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2017 Minnesota Grape Production Statistics

ESTIMATES FOR THE YIELD, PRODUCTION, AND PRICING DATA OF THE MINNESOTA GRAPE INDUSTRY

Authored by Matthew Clark, Brigid Tuck, and Annie Klodd

Photo: David Hansen, MAES

WITH THANKS TO THE MINNESOTA GRAPE GROWERS ASSOCIATION

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INTRODUCTION

In early 2018, commercial grape growers in Minnesota provided University of Minnesota Extension with yield and pricing data for their 2017 harvest. Using an online survey instrument, growers reported on their planted and producing acres, and the yields, sales, and prices received for each cold-hardy grape variety. Additionally, growers reported on the causes and amount of crop loss experienced. Survey findings are summarized below.

DEMOGRAPHICS AND VINEYARD SIZE

Survey respondents identified whether or not they operated a commercial vineyard in 2017. They also provided their five-digit zip code for screening purposes, as individual vineyard operations were not identified for confidentiality reasons. Forty-two grape growers responded to the online survey and provided sufficient and complete data for use in this report. The respondents were from 26 of Minnesota's 87 counties (Figure 1).

The size of Minnesota vineyards continue to remain consistent, based on survey responses. The mean vineyard size (average) is 6.9 ac with 5.25 ac in production. However, 63 percent of reporting vineyards operated with five or less acres of grapes. The largest reporting vineyard had 40 acres in production in 2017. Figure 2 shows the distribution of vineyard production by acreage. While a total of 289.9 acres of grapevines were reported in this survey, only 225.6 were reported to be producing.

Figure 1. Map of Minnesota counties showing the reporting 42 vineyard operations and their location in the state

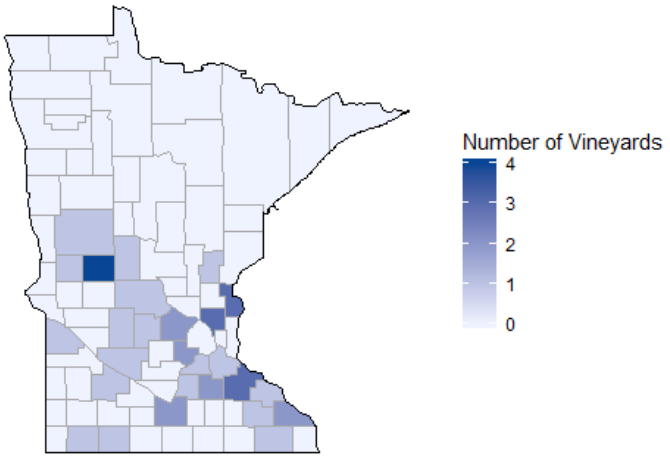
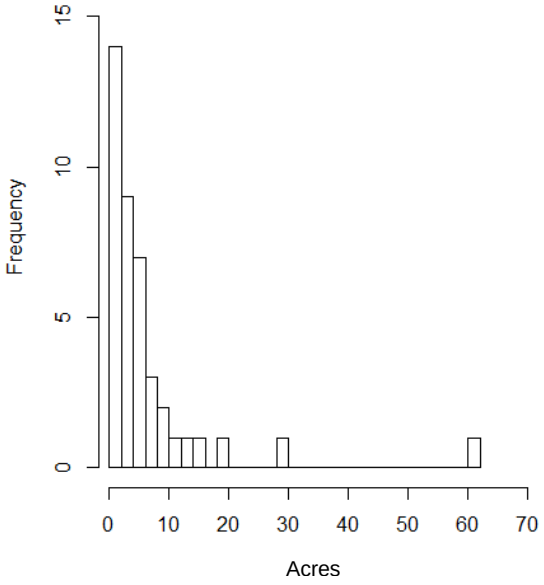


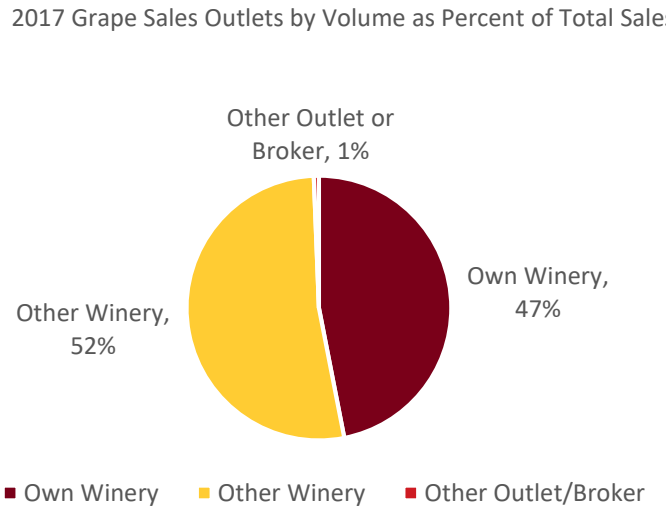
Figure 2. Distribution of vineyards by number of acres planted



MARKETS

To identify which market channels grape were being sold in, survey questions asked what percent of grapes were sold to the following sources: own winery, other winery, or broker/other. Twenty-six percent of vineyards reported selling exclusively to their own winery. Fifty-six percent of vineyards sold their grapes exclusively to other wineries. Other non-winery outlets for grapes included direct farm-to-school sales, other food business, table grape sales, or as payments for vineyard help. Of all grapes sold in the state by volume, 47 percent were sold to a grower's winery, 52 percent to other wineries, >1 percent to other outlets or through brokers (Figure 3).

Figure 3. Percentage of grapes sold by volume through various outlets



HARVEST 2017

Grape growers reported their production and sales data for 2017 (Table 1). The smallest vineyard size reported was 0.5 ac and the largest 43 ac. The average acreage planted in Minnesota was 6.9 ac. The total yield reported was 86,540 lbs, which equates to roughly 3,823 lbs/ac or 1.9 tons/ac. A number of vineyards reported crop loss for various reasons. Growers provided an average price for their grapes in 2017, and values ranged from $0.50 to $3.00/lb. The average price (based on the average of each variety average) was $0.82/lb (Table 1).

Table 1. Production and price data reported for the Minnesota 2017 grape harvest

	Total Acres	Acres Producing	Lbs Produced	Price/lb
Total	289.85	225.57	862,540	NA
Average	6.9	5.25	21,564	$0.82*
Lower Range	0.5	0.5	2,180	$0.50
Upper Range	61	40	126,00	$3.00
n	42	42	42	42

*Average of the average price received for a vineyard operation

Twenty-six grape varieties were grown and sold in Minnesota in 2017. 'Marquette' was the highest produced grape with 133,542 lbs sold (Table 2). This was followed by 'Frontenac' (106,706 lbs) and 'Frontenac gris' (102,163 lbs). As a percentage of total reported yield, 'Marquette' comprised the largest proportion at 19.7 percent (Table 3). This was followed by 'Frontenac' (15.7 percent), 'Frontenac gris' (15 percent), 'La Crescent' (10.2 percent), 'Frontenac blanc' (7.5 percent), and 'Brianna' (7 percent).

Table 2. Production and price data by variety for Minnesota 2017 grape harvest

Variety	Total Yield (lb)	Sold Yield (lb)	Average Price/lb ($)	Weighted Price/lb ($)	Lower ($)	Upper ($)
Brianna	47,241	38,804	0.79	0.79	0.70	0.89
Edelweiss	6,535	6,535	0.77	0.77	0.65	0.85
Frontenac	106,706	83,315	0.78	0.79	0.50	0.90
Frontenac blanc	50,785	47,637	0.81	0.83	0.70	1.00
Frontenac gris	102,163	72,039	0.77	0.78	0.50	0.90
King of the North	11,441	ND	ND	ND	ND	ND
La Crescent	69,623	62,321	0.88	0.83	0.70	1.10
La Crosse	6,792	6,792	0.77	0.72	0.70	0.80
Marechal Foch	14,984	4,259	0.75	0.75	0.70	0.80
Marquette	133,542	121,335	0.85	0.88	0.50	1.25
Petit Ami	5,500	5,500	0.78	0.71	0.70	0.85
Petite Pearl	20,691	13,458	0.80	0.80	0.70	1.00
Sabrevois	17,068	ND	0.76	ND	0.70	0.89
St. Croix	10,923	9,610	0.77	0.82	0.70	0.85
St. Pepin	21,076	16,100	0.81	0.85	0.70	0.90
Somerset Seedless	1,450	ND	ND	ND	0.75	3.00
Other*	52,970	ND	ND	ND	ND	ND

*Due to low sample size, the other category includes Bluebell, Crimson Pearl, Kay Gray, Leon Millot, Louise Swenson, Shannon, Swenson Red, Valiant, and other estate/advanced breeding lines.

Two averages were calculated to represent the price/lb. First, the average price per pound was based on the amount received by the growers for each variety. This is the commonly recognized average. The weighted average accounts for the total volume of grapes sold at each price point, and was calculated as the volume sold multiplied by the price, and then averaged per variety. The weighted average arguably provides a more comprehensive picture, as it accounts for the volume of grapes sold at a certain price point. Thus, the weighted average accounts for the amount of grapes sold at a price point. This reduces the influence of small volumes of grapes sold at extremely high or low prices. The varieties listed in the "other" category were reported by only a single grower. Average prices ranged from $0.76/lb to $0.88/lb (Table 2). The price range for any one variety was more varied. For example, the price paid for 'Frontenac' and 'Frontenac gris' ranged from $0.50 to $0.90/lb. 'Marquette' was in the upper price range of $1.25/lb, followed by 'La Crescent' at $1.10/lb and 'Frontenac blanc' and 'Petite Pearl' at $1.00/lb. The table grape 'Somerset Seedless' reached the highest price at $3.00/lb, reflecting the premium pricing fresh market produce can obtain over wine grapes.

Most growers produce more than a single variety of grape, with some growers planting at least 10 cold-hardy grape varieties. The survey aimed to quantify the popularity of varieties not just on acreage planted, but also on the number of respondents who were growing each variety. Of the 42 survey respondents, 33 grew 'Marquette', 29 grew 'Frontenac', 26 grew 'Frontenac gris', and the others are shown in Table 3. Additionally, growers produced other fruit crops for sale for winemaking or other non-wine food use. These fruit crops included apples (13), raspberries (7), rhubarb (6), pears (5), blueberries, (2) and strawberries (2).

Table 3. Grape yields reported for Minnesota harvest in 2017 by percentage

Variety	Number of Growers	% of All Grapes Sold
Brianna	15	7.0
Edelweiss	8	1.0
Frontenac	29	15.7
Frontenac blanc	23	7.5
Frontenac gris	26	15.0
Itasca	10	0.0
King of the North	7	1.7
La Crescent	24	10.2
La Crosse	3	1.0
Marechal Foch	3	2.2
Marquette	33	19.7
Petite Ami	5	0.8
Petite Pearl	15	3.0
Sabrevois	3	2.5
St. Croix	6	1.6
St. Pepin	10	3.1
Somerset Seedless	3	0.2
Other		7.8

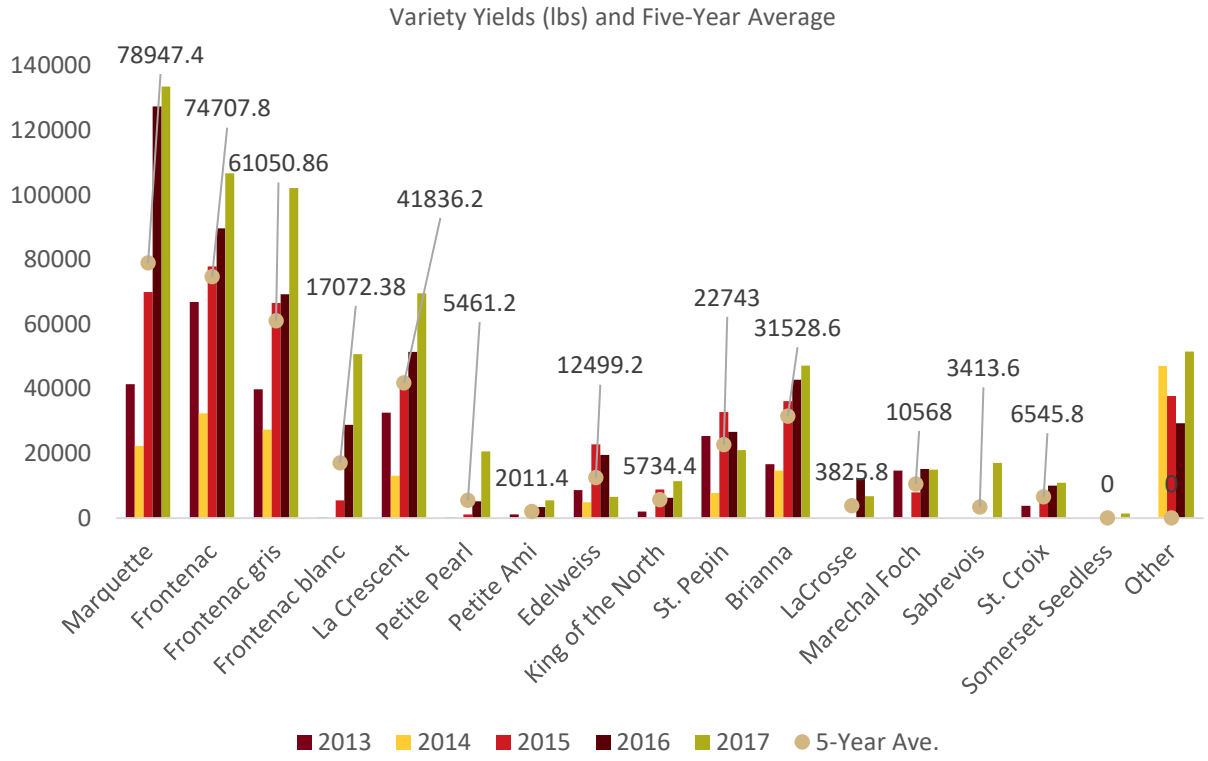
*Due to low sample size, the other category includes Bluebell, Crimson Pearl, Kay Gray, Leon Millot, Louise Swenson, Shannon, Swenson Red, Valiant, and other estate/advanced breeding lines.

To compare production data for the past five years (2013-2017), yield data are presented in Figure 4. Key features show increases year after year for most varieties, with the exception of 2014, the year of the polar vortex that had devastating effects. These data may not reflect all trends due to changes that growers reported each year. For example, while the data indicate a reduction in 'Edelweiss' production, this has not been verified.

CROP LOSS

Grape production can be risky due to environmental stresses, disease, pests, predation, spray drift, lack of labor, or lack of a buyer. In 2017, some growers indicated they experienced up to complete crop loss for some varieties due to winter damage and diseases. Winter injury often comes in the form of damage to primary buds exposed to extreme low temperatures or from frost events. Primary bud damage is variety specific. This survey did quantify this type of damage. Although late spring frost was a major issue in 2016, this was less of an issue, with only two growers reporting damage (up to 75 percent) in 2017. Another spring weather condition that results in poor yields is cool and rainy weather during pollination. These conditions can result in poor fruit set. Injury from hail and wind (thunderstorms) were also reported as reasons for crop loss. Other commonly reported losses were from raccoons and bird damage, disease (bunch rot, botrytis), and insects, such as wasps. At least 15 growers reported symptoms of bunch stem necrosis that affected yields, especially in 'Marquette,' which requires further investigation.

Figure 4. Yield data for five years of top producing cold-hardy grapevines in Minnesota, based on 42 survey respondents. Five-year average shown as the value (tan dot).



SUMMARY

These survey results provide yield and pricing estimates from a subset of commercial grape growers in Minnesota. Survey results show continued growth in the state's grape industry. Estimates of prices and trends can help growers (and wineries) when budgeting, establishing pricing, constructing contracts, and performing other fiscal planning. This survey does not reflect all grapes produced in Minnesota. The objective was to determine prices for actual transactions between vineyards and wineries, not estimates of crop values. Some respondents' yields were reported but not included in pricing estimates, because there was no direct sale between the vineyard and the winery.

Profitability estimates for vineyards of cold-hardy varieties suggest that ~ four tons per acre are necessary to break even. The current state average, as estimated in this report, is below that threshold. Managing crop loss will continue to be a major issue for Minnesota grape growers. Interventions to prevent disease (e.g., spray applications and cultural practices) and to mitigate pests (e.g., bird netting and raccoon control) are key areas for improvement for the industry at large.