Grape Varieties for North-central New Mexico

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INTRODUCTION

Grapes (*Vitis* spp.) are the most widely grown perennial fruit crop in the world. They are grown in home gardens for fruit and landscape purposes or commercially for wine, raisins, or fresh consumption as "table" grapes. A cultivated variety, or "cultivar," is a formal term for variety. Variety is the more common term, and will be used in this publication. Selecting grape varieties that are adapted to prevailing climatic and soil conditions is an important step before planting. Very few locations above 6,000 feet in elevation are successful grape production sites. Suitable growing conditions at lower elevations are still very site-specific due to the major threat to grape culture: winter or frost injury. Winter injury occurs at subfreezing temperatures during vine dormancy when no green tissue is present. Frost injury occurs at subfreezing temperatures when green tissue is present. A variety's winter hardiness, or ability to withstand cold temperatures, depends on its genetic makeup or "type."

In addition to winter hardiness, other considerations when selecting a variety are its fruit characteristics, number of frost-free days required for ripening, disease susceptibility, yield potential, growth habit, and other cultural requirements. Soil considerations include soil pH, salinity, and other soil quality factors as determined by a soil test. For more

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information on soil testing, see NMSU Extension Circular 676, *Interpreting Soil Tests: Unlock the Secrets of Your Soil* (https://aces.nmsu.edu/pubs/_circulars/CR676.pdf).

This publication describes four types of grapes grown in New Mexico: European, American, American hybrid, and French hybrid.

TYPES OF GRAPES

European Grapes

European grapes, specifically the species *Vitis vinifera* L. ("the wine bearer"), require long, warm, dry summers and moderate winter temperatures. They are excellent for wine or table use. Today, *V. vinifera* varieties are grown worldwide and make up the majority of commercial wine and table grape production. The appearance of *V. vinifera* dates back between 130 to 200 million years ago. Human relationship to the plant dates from the Neolithic period (9,000 B.C.E. to 3,000 B.C.E.). Rkatsiteli is the oldest European variety of *V. vinifera*, dating back to about 3,000 B.C.E. from the modern-day Republic of Georgia and Armenia in Eastern Europe/Western Asia near the Caspian Sea. Popular *V. vinifera* wine varieties include Chardonnay, Cabernet Sauvignon, Merlot, Pinot Noir, Tempranillo, Sauvignon Blanc, and Riesling. Although some limited plantings of *V. vinifera* exist in northern New Mexico at unique sites with climatic advantage, most suitable sites for *V. vinifera* are located in southern New Mexico. Refer to Lombard et al. (2013) for more information.

American Grapes

About half the world's grapevine species are native to America and occur from Canada to Mexico, and the Caribbean. American grapevines are more cold-hardy and disease-resistant than *V. vinifera*, and are used primarily for grape juice and associated products—jelly, jam, and preserves. Having evolved in the acidic soils of the eastern U.S., *V. labrusca* and other American species may show chlorosis (leaf yellowing) due to iron deficiency when grown in alkaline soils typical of New Mexico. American species provide the genetic basis for many rootstocks on which *V. vinifera* vines are grafted.

American Hybrids

These hybrids were developed in the eastern United States, mainly in the early and mid-19th century. The major component parents of American hybrids are most commonly the American species *V. labrusca* and *V. aestivalis*, along with *V. vinifera*. Concord, a major variety of this type, is responsible for about 80% of *V. labrusca* production. Other important varieties include Niagara, Isabella, Delaware, and Catawba. American hybrids are used to some extent for wine production and for table grapes, but most are used for unfermented grape juice and jelly.

French Hybrids

Bred in France in the late 19th and early 20th centuries, these hybrids are typically produced by crossing American vine species with a European *V. vinifera* variety. Hybrid types are intermediate in winter hardiness between American and European species. Unlike most vinifera varieties, many of these hybrids have highly fruitful secondary buds that provide a harvestable crop in the event of late spring frost that kills the primary buds. The primary aim of these hybrids was to combine the phylloxera tolerance and disease resistance of the American species with the accepted wine quality of the European species, *V. vinifera*. Phylloxera is a small aphid-like insect that feeds on grapevine roots and will eventually kill infested vines. This root louse occurs throughout the Americas, is very common in the eastern U.S., and has spread worldwide. It is a serious pest of *V. vinifera* grapevines and nearly wiped out the European wine industry in the late 1800s. French hybrids were planted in vineyards throughout the world in the 1960s and continue to make significant contributions to the wine industries of the United States and Canada. However, grafting is a preferred and more disease-resistant alternative to hybrids because the qualities of the *V. vinifera* grape are preserved in the scion (fruiting portion of the vine) while phylloxera tolerance is imparted by the rootstock.

VARIETY DESCRIPTIONS

American and French hybrids appear better adapted to northern New Mexico's climate than European or American species (Lombard et al., 2013). The following are descriptions of some American and French hybrid varieties that have performed

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acceptably in north-central New Mexico. A limited number of European *V. vinifera* varieties that have performed satisfactorily for a limited number of north-central New Mexico growers are also described, but are suggested for **planting on a trial basis only.**

American Hybrids

Golden Muscat (white): A beautiful golden grape that ripens late. The clusters are large and compact with large berries that are juicy and excellent in quality when season and site are favorable. If picked too early the fruit can be high in acid. Can be used as a table grape or for juice and jelly.

Himrod (seedless white): Released in 1952 by the New York Agricultural Experiment Station in Geneva, NY. It is seedless and ripens early with sweet flavor. Clusters are large but rather loose with berries that are medium in size and oval in shape. The pedicels that attach the berries to the cluster are brittle and berries will "shatter" or drop off easily with handling or prolonged storage. Himrod is currently the most commercially important of the seedless grapes grown in New York and has been successfully grown in the Albuquerque area. Himrod resulted from a cross of Ontario with Thompson Seedless made in 1928, a successful cross that resulted in the eventual release of four "sister" varieties, the others being Interlaken, Romulus, and Lakemont. All were named for towns in the Finger Lakes region, near Geneva, NY, and may also be good choices for New Mexico.

Norton/Cynthiana (red): A grape cultivar believed to be largely derived from *V. aestivalis*. Norton was first cultivated in Richmond, VA, and is grown in the Midwest and Mid-Atlantic states; it has recently been successfully grown in the middle Rio Grande Valley of New Mexico. It is the "state grape" of Missouri and considered to be the cornerstone of the Missouri wine industry. Most experts suspect that it is a hybrid of one or more native U.S. varieties and one *V. vinifera* variety. Norton's self-fertile habit indicates a degree of *V. vinifera* in its background, and hints of *V. labrusca* as well. However, the variety is overwhelmingly *V. aestivalis*. Norton/Cynthiana is notoriously slow-

growing in the first 1–3 years following planting. Yields can be quite low due to its small berry and cluster size, as well as low juice yield per ton of fruit. It has excellent winter hardiness, down to -11°F, but is subject to frost damage due to early bud break. The fruit has very darkly pigmented color and good tannic structure. However, the juice of Norton/Cynthiana can have a high pH and titratable acidity at the same time. This attribute can be problematic to winemakers.

Reliance (seedless red): A relatively early ripening table grape from the University of Arkansas that produces large clusters of round, pink to red, medium-sized berries. The berries are sweet with melting flesh and labrusca-like flavor. This variety has a high degree of cold hardiness.

Seneca (white): A white table and wine grape. An American-European hybrid with clusters that are small to medium in size and rather loose. Skin is tender with sweet and aromatic flavor.

Suffolk Red Seedless (red): An early, red, seedless grape with large berries and long, loose clusters. It is a quality grape that can be used for desserts, pies, and jelly.

French Hybrids

Baco Noir (red): A winter-hardy hybrid produced from a cross of *V. vinifera* var. Folle Blanche, a French wine grape, and an unknown variety of *V. riparia* (indigenous American species). Current European Union regulations restrict the use of hybrid varieties, including Baco Noir. In 1951, the variety was introduced into relatively cool viticultural regions of the United States: New York, Michigan, Wisconsin, Pennsylvania, and Oregon. It has an established track record of successful vintages in northern New Mexico. An extremely vigorous and disease-resistant variety with long clusters of small black berries, it produces an early, moderate crop. Baco Noir produces a medium-bodied, deeply tinted, fruit-forward, acidic red wine with black fruit and caramel aroma. Ageing potential is 5–8 years on average for good examples of this wine.

Chardonel (white): This grape is a cross between Seyval and Chardonnay and was named by Cornell University in 1990, after successful performance in Michigan and Arkansas. The vine is moderately vigorous and disease-resistant. Large, fairly loose clusters and large individual berries contribute to this variety's high yield potential. It can be finished completely dry or with minimal residual sugar, and is amenable to either unoaked or full malolactic fermentation with barrel aging. This versatile variety retains substantial acid levels at ripening and shows potential for sparkling wine production when harvested relatively early at 16–18° Brix. It is susceptible to phylloxera and should be grafted.

Chambourcin (red): Also known as Joannes Seyve 26-205, Chambourcin's parentage is uncertain. The hybrid was produced by Joannes Seyve, who often used Seibel hybrids produced in the 1860s. Chambourcin has been available since 1963. The vine can lack vigor at some locations and benefits from regular petiole testing to adjust additions of nitrogen fertilizer. Grafting is also suggested in order to increase uniformity and vigor. The grape produces a deep-colored wine with a full aromatic flavor, and no unpleasant hybrid flavors. It can be made into a dry wine or one with a moderate residual sugar level, giving it a pleasant but not overbearing sweetness. Chambourcin wines blend well with vinifera varieties such as Cabernet Sauvignon and can be made into varietal rosé or port-style wines. Chambourcin has gained in popularity in central New Mexico in recent years.

Frontenac (red): The parentage of this grape is Landot 4511 and *V. riparia*. This 1996 release from the University of Minnesota is very cold-hardy and is planted in New England, Quebec, and the and Midwestern U.S., with limited plantings in New Mexico. This variety is highly resistant to downy mildew. As a general rule, aroma and flavor characteristics in Frontenac are dominated by a bold cherry note with hints of black current and general red fruit.

Leon Millot (red): This grape was produced from the same cross as Marechal Foch (Mgt. 101-14 × Goldriesling), but with some important differences. This vine produces an excellent red wine with a distinct berry aroma, and the vine is more vigorous with smaller berries and clusters. Leon Millot is less cold-hardy and is damaged by temperatures below about -15°F, but ripens a week before Foch and can produce in cool climates where Foch does not mature well. Leon Millot's very early maturity enables it to obtain ample sugar content with balanced acid content for winemaking in areas with short growing seasons.

Noiret (red): This hybrid is a cross between NY33277 and Chancellor, which was crossed again with Steuben and released in 2006 by Dr. Bruce Reisch of Cornell University. Vines are generally vigorous and productive in the Finger Lakes of New York, though older vines occasionally show a slow decline in vigor that may be indicative of a need for grafting.

Regent (red): A grape variety created in 1967 at the Geilweilerhof Institute for Grape Breeding by Professor Gerhardt Alleweldt. It is a cross between Diana, which is a Silvaner × Muller Thurgau cross, and the interspecific hybrid Chambourcin. Regent has a wide resistance to most fungal diseases that hinder grape production globally. Due to this broad disease resistance, it is especially popular among winegrowers in Germany.

Siegfriedrebe (white): A cross between Oberlin 595 S.P. and Riesling. Oberlin 595 (Oberlin Noir) is a cross between Gammay and Riparia that gives this variety 75% vinifera heritage. Siegfriedrebe, or Siegfried, which is a synonym, and F.S 4-201-3 are currently grown in Germany and British Columbia, Canada. Although similar to Riesling, it is not as desirable. It has performed satisfactorily in northern New Mexico.

Traminette (white): This Gewürztraminer hybrid is a cross of Joannes Seyve 23.416 and Gewürztraminer. Traminette wines have been described as distinctively floral, spicy, perfumed, and fragrant, much like its Gewürztraminer parent. Initially intended as a table grape, the original cross was made in 1965 at the University of Illinois by H.C. Barrett. Cornell University released the variety in 1996. Vines have greater winter hardiness (to -17°F; Wolf et al., 1999) than its parent Gewürztraminer because the buds are resilient to cold weather; however, the trunks occasionally sustain winter injury. Grafting is recommended because the vine is around 50% *V. vinifera*.

Valvin Muscat (white): Valvin Muscat is a cross between Muscat Ottonel and a hybrid, Muscat du Moulin. Valvin Muscat has very distinct Muscat grape characteristics. Grape breeder Dr. Bruce Reisch from Cornell University officially named and released this variety in 2006.

Vidal Blanc (white): This varietal was created from Ugni Blanc and Seibel in the 1930s by French breeder Jean Louis Vidal. This variety does extremely well in cold climates, partly due to its very late bud break that is helpful in avoiding spring frost. This late-ripening variety is popular in Canada and the northern part of the United States, where it produces late harvest, or "ice wines," rather than table wines. The variety is also successfully grown in New Mexico. It should be cluster thinned since it tends to over crop. Vidal Blanc will respond to the timely addition of nitrogen and should be grafted to avoid nematode feeding.

Vignoles (white): This grape, also known as Ravat 51, produces an excellent dessert wine. Created by J.F. Ravat, this variety is a cross between Seibel 8665 and Pinot de Corton. It is very popular in the northeastern and Midwest regions of the U.S. This fruit can naturally develop high sugar content while the acidity level also remains high. It is susceptible to Botrytis bunch rot due to its very tight cluster architecture.

European Wine Grapes (*V. vinifera*)

Gewürztraminer (white): The name literally means "spice or perfumed Traminer." Because of its distinctive smell and taste it is often used as an early wine to teach people how to recognize different varietals through taste. The main aroma from Gewürztraminer is one of fresh lychee fruit. This scent is very noticeable and pleasant to most people. Today, most Gewürztraminers come from the Alsace region of France. These wines are a study in contrasts, with an extremely sweet bouquet but a surprisingly dry taste. Gewürztraminer has met with limited success in some New Mexico vineyards. New Mexico's lack of fungal disease pressure can be used to advantage when growing this rot-prone variety.

Pinot Noir (red): This is one of the world's greatest red wine varieties. The name is derived from the French words for "pine" and "black," alluding to the varietal's tightly clustered, dark purple, pine cone-shaped bunches of fruit. The origins of this variety are unclear. This breed is known as an ancient variety and is only one or two generations removed from wild vines. However, Pinot wines are among the most popular in the world. It is considered to be one of the most difficult to grow. It is most often produced for sparkling wine in New Mexico and harvested early with high acidity.

Pinot Meunier (red): A close relative of Pinot Noir, it is a variety that has a late bud break and a shorter growing season requirement than Pinot

Noir. The variety is more winter-hardy relative to Pinot Noir. With Chardonnay and Pinot Noir, Pinot Meunier is one of the traditional champagne varieties. Plantings in New Mexico of this variety are very promising, with little plant loss during the winter.

Riesling (white): This noble white grape variety originated in the Rhine region of Germany, and is claimed to have originated from wild vines of the Rhine region. More recently, DNA fingerprinting by Ferdinand Regner indicated that one parent of Riesling is Gouais Blanc, which was brought to Burgundy from Croatia by the Romans. The other parent is a cross between a wild vine and Traminer. Riesling is being successfully grown in locations north of Santa Fe and near Grants, NM. It is relatively cold-hardy, although yields can be light due to small berry and cluster size and susceptibility to bud necrosis. Riesling is an aromatic grape variety displaying flowery, almost perfumed aromas as well as high acidity. It is used to make dry, semi-sweet, sweet, and sparkling white wines. Riesling wines are usually varietally pure and are seldom oaked.

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