History of Minnesota Grape Growing

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www.ghvwine.com
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- What Grapes Grow in Minnesota?
- Pre 18th Amendment January 16, 1920
- Post 22nd Amendment December 5, 1933
- Modern era post 1943
What Grapes Grow in Minnesota?

- **Yes:** Midwest wild grapes (Vitis riparia)
- **Marginal:** northeast US native grapes (Vitis labrusca)
  - Concord and Niagara
- **No:** European wine grape (Vitis vinifera)
  - Riesling, Chardonnay, Cabernet Sauvignon, Pinot Noir, Merlot and Gamay
- **Yes:** Cold Climate Hybrids (combinations of the above)
  - Pre 1943
  - Elmer Swenson
  - University of Minnesota
  - Other grape varieties
Pre 18th Amendment
January 16, 1920

- Early Minnesota Grape History
  - Louis Suelter
  - A. W. Latham

- Early University of Minnesota
  - Dr. M.J. Dorsey

- Other Cold Climate Researchers
Early History: Louis Suelter

- Starting in 1870 Louis Suelter a German homesteader living in Carver, MN developed at least 15 grape varieties
  - Beta, Suelter, Monitor, and Dakota
- “I have produced several new types of vine through hybrid breeding, which will bring forth a completely new revolution in winegrowing, for as far north as the wild vines will thrive, my hybrids will flourish also, for they are just as hardy all winter in the great coldness in the northern part of America as the wild growing riparia. They require no protection …”

“Grape Research in Minnesota” by Penelope Krosch in Agricultural History, 1988
Early History: A. W. Latham

- Born on Massachusetts Bay, 1845
- Came to Minneapolis in 1865
- Started a nursery in 1870 with five acres allocated to grape culture. The stock of this nursery was adapted to the climate of this state and Manitoba.
- Three conditions are required for successful grape culture in Minnesota
  - Availability of varieties that survive and mature
  - Market for the grapes
  - Growers
- He claimed that the “clear weather and bright sun” of Minnesota made its grapes superior to others.
- He also stated that:
  - “follow the Mississippi River to the Iowa line and you have grape country all the way.”
Could our valley look like this?
Early University of Minnesota

- The Hatch Act of 1887 led to the establishment of the Minnesota Ag Experiment Station which reported in 1889 to have 52 grape varieties with a total of 3,004 vines.
- The U of MN Fruit Breeding Farm was established 1907 at Zumbra Heights.
  - Continues today with an experimental winery.
  - Now in Chanhassen.
Early University of Minnesota

- Dr. M.J. Dorsey University of Minnesota (1912 – 1920) did quite a bit of grape breeding,
  - Used Beta and some of Rogers’ hybrids (Salem, Massachusetts, in the mid-1800s) and other eastern United States cultivated grapes.
  - Four grape varieties named in 1944
    - Moonbeam, Amber, Bluebell, and Bluejay
  - Important unnamed grape MN 78
    - 1/4 riparia, 3/8 labrusca, and 3/8 vinifera
    - Used extensively by Elmer Swenson
Other early Grape Researchers

- T. V. Munson (Texas – late 1800’s – many native species)
- Nels Hansen (South Dakota – 1920’s – crosses with *riparia* & *Beta*)
- U. P. Hedrick (Geneva program, New York – *labrusca*-based cultivars)
Post 22\textsuperscript{nd} Amendment
December 5, 1933

- More University of Minnesota
- Elmer Swenson
- Current University of Minnesota
- Minnesota Grape Growers Association
- Garvin Heights Vineyards, LLC
Dr. A.N. Wilcox (1940’s) continued the grape breeding work begun by Dr. Dorsey

- No Named varieties
- Work studied by Elmer Swenson
- Obtained MN 78 and other varieties from him
Elmer Swenson
Osceola, Wisconsin

- Born December 12, 1913
- Died December 24, 2004
- Motivation/Guides:
  - Elmer was inspired to grow grapes by his maternal grandfather – Grandpa Larson – who had a patch of grapevines on his two-acre orchard of apples, plums, and cherries.
  - Elmer’s interest in grape breeding was spurred by Grandpa Larson’s copy of *The Foundations of American Grape Culture* (T. V. Munson), which Elmer discovered when he was 5.
  - Elmer read the book with the help of a teacher who boarded with his family on the dairy farm.
Elmer Swenson

- Dairy farmer began breeding grapes in 1943 (age 30) when brothers went to WWII
  - He started writing to University researchers about his experiments
  - Most professors from the Midwest told Swenson not to bother
  - Richard Wellington, head of fruit research at Cornell's experiment station in Geneva, New York, said Swenson was onto something and even sent him pollen.
  - In the years to follow, word of Swenson's work got out to viticulturists around the country, who asked Swenson for cuttings.

- Worked for University of Minnesota 1969-1979 (age 65) as a senior plot manager at the Horticulture Research Center
  - "It was a vacation for me; I got the job and sold the cows"
  - Work started at 8 am with an hour for lunch and done at 5 pm
  - However he commuted three hours daily before renting a house on the research center

- Jointly released Edelweiss and Swenson Red grapes with U of MN in 1977

- Continued grape breeding until near his death (age 91)

- Grape material recovered by interested grape breeders (MGGA)
Does he have a favorite among all the grapes he has developed?

- They're all my kids
- They all have their faults and their good points; there's no such thing as a perfect grape
- Swenson's offspring grow not only in the Midwest, but as far away as:
  - New York, Norway, Denmark, Sweden, Estonia and Poland
- Created thousands of new grape cultivars
- Wanted to develop a cold climate “Thompson Seedless”
  - Not completely successful
  - Others are continuing his work
Other Elmer Swenson grapes

- Patented cultivars:
  - St. Croix
  - St. Pepin
  - La Crosse
  - Espirit
  - Kay Gray

- Cultivars named by others:
  - Kandiyohi
  - Sabrevois
  - Norway Red
  - Alpinglow
  - Petit Jewel
  - Prairie Star
  - Louise Swenson
  - Lorelei
  - Trollhaugen
  - Swenson White
  - Summersweet
  - Brianna
  - Delisle
  - Montreal Blue
  - Aldemina
  - Somerset Seedless
  - Shannon
Current University of Minnesota

- Peter Hemstad, grape breeder (1985- )
  - Frontenac (1996) Red Wine/Rose’/Port
  - Marquette (2006) Red Wine/Port

- Experimental winery built (2000)

- Anna Katherine Mansfield, Enologist (2001- )
  - Develops & tests wine making procedures for cold climate grapes

- U of MN is known world wide for its cold climate grapes
Frontenac

Frontenac grapes reflect the best characteristics of their parents, V. riparia 89 and the French hybrid Landot 4511. This vine has borne a full crop after temperatures as low as –33°F. It’s very disease resistant, with near-immunity to downy mildew. Frontenac is a consistently heavy producer, with small, black berries in medium to large clusters.

Wine Profile
Frontenac’s deep garnet color complements its distinctive cherry aroma and inviting palate of blackberry, black currant, and plum. This versatile grape can be made into a variety of wine styles, including rosé, red, and port.
Frontenac Gris

Frontenac gris, the white wine version of Frontenac, started as a single bud mutation yielding gray (thus named gris) fruit and amber-colored juice. The vine exhibits the same optimum growth characteristics as Frontenac, and requires the same cultural practices. Arching canes and minimal tendrils provide easy training and pruning to simplify vine management. In Minnesota, Frontenac and Frontenac gris ripen in late mid-season, and are good sugar producers with 24-25°Brix not uncommon.

Wine Profile
Frontenac gris wines present aromas of peach and apricot with hints of enticing citrus and tropical fruit. A brilliant balance of fruit and acidity creates lively, refreshing wines. Unique and complex flavors make this an excellent grape for table, dessert, and ice wines.
La Crescent

La Crescent combines St. Pepin and a Swenson selection from V. riparia x Muscat Hamburg. With this hardy heritage, trunks have survived an amazing -36°F. Moderately disease resistant, leaves sometimes exhibit downy mildew, which can be controlled with a standard spray program. Proper conditions and care result in very productive harvests.

Wine Profile
La Crescent’s intense nose of apricot, peach, and citrus lends itself to superior quality off-dry or sweet white wines. Produced in a Germanic style, La Crescent wine is reminiscent of Vignoles or Riesling. The grape’s high acidity provides good structure for excellent dessert or late-harvest style wines.
Marquette (2006)

Marquette is a cousin of Frontenac and grandson of Pinot noir. It originated from a cross of MN 1094, a complex hybrid of V. riparia, V. vinifera, and other Vitis species, with Ravat 262. Viticulturally, Marquette is outstanding. Resistance to downy mildew, powdery mildew, and black rot has been very good. Its open, orderly growth habit makes vine canopy management efficient.

Wine Profile
Marquette’s high sugar and moderate acidity make it very manageable in the winery. Finished wines are complex, with attractive ruby color, pronounced tannins, and desirable notes of cherry, berry, black pepper, and spice on both nose and palate. As a red wine, Marquette represents a new standard in cold hardy viticulture and enology.
Other grapes for Minnesota

- Valiant SD Black Juice/Jelly
- Marechal Foch Red Wine
- King of the North Red Juice/Jelly
Minnesota Grape Growers Association

- 800+ members, $35/yr membership
- Extensive library for members
- 4th annual Cold Climate Grape Conference
  - 425 attendees in 2007
  - Bloomington Feb 14-16, 2008
- “Growing Grapes in Minnesota” 8th edition $15
- www.mngrapes.org
## Minnesota grape vines
### March 2007 ISU survey

<table>
<thead>
<tr>
<th>Variety</th>
<th>Acres</th>
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<tbody>
<tr>
<td>Frontenac</td>
<td>9,180</td>
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<tr>
<td>Frontenac Gris</td>
<td>8,602</td>
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<tr>
<td>La Crescent</td>
<td>7,102</td>
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<tr>
<td>Marguette</td>
<td>6,598</td>
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<td>Prairie Star</td>
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<tr>
<td>Sabrevois</td>
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<tr>
<td>Vivant</td>
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<tr>
<td>Misc.</td>
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<tr>
<td>Blue Bell</td>
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<tr>
<td>La Crosse</td>
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<tr>
<td>St. Pepin</td>
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<td>Edelweiss</td>
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<tr>
<td>St. Croix</td>
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<tr>
<td>Marechal Foch</td>
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<td>Brianna</td>
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<tr>
<td>Louise Swenson</td>
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<td>King of the North</td>
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<td>Swenson Red</td>
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<tr>
<td>Cabernet Franc</td>
<td>12</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>45,742</strong></td>
</tr>
</tbody>
</table>

\[
\frac{45,742}{500} = 91 \text{ acres}
\]

Estimated 200 - 400 acres
Upper Mississippi River Valley American Viticultural Area (AVA)
Garvin Heights Vineyards, LLC

- Started growing in about 1992
- Joined MGGA (currently librarians)
- Expanded vineyards 2000-2007
- 2006
  - Formed LLC
  - Federal license
  - Designed & built winery
- 2007
  - Minnesota Farm Winery license (18th)
  - 6 approved labels
  - Opened June 21, 2007 (Winona County’s first winery)
Why Winona is the best

**Figure 1. Growing Degree days, Base 50 Degrees F**

**Figure 2. Spring Frost-Free Dates**

*There is only a 10 percent chance for temperatures of 32 degrees F or less on or after these dates.* For detailed climate information about your specific location visit [http://climate.umn.edu](http://climate.umn.edu) and click on Summaries/Publications.
A year in the life of a grape plant

- **Feb – April**: prune, dormant spray
- **May**: Bud break – 6-12” shoots
- **June**: Bloom – shoot positioning
- **July**: Berry touch – bunch closing
- **August**: Veraison (color change)
- **Sept**: Harvest (varies by variety)
- **Oct - Jan**: Make & enjoy wine
Year 0 – 25

- Year 0, in Spring start new plants from cutting, 3 buds, must check direction
- Year 1, transplant, trellis, train
- Year 2, train, weed control
- Year 3, first reasonable crop – spray program
- Year 5, full crop
- Year 25, may start again
Parts of Grape Vine

Figure 4. Parts of the Vine
Vertical Shoot Positioning

Figure 6A. Vertical Shoot Positioning (VSP)

Figure 6B. (Three Common VSP Wire Configurations)