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EXTENSION CENTER FOR COMMUNITY VITALITY

2018 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

Frontenac grape clusters ripening in August. Photo: Matthew Clark

WITH THANKS TO THE MINNESOTA GRAPE GROWERS ASSOCIATION

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July 2019

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Minnesota Grape Production Statistics: 2018

SURVEY RESPONSES SHOW THE ESTIMATES FOR YIELD, PRODUCTION, AND PRICING DATA FOR THE EXPANDING MINNESOTA GRAPE INDUSTRY FOR THE 2018 HARVEST SEASON

August 22, 2019

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INTRODUCTION

In 2018, grape growers in Minnesota responded to an online survey about their grape production. Respondents provided details on planted and producing acres, total yields, yields by variety, and the sales and prices received for each cold-hardy variety. These survey results were compared to the five-year variety yield average (2014-2018) to provide insight regarding the Minnesota grape growing industry over time.

DEMOGRAPHICS AND VINEYARD SIZE

Thirty-four respondents identified as commercial vineyard owners or operators provided information for data analysis. This is a fewer number of respondents than in previous years. While individual vineyard operations were not identified, the principal vineyard's zip code was used to identify spatial trends. Twenty-four counties in Minnesota were represented in this report (Figure 1).

The total number of acres (ac) reported in production was 216 ac, with 180.4 ac producing grapes in 2018. The mean vineyard size was 6.35 ac with an average of 5.31 ac in production. The largest reported vineyard was 30 ac and the smallest 0.5 ac. The median acreage in operation was four ac, and 56 percent of vineyards reported five ac or less planted or in production. Vineyard size appeared to remain constant in Minnesota, as compared to previous years. Figure 2 shows the distribution of vineyard production by acreage.

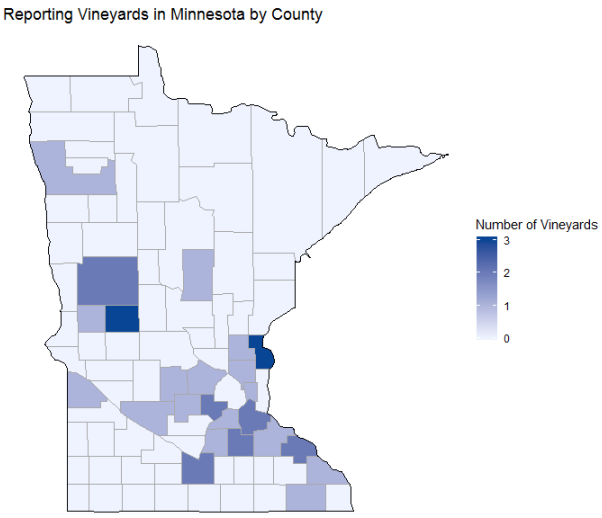

Figure 1. Map of Minnesota counties showing the reporting 34 vineyard operations and their location in the state

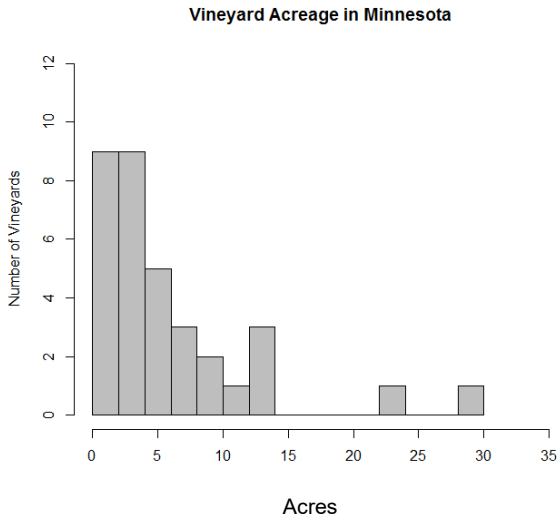

Figure 2. Distribution of vineyards by number of acres planted

MARKETS

To identify the market channels in which grapes were sold, survey questions asked what percent of grapes were sold to the following sources: own winery, other winery, broker, or other venue. Forty-three percent of vineyard owners and operators reported selling exclusively to their own winery.

Twenty-three percent sold grapes exclusively to other wineries. Thirty-four percent of vineyards owners and operators sold to their own winery and to other channels. Other non-winery outlets for grapes included home wine makers and farmers' markets. In some cases, no buyers were identified. Of all grapes sold in the state by volume, 62 percent were sold to a grower's winery, 36 percent to other wineries, less than 2 percent to other outlets, and zero through brokers (Figure 3).

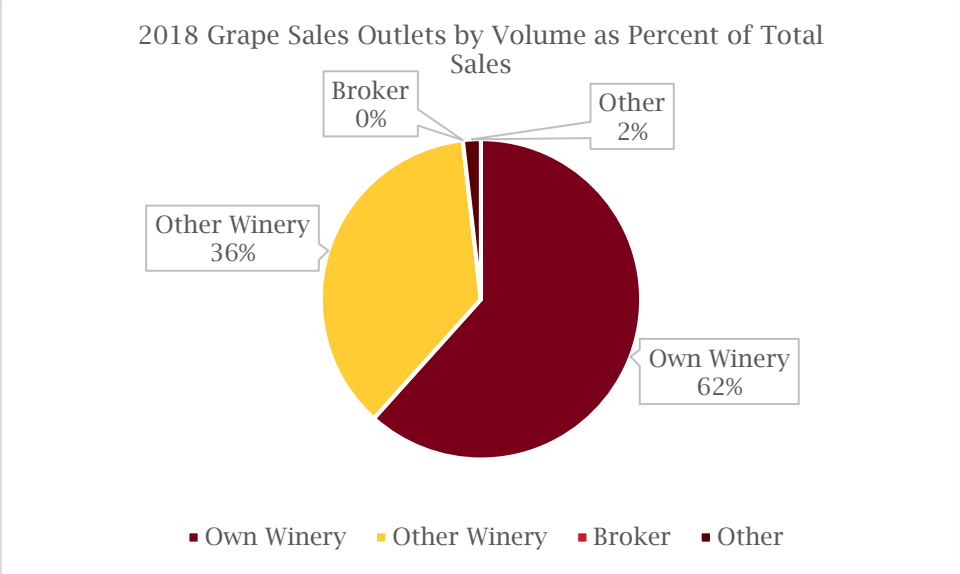

Figure 3. Percentage of grapes sold by volume through various outlets

HARVEST 2018 SURVEY RESULTS

Grape growers reported their 2018 production and sales data (Table 1). The total yield reported was 531,501 pounds, which equates to roughly 3,302.8 lbs./ac or 1.65 tons/ac. The highest yielding vineyard reported 4.16 tons/ac at harvest. A number of vineyards reported crop loss for various reasons. Growers also provided the average price for grapes in 2018, with values ranging from $0.65 to $3.00/lb. The average price (based on the average by vineyard operation) was $0.85/lb. (Table 1).

Table 1. Production and price data reported for the 2018 Minnesota grape harvest

	Total Acres	Acres Producing	Pounds Produced	Price/lb	lb/Acre
Total	216	180.4	531501	--	--
Average	6.35	5.31	16106	$0.85*	3302.8
Lower Range	0.5	0.25	1500	$0.60	800.0
Upper Range	30	28.00	67880	$3.00	8326.5
n	34	34	33	33	33

*The average provided from each operation was used in calculating this average.

Minnesota grape growers reported they produced 23 cold-hardy varieties in 2018. 'Frontenac', a black grape, was the highest produced and sold, with 116,923 pounds of fruit sold to wineries (Table 2). 'Marquette' was the second highest produced and sold, with 88,936 pounds sold (Table 2). Other high producing grapes included 'Frontenac gris', 'Frontenac blanc', 'Brianna', and 'La Crescent'. 'Frontenac' comprised the largest proportion of total reported yield at 23.6 percent (Table 3).

'Frontenac' was followed by 'Marquette' (18.0 percent), 'Frontenac gris' (13.3 percent), 'Frontenac blanc' (10.6 percent), 'Brianna' (8.1 percent), and 'La Crescent' (6.5 percent). The "other" category represented several varieties, including 'Valiant'—of which 25,589 pounds (5.1 percent) of grapes were reportedly harvested.

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	40294	40244	0.74	0.76	0.60	0.80
Edelweiss	10803	10803	0.79	0.76	0.75	0.80
Frontenac	116923	96293	0.79	0.82	0.65	0.88
Frontenac blanc	52427	43342	0.87	0.89	0.80	0.95
Frontenac gris	65787	43764	0.77	0.80	0.65	0.90
Itasca	1312	1312	0.85	na	na	na
King of the North	7550	7500	0.85	0.85	0.85	0.85
La Crescent	31984	13576	0.88	0.91	0.65	1.00
Marquette	88936	69909	0.87	0.95	0.65	1.30
Petit Ami	3274	3274	0.75	na	na	na
Petite Pearl	7607	7207	0.81	0.87	0.65	0.90
Prairie Star	9220	9220	0.80	0.82	0.65	1.00
St. Croix	5355	5235	0.89	0.81	0.65	0.85
St. Pepin	9404	7154	0.87	0.95	0.80	1.00
Other	44136	17865	1.12	0.96	0.65	3.00

*Due to low sample size, the "other" category also includes the cultivars Bluebell, Crimson Pearl, Leon Millot, Marechal Foch, Sabrevois, Somerset Seedless, Valiant, and Verona.

Pricing data was collected based on grower-reported survey responses, and the average price per variety was calculated in two ways. First, the average was established as the commonly recognized mean value by variety. The second calculation was the weighted average price comprised as the total weight of grapes sold at each price point by variety by grower. These results were then averaged. The weighted average arguably provides a more comprehensive and accurate picture for prices, as it accounts for the volume of grapes sold at a certain price point. This reduces the influence of a small volume of grapes sold at extremely high or low prices. Varieties listed in the "other" category were reported by only a single grower.

Average prices ranged from $0.74/lb. to $0.89/lb. (Table 2). Weighted average prices were slightly higher, ranging from $0.76/lb. to $0.95/lb. The "other" category included grapes sold for non-winemaking uses and achieved higher pricing. These grapes included 'Bluebell', which was reported at $3.00/lb. and 'Somerset Seedless' at $2.25/lb. Data suggests that grapes sold at farmers' markets or as table grapes can achieve a higher premium. 'Marquette' was sold at the highest price at $1.30/lb. While 'Brianna' an several other varieities were sold at the lowest price at $0.65/lb.

Data were not collected for acreage planted by variety. The most popular grape grown in Minnesota based on the number of growers, however, was 'Marquette'. Twenty-nine of 34 survey respondents (85 percent) indicated they grew that particular variety. Several growers also reported 'Itasca' plantings, but only one grower reported a harvested crop of this new variety. Most survey respondents reported growing more than a single variety of grape. In addition to grapes, however, respondents also reported growing several other fruit crops for both wine and non-wine making

purposes, including apple (8), aronia (1), pear (4), stone fruit (1), raspberries (6), rhubarb (3), and strawberry (1).

Table 3. Grape yields reported for Minnesota 2018 harvest by percentage

Variety	Number of Growers	% of All Grapes Sold
Brianna	6	8.1%
Edelweiss	5	2.2%
Frontenac	22	23.6%
Frontenac blanc	16	10.6%
Frontenac gris	19	13.3%
Itasca	1	0.3%
King of the North	2	1.5%
La Crescent	15	6.5%
Marquette	29	18.0%
Petit Ami	1	0.7%
Petite Pearl	6	1.5%
Prairie Star	3	1.9%
St. Croix	5	1.1%
St. Pepin	4	1.9%
Other	--	8.9%

* Due to low sample size, the "other" category also includes the cultivars Bluebell, Crimson Pearl, Leon Millot, Marechal Foch, Sabrevois, Somerset Seedless, Valiant, and Verona.

An analysis of data across five years (2014-2018) compares the approximate average results in 2018 to previous years (Figure 4). The lower response rate (34 responses in 2018 compared to 42 in 2017) may account for some of the lower variety yields reported in 2018. As a result, data likely underreports total grape production in Minnesota. Data from 2014 highlights the negative outcome of that season's winter polar vortex which reduced overall yields. The 2018 data shows increased yields over 2017 and the five-year average for 'Frontenac' and 'Frontenac blanc'. Reported yields were lower for 'Marquette', 'La Crescent', 'Petite Pearl', 'Brianna', and others.

CROP LOSS

Survey respondents indicated several different reasons for crop loss in 2018. Among these included abiotic stresses (e.g., winter injury, hail, accumulating frost injury, excessive rain, bunch stem necrosis), pests (e.g., like wasps, bees, raccoons, birds), vine age, shatter, and diseases (e.g., trunk disorder or rot). Winter injury and trunk disorders often present similarly and may be difficult to diagnose. The authors of this report are undergoing research with University of Minnesota collaborators in the Department of Plant Pathology to identify and classify fungi that may contribute to trunk disorders. Winter injury alone may damage vascular tissue and fruiting buds, but it may also cause physical injury (along with pruning), which allows fungi to enter the plant. Winter injury and trunk disorders are often so perplexing in Minnesota that additional research is needed. Bunch stem necrosis (BSN) was reported by several growers for 'Marquette', and up to 98 percent loss was reported for this variety as a purported result of BSN.

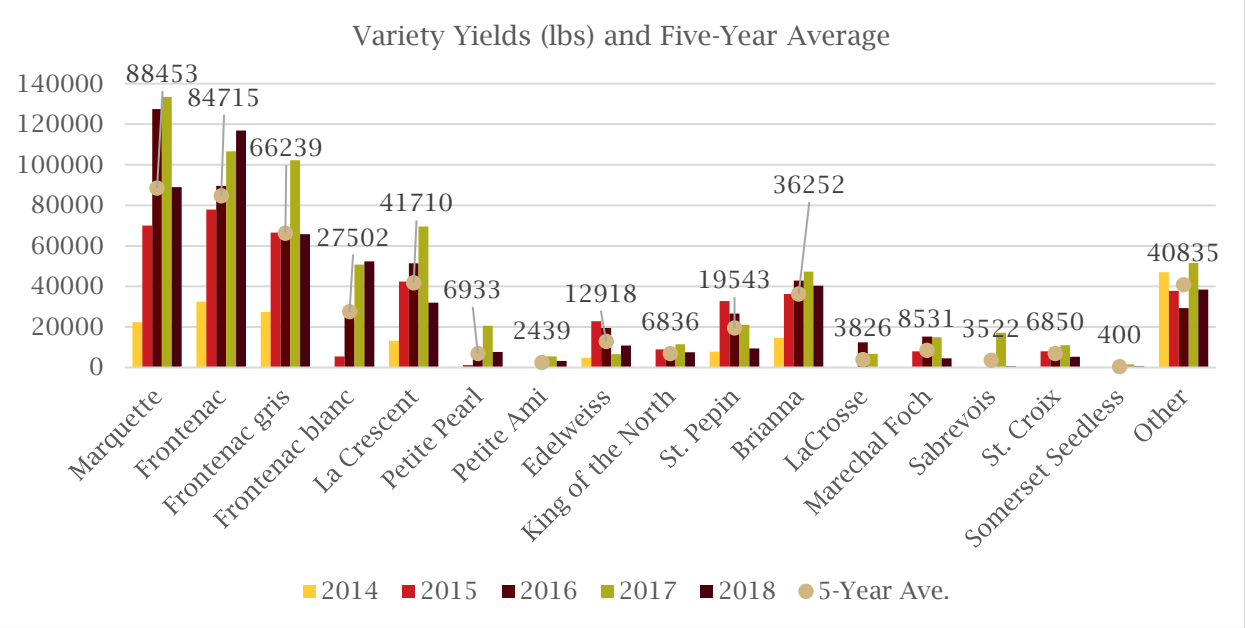

FIGURE 4. YIELD DATA FOR FIVE YEARS OF TOP PRODUCING COLD-HARDY GRAPEVINES IN MINNESOTA, BASED ON SURVEY RESPONDENTS. FIVE-YEAR AVERAGE SHOWN AS THE VALUE AND TAN DOT.

SUMMARY

Self-reported data from survey respondents provided yield and pricing estimates from a subset of commercial grape growers in Minnesota. Despite fewer survey participants in 2018, findings showed continued growth in the state's grape industry. Estimates of prices and anticipated trends can help growers—as well as vineyard owners and operators—better budget, establish pricing, construct contracts, and perform other fiscal planning. These survey results, however, do not reflect all grapes produced in Minnesota. The objective of this report was to determine prices for actual transactions between vineyards and wineries rather than estimates of crop value. Some respondents' yields were reported but not included in pricing estimates because there was no direct sale between the vineyard and the winery.

Crop loss from biotic and abiotic stressors remained a challenge for Minnesota grape producers. Most vineyards were producing below the four ton/ac yields estimated for breaking even. Managing crop loss through best management practices can improve yields. This includes re-training cordons and trunks to mitigate winter injury and trunk disorders, the use of bird netting, and using integrated pest management practices for the appropriate use of pesticides to control insects and diseases.