

GRAPEVINE PHENOLOGY

Phenology: The study of the events or growth stages that recur seasonally and relative to climatic factors.

Bud Break

Bud break is an exciting time of year as it signals the official start of the growing season. It is when the vines wake up from dormancy. Metabolic activity starts in the roots and is influenced by soil temperature. The vines use energy stored up from the prior season and push out new buds. The buds swell, get fuzzy, grow in size and then the shoots push out, revealing small leaves. The shoots elongate and as the leaves expand to full size, they are able to capture new energy which is used for more growth.



Bloom & Set

Every grape begins as a self pollinating flower. As the vines fill out the trellis system, flower clusters emerge at the base of the shoot, near the cordon. Only a portion of the flowers on each cluster will “set” and become grapes. Vineyards are very susceptible to weather during bloom. Rain and cool temperatures will reduce the amount of “set” and can result in a very low crop.



Veraison

After set the vine focuses its energy on continued shoot growth and begins growing the berries themselves. They grow quickly to pea size and then so big that the berries touch each other (known as cluster closure). Throughout this period, the berry growth is a result of cells dividing and multiplying. The onset of ripening and sugar accumulation in the berries is known as veraison. There are clear visual clues that vines have reached veraison - the berries begin to soften and change color. White berries become translucent as they ripen and red berries go from green to pink to, eventually, a dark purple.



Trefethen

Ripening

At this point in the season, shoot growth slows down and the canes start changing color, from green to banana yellow, to woody (called lignification). The energy captured by the leaves is now used to send sugar to the berries. The berries continue to grow, as they are pumped full of sugar, but only by cell expansion, rather than cell division as happens pre-veraison. During this time the seeds are also 'ripening', maturing from soft and green to hard and brown, as harvest approaches.

Leaf Drop

After harvest, before the leaves drop, the vines start drawing back in nutrients from the leaves to the canes and into permanent parts of the vine; cordon, trunk, and roots. During this time the leaves develop their yellow color as the chlorophyll degrades. Cold weather and shorter days can accelerate the final leaf drop.

Dormancy

As deciduous plants, grapevines go dormant in the winter. The vines turn sugar into starch to store energy over the winter. They slowly acclimatize themselves to the cold weather and go further into dormancy. In the spring, when the soil begins to warm, the roots wake up and vines start the process over again.

