

History of the early Swenson Hybrids

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Overview

- Introduction to Elmer: why/how he started grape breeding
- Historical context for Elmer's work
- Grape breeding methodology
- Elmer's early crosses
- Getting noticed
- Why Elmer succeeded
- Bridge to the future

Introduction to Elmer Swenson

- Private (“amateur”) grape breeder in Wisconsin.



Introduction to Elmer

- Over nearly 60 years Elmer Swenson created thousands of new grape cultivars (varieties), many of them formally released to the public.
- He's been called the father/grandfather of cold climate grape growing, and a viticultural "pioneer."
 - He is both ... but let's be clear on *why specifically* he is deserving of those titles.

Words of a Northern Grape Breeder

“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 ...”

Louis Suelter, Carver, Minnesota

Creator of “Beta” variety (and others)

1884 -- 30 years before Elmer Swenson was born

Elmer is *not* ...

- **The first person to grow grapes in the harsh-cold upper Midwest.**
 - Immigrants brought their favorite plants with them when they first arrived in the new territory.
- **The first person in the U.S. to attempt to produce superior grapes suitable to the country's growing conditions.**
 - One example of many: Ephraim Bull – planted seed in 1843 from local *labrusca* vine, one of the seedlings from which was derived *Concord*.
- **The first person in the U.S. to cross native grapes with more “refined” species in the hope of creating something useful and compatible with the country's climate – even the cold continental climate of the upper Midwest.**
 - Louis Suelter (Minnesota – 1870's -- *riparia*)
 - 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)
 - University of Minnesota – 1920's through 1940's (*labrusca* & *Beta* hybrids)

Elmer relied on the work of others

- Elmer built upon the work of many who came before him. Consider:
 - Bull planted seed in 1843 of vine that was to become *Concord*.
 - Suelter used *Concord* (or a seedling thereof) to produce his own hardy hybrid grapes in Minnesota in the late 1800's, most notably *Beta*.
 - Munson (born in 1843), used the work of many others in his own grape breeding work, and enthusiastically promoted similar breeding work with American species in his *Foundations* book.
 - University of MN used Suelter's *Beta* as the foundation for its grape breeding work in the 1920's-1940's. One of the resulting creations was an un-named cultivar known by the designation "Minnesota 78."
- Swenson, born the year that Munson died and strongly encouraged by Munson's book, made great use of MN 78 in his own breeding efforts (more on that in a moment). Swenson also used material created by Nels Hansen, the Geneva grape breeding program (U. P. Hedrick), Munson, and many others.

So, why is Elmer's grape breeding work so special?

- Elmer's grape creations were unique in at least two main ways:
 - Many cultivars with suitable hardiness, disease resistance, and maturity for growing in the upper Midwest **which are also suitable for commercial winemaking (non-*labrusca*)**
 - Several cultivars with (at least *nearly*) suitable hardiness, disease resistance, and maturity for growing in the upper Midwest **which are also high quality "table" grapes (clingskin rather than slipskin)**

Elmer's start at grape breeding

- Elmer was born on December 12, 1913.
- His 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. Grandpa Larson died when Elmer was 5 years old.
 - 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. He read the book with the help of a teacher who boarded with his family on the dairy farm.

Historical context for Elmer's life & work

- World War I
- Prohibition
- Completion of Transcontinental rail systems / creation of refrigerated freight transportation
 - Boom of Midwest dairy industry: shift in much of Minnesota and Wisconsin from wheat farming to dairy, as vast Great Plains cultivation lowered the price of wheat, and railroads increased dairy product markets to the west; creation of local farm co-ops and creameries
 - California grapes (*vinifera*) now widely available at reasonable prices throughout the country, reducing demand for the sort of grapes that could be grown in the upper Midwest (*labrusca* and *riparia* hybrids).
 - Early in Elmer's grape breeding history, there was little demand for new wine grapes (Prohibition), and limited demand for locally grown table grapes. In many ways it would have been a whole lot better time to be a Midwest dairy farmer than a Midwest grape hybridizer.
 - But Elmer wasn't much interested in dairy farming.

So you farm in Wisconsin but you don't care for the dairy business?

- **Great Depression**
- **World War II**
 - Elmer began his grape breeding work in earnest when his brothers left for the War. He was now in charge of the farmstead.
 - Keep in mind: until Elmer was in his 60's, grape breeding was something that he did as an unpaid "amateur" – something he did *in addition to* his daily farm work.

Elmer's grape breeding goals

- Create something of value, something to give pleasure

"I hope that ... my efforts will have been of some value to society."

- In the grapes: hardiness, disease resistance, table quality (wine was not initially a focus; Elmer didn't drink)
- Inspire/encourage/assist people who shared his passion for grapes and grape breeding

Grape Breeding Methodology

- **Making the cross**
 - Emasculate the seed parent (or use a pistillate/female vine)
 - Collect pollen from other parent
 - Apply pollen to seed parent
 - Cover/Protect
 - Tedious work that must be performed during relatively short receptive period in the spring; it requires that parents have compatible bloom dates; lots of “native” pollen in the air; protection of clusters
- **Collecting the seed in the fall**
- **Stratifying and then planting the seed**
- **Seedlings**
 - Nursery plot. One season (plus winter) to cull the weaklings
- **Second Plantings**
 - Close spacing. Multiple seasons to cull the weaklings, identify the promising selections
- **Further Selections**
 - Great diversity in Elmer’s “mature” vineyard sections. He gave careful consideration to each cultivar’s full potential usefulness (table, juice, jelly, wine, rootstock, ornamentation, further breeding)
- The overall process takes many years. If things go *well*, you may have the first, small amount of fruit to evaluate in the fourth growing season after making a cross. And first impressions can be misleading.

Elmer's primary sources of "parent" material

- Wild (mainly local *riparia*)
- University of Minnesota breeding program (such as it was) – the source of his "foundational" seed parent, *Minnesota 78*
- Geneva breeding program (American hybrids such as *Ontario*, *Golden Muscat*, and *Kendaia*)
- French hybrids (promoted for use in the U.S. by other "private" enthusiasts)
- Other private ("amateur") grape breeders' material

Elmer's first grape crosses

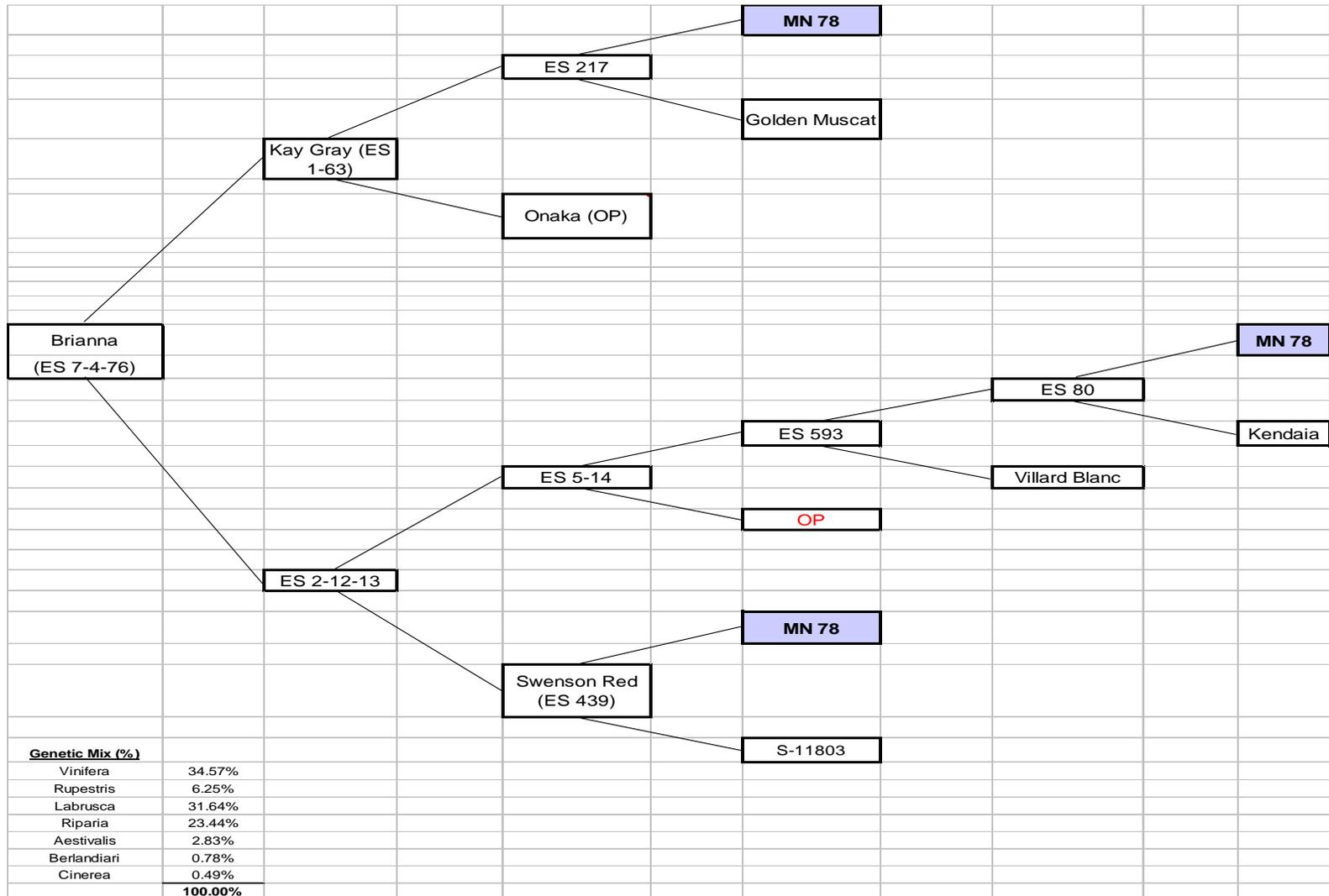
- Elmer's first attempt at grape crosses was in 1943. He used the varieties he had handy: *Janesville*, from Grandpa Larson's vineyard, and some wild *riparia* cultivated by his family.
- Soon after, Elmer obtained U of M selections from a Dr. Wilcox, including four recently released cold-hardy *labrusca*-based grapes (*Blue Jay*, *Moonbeam*, *Red Amber*, and *Bluebell*) and an un-named selection that would become the "foundation" of Elmer's work: *Minnesota 78*.

The Foundation: MN 78

- MN 78 is the result of a cross between Suelter's *Beta* (*riparia* x *Concord*) with *Witt/Jessica* (*labrusca* x *vinifera*). So it's probably about 25% *riparia*, 37.5% *labrusca*, and 37.5% *vinifera*.
- Elmer used MN 78 more than any other parent in his grape breeding work. He found it to reliably contribute hardiness, vigor, and early maturity of fruit and wood.



Example of the impact of MN 78



Getting Noticed

- When Elmer started his grape breeding work, horticultural research in the U.S. was dominated by university research stations. These programs were not (initially) much interested in the new cultivars created by an under-educated Wisconsin farmer.
- Elmer distributed his most promising material widely to private growers (and gained commitment of "response" from growers/winemakers)
- Elmer provided some of his promising material (*Ede/weiss*) to a nursery catalog in 1950s. But though the material was sold, Elmer received no credit.
- Elmer concludes that his goals can only be realized with wide distribution – i.e., release by a recognized University program.
 - He brings some of his best selections to a fruit “field day” at the UofM in 1967. Program officials express only mild enthusiasm.
 - Elmer stays in contact with the program director. The University’s Horticulture Research Center offers him a job as “gardener” in 1969.
 - But three years later, still none of Elmer’s grapes have been officially released to the public. In 1972, at age 59, Elmer brings a basket of one of his selections (*Swenson Red*) to the University and tells the Fruit Breeding faculty they can “have it” if they’ll name it and release it. A few months later, the UofM tells Elmer that they’ll take him up on his offer.

Getting Noticed (cont'd)

- Finally, in 1977-1978 (Elmer is now 63), the University of Minnesota provides a “joint release” of two Swenson cultivars: *Edelweiss* (ES 40) and *Swenson Red* (ES 439).
 - Trivia: for ES 439, Elmer had submitted the name “Norvin,” a contraction for “northern vinifera.”
- In 1979, Elmer retires from the UofM. He is provided with a grant to continue his private grape breeding efforts.
- “Incorporation” to name/release additional promising varieties (but ultimately an un-agreeable approach)
 - Smith-Swenson Vines was dissolved in 1991 due to “differences in viewpoints and objectives” of the members.
- Continued sharing of promising selections, granting OK to others' requests to name cultivars

The door is opened: Early releases suitable for the upper Midwest

- *Edelweiss* was first propagated in the late 1950's. A cross of MN78 x *Ontario*.
- Swenson Red was developed around 1960. It is a mixture of *vinifera*, *labrusca*, *riparia*, and a few other grape species. It is a seeded table grape.



Focus on Wine



- *St. Pepin* (ES 282) and *LaCrosse* (ES 294) originated from a cross that Elmer made around 1950: ES 113 x *Seyval*.

Focus on Wine (cont'd)



- *Kay Gray* (ES 1-63) is a cross of ES 217 and Hansen's *Onaka* (probably). The vine is very hardy and productive of relatively small clusters. The winemaking proves challenging.
- *St. Croix* (ES 2-3-21) is a cross of ES 283 and ES 193 made in 1974. The vine first fruited in 1977. 1981 MGGGA report ... "No one is *extremely* enthusiastic, but as a first fully hardy wine variety for blending [*St. Croix*] shows great promise."

Focus on Wine: a mis-step?



- *Esprit* (ES 422) was named in 1984. It is from a cross of *Edelweiss* and *Villard Blanc*. It is a healthy, productive vine, producing fairly large clusters which can make good wine ... but it is not as hardy as *LaCrosse* or *St. Pepin*; it is not reliably hardy in most of Minnesota or even at Elmer's Wisconsin site – Elmer took the unusual step (for him) of protecting the vine at his vineyard.

Why Elmer Succeeded

- **Patience and careful observation**
 - Elmer’s words: “The ideal plant evolves slowly ... in fact, it takes several generations.” “Plant improvement through[sic] breeding is a slow process requiring dedication and perseverance.”
 - The process of *evaluation* takes many turns – and considerable time. There are many instances of Elmer and other growers showing great enthusiasm for one of his promising new cultivars, only to have it later be dropped from consideration for further planting in favor of something else. Ex: ES 642
- **Perseverance and large numbers of attempts**
 - One of the French hybrids Elmer worked with was Seibel 11803. It interested him because the fruit was very *vinifera-like* in character. So he obtained cuttings. But S-11803 was of very low vigor and made no more than 18” of growth in a season. Even with covering, it would freeze back to the ground every winter at Elmer’s site. And after three seasons of nurturing, it had yet to flower/fruit for him. Elmer didn’t give up. He grafted S-11803 onto one of his very vigorous seedlings. This increased the vine’s vigor and resistance to freeze-back. It finally blossomed; Elmer used its pollen on *MN 78*. One of the resulting seedlings from that cross was *Swenson Red*.

Why Elmer Succeeded (cont'd)

- **Minimal "artificial" protection, and ruthless culling**
 - From one of Elmer's first crosses came #40 (*Edelweiss*). This was the result of a cross of MN 78 x *Ontario*. Elmer started with 100 seedlings from this cross, but only 3 survived his culling process to bear fruit.
 - Elmer welcomed ultra-severe "test" winters.
- **Frequent utilization of "good parents" (MN 78)**
- **Multi-generational attribute refinement**
 - Among the first seedlings that Elmer grew were some that were never winter-injured, but they had the typical "wild" traits of high acidity and *riparia*-like flavor. Very winter-hardy seedlings with inferior fruit quality were all too common. Plants that Elmer selected for second testing and further breeding work were "intermediate" types: those having high fruit quality and what he considered to be "reasonable" hardiness.
- **Keep usefulness options open**
 - Further breeding, juice/jelly, table, wine, rootstock

Why Elmer Succeeded (cont'd)

- **Ultimately, good timing (after many years of waiting)**
 - Combination of economic and social conditions encourage the creation of a wine industry in the upper Midwest
 - Beginning in the late 1960's and 1970's, there's a change in many states' laws which allow/promote the creation of "farm" wineries
 - Social interest in wine increases (ex: health benefits)
 - Poor non-grape farm commodity prices, making Midwest farmers willing to consider other crop options (like reliably hardy, disease-resistant, productive, relatively lucrative, in-demand grapes)

Early Releases: Minnesota Experience

Many of Elmer's early releases are no longer grown in great numbers in Minnesota. Reasons include marginal hardiness (*LaCrosse* and *Esprit* in most of the state), release of superior wine cultivars (*Kay Gray*), and the release of more productive/"impressive"/"new" cultivars (*St. Croix*)

- Elmer had a particular fondness for *Kay Gray* and *Edelweiss*. Though these selections faded from local favor, he kept one full row of each in his vineyard, surrounded by rows in which virtually every other vine was a unique cultivar.

Work of lifetime draws to close -- but life's work will endure

- Beginning around 2002, Elmer was no longer able to make crosses himself (the list of Swenson cultivars is finite)
- Lots of promising “recent” selections still to evaluate:
 - Second main wave of wine grapes (Plocher et al): *Prairie Star*, *Louise Swenson*
 - Additional wine offerings: *Swenson White*, *Sabrevois*, *Brianna*, *Alpenglow*, *Lorelei*
 - Overseas: ES 5-4-16 (*Jukka?*), 6-16-30 (*Aldemina*)
- Elmer can no longer care for his vineyard
- MGGA decides to tend a “Preservation” plot at Elmer’s site, and to evaluate/save relatively unknown selections before the vineyard is removed (Elmer’s family has no desire to maintain it). The Preservation Project continues for 3 seasons.
- Elmer died on Christmas Eve in 2004.

Wrap-up: Words from atop the Soap Box

- If you grow the “old” Swenson cultivars ...
- Quality, Quality, Quality
 - The key to a long future for the industry

Questions??

Presentation photo attribution

- Slide 3, picture of Elmer Swenson: *picture by Tom Plocher, originally included in 2004 Swenson Preservation Effort slideshow*
 - Slide 16, picture of *Minnesota 78*: www.northscaping.com
 - Slide 20, picture of *Edelweiss*: www.maes.umn.edu
 - Slide 20, picture of *Swenson Red*: www.maes.umn.edu
 - Slide 21, picture of *St. Pepin*: www.millernurseries.com
 - Slide 21, picture of *LaCrosse*: www.nevinesupply.com
 - Slide 22, picture of *Kay Gray*: www.buffalorunwinery.com
 - Slide 22, picture of *St. Croix*: www.stfrancoisvineyard.com
 - Slide 23, picture of *Esprit*: www.chateau-z.com
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 - Pictures/graphics appearing in this slideshow which are not listed above were created by the presenter, Bruce Smith.