# Selected Minnesota Cool Climate Red Grape Varieties for the Northeast

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This article covers red cool climate grape varieties that can be grown throughout most of the Northeast that were developed by Elmer Swenson (1913-2004), Tom Plocher, and the University of Minnesota grape breeding program. It outlines the viticultural aspects and the kinds of wine that these grapes produce. Wine-making capability is an important consideration as growers need to grow varieties that are not only consistently productive, and economically & ecologically sound to grow; but which produce high quality wine. The winter hardiness of these varieties is not generally covered here because all of them are either cold hardy or very cold hardy and will generally survive in most parts of the Northeast.

In the Northeast, many growers also operate a winery, and are therefore interested in growing grapes in a profitable manner that can produce quality wine. These varieties can produce more than one style of wine; this versatility in the cellar is an added bonus for the wine producer.

**Frontenac Noir** *(aestivalis, berlandieri, cinerea, labrusca, lincecummi, riparia, rupestris, vinifera)* is the initial red variant of this cultivar, which has two mutant forms, Frontenac Blanc and Frontenac Gris. Viticulturally, all three are similar, coming from a cross of MN 89 *Riparia* x Landot 4511. Its ancestors include the highly productive French-American hybrids Villard Blanc and Plantet. Frontenac Noir was introduced by the University of Minnesota in 1996. It is vigorous to very vigorous in growth habit, consistently very productive, and does well in most soils. With its high vigor, vine management techniques such as shoot positioning, leaf pulling, and hedging should not be neglected. Its conical clusters are loose to moderately loose, long, and medium to large in size. It has a slightly upward growth habit and then droops. It buds out by mid-season. Frontenac Noir has good fungus disease resistance, with only moderate resistance to black rot. Its moderately loose clusters negate bunch rot and berry-splitting problems. Due to high productivity, cluster thinning may be needed to maintain crop quality. Frontenacs ripens late mid-season to late, about one week after Baco Noir with sugars of 24 to 27 Brix or more. To curtail its high acid levels, it is best to harvest fruit only after reaching 24 Brix or more.

The wines can be very dark and inky or a bright purple, depending on how the wine is made. Even with all of its color, the wines have only medium body. With its *riparia* heritage, the wines are very high in total acidity, low in tannins, and herbaceous if harvested too early. To help reduce its acids, malolactic fermentation needs be considered. Even with ripe fruit, Frontenac can be a bit one-dimensional with flavors of pronounced dark cherries, plums, cooked elderberries, and wood. At times, these cherry, plum, and elderberry flavors can become too fruity and grapey with cotton candy, bubblegum, and cough syrup-like overtones. It can also have a distinctive mint/wintergreen flavor that sometimes integrates with the fruit and some-times it does not.

Frontenac Noir is versatile in the cellar and is capable of producing a dry table wine, blush, rose, or port. Barrel aging is recommended to take the rough edges off. If made as a Rose, the grape's acids are more in keeping with a white wine. The grape also lends itself to dessert port production because of its big forward fruit flavors and high acidity, which can handle fortification with brandy.

**Marquette** *(aestivalis, berlandieri, cinerea, labrusca, lincecumii, riparia, rupestris, vinifera)* was released by the University of Minnesota in 2006. It is a genetically complex hybrid with Pinot Noir as a grandparent and a shared ancestor to Frontenac, Landot 4511. The variety has very good resistance to all standard fungus diseases and needs only a minimal spray program. Resistance to foliar phylloxera infestation is only moderate. Marquette produces a moderate to good crop. Its bud break is somewhat early, but has a secondary crop if hit by a late spring frost. It has moderate vigor and an open and orderly, somewhat upright growth habit that facilitates fungicide applications and exposes its fruit and leaves to air and sunshine to minimize fun-

gus diseases. Its shoots tend to have only two small to medium-sized clusters with small-medium-sized black berries. Hence it does not over-produce or need cluster thinning to enhance its crop quality. It ripens by mid-season, a few days before Frontenac. The sugar levels can be higher than 25 Brix, with high acids, which are lower than Frontenac.

The variety has an attractive deep ruby-red color, nice flavors of cherry, black currants, black pepper, spice, and berry in the nose and palate, with only moderate body and tannins that is better than Frontenac. The wine's flavors and aromas are integrated with a clean finish. These wines can have the elements of a southern Rhone with white pepper and raspberries like Grenache, smooth tannins and plum flavors like Syrah, without a too thin body. The wine benefits greatly from barrel aging and malolactic fermentation to reduce its high acids. Also, barrel aging, but not too much barrel aging, can help round out the rough edges of Marquette.

Marquette. Tom Plocher photo.

**Sabrevois** *(labrusca, lincecummi, riparia, rupestris, vinifera)* is a sister to St. Croix, developed by Elmer Swenson in 1978, that has Seyval Blanc and Seneca in its genetic heritage. It is hardier, more reliable, and a more productive variety than its sibling. It was named by Gilles Benoit of Quebec. This Swenson hybrid has a small- to medium-sized, semi-loose cluster. The black berries are of small to medium size. It is a vigorous vine, with an upright and then drooping growth habit, that can be a good producer. The variety has high resistance to fungus diseases and anthracnose, but a preventative spray is needed to maintain clean fruit. Phylloxera may be a concern. The variety ripens by early mid-season, about one week after St. Croix, and is a consistent and reliable producer.

The acid is higher than St. Croix, but it is still workable and its sugar content rarely goes above 20 Brix. Malolactic fermentation should be considered to offset the wine's lack of sugar to balance its high acids. However, it cannot hang too long on the vine because its pH will increase to unacceptably high levels, so often it is picked when the sugars are around 19 Brix. The wine's color can be from an electric blue-purple to very dark with nice berry-like fruitiness, but it tends to lack tannin and body. The wines can be made either into a Rose or fairly full-bodied red. The heavy reds are complex, powerful, and have up-

front, plummy Zinfandel and black pepper flavors that do well when aged for a few years. It is not difficult for Sabrevois to acquire a bacon sort of aroma if the wine-maker is not careful about skin contact. It may be best if carbonic maceration techniques are used. The result can be an electric blue color, but it minimizes the bacon aroma. These wines are lighter, with some fruitiness. While good on its own, it is best used in blends with other high-sugar varieties such as Baco Noir, Frontenac, Marechal Foch, and St. Croix. The variety ages well.

**St. Croix** *(labrusca, lincecumii, riparia, rupestris, vinifera)* is a sibling to the Swenson bred variety Sabrevois listed above. The clusters are of medium size and compact, with thin-skinned, medium-large blue berries. Like Sabrevois, it works hard to achieve 20 Brix, but its acid levels are lower. The vine is vigorous with very heavy vegetative growth, but is only moderately productive. It may be precocious in bearing, but is moderately disease resistant, with good reistance to black rot. The fruit ripens early to early mid-season, about one week before Sabrevois, so it may be vulnerable to bird damage.

St. Croix produces attractive, light-to medium-bodied red wines that have soft tannins and flavors of leather, tobacco, cooked or jammy berries, black currants, and other dark fruit flavors. The wines can be dark, somewhat lacking in tannins, and have a vegetative nose and flavor of tobacco, but is otherwise rather neutral, so should be blended with other wines. Vinification techniques, such as carbonic maceration, can be used to enhance its fruit flavors. While St. Croix can be made as a varietal, it is best to used it as a component in a blend.

**Petite Pearl** ( T.P. 2-1-24) *(berlandieri, labrusca, lincecumii, riparia, rupestris, vinifera)* is a cross of MN 1094 x E.S. 4-7-26 bred by Minnesota grape breeder Tom Plocher in 1996 and introduced in 2010. Petite Pearl usually has a small cluster, similar to Leon Millot, tight and dense with a prominent shoulder. It has moderate vigor and an open growth habit with few laterals, resulting in low canopy maintenance and good fruit exposure on a high cordon. Using a standard spray program, resistance to all major fungus diseases is good. However, extra applications for Botrytis are recommended for New England and the Middle Atlantic states. Petite Pearl holds its dormancy well during warm spells in the early spring. Bud break is about twelve days after Marquette, allowing it to avoid most late frosts. Petite Pearl needs about 2,600 degree days to fully ripen, later than Marquette, but earlier than Frontenac. Typically, it will mature to 22-24 Brix, with low acidity. While it has been cropped at eight tons per acre in Vermont with little affect on its winter hardiness, a crop

Petite Pearl. Tom Plocher photo.

of four tons per acre is more suitable for the production of quality wine.

As a wine grape, it has relatively low total acidity and malic acids. No acid reduction is needed other than a malolactic fermentation. Petite Pearl has a suitable tannin structure for wine production. Skin contact of twelve to twenty-four days is typically used. The wines have good acid, tannin, and alcohol balance. As a dry red, it is complex, with aromas of black currant, cherry, and plums, with secondary aromas of "forest floor", star anise, and almond. Often Petite Pearl is blended with small amounts of Crimson Pearl or Marquette to add more fruit to the wine.

**Crimson Pearl** (T.P. 2-1-17) (USPP30,263) *(aestivalis, cinerea, berlandieri, labrusca, lincecumii, riparia, rupestris, vinifera)* is a sister to Petite Pearl that is covered above and was introduced in 2015. The clusters are medium in size, long, and slightly loose. The vine has moderate vigor, with an open growth habit, and some low vigor laterals. Crimson Pearl has low canopy maintenance demands and good fruit exposure on a high cordon system. With a standard spray program, it has good resistance to all major fungus diseases. In New England and the Middle Atlantic states, Crimson Pearl needs additional sprays for Phomopsis. Crimson Pearl holds its dormancy during warm periods of time in March-April. Its bud break is about ten days after Marquette, which helps it to avoid late spring frosts. It needs about 2,500 degree days to fully ripen, which is about five days before Petite Pearl. When fully ripe, it attains 21 to 22 Brix of sugar with low acidity.

Crimson Pearl. Tom Plocher photo.

Like its sister, Petite Pearl, the wines from Crimson Pearl have relatively low acidity, but a malolactic fermentation can help its wine quality. The tannins are less than Petite Pearl and more than Marquette. The flavor profile of Crimson Pearl is fruitier than Petite Pearl, with more pronounced aromas of cherry, blackberries, and raspberries. It lends itself to the production of soft and well balanced fruit-forward dry wines. Cold soaking and skin-contact of between twelve and twenty-four days are typically used. Small amounts of Petite Pearl added can enhance its structure. Crimson Pearl is a good grape to produce Rose wines, with aromas ranging from raspberry to melon to tropical fruits depending on how it is fermented.

**Verona** (T.P. 1-1-34) (USPP30,631) *(aestivalis, berlandieri, labrusca, lincecumii, riparia, rupestris, vinifera)* is a 1997 cross (Macgregor's *riparia* x St. Croix # 5) x E.S. 5-4-16 by Tom Plocher, that was introduced in 2015. The cluster is medium to large and relatively compact. Its vigor is medium to high, with more lateral growth

Verona. Tom Plocher photo.

than Petite Pearl or Crimson Pearl. It needs more canopy management than either Petite or Crimson Pearl to achieve good fruit exposure. Verona is generally grown on a high wire cordon. With a standard spray program, it has good disease resistance to most fungus diseases. In New England and the Middle Atlantic states, its berries may split during extremely rainy harvest seasons, but foliar calcium sprays can reduce such splitting. Verona holds its dormancy well during early spring warm spells. Bud-break is about ten days after Marquette, allowing it to avoid late spring frosts. Verona ripens rather late, needing 2,700 degree days to fully ripen, about ten days after Petite Pearl, and shortly after Frontenac. Verona is recommended for the warmer parts of the Northeast including New Jersey, Pennsylvania, Conneticut, and the lower Hudson Valley. When ripe, Verona has sugars of 22-23 Brix and low to moderate acidity.

Verona has low to moderate acids, but it can benefit from a malolactic fermentation. Of the three Plocher varieties, Verona has the most tannin structure. Skin contact times of between twelve and twenty-four days are generally used. The wines have good balance between acidity, tannins, and alcohol. Verona has aromas of raspberries and blackberries, with notes of cocoa and coffee. In style, the wines are very fruit forward.

This article is based on the three authors' average collective experience of over 30 years in growing cool climate grapes, including the Minnesota hybrids, and making wine from them. It is also based on Tom Plocher and Bob Parke, *Northern Winework: Growing Grapes and Making Wine in Cold Climates,* (Hugo, MN: Northern Winework, Inc., 2001); Todd Trzaskos, *Wines of Vermont: A History of Pioneer Fermentation* (Charleston, SC: American Palate, 2015), and J. Stephen Casscles, *Grapes of the Hudson Valley and Other Cool Climate Regions of the United States and Canada* (Coxsackie, NY: Flintmine Press, 2015). For more information on Petite Pearl, Crimson Pearl, and Verona, see www.petitepearlplus.com.

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