Anthesis is undoubtedly one of the most important events in the vineyard!

The vines in most winegrowing regions in the southern hemisphere will be either going through anthesis now or it is pending. At anthesis (flowering) a great deal of focus is placed on the health of the inflorescences that will eventually bare set berries and the future crop. And rightly so! However, there are other considerations to be made at this time such as ensuring that conditions are met that will promote a healthy crop for next year. The life-cycle of the grapevine is a complex system which involves vegetative and reproductive development over a two year period with many vital processes coinciding over that time (Figure 1). One of the most critical examples of this is the initiation and development of next years bunch primordia (more accurately known as anlagen (pl.) and inflorescence primordia (pl.)) at year one with flowering and fruitset in year two. This development occurs in the compound buds developing at the base of the summer lateral shoots in the current season (Morrison 1991, May 2000). This was partly explained in a previous article Bud dissection.

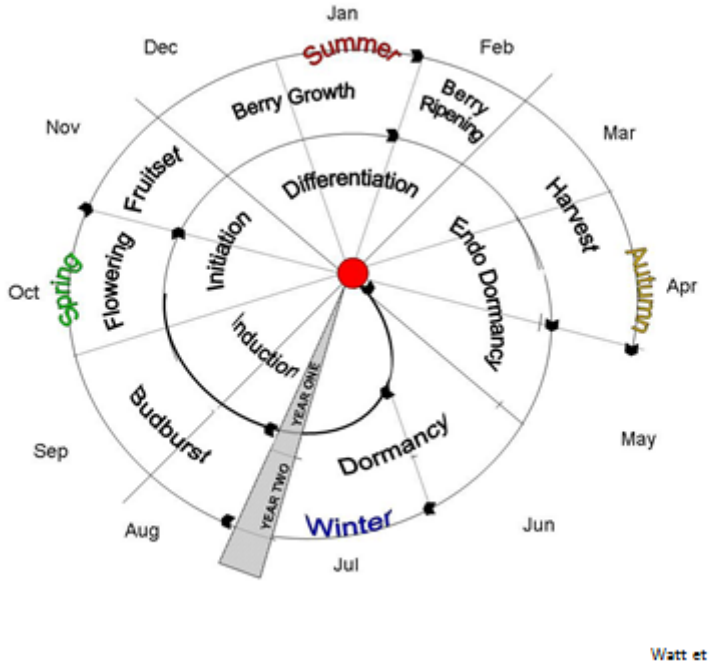

Figure 1. A schematic diagram of the life-cycle of the vine depicting the timing of key phases of grapevine reproduction in temperate south-eastern Australia (Watt et al. 2008). The red centre indicates the start of the lifecycle of an individual bud. The black arrows indicate the clockwise direction of spiral.

As the spring and summer progress so does the further differentiation of the important reproductive structures of the vine. The compound buds that contain these developmental processes are visually small and often out of mind beyond the consideration of overall shoot health throughout the season. Thankfully, 1 promote development of next season's crop. Conversely, if growth is vigorous and adequate maintenance of shoots has not taken place, compunds bud can be shaded during reproductive development which may significantly affect fruitfulness in the following season.

The number, extent of development and the size of the future bunches will be determined by a complex play of environmental conditions, viticultural practices and growth regulators working endogenously in the vine. Scanning electron microscopy reveals that, coinciding with anthesis, (Figure 2).

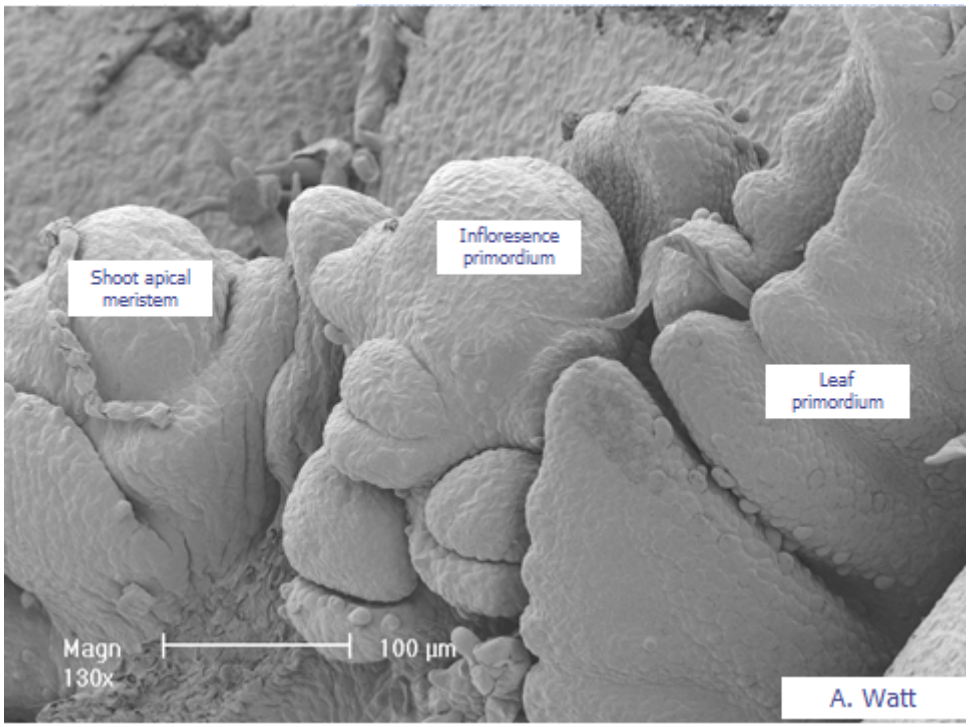

Figure 2. A scanning electron micrograph of the structures inside a compound bud in spring in south-eastern Australia, including the shoot apical meristem, an inflorescence primordium and a leaf primordium (Watt et al. 2008).

References;

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