

## North Carolina Winegrape Grower's Guide, NC State University

# Glossary

**acclimation** — phase during late summer when shoots stop growing and become brown and woody, and tissues acquire increased cold hardiness.

**advective freeze** — temperatures below 32°F, caused by the passage of large frontal systems of cold air. Little stratification of air temperature occurs with changes in elevation.

**American hybrid** — varieties that have resulted from crosses made by North American breeders by crossing American grape species or varieties with *V. vinifera* in an effort to develop varieties that have the hardiness and disease resistance of the American parent and fruit quality more like that of *V. vinifera*.

**anthesis** — time of full bloom in the flower just after the calyptra has fallen.

**apical dominance** — ability of shoots near the distal end of the cane to produce hormones that retard development of more basal shoots.

**aspect** — compass direction toward which the slope faces.

**AVA** — stands for *American Viticultural Area*, and is used to represent a winegrowing region in the United States. These regional designations are controlled by the Federal Tax and Trade Bureau (TTB). Unlike most European appellations, an AVA specifies only a location. It does not limit the type of grapes grown, the method of vinification, or the yield, for example. Some of those factors may, however, be used by the petitioner who wants to define an AVA's boundaries.

**balanced pruning** — pruning system that determines the number of nodes to retain based on weight of one-year-old canes removed at dormant pruning.

**basal** — in the direction of the roots or base of vine; see distal.

**blends** — of wines; typically a blend includes wines from two or more varieties of grapes, or a wine from one grape variety grown in different locations, or possibly a wine from two or more vintages. A large portion of the world's wines are blended, and the possibilities are almost endless.(Jackisch, 1985).

**bud** — usually consists of three partially developed shoots with rudimentary leaves or with both rudimentary leaves and flower clusters. A base bud is not borne at clearly defined nodes of canes. Compound buds have several growing points.

**bud fruitfulness** — ability of the bud to produce fruit; usually the most fruitful are located toward the exterior of the canopy.

**budbreak (or budburst)** —time when the dormant buds open and newly formed leaves are seen; occurs after vines have received adequate heat in the spring.

**cane** — a woody, mature shoot after defoliation.

**calyptra** —petals of the grape flower which stay together and are shed as a "cap" when the flower blooms (anthesis).

**canopy** — shoots of a vine and their leaves. Canopy management entails decisions regarding row and vine spacing, choice of rootstock, training and pruning practices, irrigation, fertilization, and summer activities.

**cliestothecia** — overwintering sexually produced structures of some fungi.

**climate** — how weather acts over many years; refers to the average or normal weather of a particular location or region for a specified period of time, usually 30 years.

**clone** — one or more vines that originated from an individual vine, which was in some way unique from other vines of the same variety.

**continentality** — refers to the effect of a continuous mass of land on climate; is inversely related to the degree of water moderation. Mean daily range (MDR - the difference between the mean maximum

and the mean minimum temperatures) estimates continentality. Temperatures in continental sites like North Carolina are more variable and extreme.

**cordon** — long, horizontal extension or two-year-old or older wood.

**critical temperature** — the temperature, as read on a properly exposed thermometer, that buds, blossoms and berries can endure for 30 minutes or less without injury (Ballard, 1981).

**crop load** — the ratio of crop weight to cane pruning weight for a given year.

**cultivar** — a named, cultivated variety.

**dewpoint** — or dew-point temperature is a measure of atmospheric moisture. It is the temperature to which air must be cooled in order to reach saturation (assuming air pressure and moisture content are constant).

**distal** — end of the stem towards the growing tip; see basal

**dormancy** — time between leaf-fall in autumn and budbreak in the spring; absence of visible growth.

**dormant pruning** — annual removal of wood during the vine's dormant period.

**double pruning** — one pruning cut in late winter or early spring followed by a second pruning cut after the threat of frost is past but before appreciable shoot growth has occurred. Practiced where spring frosts are common.

**evapotranspiration** — the combined transpiration, or loss of water through stomata, and evaporation of water from the soil surface.

**flower** — the grape flower does not have conspicuous petals but instead the petals are fused into a green structure termed the *calyptra* but commonly referred to as the *cap*. The cap encloses a single *pistil* (female organ) and five *stamens*, each tipped with an *anther* (male organ). The anthers produce pollen grains. The broad base of the pistil is the ovary, which consists of two internal compartments; each compartment has two ovules with a single egg—there are four ovules per flower and a maximum potential of four seeds per berry (Hellman, 2003).

**flower clusters (inflorescences)** — a fruitful grape shoot usually produces one to three flower clusters, or inflorescences, depending on variety (Hellman, 2003). Inflorescences are borne opposite the leaves on new shoots arising from buds on one-year canes. Depending on variety, the flower clusters are typically at the third to sixth nodes from the base of the shoot. Botanically, the grape inflorescence is classified as a racemose panicle (Westwood, 1978).

**French hybrid** — varieties resulting from crosses of *vinifera* and native American species made by French breeders.

**fruit** — the fruit of grape is a *true berry* with two to four seeds; berry size is related to the number of seeds within the berry but is also influenced by growing conditions and cultural factors, particularly water management.

**graft union** — where the rootstock is joined to the scion.

**head** — upper portion of vine consisting of the top of the trunk(s) and junction of the arms.

**headland** — area at the end of the rows used for vehicle turning.

**hedging** — pruning during the growing season, usually removing only shoot tops and retaining only the nodes and leaves needed for adequate fruit and wood maturation.

**hilling** — protecting the graft union and a portion of the trunk with mounded soil in the fall.

**internode** — the portion of the stem between nodes.

**inversion** — generally, a departure from the usual increase or decrease in an atmospheric property with altitude. Specifically, it almost always refers to a temperature inversion, i.e., an increase in temperature with height, or to the layer within which such an increase occurs.

**leaves** — consist of the *blade*, the broad, flat part of the leaf, and the *petiole*, which is the stem-like structure that connects the leaf to the shoot (Hellman, 2003).

**leeward** — situated away from the wind; downwind; opposite of windward.

**macroclimate** — climate of a large geographical region, such as a continent.

**mesoclimate** — climatic conditions within 10 feet of the ground and peculiar to a local site.

**microclimate** — environment within a specific small area, such as a grapevine canopy.

**necrosis** — death.

**node** — conspicuous joints of shoots and canes. Count nodes have clearly defined internodes in both directions on the cane.

**panicle** — branching raceme.

**pedicel** — stem of an individual berry or flower.

**periderm** — bark.

**pH** — measure of hydrogen ion (H<sup>+</sup>) content; expressed on a scale of 0-14. The pH scale is a logarithmic expression of an exponential function, which means that a change of one pH unit represents a tenfold change in concentration of hydrogen ions. Many of the effects of acids in wines depends on the concentration of hydrogen ion, and pH is a measure of the intensity of the acidity rather than the quantity of acids present as measured by titration (Watson, 2003).

**phenology** — branch of science dealing with the relations between climatic and periodic biological phenomena; grape phenological stages are described by Meir (2001). Early spring growth stages include budburst, first flat leaf, second flat leaf, and fourth flat leaf; each phenological stages has an associated critical temperature (Gardea, 1987).

**phloem** — food-conducting tissue. (Material generally flows from the shoots to the roots.)

**pith** — central part of a shoot or cane.

**point quadrats** — canopy transects or multiple transectional probes of the vine canopy.

**pollinator** — vine planted to supply pollen.

**primordia** — growing points of a bud.

**pycnidia** — fruiting structures of some fungi; pycnidia produce and release spores.

**raceme** — simple indeterminate inflorescence in which the flowers are borne on short stalks along a common axis (Westwood, 1978).

**radiational frost** — Temperatures below 32°F that occur during calm, clear weather. Cooling ground cools the air immediately next to the ground. Lower spots will have lower temperatures.

**renewal region** (of canopy) — part of the canopy where buds for next year's crop develop (usually the fruiting region).

**rootstock** — variety used to supply roots to the vine.

**scion** — above-graft part of a grafted vine, including leaf- and fruit-bearing parts.

**self-fruitful** — able to set fruit with pollen of the same variety.

**shoot** — succulent growth arising from a bud, including stem, leaves, and fruit.

**soluble solids** — measure of the maturity of grapes. It is also used to estimate the final alcohol levels in the wine, since over 90 percent of the T.S.S. in juice is composed of fermentable sugars (Carroll et al, 1991). The units customarily used in the United States to express soluble solids are Brix, where each degree is equal to 1 gram of sucrose per 100 grams of solution (Jackish, 1985).

**sporangia** — specialized spores of certain disease-causing fungi.

**spur** — cane that has been pruned to 1 to 4 nodes.

**stomata** — leaf pores that allow gas exchange between leaves and the environment.

**suckers** — unwanted shoots that grow from the crown area of the trunk (Hellman, 2003).

**summer pruning** — hedging or removing vegetation during the growing season.

**temperature stratification (zonation)** — important phenomenon related to radiational cooling and temperature inversions. Temperature stratification can occur if the air is cooled near the ground by contact with a cold earth's surface, and the air aloft will either not be affected, or an inversion will be established. By contrast, when the earth's surface is warmer (during the day) than the air, the air in contact with it will be warmed, while the air aloft will remain cool, which is why the temperature drops rapidly with increase in height.

**tendrils** — stringlike, twining organs of shoots, located opposite leaves at nodes, that can coil around objects and provide shoot support.

**terroir** — English has no exact translation for the French word *terroir*, but it is a complex notion that deals with the influence of vineyard conditions on wines and their distinctiveness; *terroir* integrates several factors of the natural environment (soil, climate, topography), biological (variety, rootstock), and human (winemaking). Scientists cannot express quantitatively the relationship between a particular *terroir* and the characteristics of the wine produced from that *terroir*, but the concept of *terroir* is used to underpin the geographical demarcation of French viticultural areas (White, 2003).

**total acidity** — of a must or wine is expressed in the United States as though all the acid were tartaric acid and is reported either as a percentage or in grams per liter. Acidity is measured by a procedure known as titration (Jackish, 1985). Acids in the juice help prevent spoilage during fermentation, development of abnormal color, and flat taste of finished product (Carroll et al, 1991).

**trunk** — vertical support structure that connects the root system with the fruit-bearing wood of the vine.

**unfortified wine** — product is fermented naturally or with sugar, and does not exceed 17% alcohol.

**vascular cambium** — tissue of canes and older wood that generates new xylem and phloem cells annually.

**véraison** — the period or stage at which fruit begins a third stage of ripening characterized by softening, color change, and perceptible increases in sugar and decreases in acidity.

**vine vigor** — rate of shoot growth.

**watersprouts** — undesirable shoots arising from the upper regions of the trunk or from cordons (Hellman, 2003).

**weather** — state of the atmosphere with respect to heat or cold, wetness or dryness, calm or storm, clearness or cloudiness. Also, weather is the meteorological day-to-day variations of the atmosphere and their effects on life and human activity. It includes temperature, pressure, humidity, clouds, wind, precipitation and fog.

**wet bulb** — temperature is a measurement of the evaporative cooling power of the air and is the temperature air will cool to when water is evaporated into unsaturated air; wet bulb can be measured using a sling psychrometer.

**windward** — upwind, or the direction from which the wind is blowing; opposite of leeward.

**wine labeling** — labeling rules of the Federal Tax and Trade Bureau (TTB) require that: 1) *American wine* may not be labeled a vintage; 2) *Varietal wine* must be 75% by content made from that grape variety (except *labrusca* which must be at least 51%); 3) *North Carolina Wine* must be 75% North Carolina grapes; 4) *AVA* (American Viticultural Area Designation) must be 85% grapes from that AVA; 5) *Vintage wine* must be 95% grapes from that year; and 6) *Estate bottled wine* must be 100% grapes from winery-owned vineyards.

**xylem** — water-conducting tissue of wood. (Fluids generally flow from the roots to the shoots.)

**zonation** — see temperature stratification.

## References for Glossary

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