THE VINE GROWTH CYCLE

DORMANCY
Jan-Mch/Jul-Sept

-20°C < Temp <10°C
Risks: Winter freeze,
Second harvest
Actions: Winter pruning

BUDBURST
Mch-Apr/Sept-Oct

Mch-Apr/Sept-Oct
Buds swell open, green shoots.
Air Temp >10°C
Risks: Late frost – Maritime Clim
Poor drainage - Cold soil
Early budding Ch, PN, Merlot, Grenache – more risk
Late budding: SB, CS, Syrah – less risk
Actions: Delayed by late winter pruning

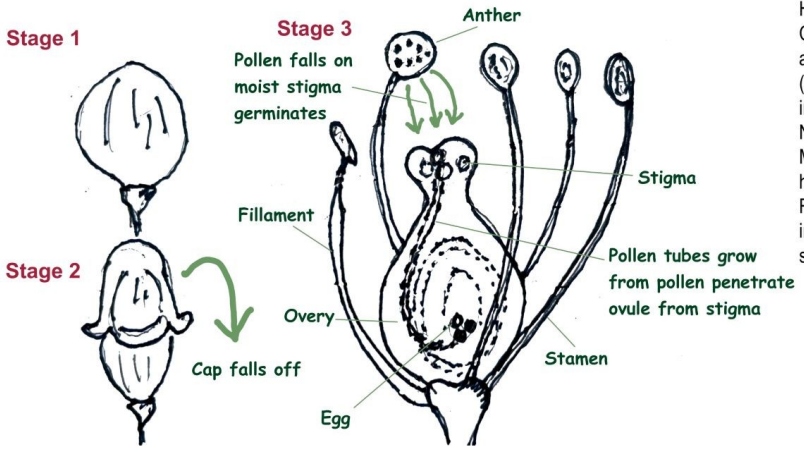
SHOOT / LEAF GROWTH
Mch-Jul/Sep-Jan

Mch-Jul/Sep-Jan
Shoots grow, leaves open, inflorescences develop.
Risks: Not enough stored carbs from last season to drive growth.
Needs warmth, sunlight, nutrients and water.
Avoid water stress, allow uptake of nitrogen, potassium and phosphorous via transpiration.
Photosynthesis once leaves open takes over provides carbs for growth.
Actions: Train onto trellis system – tuck in.
Manage canopy, keep air flow and avoid shading.
Manage vigour, bud rubbing?

FLOWERING & FRUIT SET
May-June/Nov-Dec

May-June/Nov-Dec
Flowering: Budburst to flowering 8 weeks.
Inflorescence 2-3 days.
Air Temp >17°C for uniform flowering
Fruit set: See Bloom Sequence diag.
Pollen germinates eggs in 30% of Inflorescence.
Air Temp 26-32°C
Needs warmth, sunlight, nutrients and water.
Risks: Rain, cold, wind
Cool protracts flowering – uneven ripening
Coulure: fruit set fails for large proportion of each bunch. Low yield.
Cause: low photosynthesis or water stress shut down - lack of carbs.
Unbalanced vigour, shoot growth, fertile soil.
Grenache, CS, Merlot & Malbec susceptible.
Millerandage: High proportion of seedless grapes.
Low yield, unripe low quality.
Cause: cold & wet at fruit set.
Chardonnay, Merlot susceptible.

BLOOM SEQUENCE DIAGRAM



GRAPE DEVELOPMENT
June-Sept/Dec-Mch:

Early grape growth:
Hard green berries increase in size.
Contain malic & tartaric acids, aroma precursors (Methoxypyrazines) & tannins increase.
Needs: Warmth, sunshine.
Mild water stress – beneficial higher skin to pulp ratio.
Risks: too much water & nitrogen – imbalanced growth favouring shoots, delays ripening.

GRAPE DEVELOPMENT
June-Sept/Dec-Mch:

Veraison:
Ripening begins. Grapes soften, colour changes.
Green chlorophyl breaks down to Anthocyanins in Red & Carotenoids in White.
Sugars accumulate; acidity drops.

GRAPE DEVELOPMENT
June-Sept/Dec-Mch:

Ripening:
Sugar accumulates. Shoot growth slows.
Needs: Photosynthesis 1/3 sunshine & Air Temp 18-33°C.
Acidity: Malic acid metabolised via respiration, Tartaric remains, total acid drops.
Methoxypyrazines: Levels fall if with enough sun light.
Anthocyanins: devel & increase with sunlight
Tannins: Ripen and polymerise with sunshine.
Aroma & precursors: increase e.g. Terpenes
Risks: Cloud slows ripening - insufficient sugar, malic acidity remains too high
Excess heat: rapid sugar increase (high ABV) before aroma flavours developed. Also sun burn.
Ideal in final month 16-21°C.
Length of ripening depends on: Variety, climate, vineyard management, time of harvest.

Extra Ripening:
Grapes shrivel, stop accumulation & lose water. Sugars concentrate.
Best in hot dry sunny climates to avoid rot.

Compound buds develop for next season.

LEAF FALL
Nov-Dec /May-Jun

Leaves fall.
Green shoots lignify.
Carbohydrate reserves stored.
Dormancy starts.

WanderCurtis