Origins of Interspecific Hybrid Winegrapes
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Introduction to Grapes
Grapes are in the Vitaceae family which consists of 11 genera and 600 species, including the most commercially important genus, *Vitis*. *Vitis* is the only food-bearing genus in the family and has two subgenera: Euvitis and Muscadinia. All bunch grapes are in the Euvitis subgenus of which *Vitis vinifera* is the most important species. *V. vinifera* originated in the Caspian Sea region and there have been more than 5000 named cultivars. The range in which *V. vinifera* can be successfully cultivated is limited by climatic factors. This species requires a long growing season, relatively high summer temperatures, low humidity, a rain-free harvest period, and mild winter temperatures. It is most often used for wine, but these grapes can also be used to produce juice, raisins, canned good, rootstocks, or for fresh consumption.

Other Important Grape Species
There are also other important grape species that have been utilized in the creation of interspecific hybrids. These species are from North America, and the most well-known is *V. labrusca*. *V. labrusca* (also called *V. labruscana*) is commonly called the Fox Grape. The most famous cultivars from this species are ‘Concord’, ‘Niagara’, and ‘Isabella’. It has large berries, small clusters, fair pest resistance, and a distinctive and strong flavor. The Riverbank Grape is *V. riparia*. Several cultivars have this species in their lineage, such as ‘Beta’, ‘Clinton’, ‘Baco Noir’, ‘Marechal Foch’, and rootstocks 3309C, 5BBK, and SO4. It has small berries and small clusters with wide variation in ripening time and cold hardiness levels. It is vigorous, roots easily (which makes it attractive to use as a rootstock), and has fair to good pest resistance. The Summer Grape is *V. aestivalis*, which is mainly known for the cultivar Cynthiana (also called Norton). It has small to medium berries with medium to large, open clusters, and fair pest resistance. One of the issues with this grape is its tendency toward high sugar and high acid, thus rendering wine-making a challenge. *V. rupestris* is commonly known as the Sand Grape. Cultivars using this species are ‘St. George’ and the rootstock AxR1. It has small berries, small to medium clusters, and has a very “wild” taste. The plant is vigorous and roots easily while having good pest resistance. Another important species is *V. lincecumii*, the Post Oak Grape. This species is native to Oklahoma and surrounding states. Many cultivars have this species in their background, including ‘Bailey’, ‘Beacon’, ‘Ellen Scott’, ‘Marguerite’, and ‘Rubaiyat’. It has medium to large berries with small to medium clusters and a distinctive “wild” taste, but different from *V. labrusca*. It also has fair pest resistance. This species was hailed by T.V. Munson as being especially important for creating hybrid grape cultivars.

Hybrid Grape Origins
The creation of interspecific hybrid grapes primarily came about because of problems encountered in France in the 1860s. A devastating phylloxera outbreak began there in 1860 and in the next 20 years about 90% of French vineyards were destroyed. To combat this epidemic,
cultivars derived from American species were planted. At one time over 25,000 acres of ‘Noah’ was planted in France. ‘Clinton’, ‘Othello’, ‘Lenoir’, ‘Isabella’, and ‘Herbemont’ were also planted. ‘Concord’, ‘Catawba’, and ‘Delaware’ were tried but had low resistance to phylloxera. These species also brought with them new disease problems like downy mildew and black rot. In 1876, it was found that *V. vinifera* cultivars could be grafted onto American grapes successfully. The discovery helped transition back to *V. vinifera* grapes, but diseases were also a problem. In 1885, Bordeaux mixture was discovered as a broad spectrum fungicide to help alleviate the disease problems.

French hyrds originally started as breeding for rootstocks on which to place *V. vinifera* grapes. Amateur grape breeders pushed the breeding process forward to look for vines with roots resistant to phylloxera, foliage resistant to fungal pathogens, and fruit that could produce wines more similar to *V. vinifera* types. The first stage of breeding for hybrids used crosses of American cultivars or rootstock with *V. vinifera* cultivars. This stage of breeding produced some cultivars such as ‘Baco noir’ and ‘Baco blanc’. Some of the important American types used in the breeding process were ‘Noah’ and Jaeger 70. The *V. vinifera* cultivars used included ‘Folle Blanche’, ‘Aramon’, ‘Clairette’, and ‘Cinsaut’. The second wave of breeding for interspecific hybrids used crosses between hybrids gained from the first stage. Some of the influential breeders of this time period were Seibel, Bertille Seyve, Joanes Seyve, Galibert, and Landot. The third stage of hybrid breeding led to the modern hyrid grapes commonly grown today. These were usually crosses of hybrids from the second stage with *V. vinifera* grapes to gain superior wine quality. However, with the elevation of wine quality came the dilution of pest resistance. There are several breeding programs now involved around the world in creating high quality hybrid grapes. Some of the programs in the United States are in New York, Arkansas, California, Florida, Mississippi, Georgia, North Carolina, and Missouri.

**Commercial Hybrid Grapes**

There are many high quality hybrid grape cultivars available. Some examples follow:

‘Chambourcin’ (true parentage unknown), high yielding, moderately cold hardy, vigorous, disease resistant, also grown in France and Australia.

‘Chardonel’ (Seyval Blanc x Chardonnay), highly productive, moderately cold hardy, makes a wine very similar to ‘Chardonnay’, patented.

‘Frontenac’ (*V. riparia* x Landot 4511), vigorous and productive, very cold hardy, very resistant to diseases, must limit skin exposure in wine making, needs malolactic fermentation.

‘Marechal Foch’ (includes *V. riparia*, V. rupestris, and V. vinifera), a sibling of ‘Leon Millot’, vigorous, early ripening, good winter hardiness, early budbreak, fruitful secondary buds.

‘Rubaiyat’ (Seibel 5437 x Bailey), developed at Oklahoma State University, medium vigor, medium cluster size, large berry size, disease resistant, cold hardy, useful as a teinturier (add color in blends).
‘Traminette’ (J.S. 23.416 x Gewurztraminer), similar wine character to ‘Gewurztraminer’, good disease resistance, decent winter hardiness, large clusters, good yields.

‘Vignoles’ (unknown), cold hardy, moderate vigor and productivity, compact clusters, susceptible to bunch rots, makes a fruity, sweet wine.

**Final Comments**
Hybrid grapes make good substitutes in areas where *V. vinifera* grapes are marginally adapted or not adapted. The modern hybrid grapes produce high quality wines that do not include “off” flavors that are characteristic of some older hybrids. Rombough (2002) stated that hybrid grapes can be as successful as *V. vinifera* grapes. He wrote:

“The question is one of marketing, and nothing else. Most wineries make their money from the walk-in trade. And each and every walker-in is amenable to hand-selling…it doesn’t matter what name is on the label, so long as there is quality in the bottle.”

Quality is an important aspect to consider. Adaptation is very important when deciding what type of grapes to grow. Just because *V. vinifera* cultivars like ‘Pinot noir’ or ‘Zinfandel’ make exceptional wines elsewhere does not necessarily mean they will make good wines in Oklahoma.

**References**
