

Grapevine Terminology

Accolage – The procedure of tying the canes or shoots to horizontal wires on the trellis system.

Aspersion – Process of protecting vines from spring frost by spraying them with water, which freezes and coats the buds with ice. The buds are not damaged because of the latent heat of the ice.

Axil – area of the stem between the upper side of a leaf and the supporting stem.

Bud – a small protuberance on a stem that may contain rudimentary foliage (leaf bud), rudimentary inflorescence (flower bud), or both (mixed bud).

Budburst – Initial opening of either the flower or leaf bud. Characterized by the visibility of the first leaf tissue or green tip. Stage 4 in the **Modified E-L System**. [See Modified E-L System](#) & [Five Major Stages of Grapevine Development](#)

Bush training – The vine is spur-pruned and trained as a free standing plant and does not use a trellis system. Also called ‘Gobelet’. Typically found in warmer regions such as Rhone, Beaujolais, Rioja and older vineyards in Australia. One of the four major vineyard training systems. [See Diagrams & Vineyard Training Systems](#).

Buttage – piling up earth around the base of the vines to protect them against frost.

Canopy manipulation – or ‘canopy management’ The use of different trellis systems and several techniques; hedging, cluster removal, leaf trimming, pruning and shoot positioning, that affects growth, yield, fruit composition, and wine quality.

Cane – Woody shoots that are usually a year old that extend from the cordon. Usually pruned to between 8 to 15 buds, if pruned to only two to three buds and left for at least a year it is called a **spur**. [See Diagrams](#)

Cane pruning – System of cutting the vine down to one or more 1-year old canes that will produce new shoots.

Cambium – Major part of the plant’s vascular system responsible for cell division that leads to the production of Xylem and Phloem tissues as well as contributing to stem girth growth.

Chlorophyll – Green coloring matter of leaves and plants, essential to the production of carbohydrates through photosynthesis, and occurring in a bluish-black form, $C_{55}H_{72}MgN_4O_5$ (chlorophyll a), and a dark-green form, $C_{55}H_{70}MgN_4O_6$ (chlorophyll b).

Clonal selection – A selection of varietal subtypes based on specific features-vigor, early/late ripening, high quality fruit, high/low yields and resistance to disease.

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Clone – A naturally occurring genetic subtype of a particular variety that when propagated will have features that are identical to the parent vine. Propagated through vegetative means not sexual propagation. See **clonal selection**.

Cordon – Also referred to as the ‘arm’. Horizontal structure that originates from the head of the trunk and produces shoots and canes. [See Diagrams](#)

Cordon Spur System – The trunk of the vine is low to the ground and grown horizontally with either one (unilateral) or two (bilateral) permanent cordons that are never pruned. Each cordon contains a number of spurs that are pruned each year and yield the growth of new wood. The unilateral cordon system is often referred to as the *Cordon de Royot* System. The bilateral cordon system is the most commonly used and has many variations. One of the four major vineyard training systems. [See Diagrams & Vineyard Training Systems](#).

Coulure – Flower does not set because of climate conditions.

Crossing – Breeding of a new vine variety by cross-pollination of two different varieties of the same species (*V. vinifera*). Example: **Roesler** – Austrian black grape varietal that’s a cross between Zweigelt x Blaufränkisch.

Cultivars – A variety of a plant that has been created or selected intentionally and maintained through cultivation because of its uniqueness. Cultivars are registered through the *International Code of Nomenclature for Cultivated Plants* which is commonly known as the *Cultivated Plant Code*. **Clones** are an example.

Debutage – Removal of the protective earth placed around the base of the vine. See **Buttage**.

Density – Number of vines per acre or hectare (**ha**) of land. Lower density has lower establishment cost, but high density usually has higher quality wines depending on the fixed yield per acre/ha. Type of density depends on the mode of mechanization required to harvest fruit.

Drip irrigation – Process of irrigation where the vine receives only a minute amount of water. This stresses the vine and forces it to work harder to survive therefore producing higher quality fruit.

Embryo – A rudimentary plant in the seed.

Fertilization – (plants) the process of initiating biological reproduction through pollination.

Flowering – Takes place during the spring. Process when the flower buds or rudimentary inflorescence, open and begin to form the reproductive organs of the plant. Stage 19 of the **Modified E-L System**.

[See Modified E-L System & Five Major Stages of Grapevine Development](#)

Full Bloom – Stage 23 of the **Modified E-L System** where 50% of the flower caps are off and 17-20 leaves are separated. [See Modified E-L System & Five Major Stages of Grapevine Development](#)

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Graft – The union between the scion of and rootstock. Typically between *V. vinifera* scion and a resistant rootstock of another species.

Guyot training – Type of **replacement cane system** that can be single or double. Uses new wood each year that is grown from spurs on the head. **Single** - each vine has one cane preserved each year, for the generation of next years many fruiting canes, and one spur, which is for the generation of the replacement cane. **Double** - system widely used in Bordeaux, each vine has two canes and two spurs, the canes being trained in opposite directions along wires. This is the best system for small clustered varieties.

[See Vineyard Training Systems & Diagrams.](#)

Harvest – Stage 38 of the **Modified E-L System** where berries are ripe and ready for picking, Stage 39 is over-ripe, and Stage 37 is under-ripe. [See Modified E-L System](#) & [Five Major Stages of Grapevine Development](#)

Head Grafting – Process that allows an established vineyard of one variety to be grafted over to another variety without having to replant.

Hybrid – A variety resulting from a cross between two different species. In grapevines this is usually done between *Vitis vinifera* (European vine) and an American vine species for the purpose of disease resistance and tolerance. Also called *interspecific crossing*.

Inflorescence – The formation of the flower clusters on the stem that is composed of a complicated arrangement of branches. This later becomes the fruit cluster or bunch.

Internode – Region between two nodes. [See Diagrams](#)

Modified E-L System – System of 47 stages of development used to discuss the phenology of the grapevine. There are five important stages: Budburst, flowering, full bloom, Veraison, and harvest. Also referred to as the Eichhorn-Lorenz System. [See Modified E-L System.](#)

Node – Swollen region or sectioned part of the stem or cane where the bud & leaves are attached.

Nematode – Refers to more than 15,000 species of worms in the class Nematoda (phylum Aschelminthes). Nematodes include plant parasites and free-living forms found in soil and water that can damage grapevines.

Pergola System – or *Parral System*. Vines are trained high on canopy-like structures with the grape bunches hanging down below the cover of leaves. Beneficial in hot climates. One of the four major vineyard training systems. Mostly used today in table grape production. [See Diagrams & Vineyard Training Systems](#)

Petiole – The stalk of the leaf. Also used for chemical analysis to determine mineral and nutrient levels in the soil, 'petiole sample'.

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Phenology – The study of reoccurring natural phenomena. In the case of grapevines, this refers to the natural cycles of development. [See Modified E-L System](#)

Phloem – Major part of the plant’s vascular system that transports food to the plant through tiny vessels. Located on the outer ring of stem.

Photosynthesis – Reaction or process where CO₂ and Water (H₂O) are converted into plant food via sunlight. $6\text{CO}_2 + 12\text{H}_2\text{O} + \text{Sunlight} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 + 6\text{H}_2\text{O}$. The end products are compounds called photosynthates and are primary sucrose. The compounds are further converted to proteins, fats and carbohydrates by other chemical processes. Sunlight at 1/3rd maximum strength gives best rate of photosynthesis.

Phylloxera vastatrix – Grape louse that can attack both the leaves and root systems of grapevines. The most dangerous is found in the soil where the pest causes fungal infections that destroy the plants ability to transport nutrients and water. No known way to eradicate, grafting onto resistant rootstock and planting in sandy soils is the only way to avoid.

Pistil – The central organ of a flower containing the stigma, style and ovary.

Pollination – the transfer of pollen from the anther to the stigma in the flower. Grapevines contain flowers with both male and female parts, hermaphrodites, therefore they pollinate themselves.

Pruning – Removal of unwanted plant parts and old wood (canes). Typically done in the dormant stages of the vine in the winter. [See Diagrams](#)

Replacement cane system – Each year new canes are trained along lateral wires. Refers to the Guyot System which can be single or double. Most commonly used trellis system for low yield high quality fruit. Fruiting canes are trained in one direction for Single Guyot and in a “T” formation for Double Guyot, along wires that run just above the trunk. [See Diagrams](#)

Respiration – Conversion of stored photosynthates into water, CO₂ and energy= $\text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 \Rightarrow 6\text{CO}_2 + 6\text{H}_2\text{O} + \text{Energy}$. Q10-Plant respiration is VERY temperature dependent 50°F (10°C) - rate is close to zero; but respiration rate doubles with every 10°C increase. Does not rely on light.

Root – Plant organ made of up of a system of underground stems that are responsible for water and nutrient movement, plant hormone synthesis, and “grounding” of the vine.

Rootstock – Lower region of the vine that is grafted to the scion. Rootstocks of other species can be used because of their natural resistance to phylloxera and nematodes as well as diseases such as lime.

[See Diagrams](#)

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Row orientation – The length between grapevine rows, facing direction, as well as the positioning in relation to climate, soil aspect, and other variables in the vineyard. Directly affects yield and density.

Scion – Region located on the trunk that is grafted to the rootstock. [See Diagrams](#)

Shoots – Aerial portions of the plant that include the stem, branches, and leaves and also, new immature growth on a plant. Shoots are considered the season's stem like growth.

Spur – short, stubby cane that has less than three buds located on the cordon that produces new shoots. [See Diagrams](#)

Stem – Portion of the plant that contains the bud and leaves. Contains the vascular system that carries water, minerals, and sugars throughout the plant. There are three major parts: **xylem, phloem, and cambium**.

Suckers – Shoots from the base of the trunk that are cut away when maintaining the vine. [See Diagrams](#)

Translocation – Movement of water and nutrients in the plant via the vascular systems of xylem and phloem.

Transpiration – Loss of water through evaporation from the leaves, stem, flowers and roots. Dependent upon temperature, wind, humidity, and light levels. Cools down the leaves in hot temperature.

Trellis – Any manmade system that supports and trains the vine in a particular manner. There are several different styles of trellis systems depending on the desired affect. [See Diagrams & Vineyard Training Systems](#)

Trunk – Main woody structure of the vine that sits above the ground and root system.

Veraison – stage in berry development where the fruit begins to ripen and mature. In black varieties this means the change in color. In white varieties grapes will enlarge, sugar content will increase and the berry will soften. [See Modified E-L System](#) & [Five Major Stages of Grapevine Development](#)

Vitaceae – *Family* of plants that have a tendency of trailing and twinning. Large family containing 11 genera.

Vitis – *Genus* containing grapevines. Contains 60 different species, many of which are not suitable for wine production.

Vinifera – Most important *species* of grapevines used for the production of wine, otherwise known as the 'European grapevine'. There are around 1000 different single varieties of vinifera example: Cabernet Sauvignon, Chardonnay, Malvasia etc. The next step is a **clone** of a single variety.

Xylem – Major part of the plant's vascular system that transports water and minerals to the plant through tiny vessels located in the inner ring.