# Viticulture - Characteristics of the vine - Vine species

TERMS	<ul> <li>Ampelography: the study of the vine, coming from the Greek ampelos, meaning "the vine."</li> <li>Dicotyledon: known as dicots, seed has two embryonic leaves, flower parts in 4s, and had netted leaf vines.</li> <li>Palmate: major veins come together at one point, resembling an open hand.</li> <li>Others include:</li> <li>Pinnate: like a feather, veins branch off main vein and</li> <li>Parallel: veins runs parallel beginning to end, grass.</li> </ul>
VITACEAE	<ul> <li>Plants show a tendency towards trailing and twining.</li> <li>Family the vine belongs to.</li> <li>Dicot class of flowering plants.</li> <li>Woody vines.</li> <li>Palmate leaves with coarse margins.</li> <li>Tendrils opposite leaves.</li> <li>Genera: 9-14</li> <li>Species: roughly 900</li> <li>Oddball group not closely related to much else.</li> </ul>
GENUS	<ul> <li>Vitis:</li> <li>Wine and table grapes.</li> <li>Contains some 60 different species, few are suitable for wine-making grape.</li> <li>Parthenocissus: <ul> <li>Virginia Creeper and Boston Ivy.</li> <li>Secretes calcium oxalate to aid adherence.</li> </ul> </li> </ul>
V. VINFERA	<ul> <li>Originated in southern Europe and southwestern Asia.</li> <li>Between 5,000 - 10,000 varieties.</li> <li>Only species of vine to survive the ice ages in Europe.</li> <li>Vigour and ripening period is variable.</li> <li>Adaptable to many soil types.</li> <li>Not resistant to phylloxera. Can only be planted ungifted in phylloxera-free areas.</li> <li>Resistance to nematodes is poor.</li> </ul>
V. LABRUSCA	<ul> <li>The North American Concord Grape, Catawha, and hybrids Agawam, Alexander, and Oraka.</li> <li>80% of North America production.</li> <li>Known as "slip skin" as the skin of the berries easily slip off when squeezed instead of crushing the pulp.</li> <li>Tendrils are present on every node of the cane.</li> <li>"Foxy" musk.</li> <li>Among the vines transported to Europe carrying phylloxera.</li> <li>Majority of varieties are red.</li> <li>Near harvest and fully ripe, they will easily separate from the pedical.</li> <li>Large, thick leaves of the vines that have a hairy underside with dense brown or white hairs.</li> <li>Natural resistance to phylloxera but not as high as other species so is not often used for commercial rootstock</li> <li>Found from Nova Scotia to Georgia, westward to Mississippi River.</li> <li>Can withstand severe continental conditions.</li> </ul>
V. RIPARIA	<ul> <li>The River Bank Grape or Frost Grape.</li> <li>Native to America.</li> <li>Largest geographical range of any vitis North American species.</li> <li>Entire eastern half of America except for south and great plains.</li> <li>Thrives along exposed areas with good sun exposure and adequate soil moisture. <ul> <li>riverbanks, forest clearing, fence lines, roadsides</li> </ul> </li> <li>Mature vines have loose, fissured bark, may attain several inches in diameter.</li> <li>Leaves are alternate, often with opposite tendrils or inflorescences.</li> </ul>
1	January 2015 - Brandon Thomas - www.thewalkinggrape.com

- · Lacks foxy character of Lambrusco but usually quite sour and herbaceous.
- Cold hardiness. Has been known to withstand temps as low as -57C/-70F.
- Foliage is typically resistant to mildew and black rot.
- · Roots resistant to phylloxera.
- · Berries often sensitive to mildew and block rot in prolonged wet and humid conditions.
- Unsuitable on its own for viticulture
  - high acid, herbaceous aromas, small berries, intense juice pigment.
- Uses as grafted rootstock:
  - Often used to control vigor on highly fertile soils.
  - Suffers from iron deficiency (chlorosis) on chalky soils.
  - Phylloxera resistant, adaptation to various soil types.
  - Low in vigor, encourages early ripening.
- Used extensively in grape breeding to transfer cold hardiness and disease resistant genes.
  - French-American hybrid grapes
  - Effort to make a commercially viable wine grape that can survive climate of Upper Midwest.

## V. AESTIVALIS

- The Summer Grape
- · Eastern North America: Ontario Vermont Oklahoma Florida Texas.
- · Vigorous vine. Green leaves, densely hairy below.
- Does not propagate well through dormant cuttings, limiting its usefulness in commercial viticulture.
- Does not tolerate highly calcareous soils.
- · Several cultivars selected including Norton.
  - Believed to be the oldest American grape cultivar in production.
  - Official state grape of Missouri.
- · Inter-specific hybrids made with V. Aestivates have several useful traits
  - Lower acidity, neutral, "vinifera-like" flavor, good tannin structure, excellent disease resistance.

## V. ROTUNDIFOLIA

- The Fox Grape, Muscadine
- Native to the south of North America.
- Well adapted to warm and humid climate. Thrives on summer heat.
- Very tough skin and highly pigmented.
- Rich sources of polyphenols and other nutrients for potential health benefits.
- · Over 300 cultivars (varieties) grown in the southern states.
- · Grows best in fertile sandy loam and alluvial soils Well drained not subject to drought or water logging.
- Resistant to pests and diseases, Pierces's disease, most resistant to phylloxera.
- · Mostly made sweet though drier styles exist.
- · One of nature's richest sources of polyphonic antioxidants.

#### V. RUPESTRIS

- The Rock Grape
- · Native to the southern and western North America.
- Self-supporting bushy plant that does not grow well in the shade. Shrub-like. Rarely climbs.
- · Found on creek beds on light soils.
- · Heavy use of grazing and herbicides have killed much of the population.
- Used for bredding French-American hybrids and many rootstocks (Rupestris St. George)
- St. George once used in Europe but fails to provide lime tolerance needed in Europe.
- Moderate phylloxera resistance, poor nematode resistance, but roots and grafts easily.
- Rootstocks are vigorous, deep rooting system, good phylloxera resistance, but very susceptible to chlorosis.
- Good choice for poor soils with limited water availability.

# V. COIGNETIAE

- The Crimson Glory Vine
- Native to Asia.
  - Found in Russia Far East, Korea (up to 1300m altitude), and Japan (mountainous regions).
  - Very vigorous with purple shoots.
  - Large, simple leaves. First green, then red-orange in the autumn.
  - Clusters are large with small berries and large purple seeds.
  - Used in East Asia as an ornamental plant.
  - · Korea and Japan wines. Bitter at first, softened with the addition of sugar. Rich in color and extract.

V. AMURENSIS

- The Amur Grape. Name comes from Amur Valley in Russia and China.
- · Native to Asia.
- · Very resistant to frost but is not tolerant to drought.
- Strong resistant to anthracnose and ripe rot.
- · Moderately strong resistance to downy mildew and powdery mildew.
- Can tolerate winter temps down to -45C and the root zone of the soil to -16C.
- Widely used for ornamental vertical gardening.
- · Widely crossed with other species (usually v. vinifera)
  - Produces cold hardy, early ripening wine and dessert grapes for cold climates.
- · Can tolerate urban conditions (smoke, dust, gases)
- Vines require 700mm rain so they do not perform well in dry conditions without irrigation.
- Well suited to wetter areas normally too cool and wet for grapes (NW Europe, N Russia, Pacific NW).
- Relative resistance to disease, early ripen, evolved to a short growing season, partial phylloxera resistance.
- Prefers loose acidic soil and cannot tolerate excessive lime.
- Very acidic to sweet depending on ripeness, thick skins, 22-23% sugar at ripeness, berries can be sour.

#### V. VULPINA

- The Frost Grape, Winter Grape, or Fox Grape.
- Vulpina, latin meaning "fox-like" or belonging to a fox. Foxes were attached to this vine.
- Frost grape referrs to the fact berries become more sweet once it is exposed to frost.
- Eastern America from New York to Minnesota.
- · High-climbing woody vine with a thick truck and red tendrils. Max height 83 feet.
- · Does not do well in cold temperatures below -23F.
- Further ripening between September and October.
- Very round and tart/acidic becomes sweet after a frost due to a drop in acidy levels as the grape decomposes.
- Found in moist or dry soils in woods, flood plains, and ravines.

#### V. BERLANDIERI

- The Fall Grape
- Native to southern America and Mexico.
- Grows on chalky slopes and limestone hills of Texas.
- · Vigorous and deep rooting, has a high resistance to chlorosis.
- Cuttings have a very poor ability to root so it is rarely used as a pure species.
- Poorly adapted to grafting.
- Often hybridised with V. riparia and V. rupestris to produce lime-resistant rootstocks that graft and root.