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Dear Customer

Marlborough Wine Grapes – soil moisture and irrigation strategy

At the time of writing the weather has been predominantly dry for the past three weeks with only 7 mm rain recorded for Blenheim since the 9th November. At this stage of the season with irrigation requirements increasing it is an excellent time to consider the soil moisture: irrigation strategy that you are using and whether it is appropriate for the growth, yield and quality goals of your vineyard.

The quality of the recommendations we provide are improved dramatically if we understand what your goals are as we can then tailor the strategy to match. Ultimately, we can set whatever strategy the grower wants, i.e. where to track between Full point (Field Capacity) and the stress point (Refill) at any point during the growing season. Many growers use a conservative strategy for Sauvignon Blanc where only a mild level of water stress is allowed. Growers of Pinot Noir tend to use a strategy with a higher level of stress. Contract growers may have different requirements to winery managed vineyards.

Which strategy should I use?

There has been a large body of work on water requirements for grape vines in Marlborough by both Plant and Food Research and Fruition Horticulture over many years.

Fruition soil moisture strategies are based on some of the original work by Mike Trought, Andrew Naylor and Murray Neal in the late 1980's. This was further refined with trial work at Nautilus Estate (Fruition Horticulture, SFF 2001-2007, Greg Dryden/Murray Neal/Jim Mercer) and Stoneleigh Estate (Plant and Food Research, Steve Green/Marc Grevan).

Our most common strategies include:

Standard

- Good moisture over flowering, maximising fruit set, maximising cane growth for current and future season.
- Drying to Refill (mild stress point) by Veraison, slows growth
- Holds soil moisture at Refill through to harvest.
- Growers likely to see some mild visual stress symptoms, especially from late February
- Yield/quality/growth objectives balanced – likely to see mix of tropical/herbaceous flavours in wine

Conservative

- Good moisture over flowering, maximising fruit set, maximising cane growth for current and future season.
- Drying to above Refill by Veraison, maintains strong canopy
- Holds soil moisture at similar point through to harvest.
- Growers unlikely to see visual stress symptoms
- Yield and growth objectives prioritised – likely to see more herbaceous ('typical Marlborough Sauv') flavours in wine

Premium Red (Also where canopy control of other varieties desired)

- Moisture allowed to dry slightly over flowering, depending on level, fruit set (yield) and growth may be lowered.

- Drying to Refill (mild stress point) by Veraison, slows growth
- Holds soil moisture at Refill through to harvest.
- Growers likely to see some mild visual stress symptoms, especially from late February.
- Quality objectives prioritised, yield may be lowered – likely to see more intense flavours in wine

There are of course, variations of the above and we can tailor our strategies to meet your needs.

There are a couple of common misconceptions around Fruition's soil moisture graphs and advice:

- *"Fruition always recommend more or (in other cases) less irrigation than I consider necessary."*
 - It is highly likely in this case that the strategy you have chosen is not delivering what you want and therefore you need to choose a different strategy, or alter key dates slightly to meet your requirements.
- *"Leaf or stem water potential (pressure bomb) readings confirm that my vines are not under water stress but the Fruition soil moisture readings indicate that I need to irrigate."*
 - Pressure bomb units have been around for many years and Fruition use one to help set refill points and cross reference to soil moisture readings. However, they only give you a snapshot in time and don't allow for the fact that if you wait until the pressure tells you to irrigate then you may well not be able to keep up, particularly if you can only irrigate for a certain number of hours per block per day. At lower pressure readings, typical at this time of the year, they cannot indicate where you are on the Readily Available Water (RAW) scale in the way that soil moisture readings can. There are also big time and weather limitations as to when pressure bomb readings can be taken. Ultimately both technologies give valid results but again the strategy that you employ from the interpretation of the data is what matters most.
- *"We applied the irrigation that was recommended and the soil moisture went up above the strategy lines"*
 - Fruition recommendations are a guide based on a complex model that utilises the site-specific soil moisture readings, rainfall, irrigation applied and evapotranspiration rates. Variations in soil types and subsequent weather conditions may well mean that the actual amounts required will vary. The service is not intended to be prescriptive, please feel free to change the amounts of irrigation you apply, you will soon see on subsequent reports the effect on soil moisture levels and crop use.

If at any time you feel that the strategy you have set is not meeting your goals for growth, yield and quality please do not hesitate to contact me to discuss setting a different set of parameters.

Yours sincerely

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