

The Challenge: Finding the right sites in a changing climate

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Pinot noir:
challenges
charms
choice (mate)

Pinot noir:
“right site”
“changing climate”
..... now the debate

“Changing Climate”:

Debate the future:

Define the past:

Define the past: (BOM)

- +1°C since 1910
- Increased frequency of extreme heat
- Increase in fire weather
- Lower winter rainfall = drier soils = earlier budbreak and more frosts
- More compound weather events

Predict the future: (BOM)

- Further increase in temperature
 - More days of extreme heat
- More droughts
- Increase in fire weather
- More intense heavy rain
- Less tropical cyclones

So the future for Pinot noir?

- Need to find cooler sites

Basic physics for getting cooler

- 10° southern slope to counter 1 °C warmer climate
- 100 m **higher** = 1°C cooler
- **Wet soils** cooler and less frost

“Right Site”: Debating the definition

- ***Meso-climate*** of:
temperature
rainfall
- ***Soil***:
some fines and water holding
- ***Water***:
volume and quality

“Right Site”: DJ additional thoughts

Proximity to Eucalyptus:

Smoke taint:

Meso-climate:

Temperature:

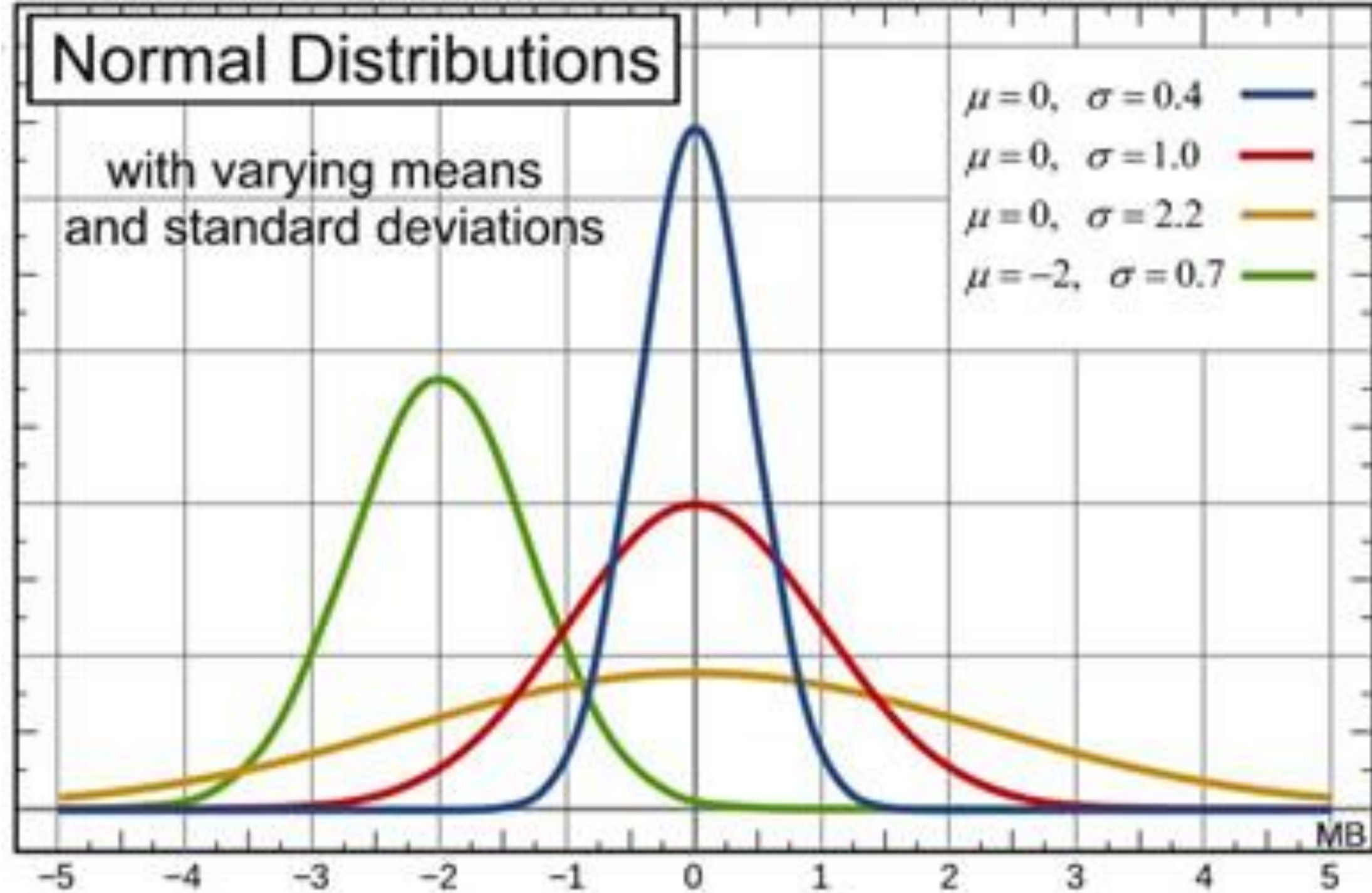
- GDD
- Average temperature of January
- Homo-climes



Normal Distributions

with varying means
and standard deviations

- $\mu = 0, \sigma = 0.4$ — blue line
- $\mu = 0, \sigma = 1.0$ — red line
- $\mu = 0, \sigma = 2.2$ — yellow line
- $\mu = -2, \sigma = 0.7$ — green line



Scientific measures have limitations:

- *And the alternative approach?*

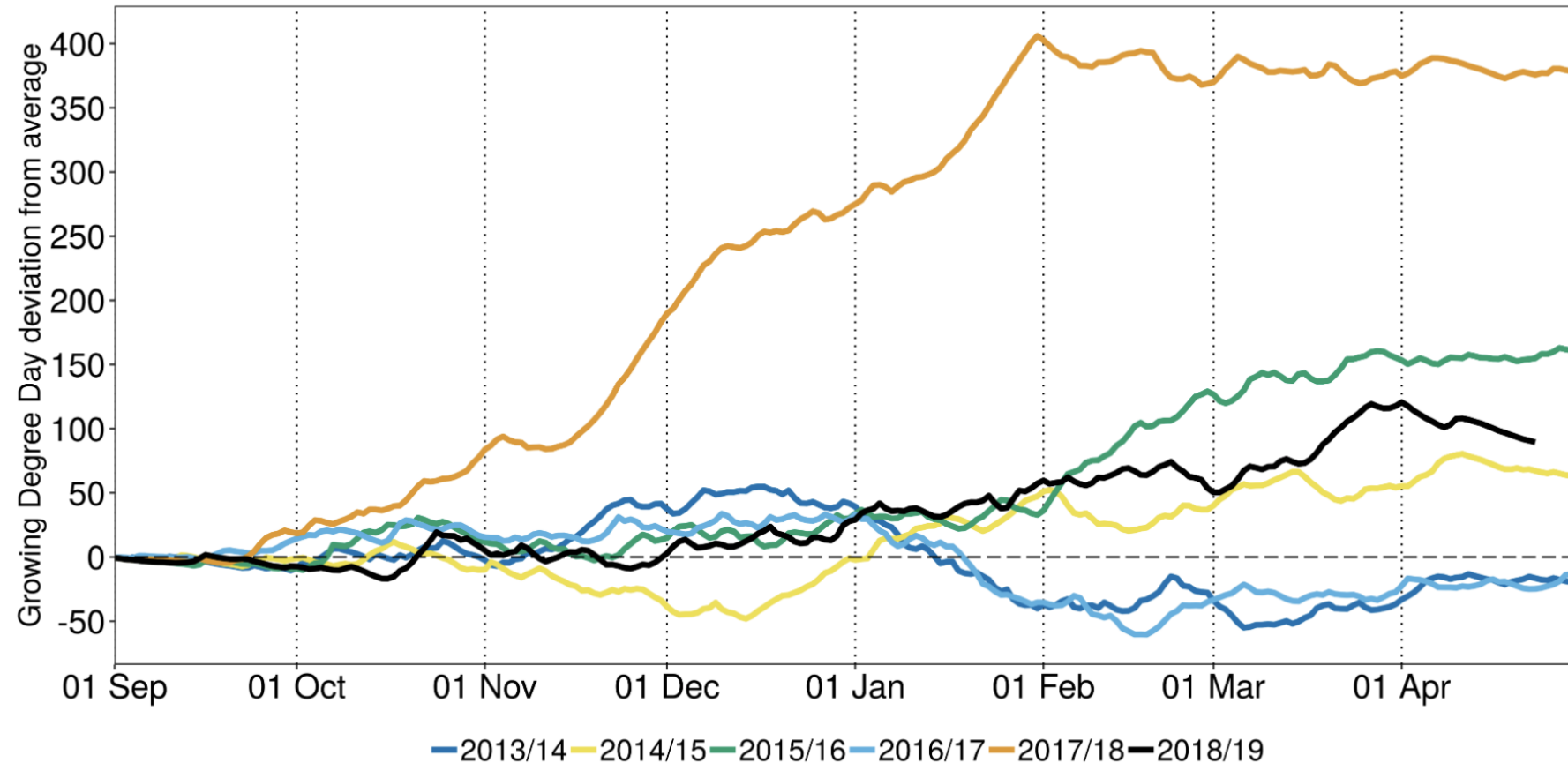


Grapevine is the “Ultimate Integrator”

- Integrates all aspects of the site
 - Expresses in phenology
 - **Grape Ripening** the key indicator.
- So look at premium Pinot noir and review ripening dates
 - Map these to guide preferred sites

In New Zealand we have the data

- VineFacts published weekly during the growing season



2014-15



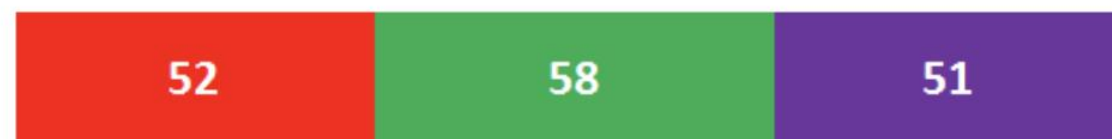
2015-16



2016-17



2017-18



2018-19



Sep

Oct

Nov

Dec

Jan

Feb

Mar

Apr

May

■ 50% Budburst to 50% Flowering

■ 50% Flowering to 8 °Brix

■ 8 °Brix to 21.5 °Brix

Central Otago: 2018 vs 2019

230 GDD higher in 2018 = Harvest 22 days earlier

NB – some extra hangtime in 2018

This equal to about 2 °C warming



Premium Pinot noir: Ripening Dates

- **Central Otago: Felton Road**

- Earliest: 28 February
- Latest: 23 April
- Typical: 4 April

- **Martinborough: Ata Rangi**

- Earliest: 7 March
- Latest: 13 April
- Typical: 25 March

- **Marlborough: Brancott**

- Earliest: 7 March
- Latest: 30 March
- Typical: 23 March

Premium Pinot noir: Ripening Dates

- **Burgundy: DRC**
 - Earliest: 3 March
 - Latest: 13 April
 - Typical: 20 March
- **Oregon: Beaux Freres**
 - Earliest: 9 March
 - Latest: 30 March
 - Typical: 16 March

Premium Pinot noir: Ripening Dates

- **Yarra Warm Areas:**

- Earliest: 5 February
- Latest: 15 March
- Typical: 25 February

- **Yarra Cool Areas**

- Earliest: 5 March
- Latest: 15 April
- Typical: 26 March

- Note – 300 m elevation difference

Premium Pinot noir: Ripening Dates

- **Mornington Peninsula Warm Areas:**

- Earliest: 14 February
- Latest: 5 March
- Typical: 26 February

- **Mornington Peninsula Cool Areas**

- Earliest: 5 March
- Latest: 15 April
- Typical: 15 March

- Note: 100 m elevation difference

Premium Pinot noir: Ripening Dates

- **Orange Warm Areas:**

- Earliest: 16 February
- Latest: 3 March
- Typical: 23 February

- **Orange Cool Areas:**

- Earliest: 3 March
- Latest: 29 March
- Typical: 16 March

- Note: 250 m elevation difference – but different slope

Premium Pinot noir: Ripening Dates

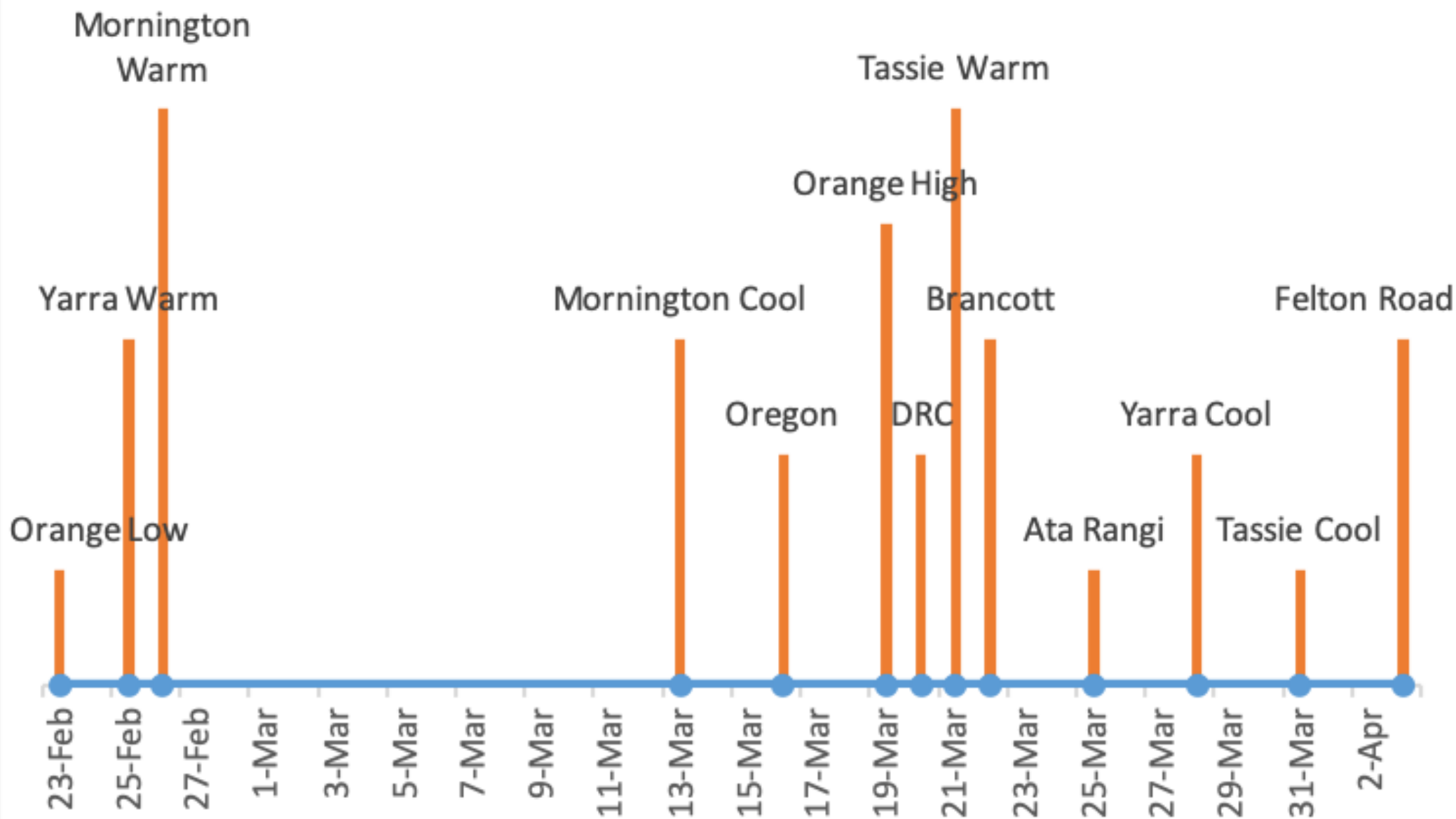
- **Tasmania Warm Areas:**

- Earliest: 7 March
- Latest: 2 April
- Typical: 21 March

- **Tasmania Cool Areas:**

- Earliest: 18 March
- Latest: 12 April
- Typical: 31 March

Typical Harvest Date



Sweet Spot to Ripen Pinot noir

Late March/Early April

Action Plan

- No need to rush
- Collate vine information from Pinot noir in a range of locations:
 - Base phenology and timing of ripening
- Extrapolate and incorporate elevation and slope in consideration
 - Do not forget soil/drainage/supply of irrigation water
- Take a commercial life (30 years) and pitch the ideal ripening at year 20?
 - 1 °C warmer then?
- Explore via Google Earth for small pockets of Pinot noir goodness

Pinot noir in Australia: Getting Future Ready

- Leading Pinot noir sites **too warm** and going to **get warmer**
- **Elevation** is your friend
- **Head south**
- Potential moderation from coastal locations
- Manage slope and aspect to create ideal meso-climate and provide diversity
- Gather data on Pinot vines to help guide your future – they are the best integrator of all aspects of the site

