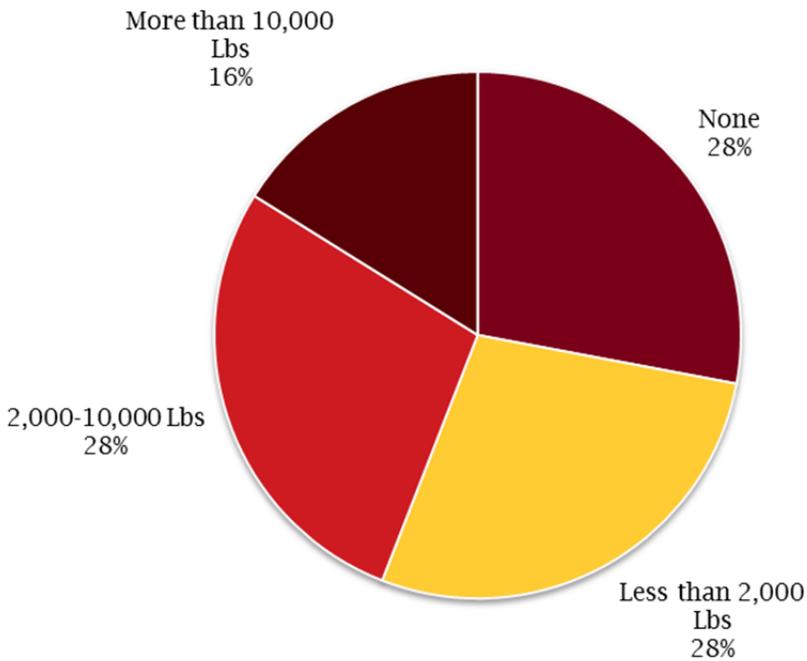
**Chart 1-4: What is the Total Planted Acreage of Your Vineyard? Minnesota n= 96**



Vineyard production reflects the age of vineyards and the size of vineyards in the survey population, see chart 1-5. Nearly one-third (28 percent) of the vineyards surveyed indicated they did not produce any fruit in 2011. As depicted in chart 1-2, 48 percent of vineyards were planted after 2007, which means they likely have not reached maturity yet. Therefore, it is not surprising they have not produced harvestable fruit. Survey respondents also indicated a lack of fruit production due to weather conditions (drought, early frost, etc.), insects, or other pests.

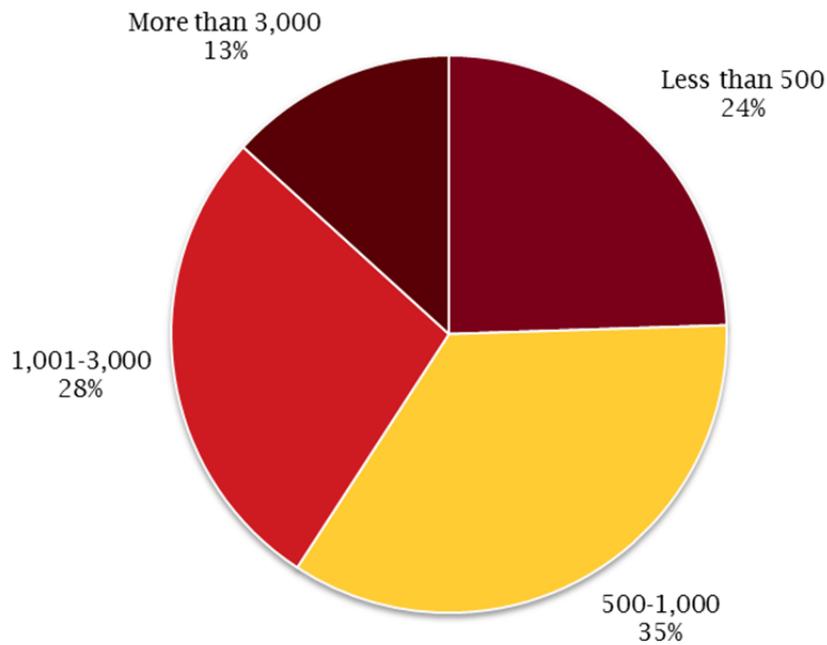
Survey results, extrapolated to represent all growers in the state, reveal Minnesota grape growers produced approximately 2,100 tons of fruit in 2011. Average yield on producing acreage was 4.7 tons per acre.

**Chart 1-5: Vineyard Production: Minnesota n= 93**



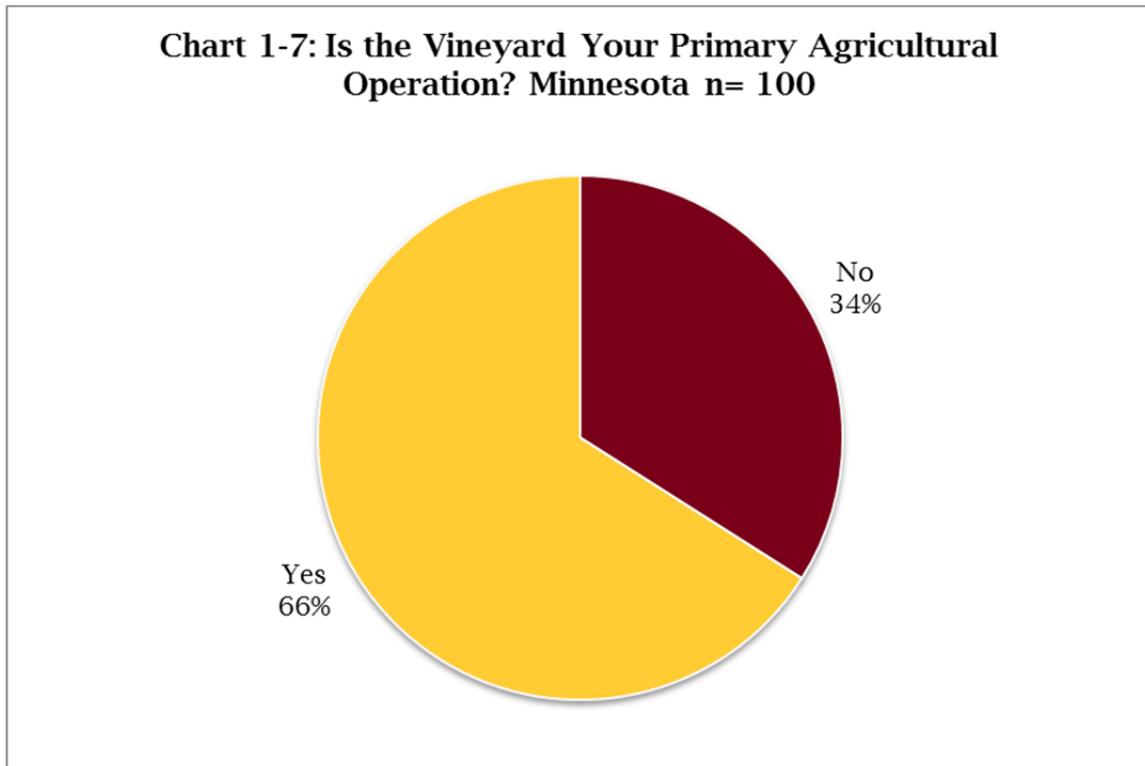
The average participating vineyard has 1,600 planted vines. Over one-third (35 percent) of vineyards have 1,001 to 3,000 vines in the ground, as shown in chart 1-6.

**Chart 1-6: Total Vines in Vineyard: Minnesota n= 98**



## Vineyard Operations

The majority (66 percent) of vineyards operate as stand-alone agriculture enterprises (see chart 1-7). Approximately one-third of vineyards participating in the survey operate as a secondary agricultural operation.



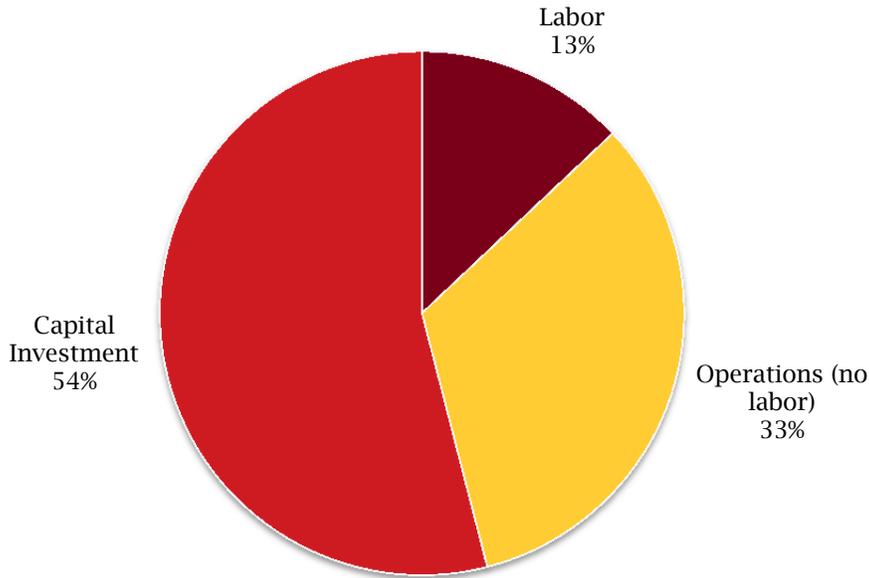
Among grape growers for whom the vineyard is a secondary operation, the majority are engaged in traditional farming, including row cropping and animal husbandry. Fruit farmers, whose primary crop is not grapes, also run vineyards as side operations.

Only three of the responding vineyards, or less than 2 percent, operate as a commercial nursery. They use only a small percentage of their total vineyard for nursery activities.

The average responding vineyard spent \$6,470 on operations (of which \$1,800 were labor payments) in 2011. Operating expenses include fertilizers, fungicides, cover crops, water, fuel, overhead costs, marketing, and taxes. Responding vineyards also spent an average of \$7,600 on capital investments, including trellis systems, tractors, crushers, pick-ups, ATV's, and other equipment. The relatively high average annual cost for capital investments is another, indirect, indicator of the relative "newness" of commercial vineyard operations in the state. As vineyards are established or expanded it would be expected to find high average capital investment figures associated with them.

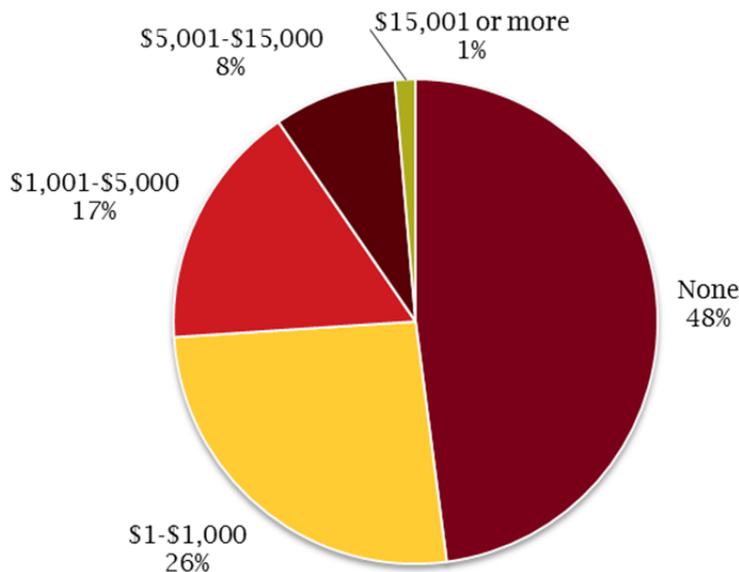
In total, vineyards in the state of Minnesota spent \$2.9 million on operating expenses (includes labor) and \$4.8 million on capital expenditures in 2011. Vineyards spent \$1.2 million of the total operating costs on labor expenditures, see chart 1-8. Total expenditures were \$8.9 million in 2011.

**Chart 1-8: Vineyard Expenditures by Category:  
Minnesota n=73**

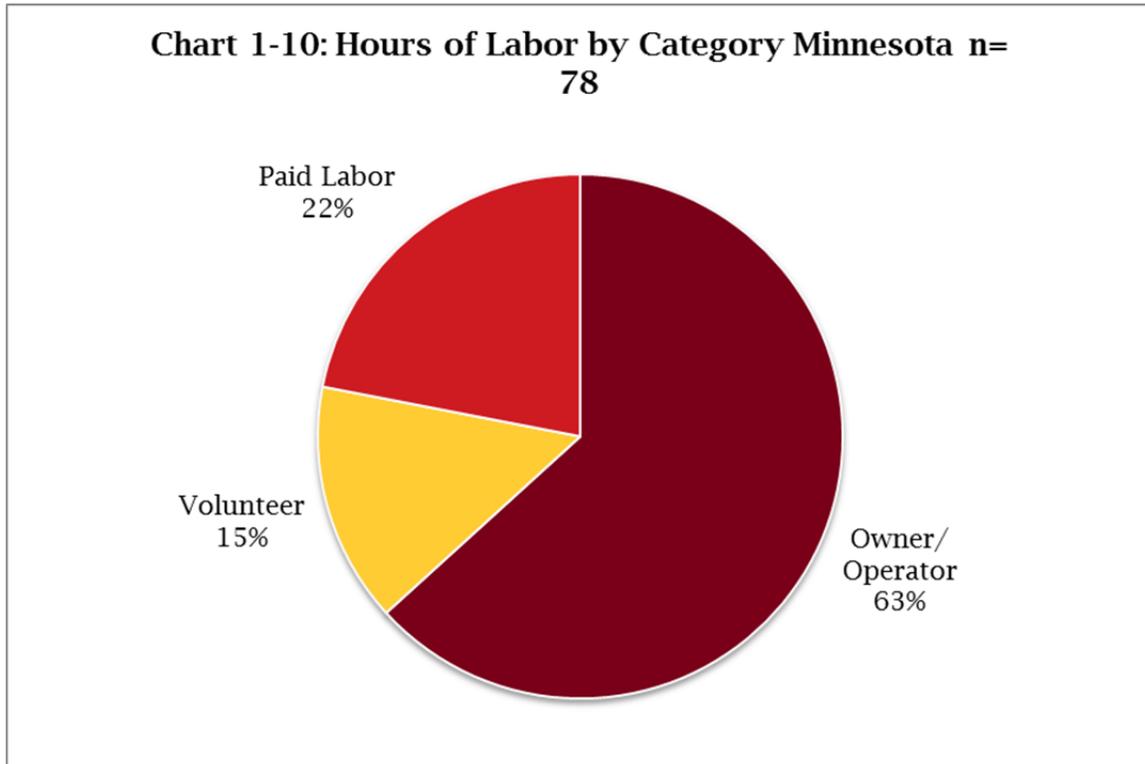


Of the 73 vineyards that responded to the question regarding labor expenditures, 35 (48 percent) reported no expenditures for labor (chart 1-9). This is primarily because the owner/operator did all the labor or the vineyard used volunteer or family labor to complete the vineyard tasks.

**Chart 1-9: Vineyard Labor Expenditures:  
Minnesota n= 73**



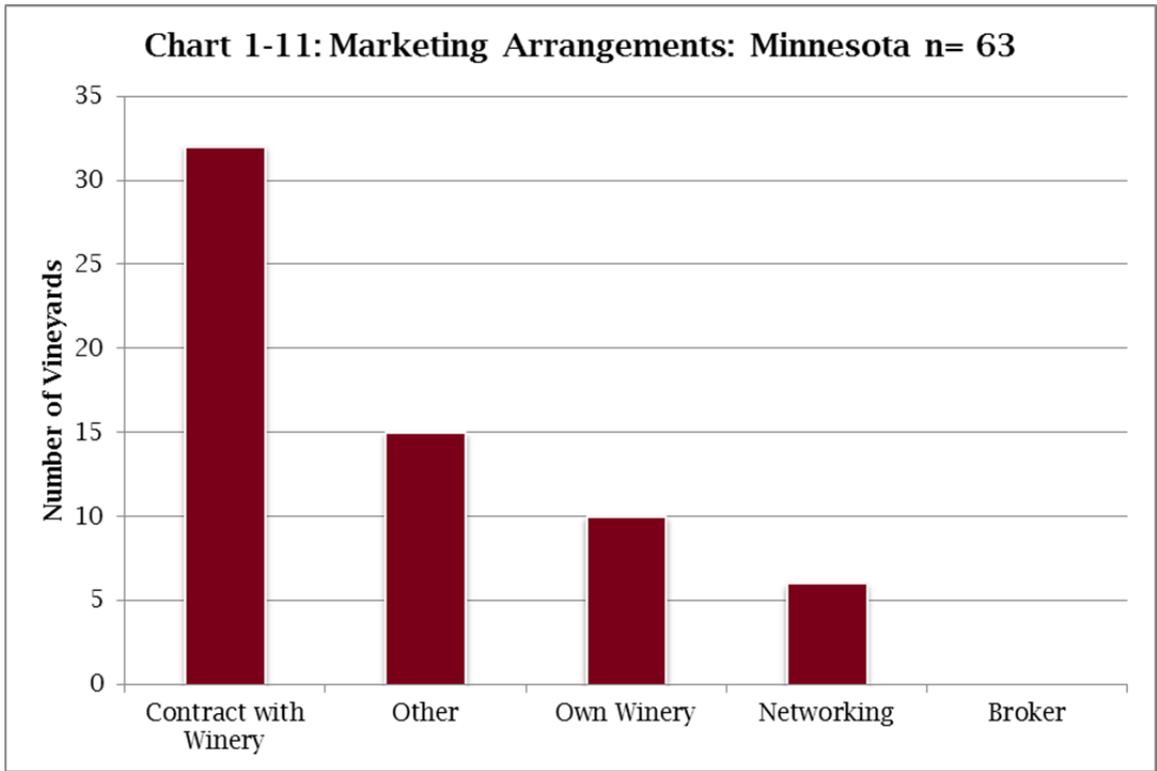
As shown in Chart 1-10, the majority of labor for the responding vineyards was provided by the owner/operator (63 percent). Just under a quarter (22 percent) of labor was supplied by paid employees and 15 percent by volunteer laborers.



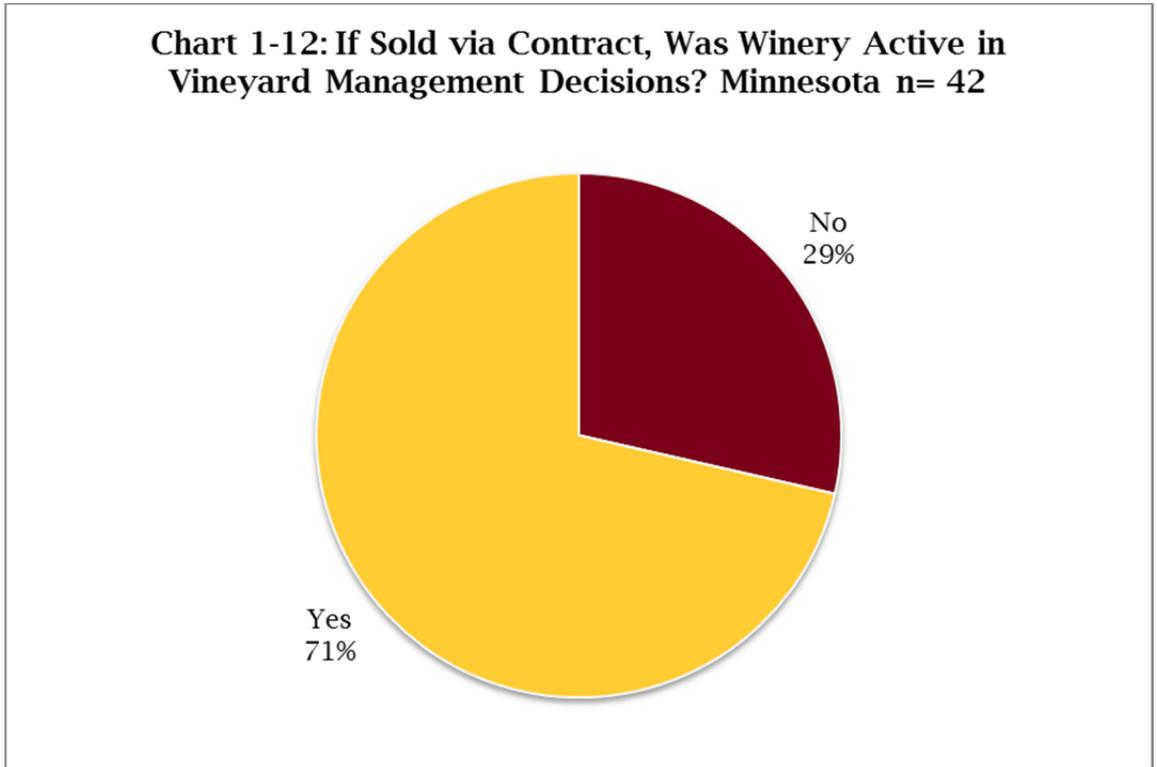
### Marketing and Grape Utilization

Grape growers in the survey favor contracts as the best method for marketing their grapes (chart 1-11). Growers were asked which market arrangements they used to sell their grapes. They could select more than one choice. The most commonly used method, selected by 32 growers, was to sell via a contract with a winery. Also commonly used were sales through their own winery and sales via networking. No growers indicated using a broker to sell their grapes.

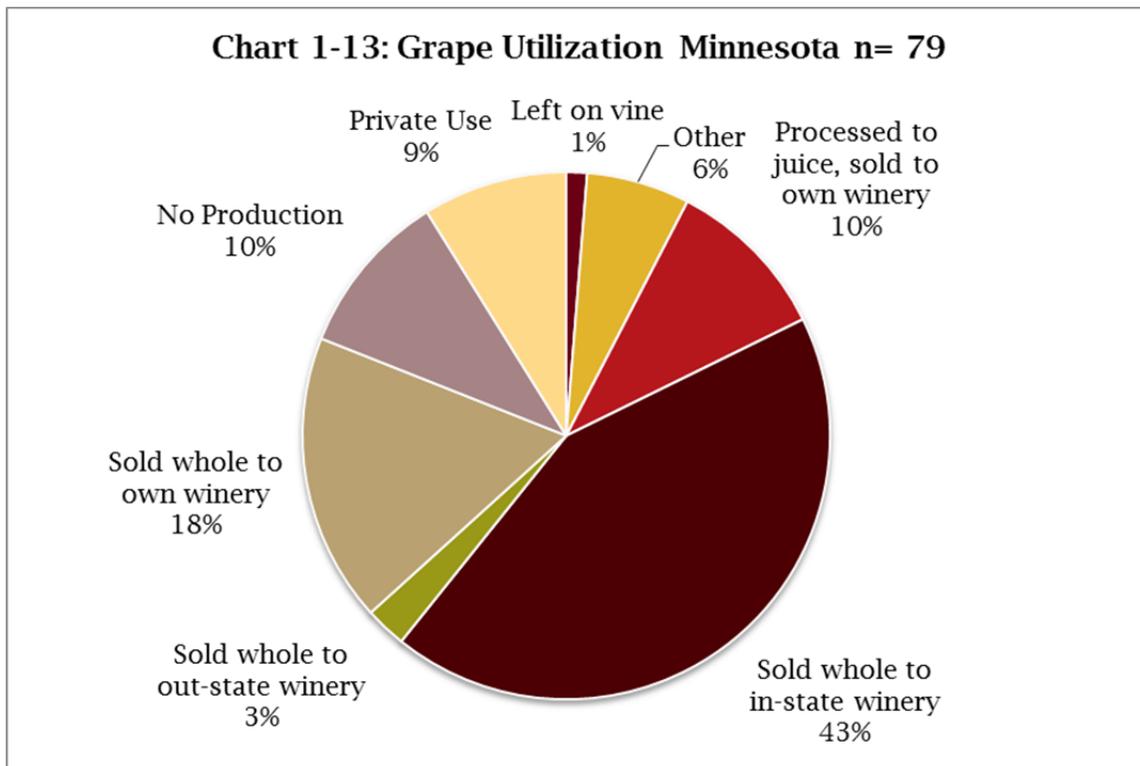
There were 15 growers that indicated they used “other” methods to market their grapes. Not unexpectedly, given the percent of new vineyards that have not yet reached maturity, many of those “other” responses indicated they made no sales in 2011. Another common answer was that they sold the grapes to a winery without any formal contract. Farmer’s markets and sales to individuals were also mentioned by multiple respondents as methods for selling grapes.



Growers that contract with wineries to market their grapes are interacting with the winery to make management decisions. Nearly three-fourths of growers indicated that the winery to which they sold grapes was active in management decisions in the vineyard, as shown in chart 1-12.



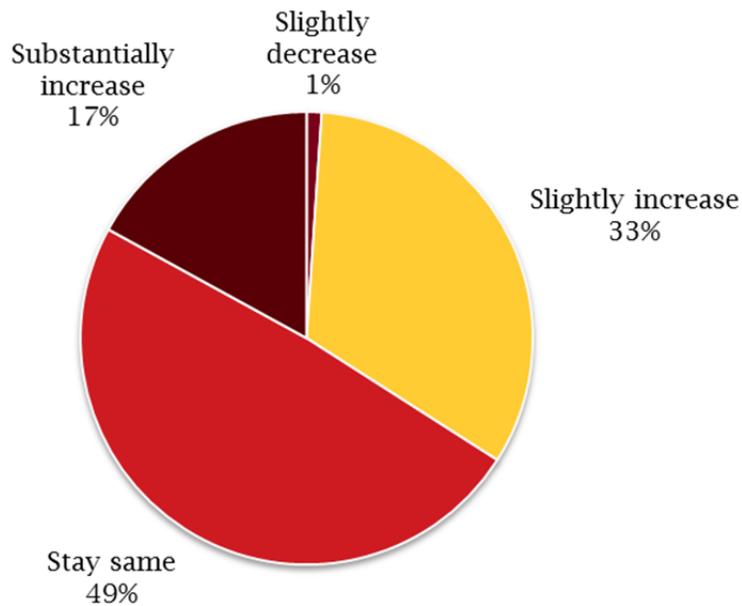
The most common arrangement for responding vineyards is to sell their grapes in a whole berry format (see chart 1-13). Forty-three percent sold their berries whole to an in-state winery. Another 18 percent sold their grapes whole to their own winery. This reinforces the knowledge that grape growing and wineries are often local operations, working and contributing to the communities in which they are located. Only three percent of responding grape growers reported selling out of the state.



### Future Plans

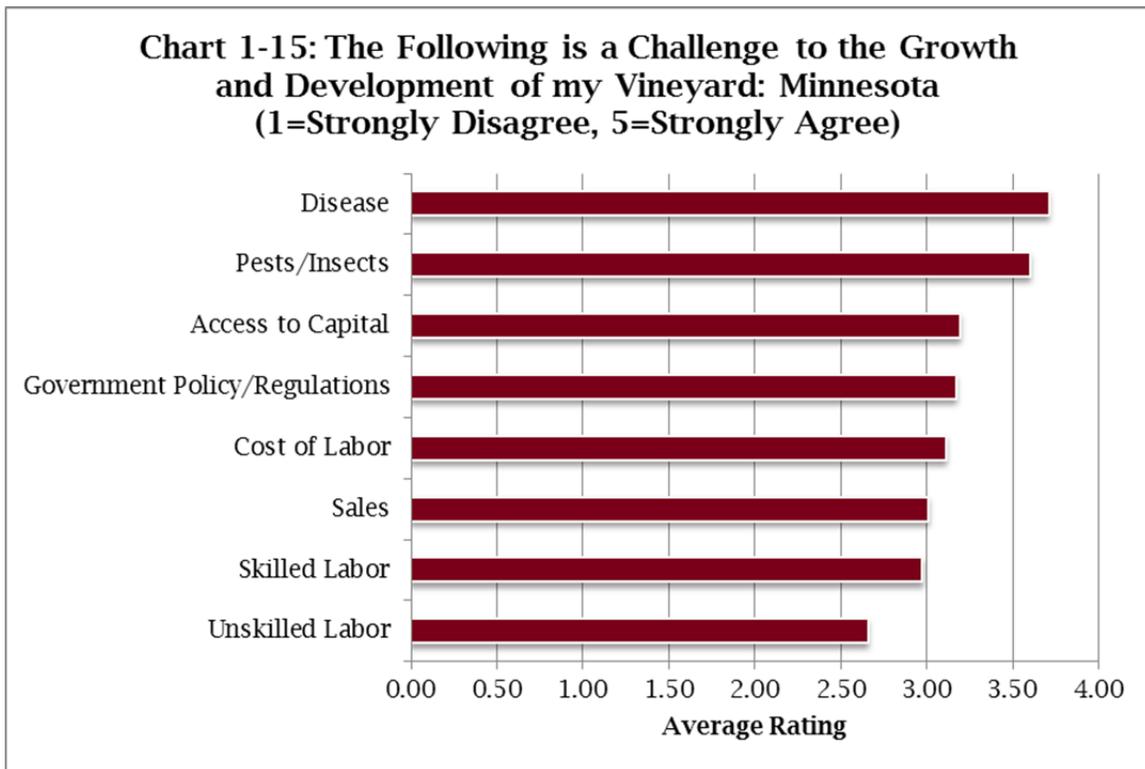
Current grape growers appear to be optimistic about the future of their operations. Just under half of the responding growers plan to increase their acreage in the next two years. Another half plan to maintain their current size. Only one percent intend to decrease operations, chart 1-14.

**Chart 1-14: Over the Next Two Years, My Vineyard Will... Minnesota n= 94**



Grape growers responding to the survey indicate that the biggest challenges to their vineyard operations are disease and pests and insects, as depicted in chart 1-15. When asked to answer the question “the following is a challenge to the growth and development of my vineyard”, using a scale where 1 equals “strongly disagree” and 5 equals “strongly agree”, grape growers gave disease an average score of 3.8 and pests/insects an average score of 3.7. Availability of labor and sales do not seem to be significant issues for the responding growers in Minnesota.

When asked what other challenges they face, grape growers indicated weather was a real concern in the growth and development of their vineyard.

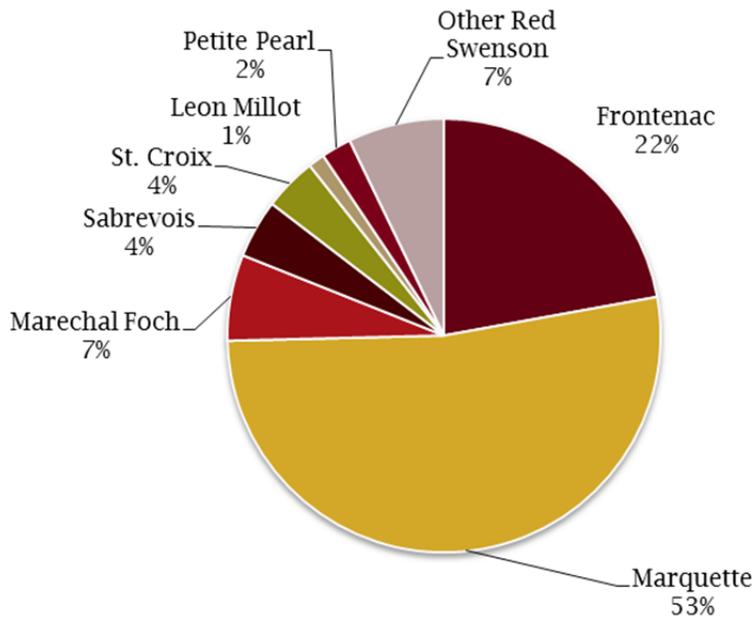


### Grape Varieties

Survey participants reported 149,000 planted vines in their vineyards. Of these, the majority (98 percent) are planted in cold-hardy varieties. The majority of these cold hardy varieties (81,700) are red cultivars. The remaining vines, 65,700, are white cultivars. Chart 1-16 depicts total reported planted vines of cold-hardy red varieties. Marquette grapes comprise 53 percent of the total planted cold-hardy red varieties. Frontenac and Marechal Foch comprise 22 percent and 7 percent respectively. This chart illustrates the sheer popularity of the Marquette grape. This varietal is relatively new (released in 2006), so the fact that it is now more than half of all planted red varieties is remarkable.

Table 1-2 reports the number of reported planted red cultivar vines by age. These figures represent only what the vineyards who answered the survey reported. Responding vineyards reported 7,400 red cultivar vines are older than 10 years of age, 27,000 are between 4 years and 10 years of age, and 47,000 are younger than 4 years old. These figures again represent the rapid growth of the industry. Vines younger than 4 years of age have yet to reach maturity and produce a full crop. The reported results indicate that red cold-hardy cultivar grape production will more than double in the next four years as those vines mature.

**Chart 1-16: Total Planted Cold-Hardy Vines, Red Varieties: Minnesota**



Further, the table reflects the rapid growth of the Marquette grape variety. Ten years ago, there were no Marquette vines in the ground. Within the last four years, the responding vineyards alone report planting nearly 30,000 vines. The other prominent cold-hardy red varieties, Frontenac and Marechal Foch, have been planted in fewer numbers in recent years.

**Table 1-2: Planted Vines of Cold-Hardy Red Varieties by Responding Vineyards, by Age, Minnesota**

<b>Variety</b>	<b>Vines, Younger than 4</b>	<b>Vines, Between 4 and 10 Years</b>	<b>Vines, Older than 10</b>	<b>Total</b>
Baltica	0	10	15	25
Beta	69	0	0	69
Frontenac	6,268	8,500	3,310	18,078
GR-7	0	0	0	-
King of the North	1,791	175	36	2,002
Leon Millot	500	0	500	1,000
Marechal Foch	765	1,770	2,708	5,243
Marquette	30,105	12,724	0	42,829
Other red Swenson	789	1,102	15	1,906
Petite Pearl	1,799	34	0	1,833
Sabrevois	1,893	396	247	2,536
St. Croix	2,304	1,418	530	4,252
Valiant	661	1,259	30	1,950
<b>Total</b>	<b>46,944</b>	<b>27,388</b>	<b>7,391</b>	<b>81,723</b>

The totals in this table are for responding vineyards only and do not represent the total industry in Minnesota.

Table 1-3 lists the estimated number of planted acres of cold-hardy red cultivars in Minnesota. These numbers have been extrapolated to represent all vineyards in Minnesota. In Minnesota, there are an estimated 845 acres of grapes planted in cold-hardy red varieties. The Marquette grape is planted on 440 of those acres.

<b>Table 1-3: <u>Estimated</u> Planted Acres of Cold-Hardy Red Varieties for <u>All</u> Vineyards in Minnesota</b>	
<b>Variety</b>	<b>Total</b>
Baltica	0.3
Beta	0.7
Frontenac	187.0
GR-7	-
King of the North	20.7
Leon Millot	10.3
Marechal Foch	54.2
Marquette	443.0
Other red Swenson	19.7
Petite Pearl	19.0
Sabrevois	26.2
St. Croix	44.0
Valiant	20.2
Total	845.2
The totals in this table have been extrapolated to represent all vineyards in Minnesota.	

Chart 1-17 illustrates the total planted vines of cold-hardy white varieties. La Crescent (27 percent) and Frontenac Gris (22 percent) are the most commonly planted vines by the reporting vineyards. Within the white cold-hardy cultivars, there is no clear favorite cultivar.

**Chart 1-17: Total Planted Cold-Hardy Vines, White Varieties: Minnesota**

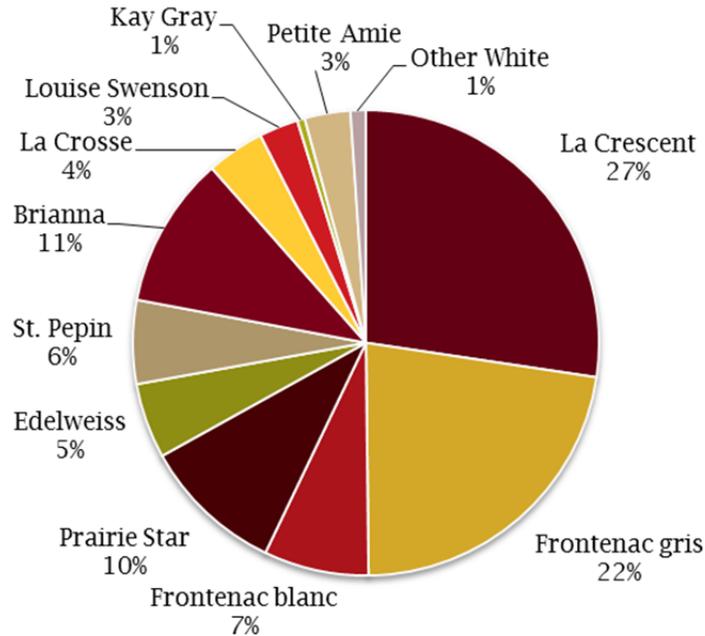


Table 1-4 reports the total reported planted vines of cold-hardy white cultivars. These figures represent only what the vineyards who answered the survey reported. Responding vineyards report 1,300 vines older than 10 years in the ground, 23,500 vines of age between 4 and 10 years, and nearly 41,000 vines younger than 4 years. As with the red varieties, it appears production of cold-hardy white cultivar grapes will more than double in the next 4 years as the youngest grape vines reach maturity.

**Table 1-4: Planted Vines of Cold-Hardy White Varieties by Responding Vineyards, by Age, Minnesota**

<b>Variety</b>	<b>Vines, Younger than 4</b>	<b>Vines, Between 4 and 10 Years</b>	<b>Vines, Older than 10</b>	<b>Total</b>
Brianna	6,115	805	-	6,920
Edelweiss	1,509	1,884	36	3,429
Espirit	-	10	-	10
Frontenac Blanc	4,798	-	-	4,798
Frontenac Gris	8,808	5,953	-	14,761
Kay Gray	114	74	-	188
La Crescent	9,382	8,053	547	17,982
La Crosse	1,295	1,220	123	2,638
Louise Swenson	1,336	407	315	2,058
Other White	31	654	10	695
Petite Amie	2,075	11	117	2,203
Prairie Star	3,973	2,396	86	6,455
St. Pepin	1,476	2,019	45	3,540
<b>Total</b>	<b>40,912</b>	<b>23,486</b>	<b>1,279</b>	<b>65,677</b>

The totals in this table are for responding vineyards only and do not represent the total industry in Minnesota.

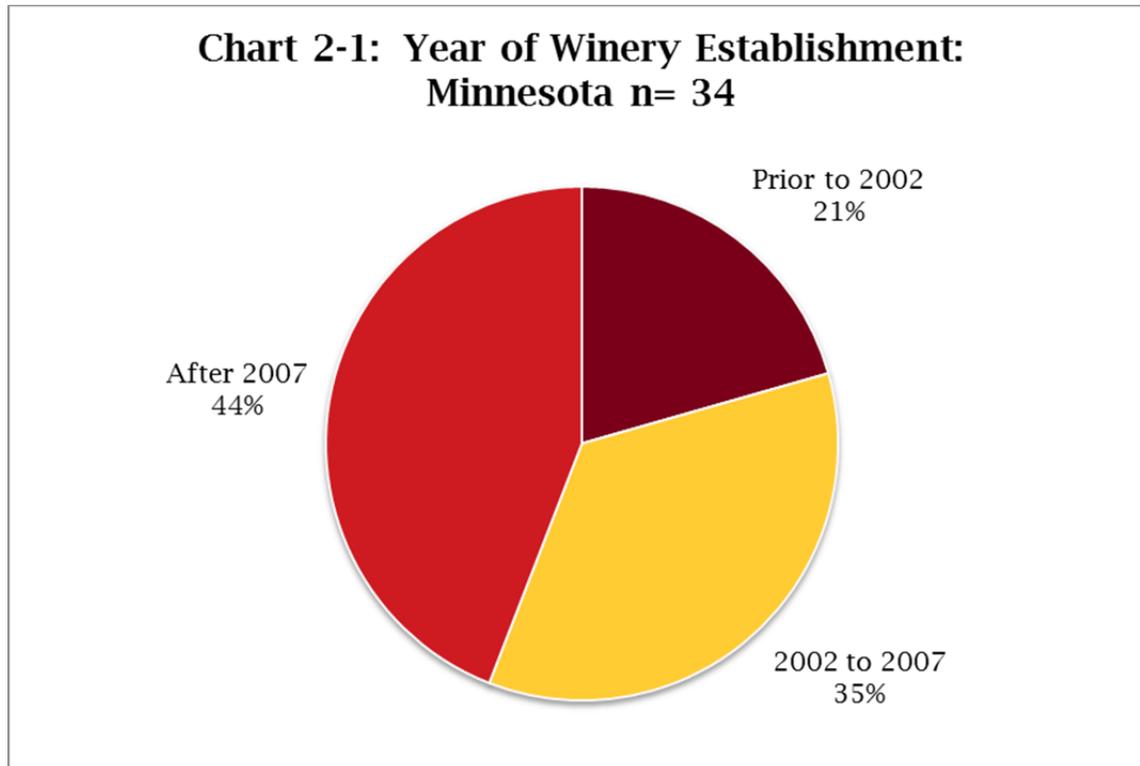
Table 1-5 lists the estimated number of planted acres of cold-hardy white cultivars in Minnesota. These numbers have been extrapolated to represent all vineyards in Minnesota. In Minnesota, there are an estimated 679 acres of grapes planted in cold-hardy white varieties. The La Crescent grape is planted on 186 acres and the Frontenac Gris on 153.

<b>Table 1-5: <u>Estimated</u> Planted Cold-Hardy Acres of White Varieties for <u>All</u> Vineyards in Minnesota</b>	
<b>Variety</b>	<b>Total</b>
Brianna	71.6
Edelweiss	35.5
Espirit	0.1
Frontenac Blanc	49.6
Frontenac Gris	152.7
Kay Gray	1.9
La Crescent	186.0
La Crosse	27.3
Louise Swenson	21.3
Other White	7.2
Petite Amie	22.8
Prairie Star	66.8
St. Pepin	36.6
Total	679.3
The totals in this table have been extrapolated to represent all vineyards in Minnesota.	

## WINERY CHARACTERISTICS

Thirty-four Minnesota wineries responded to the Northern Grapes Project survey. According to the Alcohol and Tobacco Tax and Trade Bureau (TTB), there were 44 licensed wineries in Minnesota.<sup>2</sup> Based on these statistics, the response rate for this survey was 77 percent. However, not all respondents reported being licensed at the time of the survey. Our dataset likely includes new wineries still in the start-up phase.

As shown in chart 2-1, growth in the number of wineries in Minnesota continues. Only 1 in 5 wineries existed prior to 2002. One-third of all wineries were founded between 2002 and 2007. As the volume of grapes on the market has increased, new wineries have emerged to utilize those grapes.

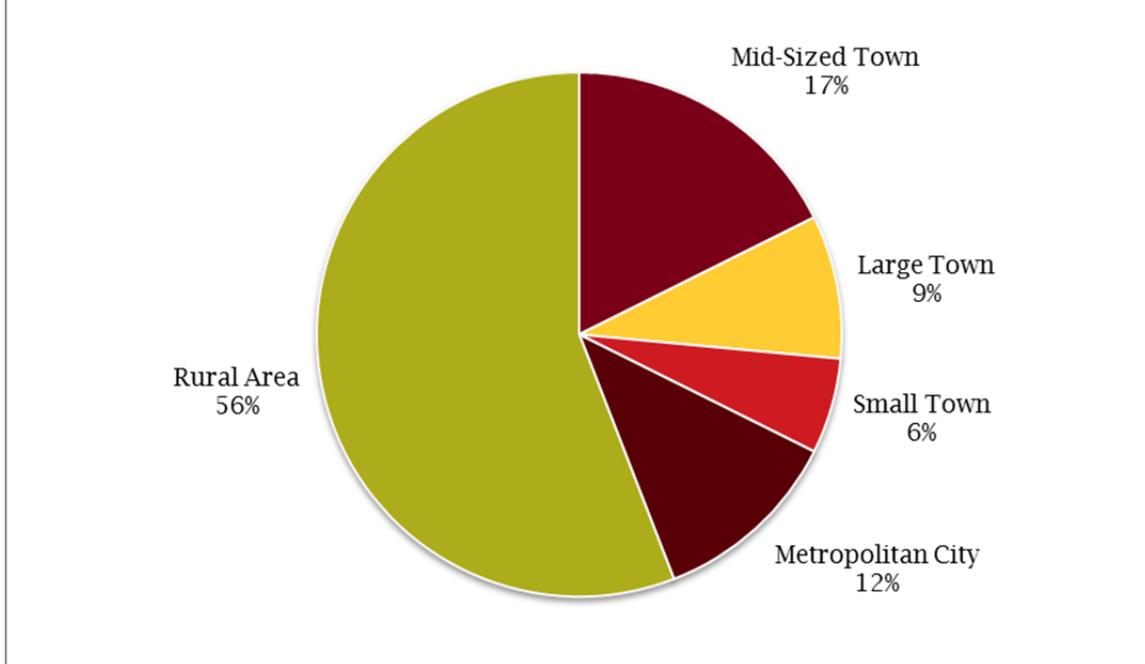


The majority of Minnesota's wineries (56 percent) are located in rural areas, outside of cities and urban centers, see chart 2-2. Only 12 percent of wineries are located in metropolitan areas.

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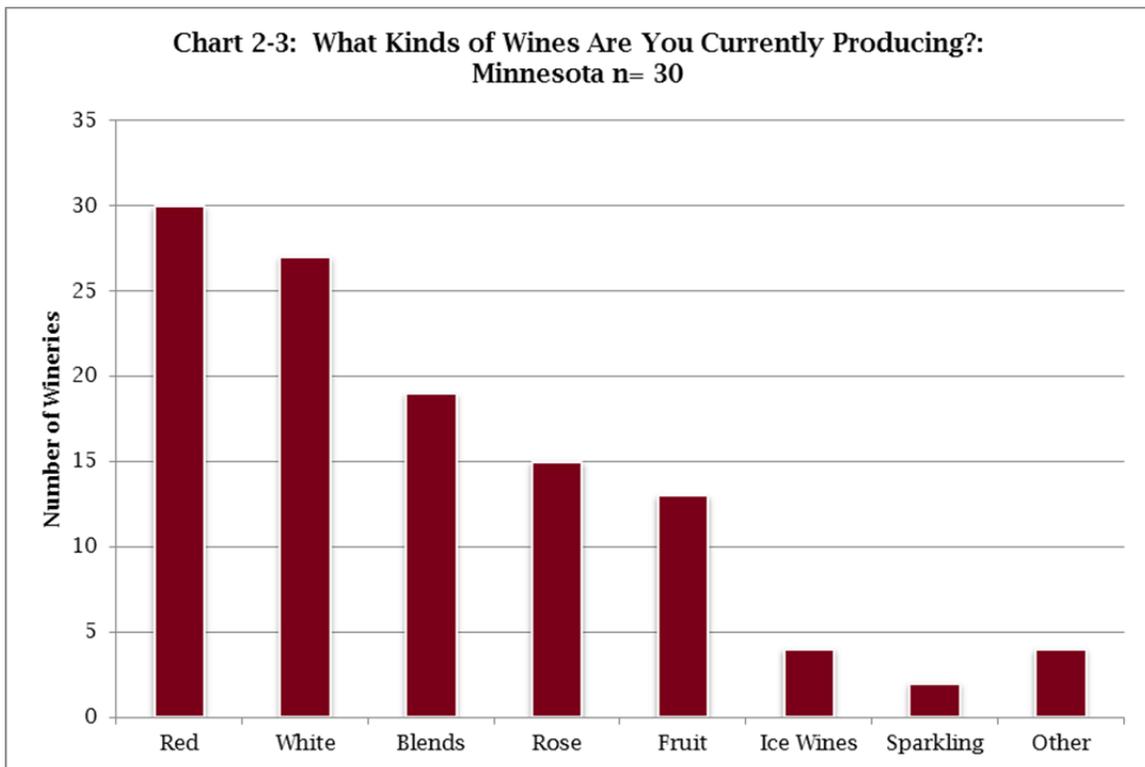
<sup>2</sup> The number of wineries in each state was taken from a publication by WineAmerica. The publication uses data from the United States Alcohol and Tobacco Trade and Tax Bureau for 2010. This data is the basis of calculations because it provides consistency and uniformity across all states in the Northern Grapes Project study area.

**Chart 2-2: Which Setting Best Describes Your Winery  
Location: Minnesota n= 34**

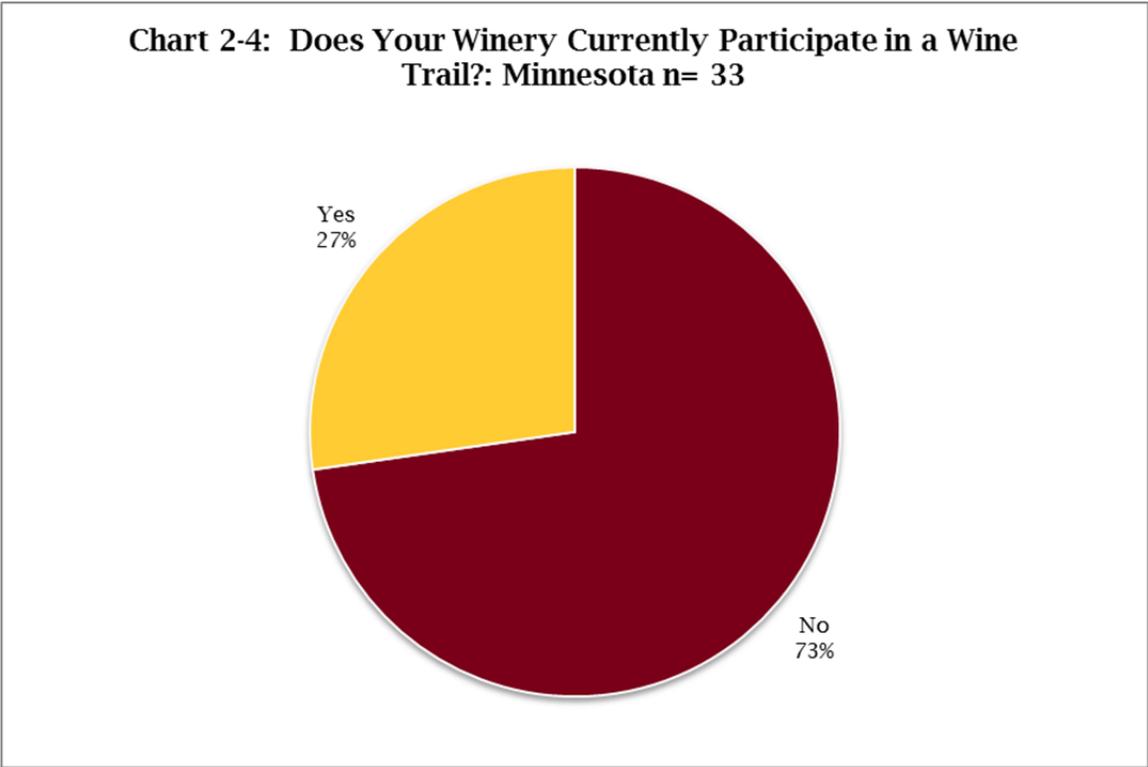


Nearly all Minnesota wineries are producing red and white wines, see chart 2-3. Wineries are also commonly producing blends, rose, and fruit wines. Only a few wineries are producing ice and sparkling wines. Study results show wineries in Minnesota produced 165,700 gallons of wine in 2011 or an average of 3,800 gallons per winery.

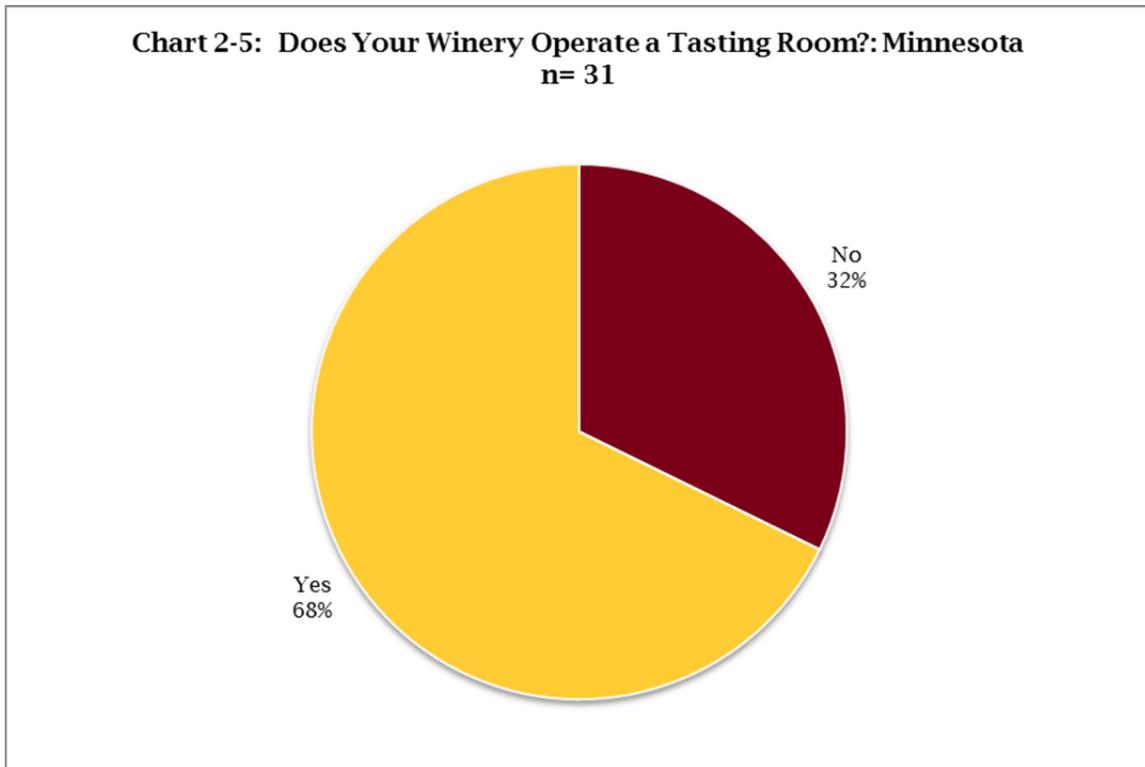
**Chart 2-3: What Kinds of Wines Are You Currently Producing?:  
Minnesota n= 30**



Just over one-quarter of wineries currently participate in a wine trail. See chart 2-4. Wine trails have grown in popularity in recent years. These results indicate there is opportunity for further development of this marketing activity in Minnesota.

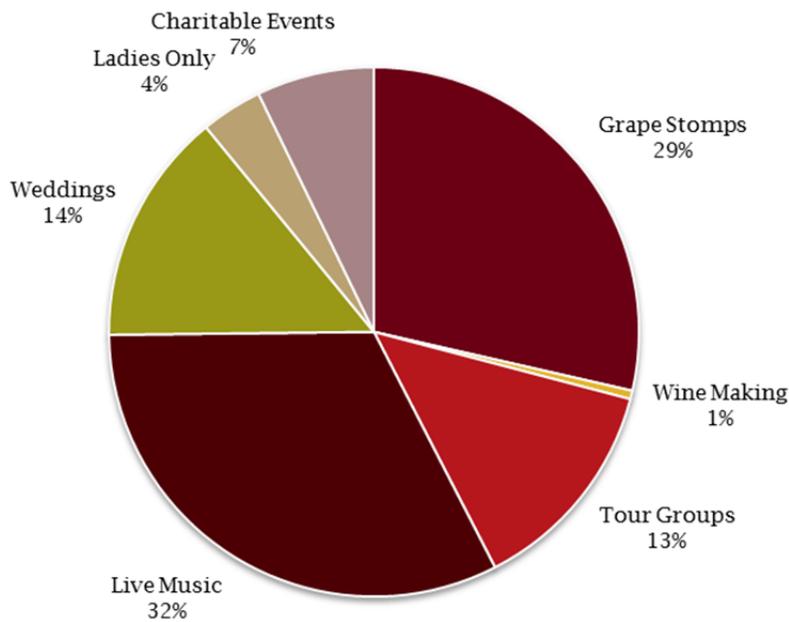


Two-thirds of Minnesota wineries operate a tasting room in conjunction with their winery, see chart 2-5. Just over half of the wineries (57 percent) charge for tastings. Forty percent of the wineries offer food with their wine service. On average, each winery served 6,800 tasting room customers. Wineries estimate that 27 percent of their tasting room visitors are repeat customers.



Wineries also reported on events held at their winery in 2011. Specifically, wineries were asked to report how many people attended the following types of events: grape stomps, wine-making classes, tour groups, live music, weddings, ladies-only events, charitable events, and other events. In total, the responding wineries (30) hosted 70,000 guests at winery events, roughly half who were from outside the local area. The breakdown of which events these guests attended is shown in chart 2-6. Live music events and grape stomps drew the most people to the responding wineries in 2011. Tour groups and weddings were other top attractors for visitors to the wineries.

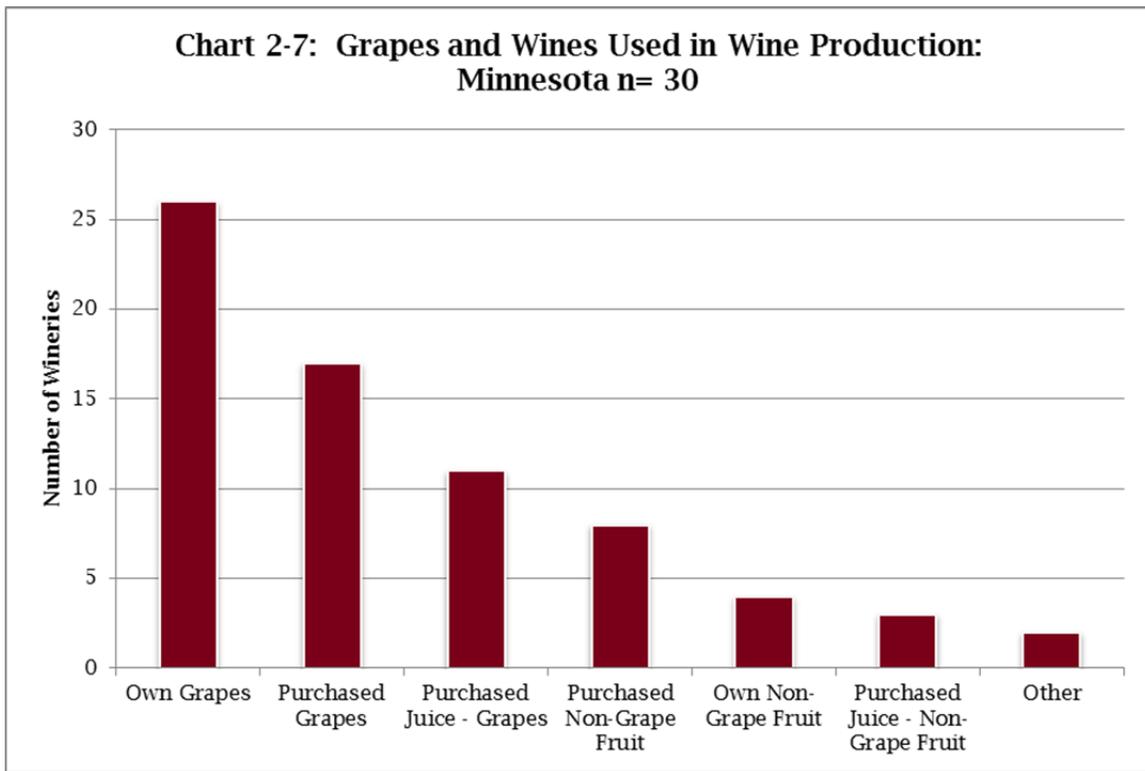
**Chart 2-6: Percent of Winery Visitors Per Event: Minnesota**  
**n= 20**



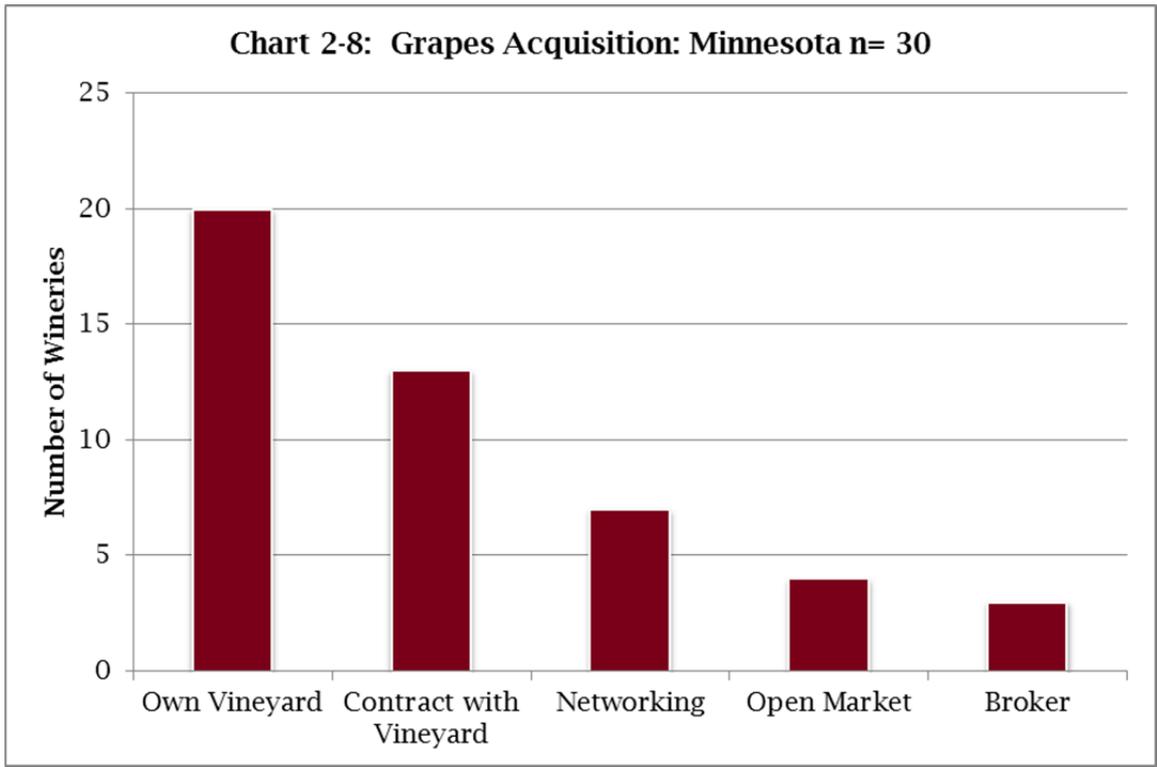
### **Grape Acquisition**

Wineries in Minnesota purchased \$2.8 million of grapes in 2011, from their own vineyards and from other vineyards. On average, each winery spent \$62,000 to buy grapes. Eighty-eight percent of the grapes used by these wineries were cold-hardy varieties.

Wineries participating in the survey report the most common methods for acquiring grapes and fruits are by purchasing grapes from their own vineyard and purchasing whole grapes from another source. Use of non-grape fruits is rather limited among the surveyed wineries, as shown in chart 2-7.



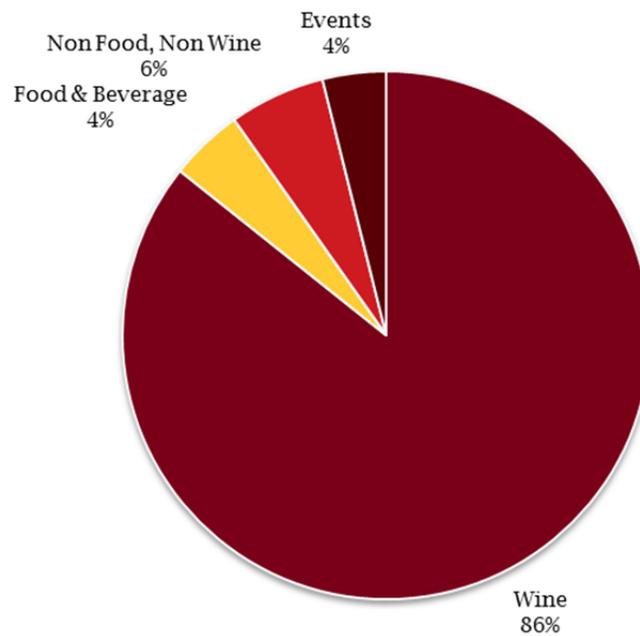
As depicted in chart 2-8, wineries primarily acquire their grapes from their own vineyards. Those who purchase grapes use a combination of contracts with vineyards, the open market, and networking. Purchasing grapes via a broker is not widely used as an acquisition tool by these wineries.



**Winery Sales and Production**

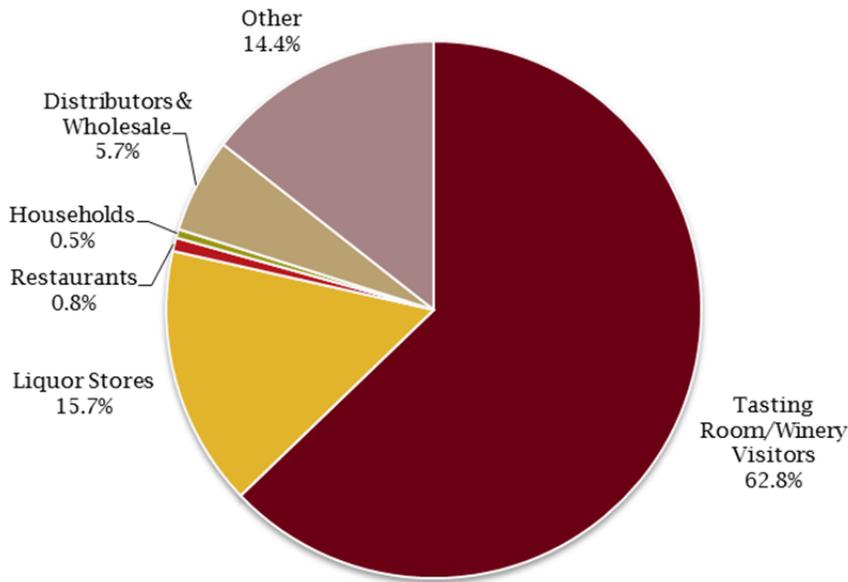
In total, wineries in Minnesota had sales of \$13.7 million in 2011, an average of \$311,000 per winery. Of total sales, \$12.0 million were generated from wines crafted from cold-hardy grapes. Wine sales, including bottles sold and tasting room fees, are the primary source of revenue for wineries, accounting for 86 percent of all sales (see chart 2-9). Wineries produced, on average, 3,800 gallons of wine.

**Chart 2-9: Wine Sales by Category: Minnesota n= 30**



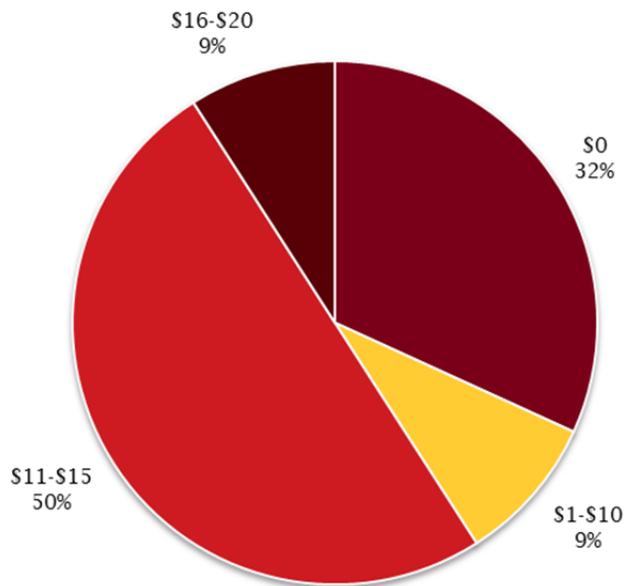
Wineries in Minnesota sold an estimated 540,000 bottles of wine in 2011 or an average of 12,400 bottles per winery. Two-thirds of wineries operate a tasting room and nearly two-thirds of an average winery's sales are through the tasting room or to winery visitors, as shown in chart 2-10. Approximately twenty percent of sales are via distributors and liquor stores. Sales to Farmer's Markets, restaurants, and direct-to-households account for only a minor portion of sales.

**Chart 2-10: Percent of Wine Sales: Minnesota n= 30**

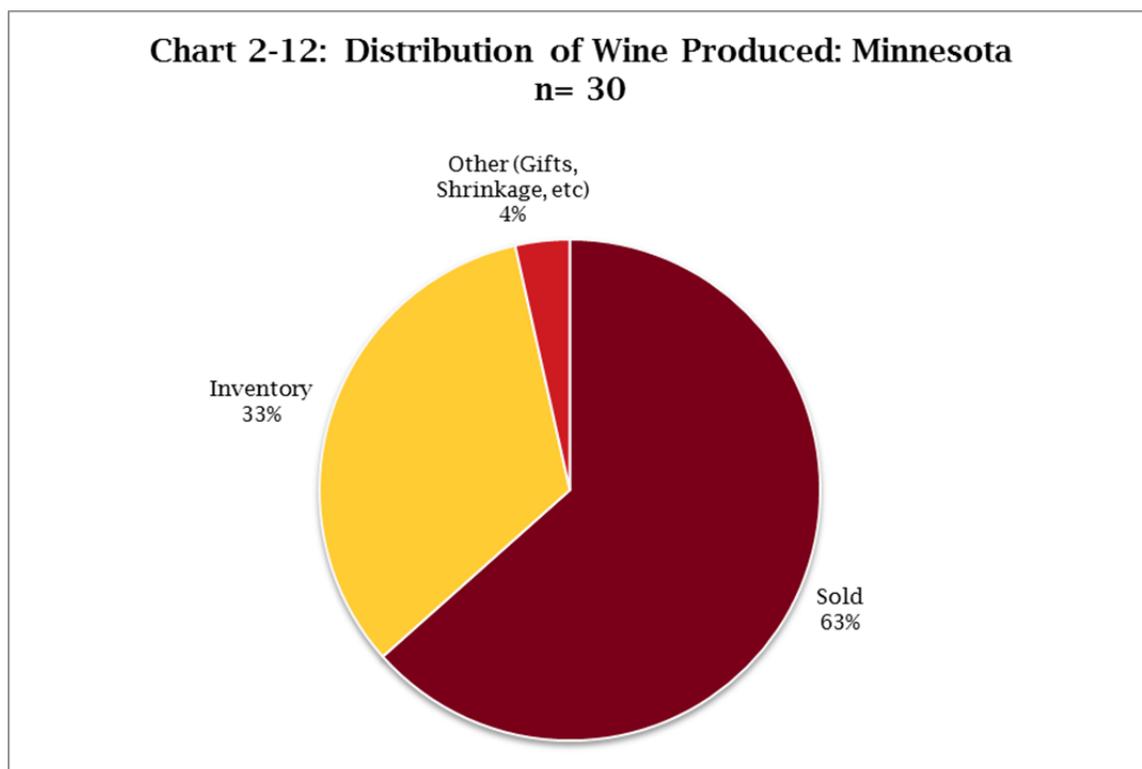


Wineries reported the average price per bottle of wine sold was \$13 in 2011. Chart 2-11 shows the distribution of average wine sale prices. One-third of wineries reported receiving \$0 for wine sold. These are likely wineries who produced wine but whose wine was not ready for sale in 2011. Half the wineries, 50 percent, sold their wine for a price of \$11-\$15 per bottle.

**Chart 2-11: Average Price Per Bottle of Wine: Minnesota n= 30**



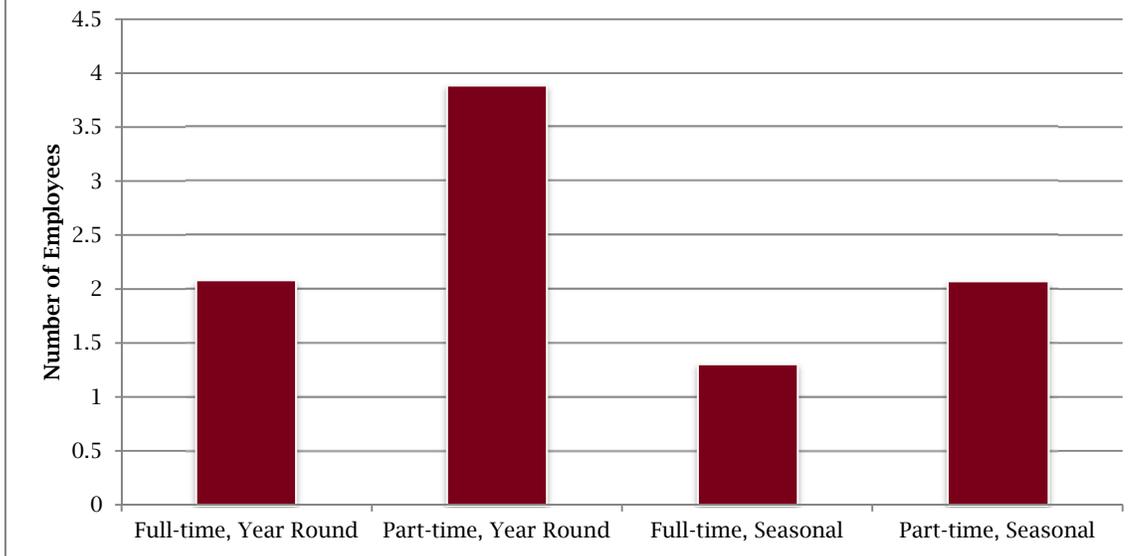
As mentioned, the average responding winery produced 3,800 gallons of wine. The majority of the wine (63 percent) produced was sold, see chart 2-12. Wineries put one-third of the gallons of wine produced into inventory. A small percent (4 percent) of wine produced was utilized in other ways (e.g. gifts, donations, shrinkage, etc.).



Wineries in Minnesota employ 410 individuals. On average, each winery employs 9 individuals; 2 full-time year-round people, 4 part-time, year round people, 1 full-time, seasonal person, and 2 part-time, seasonal people, see chart 2-13.

In 2011, wineries paid \$3.5 million in labor income (includes wages, salaries, and benefits) with an average of \$79,000 per winery. Volunteer labor is an important component of winery operations. In 2011, wineries used 610 hours of volunteer labor per winery.

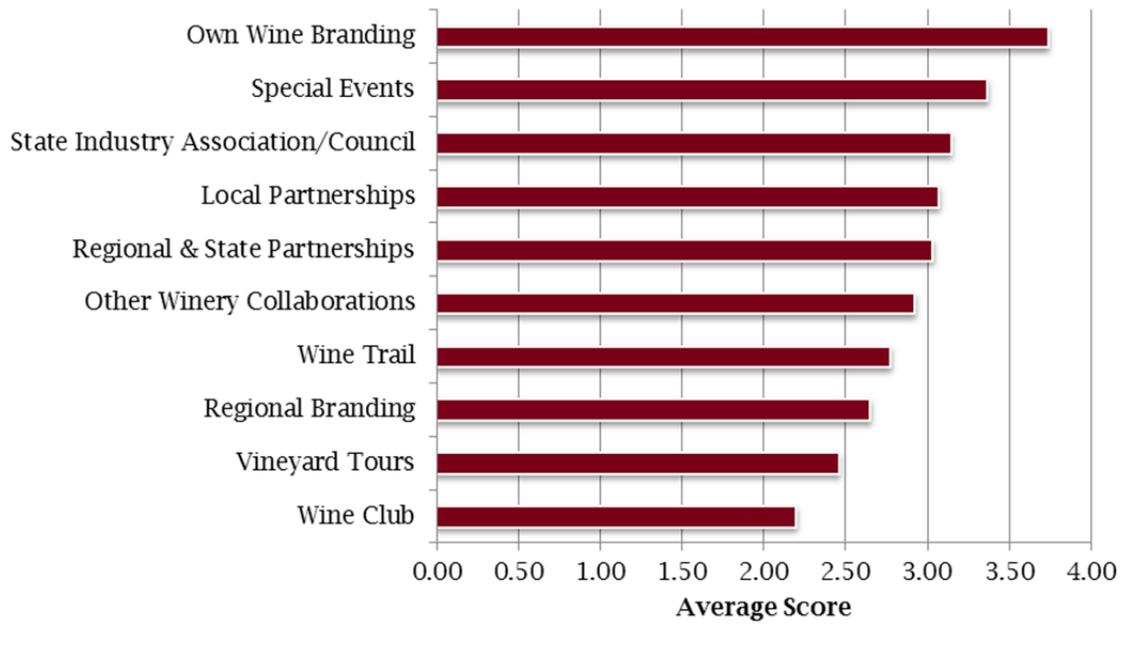
**Chart 2-13: Average Employment Per Winery 2011:  
Minnesota n=30**



### **Winery Marketing and Collaboration**

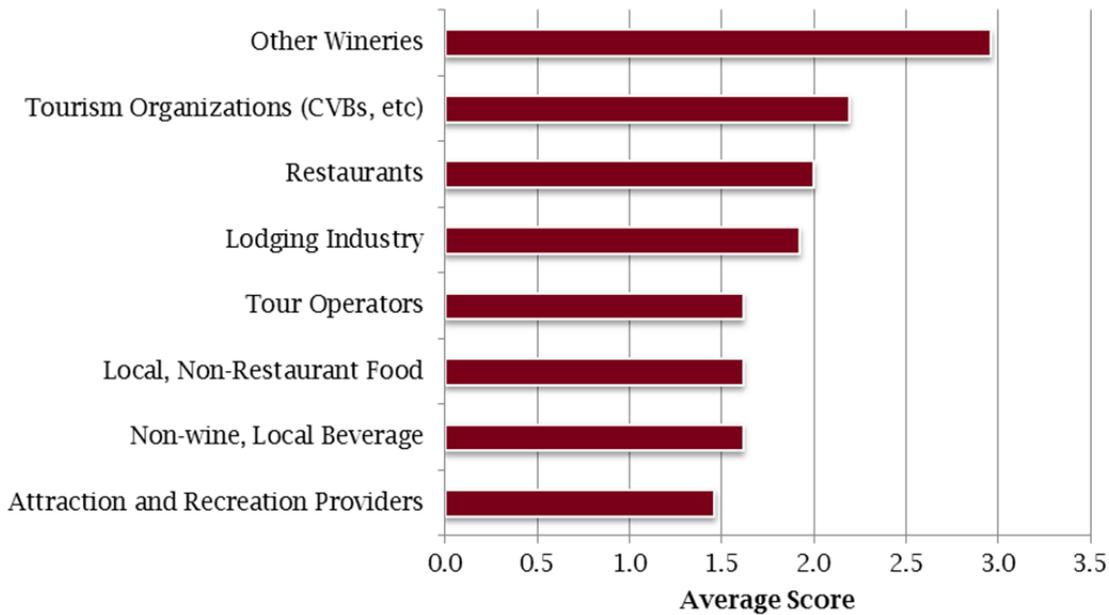
Wineries were asked to rate a list of marketing strategies on a scale where 1 indicated the strategy was “unimportant” for their marketing and 5 indicated it was “very important”. As shown in Chart 2-14, winery owners believe that branding their own wine is the most important marketing strategy they can employ, assigning it an average score of 3.74. Special events and state winery/vineyard associations or councils were also assigned relatively high scores. Winery owners assigned the lowest average scores to wine clubs, vineyard tours, and regional branding initiatives. Sixty percent of wineries offer vineyard tours.

**Chart 2-14: Importance in Overall Marketing Strategy:  
(1=None, 5=A Great Deal) Minnesota n= 27**



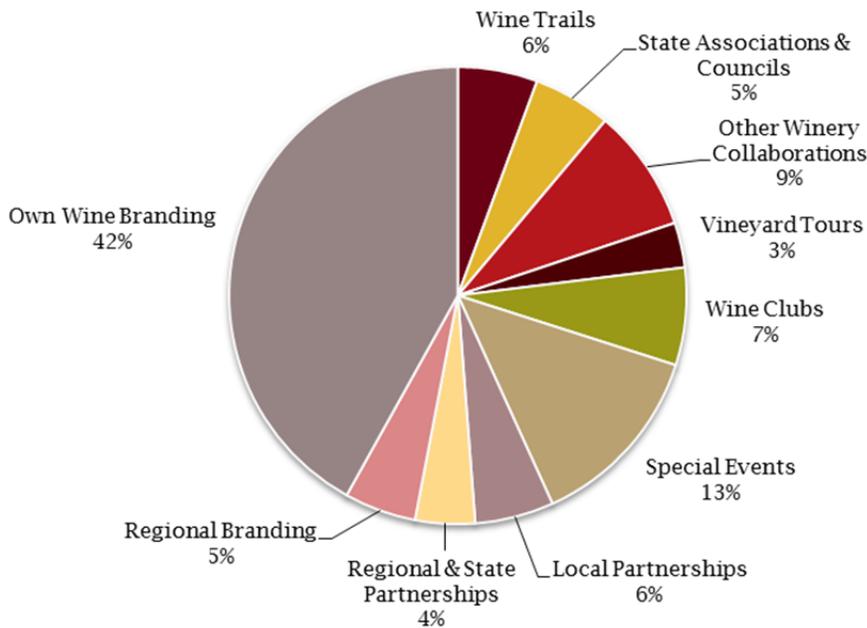
Wineries were also asked about their current collaboration efforts. They were asked, on a scale where 1 equals “none” and 5 equals “a great deal”, “to what extent do you currently collaborate with the following entities?” Overall, scores are rather low. All the scores are below 3 or “somewhat” in terms of collaboration. The highest level of collaboration is among wineries, as shown in chart 2-15. This chart would indicate there is room for improved collaboration in Minnesota winery operations.

**Chart 2-15: Extent of Collaboration  
(1=None, 5=A Great Deal) Minnesota n= 26**

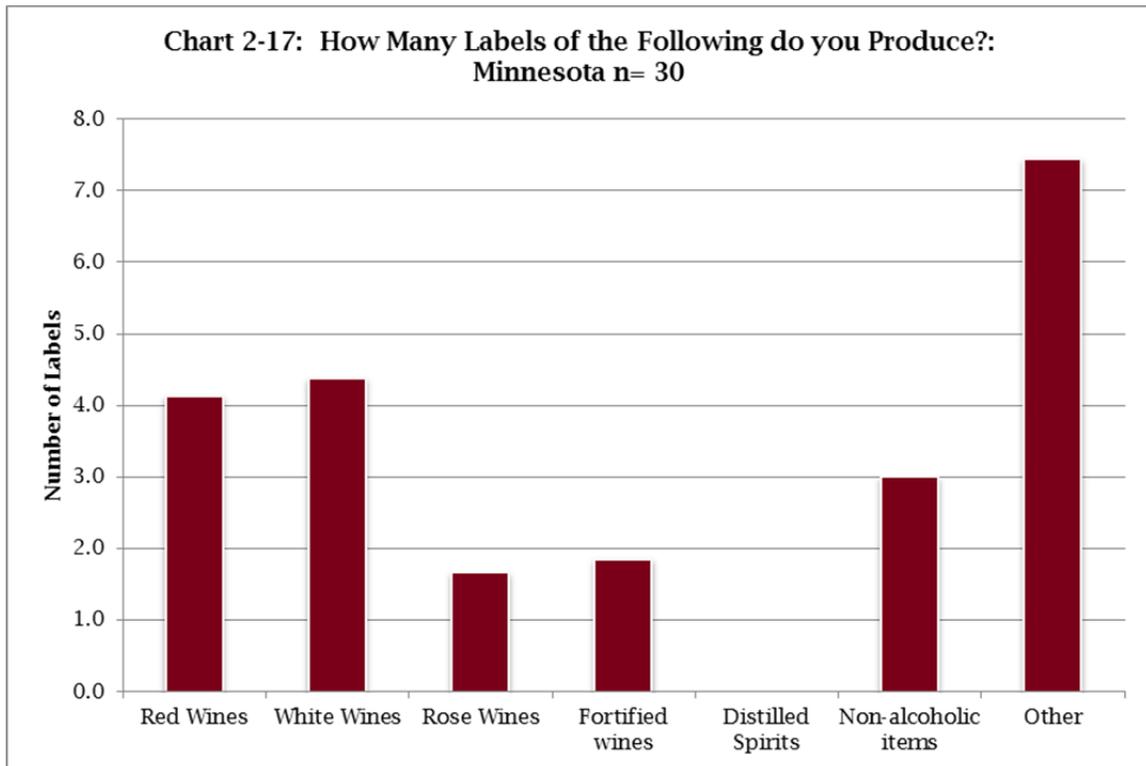


Wineries were then asked how various marketing arrangements influenced their sales. Wineries overwhelmingly indicated that their own wine branding efforts drove the majority (42 percent) of their sales. Special events drive an estimated 13 percent of sales and other winery collaborations 9 percent. Chart 2-16 illustrates this point.

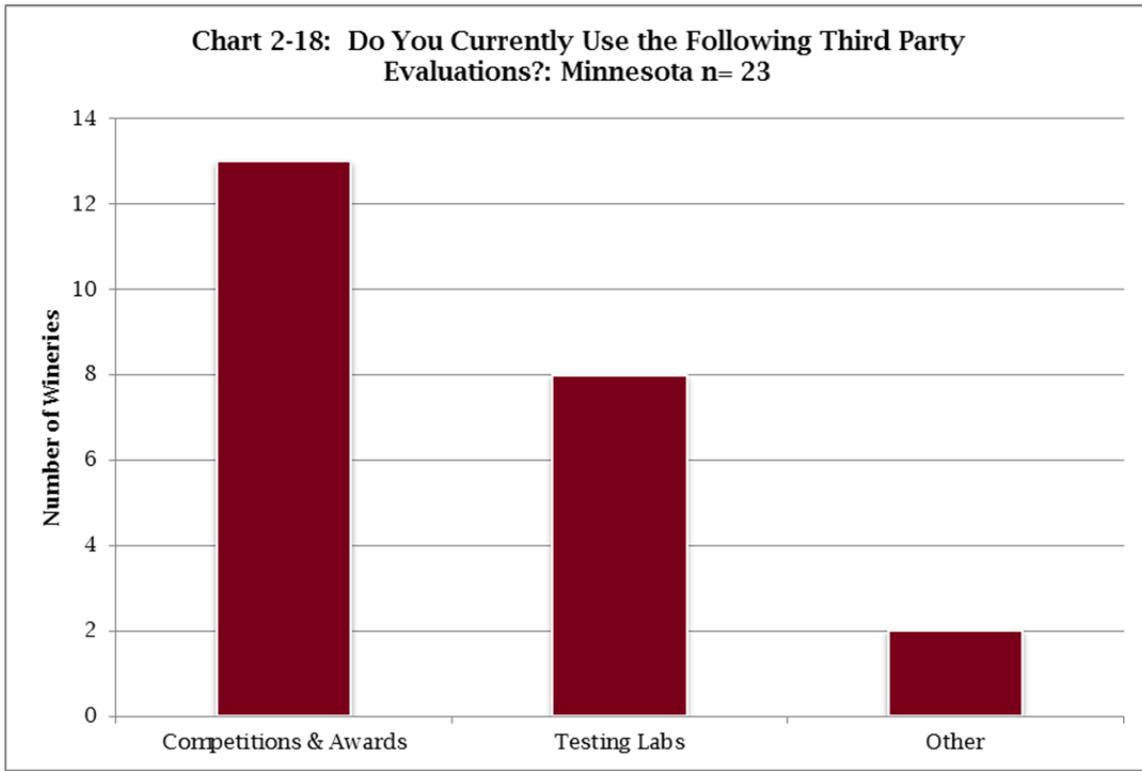
**Chart 2-16: What Percent of Current Sales are  
Attributable to the Following?: Minnesota n= 30**



As mentioned earlier, the most commonly produced wines are red and white wines. On average, each winery is bottling 4 labels of each, as shown in chart 2-17. Wineries also report an average of 7 “other” labels. The survey instrument did not ask wineries to indicate what other types of labels are being produced.



Competitions are the most commonly used type of third party evaluations, as reported by the responding wineries. Wineries are also using testing labs for third party evaluations. No Minnesota wineries reported using quality alliances at this time. See chart 2-18.



**Future Plans**

Winery owners were asked directly about future plans for their establishment. The results, shown in chart 2-19, indicate the potential for continued growth in the industry, as 76 percent of wineries plan to expand in the next five years. A few wineries are considering selling or transferring the winery to a family member. The industry, as the older wineries mature, may be in need of assistance in succession planning and transferring a business. Continued growth also indicates a continued need for successful business planning.

**Chart 2-19: Which Best Describes Your Plans for the Next Five Years?: Minnesota n= 25**

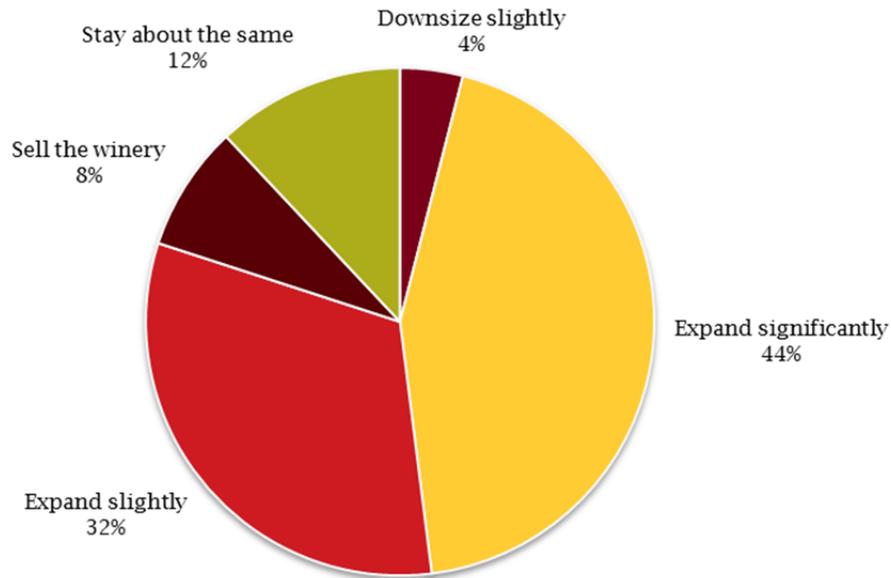
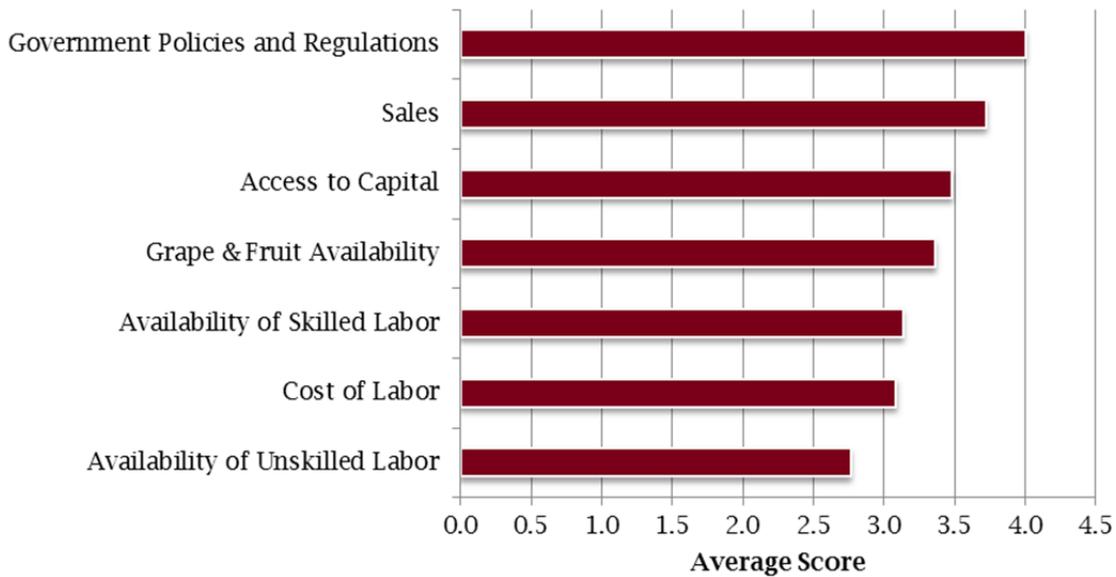


Chart 2-20 depicts winery owners' responses to a question about the challenges to the growth and development of their winery. On a scale where 1 equals "strongly disagree" and 5 equals "strongly agree", wineries were asked to rate a list of issues in relation to each as a challenge to the growth and development of their winery. Wineries rated government policy, sales, and access to capital as the biggest threats to their wineries. Availability of unskilled labor and cost of labor received the lowest average ratings.

**Chart 2-20: The Following is a Challenge to the Growth and Development of my Winery (1=Strongly Disagree, 5=Strongly Agree): Minnesota n= 24**



## ECONOMIC CONTRIBUTION OF VINEYARDS AND WINERIES IN MINNESOTA

The economic contribution of an industry is comprised of direct and secondary effects. Direct effects are economic activities generated by the industry itself. For example, spending by grape growers to purchase trellising supplies is a direct effect. Spending by wineries to purchase bottles is also a direct effect. Secondary effects are economic activities triggered by the initial spending. When a grape grower purchases trellising supplies, the manufacturer of the supplies must produce more, creating additional economic activity. When a winery buys bottles, the glass manufacturer must produce more, thus increasing output.

### Direct Effects

In measuring the economic contribution of the grape growing and winery industries in Minnesota, the first step is to measure the direct effect of the industries. In other words, producers were asked to report how much they spent in 2011. Researchers used data gathered in the Northern Grapes Project baseline study for this purpose. The data collected in the study were used to derive averages per winery and per vineyard. These averages were extrapolated to the total population of wineries (44 in Minnesota) and vineyards (632 in Minnesota) to determine the total direct effect for the state.

Wineries and vineyards contribute to Minnesota's economy through three primary methods. One, vineyards make purchases for inputs and for labor. Two, wineries make purchases for inputs and for labor. Three, wineries attract visitors, typically through tasting rooms. These tourists make purchases during their visit which stimulate economic activity in the state. The direct contributions of each of these components are shown in table 3-1. These are the direct effects of the grape growing and winery industries in Minnesota.

Minnesota vineyards, in 2011, spent \$8.9 million within the state to operate. This included \$1.2 million of payments to their 1,400 employees.

Minnesota wineries, in 2011, spent \$10.9 million within the state for their operations. Of this, \$3.5 million went to their 400 employees. Total winery sales, as mentioned in the winery summary, were \$13.7 million in 2011. Of this, \$2.8 million in purchases were for grapes. Since grape sales are included in the vineyard impact, they are excluded here to avoid double counting.

Finally, winery tourists, in 2011, spent \$9.7 million during winery visits. These expenditures supported 170 jobs in Minnesota which in total amounted to \$3.5 million in labor income. A winery tourist was defined as a person who indicated the winery was a primary motivator of their trip to the winery. The number of winery visitors was extrapolated from winery responses regarding the number of tasting room customers in 2011. For a more in-depth explanation of the process used to calculate the number of winery tourists, please see appendix 3.

	<b>Vineyards</b>	<b>Wineries</b>	<b>Winery Tourists</b>
Output	\$8,900,000	\$10,900,000	\$9,700,000
Employment	1,400	400	170
Labor Income	\$1,200,000	\$3,500,000	\$3,500,000
Estimates by University of Minnesota			

## Indirect and Induced Effects

Now that the direct impacts of vineyards, wineries, and wine tourists are quantified, the data can be entered into an input-output model. Input-output models trace the flow of dollars throughout a local economy and can capture the indirect and induced, or ripple effects, of an economic activity. The input-output modeling software and data from RIMS II (Bureau of Economic Analysis) was used in this report.

Indirect effects are those associated with a change in economic activity due to spending for goods and services. In this case, these are the changes in the local economy occurring because vineyards and wineries need to purchase inputs (trellises, bottles, etc.) and related services (viticulture support, label design, etc.). These are business-to-business impacts.

Induced effects are those associated with a change in economic activity due to spending by the employees of businesses (labor) and by households. Primarily, in this study, these are economic changes related to spending by vineyard and winery workers hired to perform the vineyard and winery tasks. These are business-to-consumer impacts.

## Total Economic Effects

The total economic contribution of an industry is calculated by adding the direct, indirect, and induced effects. In 2011, the total economic contribution of the grape growing and winery industries in Minnesota was \$59 million. This includes 3,250 jobs and \$19.7 million in labor income, as shown in table 3-2.

	<b>Vineyards</b>	<b>Wineries</b>	<b>Winery Tourists</b>	<b>Total</b>
Output	\$16,400,000	\$22,100,000	\$20,500,000	\$59,000,000
Employment	2,300	700	250	3,250
Labor Income	\$2,400,000	\$11,000,000	\$6,300,000	\$19,700,000

Estimates by University of Minnesota

In 2008, the University of Minnesota published a study of the economic contribution of the grape and winery industries in Minnesota. Those results showed an economic impact related to vineyards of \$13.6 million, 100 jobs, and \$4.4 million in labor income in 2007. These results, as compared to the 2011 figures, indicate that vineyards are continuing to grow and increase their sales. However, there have been changes in the number of employees and in payments to that labor. The changes in employment numbers can partially be explained by a change in methodology. In the previous study, the number of employees was adjusted to full-time equivalents. In this study, all jobs are reported, regardless of full-time, part-time, or seasonal status. Table 3-3 shows total vineyard and winery employment by each of the job classifications. Payments to labor have decreased, indicating that vineyards are still relying on unpaid labor to accomplish their tasks.

**Table 3-3: Winery and Vineyard Employment by Classification, Minnesota, 2011**

	<b>Full-Time, Year Round</b>	<b>Part-Time, Year Round</b>	<b>Seasonal</b>	<b>Total</b>
Vineyards	65	255	1,080	1,400
Wineries	90	170	140	400

Estimates by University of Minnesota

Wineries also increased their contribution to the Minnesota economy between 2007 and 2011. In 2007, wineries had a total economic impact of \$8.5 million, including \$2.9 million in labor income and 70 employees. In 2011, the impact was \$22.1 million, indicating wineries nearly tripled their sales during those years. An increase in the number of licensed wineries likely contributed a portion of that growth. Employment estimates for wineries, too, are significantly different. Like the vineyards, this is due to a change in the methods of measuring employment. Wineries in Minnesota employ on average 2 full-time employees and 4 part-time employees.

Winery tourism contributed more to the Minnesota economy in 2011 when compared to 2007. In 2007, winery tourists contributed \$14.0 million, including \$3.5 million in labor income and 160 jobs. The number of winery visitors has increased. The tourist spending profiles did not change significantly (see appendix three).

#### **Cold-Hardy Related Economic Effects**

Surveyed grape growers report 98 percent of the grapes grown in Minnesota are of cold-hardy varieties (see appendix 1 for a definition of cold-hardy). Surveyed winery owners report 88 percent of the grapes used in the production of their wine are from the cold-hardy varieties. In 2011, cold-hardy grapes contributed \$53.6 million to the output of the state of Minnesota including \$17.5 million in labor income. They contributed 3,100 jobs, as shown in table 3-4.

**Table 3-4: Total Economic Effects of Vineyards, Wineries, and Winery Tourists Derived from Cold-Hardy Grapes, Minnesota, 2011**

	<b>Vineyards</b>	<b>Wineries</b>	<b>Winery Tourists</b>	<b>Total</b>
Output	\$16,100,000	\$19,500,000	\$18,000,000	\$53,600,000
Employment	2,300	600	200	3,100
Labor Income	\$2,300,000	\$9,700,000	\$5,500,000	\$17,500,000

Estimates by University of Minnesota

## SUMMARY AND CONCLUSIONS

In spring 2012, grape growers and winery owners in 13 states were surveyed under the Northern Grapes Project. Questions asked pertained to sales and production (wineries and vineyards), growing practices (vineyards), and operating practices (wineries). The goal was to establish an industry baseline and quantify the economic contribution of the industry. This report presents the results for Minnesota.

Overall, results of the industry baseline reflect the observed trends in the industry. Rapid growth continues in the vineyard and winery industries in Minnesota. Only 1 out of every 5 wineries and 1 out of every 10 vineyards existed prior to 2002. The pace of growth continues to increase, as more wineries and vineyards were founded in the last 5 years. Existing vineyards have increased their planted acreage since their initial establishment.

In addition, the volume of grapes on the market continues to increase substantially. Nearly half of all planted acreage has been established since 2007. Since grapes need 3 to 4 years to mature, there is a lag with those grapes being available for market. The Marquette grape has gained wide acceptance. Since being released in 2006, the variety has come to represent over half of planted red cultivars.

Despite the rapid growth in the volume of grapes available on the market, grape growers remain fairly confident they will market their grapes. Grape growers are using more sophisticated methods to market, relying more on contracts with wineries and less on informal networks for sales. Wineries are increasingly becoming involved in vineyard management decisions. When asked what challenges face their vineyards, owners indicated short-term, immediate concerns were a priority, including pests, insects, and disease.

Wineries appear to be more focused on longer-term issues. Winery owners rated government policies and regulations as the biggest challenge to the future growth and development of their business. They also expressed concerns regarding sales and access to capital.

In regards to sales, there appears to be untapped market potential for wineries in Minnesota. Currently, wineries make the majority of their sales from tasting rooms. Potential to diversify into sales through distributors, liquor stores, and local restaurants may exist. In 2011, the majority of a Minnesota winery's sales were derived from sales of the wine itself. There may be opportunities to expand into tourism or offer additional services or goods for sale at the winery.

Wineries view their own wine branding as their most important marketing strategy. Hosting special events and working with local organizations are second and third most important.

In 2011, the grape growing and winery industries contributed \$59 million in economic activity in Minnesota. Of this, \$16.4 million was generated by vineyards, \$22.1 million by wineries, and \$20.5 million by winery tourists.

In 2011, the grape growing and winery industries supported 3,250 employees in Minnesota. Employees received \$19.7 million in labor payments.

## **APPENDIX ONE: PARTICIPATING INDUSTRY ASSOCIATIONS**

The following industry associations/councils provided membership lists for the baseline and economic impact survey of the Northern Grapes Project.

Connecticut Vineyard and Winery Association

Illinois Grape Growers and Vinters Association

Iowa Wine Growers Association

Lake Champlain Wines

Massachusetts Farm Wineries and Growers Association

Michigan Grape and Wine Industry Council

**Minnesota Grape Growers Association**

Nebraska Winery and Grape Growers Association

New Hampshire Winery Association

New York Wine and Grape Foundation

Northern Illinois Wine Growers

Scenic Rivers Grape and Wine Association

South Dakota Specialty Producers Association

South Dakota Winegrowers Association

Upper Hudson Valley Wine and Grape Association

Vermont Grape and Wine Council

Western Iowa Grape Growers Association

Wisconsin Grape Growers Association



## **APPENDIX TWO: DEFINITION OF COLD-HARDY GRAPES**

Defining a cold-hardy grape is not as straight-forward as one might imagine. What is considered cold-hardy in one region may not be considered cold-hardy in another. For purposes of this study, researchers classified the following cultivars as cold-hardy. This was done in consultation with the Northern Grapes project advisory team which is comprised of growers in each of the states.

### **Table A-1: Cold-Hardy Red Varieties**

Baltica  
Beta  
Frontenac  
GR-7  
King of the North  
Leon Millot  
Marechal Foch  
Marquette  
Other red Swenson  
Petite Pearl  
Sabrevois  
St. Croix  
Valiant

### **Table A-2: Cold-Hardy White Varieties**

Brianna  
Edelweiss  
Esprit  
Frontenac blanc  
Frontenac gris  
Kay Gray  
La Crescent  
La Crosse  
Louise Swenson  
Other white Swenson  
Petite Amie

Prairie Star

St. Pepin

### **APPENDIX THREE: WINERY TOURIST AND EXPENDITURE CALCULATIONS**

Three critical pieces of information are necessary to calculate the economic impact of winery tourists. First, researchers need an estimate of the number of winery visitors in a certain time period. Second, researchers need to know the motivations of these winery visitors and the number of visitors from outside the region (local area). Third, researchers need an average spending profile for each tourist.

For purposes of this study, the total number of winery visitors in each state was extrapolated from the winery survey. Winery owners were asked to estimate the number of customers their tasting rooms entertained in 2011. Event attendees (e.g. weddings, new release parties, etc.) are assumed to be a subset of the total number of tasting room customers. The average number of customers was then applied to all wineries.

Economic impact theory stipulates that impact is driven by dollars from outside the region. Local residents may visit a winery and spend money, but theoretically, they would have spent those dollars in the local economy on another leisure activity if the winery were not located in their community. The number of tasting room customers, therefore, has to be adjusted to represent only those from outside the community who have traveled to the area specifically to visit a winery. These visitors are hereafter referred to as winery tourists. Research on tasting room customers in Michigan (conducted by Michigan State researchers Don Holecek and Dan McCole as part of the Northern Grapes Project) indicates that approximately two-thirds (67 percent) of tasting room visitors are tourists.

Since economic impact theory further instructs that economic impact is only attributable to a business or an event if the business or event is the primary purpose for the tourism activity, the final number of winery tourists was calculated by estimating the number of tourists to the area due to the presence of the winery. If a tourist visits a winery while in town celebrating a wedding, the wedding is the primary purpose of the visit and should be credited with economic impact and not the winery. Tasting room research, conducted by Michigan State researchers, determined the winery itself was a driving factor in 49 percent of visits to the winery.

With the number of winery tourists quantified, researchers need to apply an average spending profile to determine total spending by winery tourists. In Minnesota, the spending profiles from the 2008 grape and winery economic impact study were adjusted by inflation and applied. The spending profile originated with research conducted by Daniel Erkkila. Total per person spending was estimated at a conservative \$71 per day.

The winery tourist economic impact calculations are arguably the most complex of this report. Future research into the economic impact of wineries and vineyards in Minnesota would be greatly enhanced by 1) doing tasting room customer surveys in Minnesota and 2) developing a spending profile specifically for Minnesota winery visitors.