Severe trimming and enhanced competition of laterals as a tool to delay ripening in Tempranillo vineyards under semiarid conditions

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Need to adapt grape growing to climate change

Sacharymetric and phenolic maturity are gettng decoupled

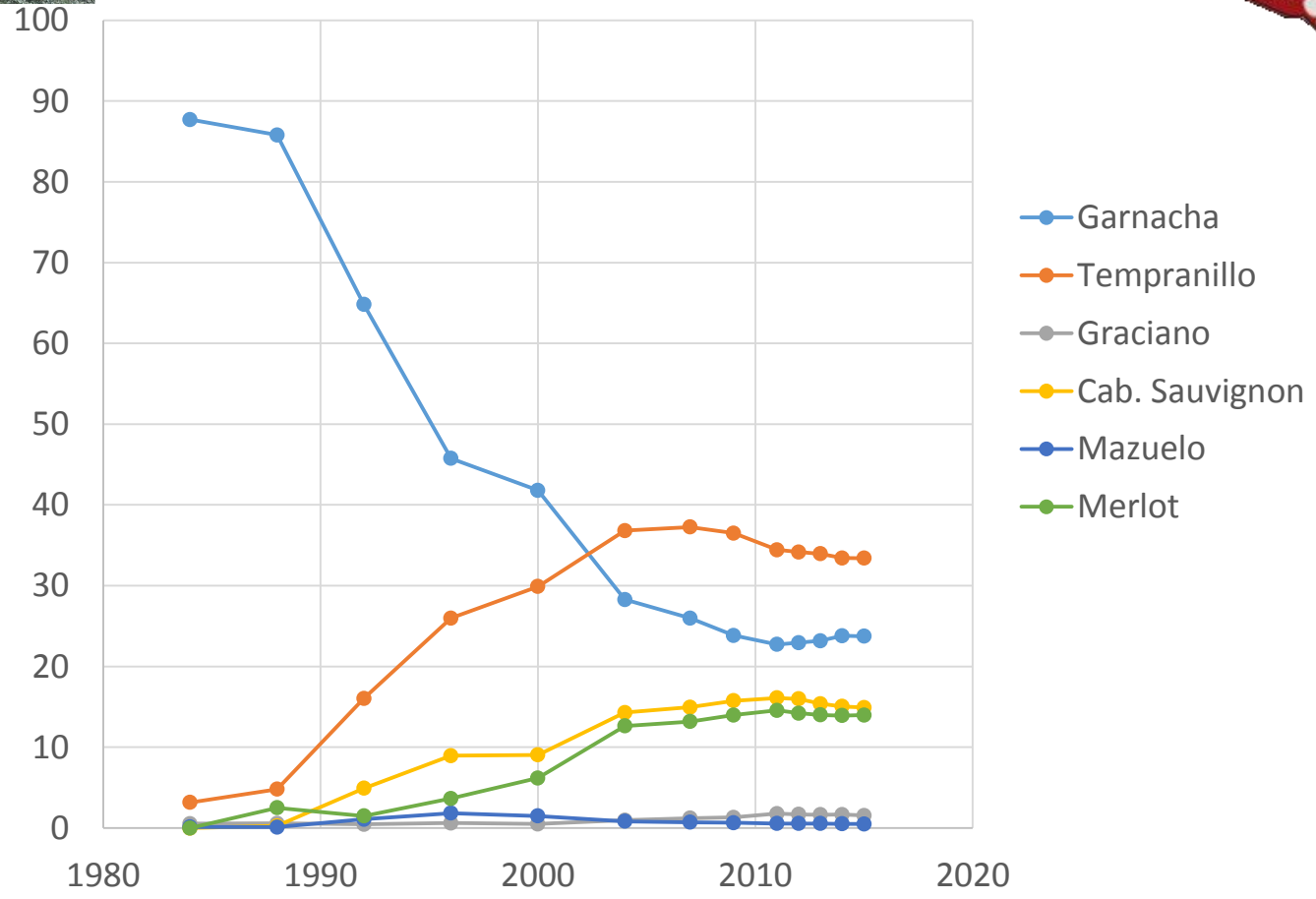
Grape growing may not be feasible at some places


But… What did we do during the last years!!??

- We changed varieties

- We changed varieties

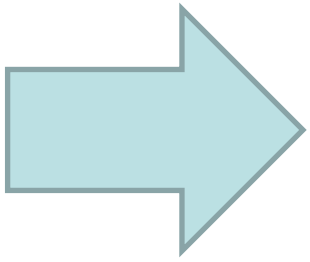
Evolution of acreage per variety in Navarra (1984-2015)



- We changed varieties
- We changed the training system

- We changed varieties
- We changed the training system
- We changed the soil

Poor
Deep
gravely
soils



Richer
Shalower
more
clayish soils

- We changed varieties
- We changed the training system
- We changed the soil

We made our vineyards more vulnerable to current and to future climate

Severe trimming + enhanced growth of laterals in Tempranillo

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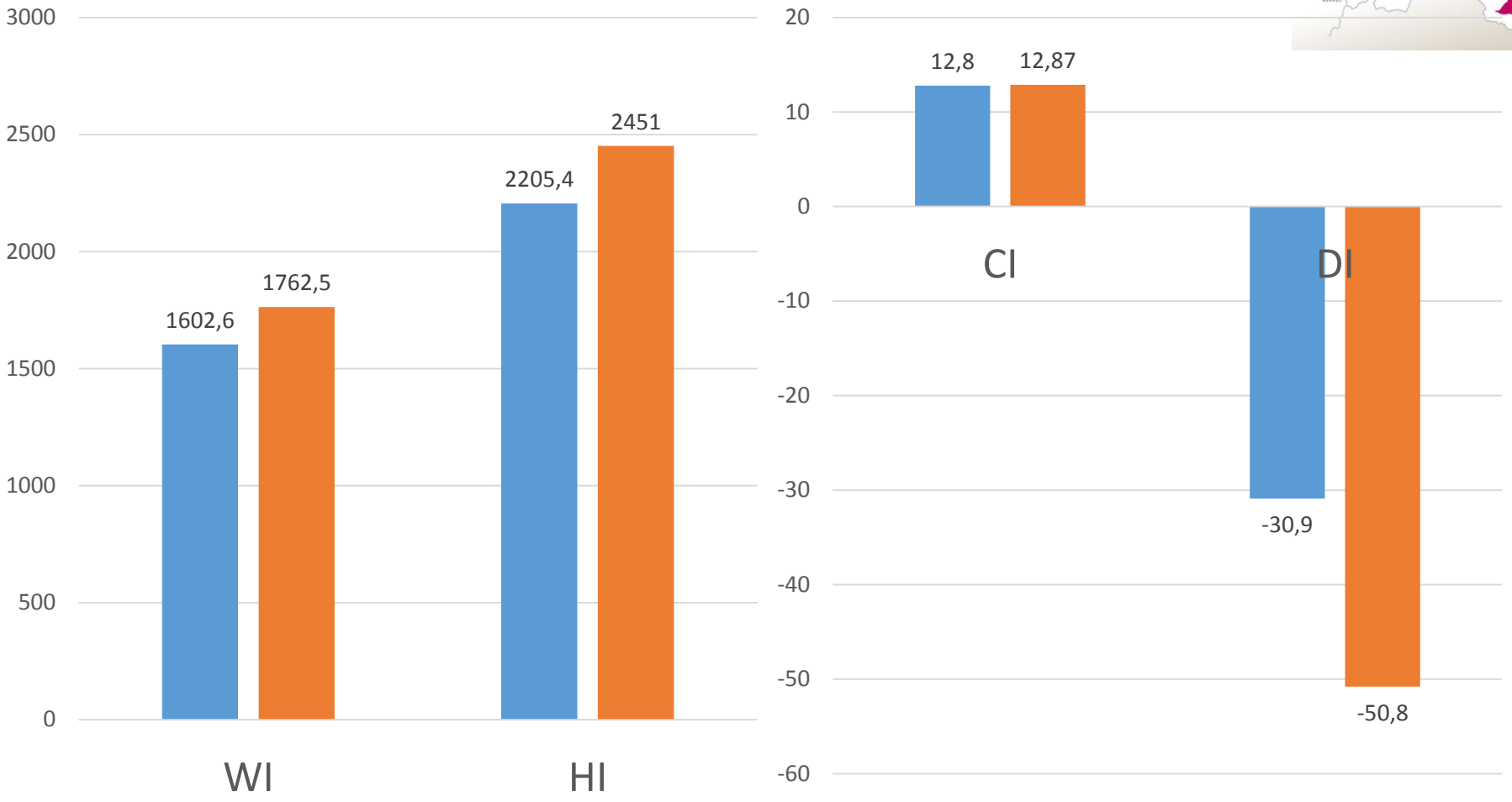
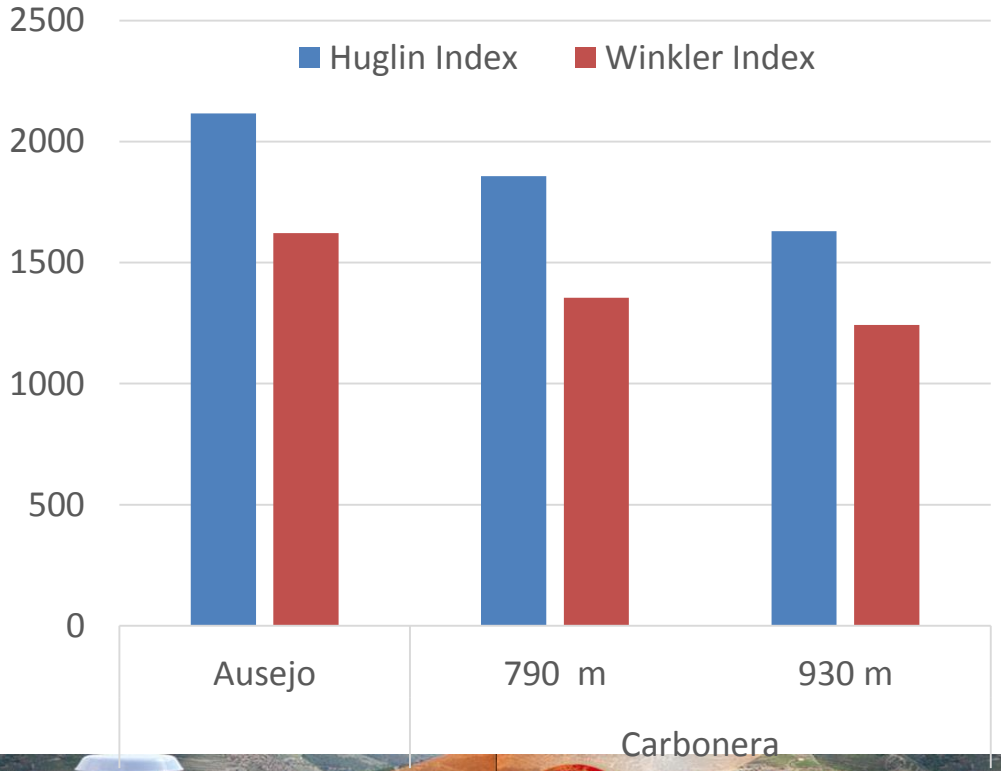
D.O.Ca. Rioja

Agoncillo weather station



And now… What are you doing?

- Certain shift to traditional and autochtounous varieties
- Wider use of Graciano (high acidity) in the blends
- Moving the vineyards into higher altitudes



- Certain shift to traditional and autochtounous varieties
- Wider use of Graciano (high acidity) in the blends
- Moving the vineyards to higher altitudes
- Canopy management

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- Wider use of Graciano (high ac
- Moving the vineyards to higher
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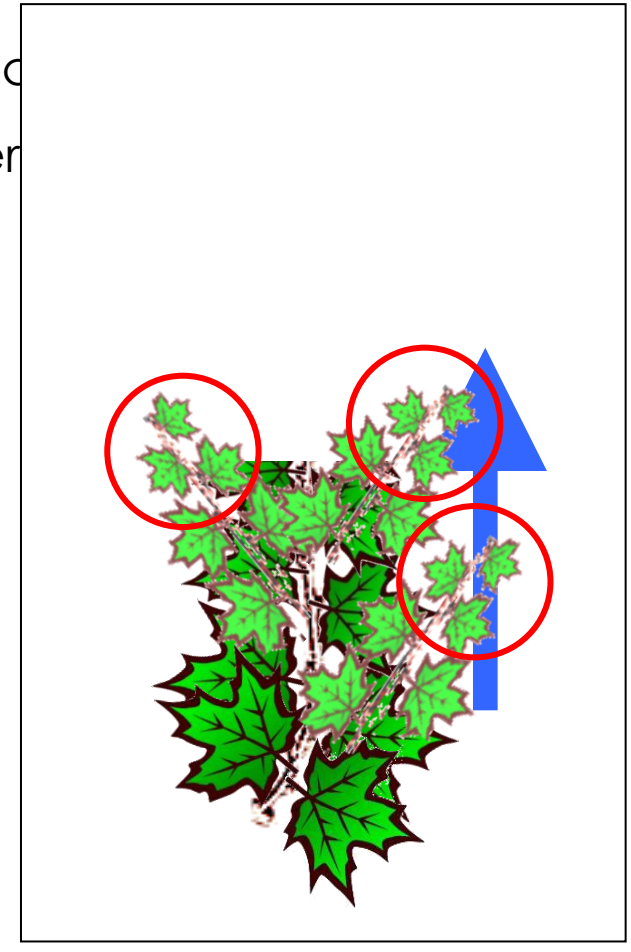
Severe trimming and enhanced competition of laterals



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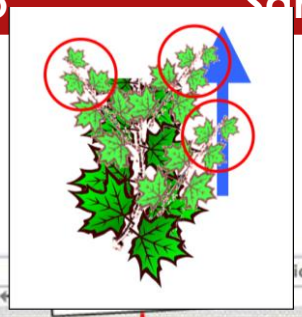

- cv. Tempranillo/110 R
- VSP bilateral cordon
- 2014 and 2015 (continued this season)

Severe trimming at peasize
Increased irrigation during the following 4 weeks

F48

F2

Testigo (Filas 2-4; 14-16; 26-30; 37-39; 46-48)

Despunte + R1 (Filas 5-7; 17-19)

Despunte + R2 (Filas 8-10; 20-22)

Despunte + R3 (Filas 11-13; 23-25)

NO recoger cara Oeste (Filas 31-33; 40-42)

Espaldera inclinada (Filas 34-36; 43-45)

in the context of climate change Bordeaux

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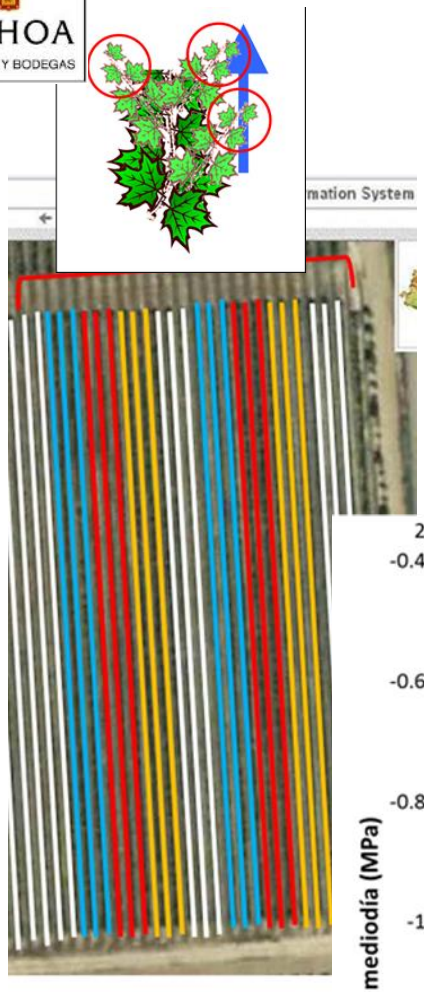


Control

Trimmed R1

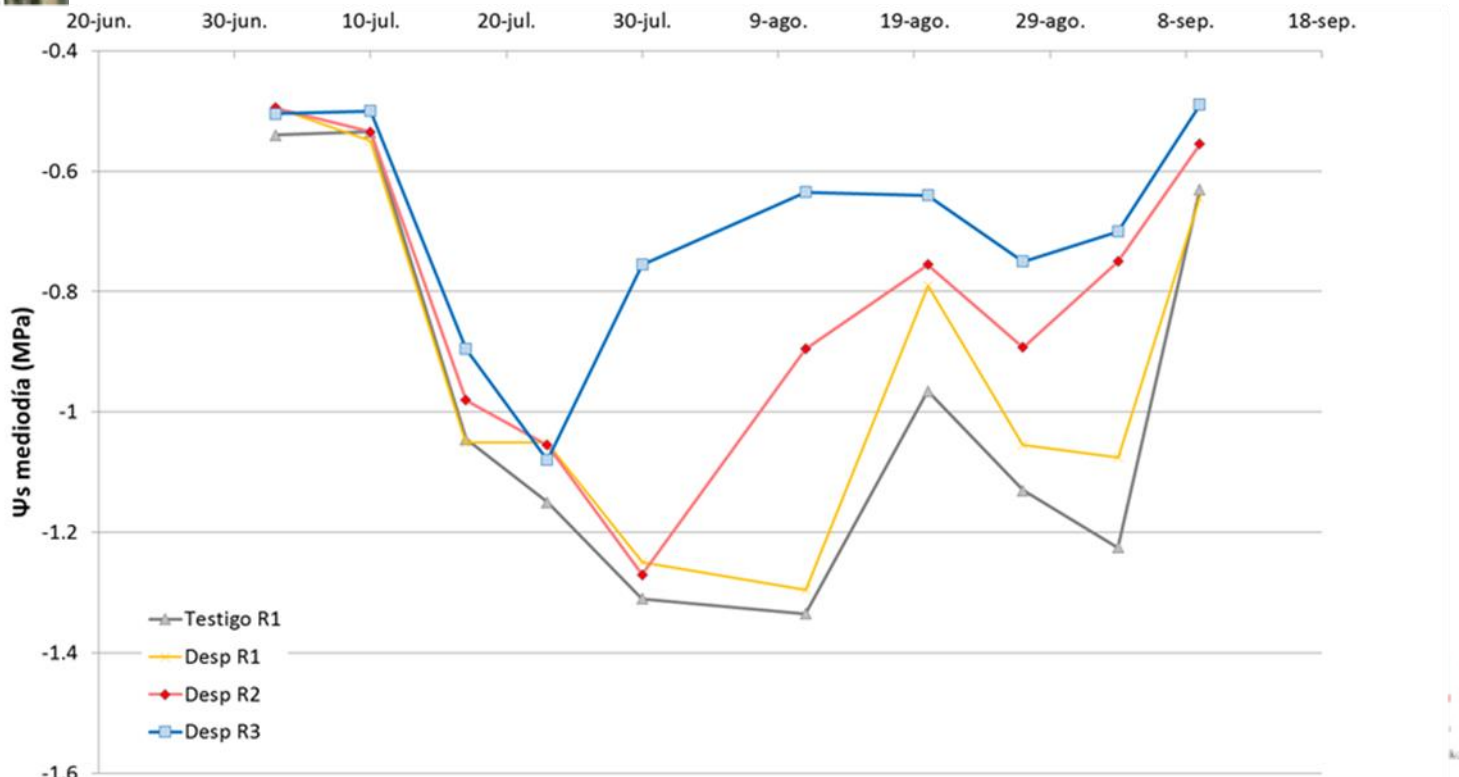
Trimmed R2

Trimmed R3

Equal irrigation

Double irrigation

Triple irrigation



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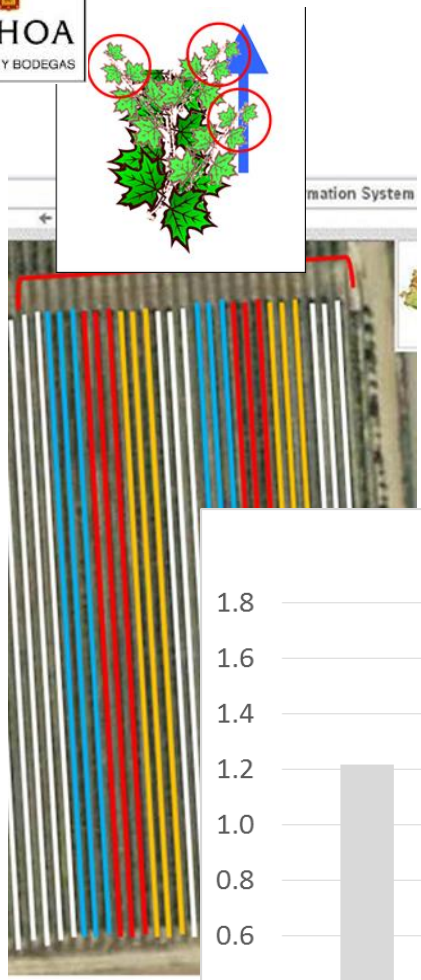

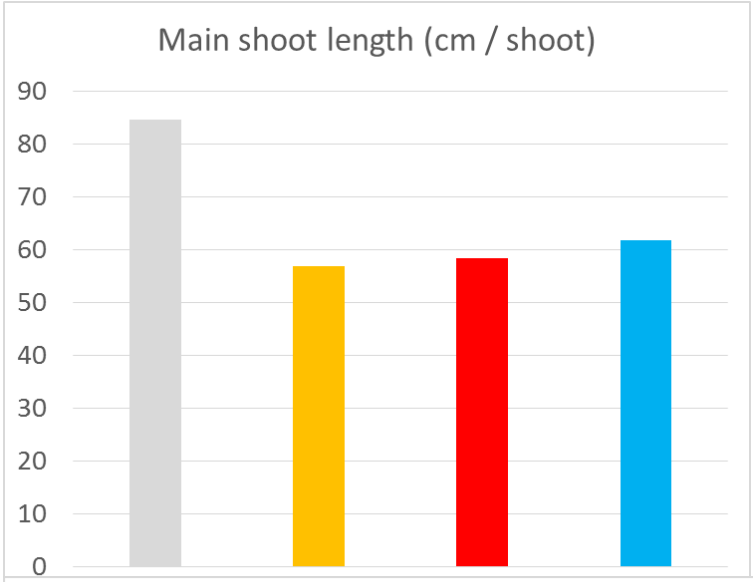

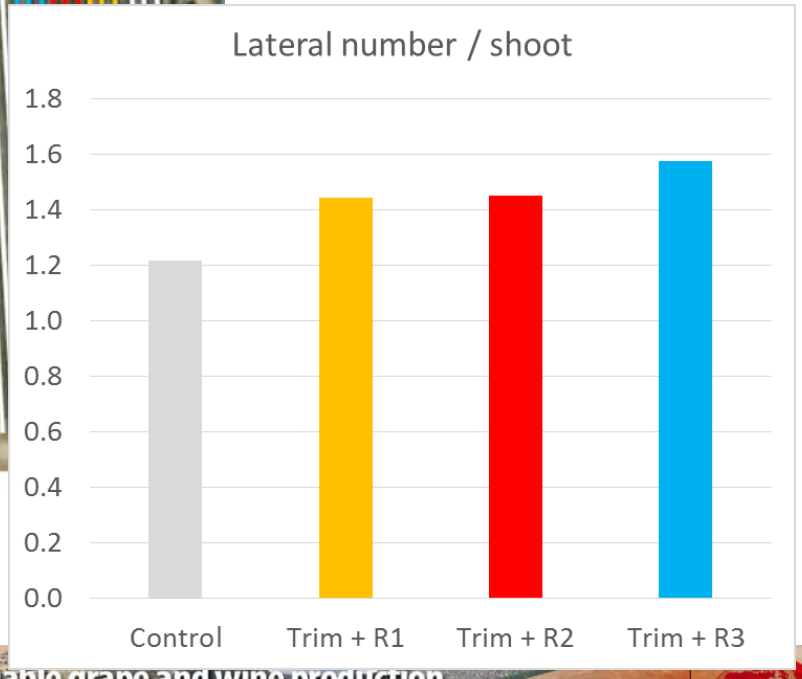

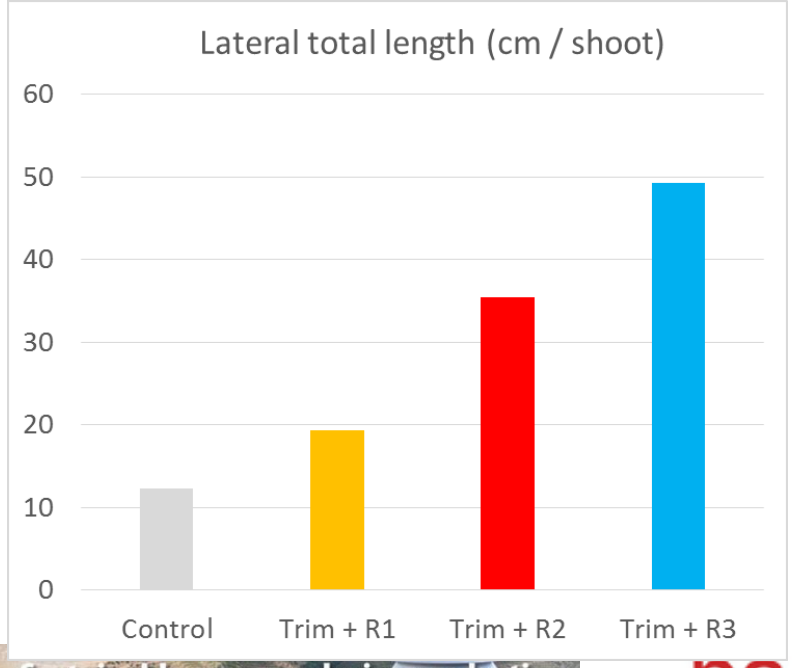

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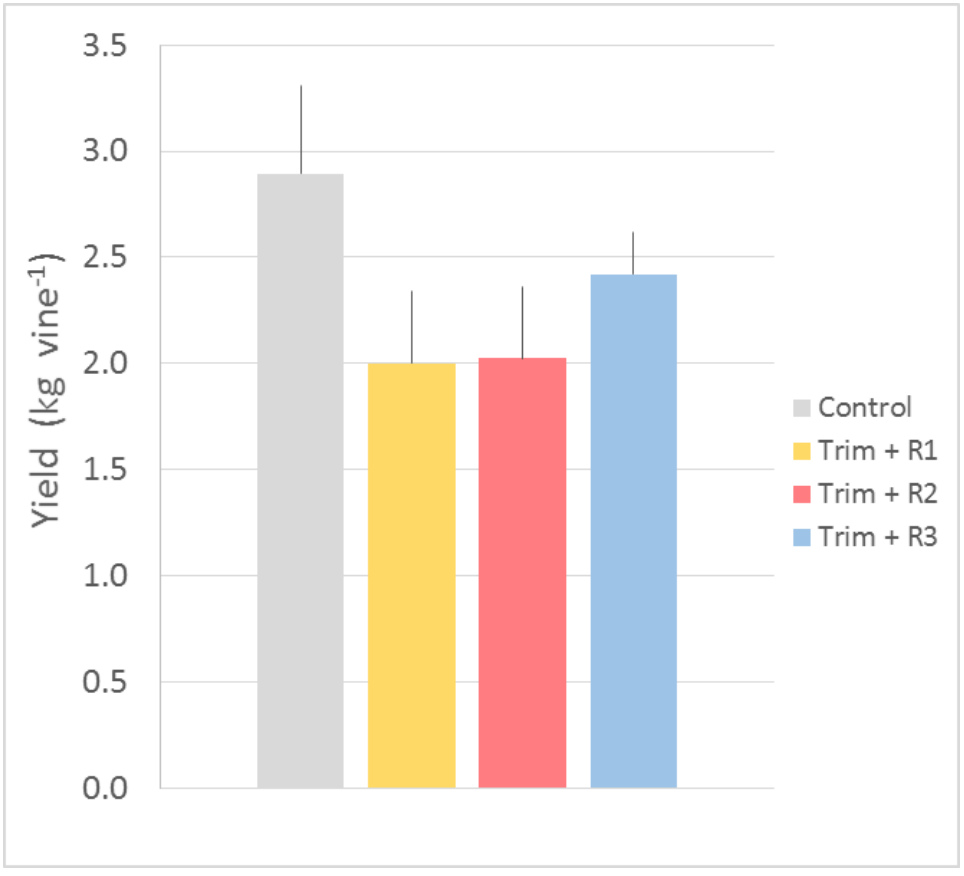
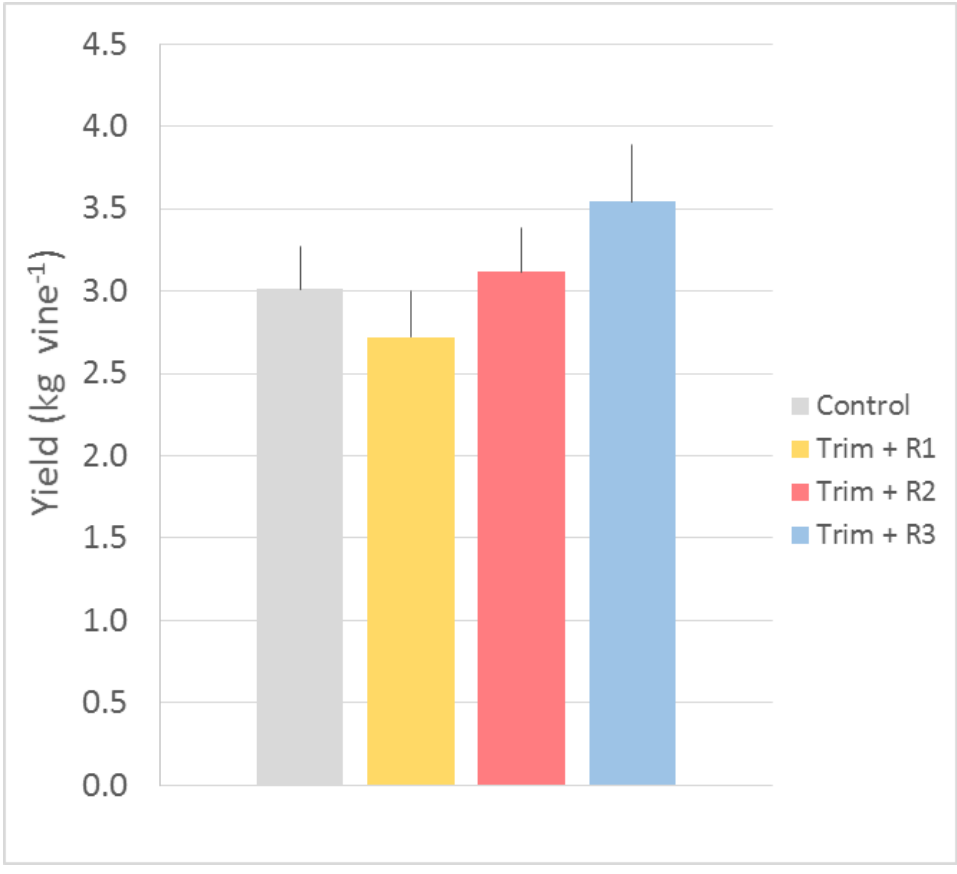
Yield

2014



2015



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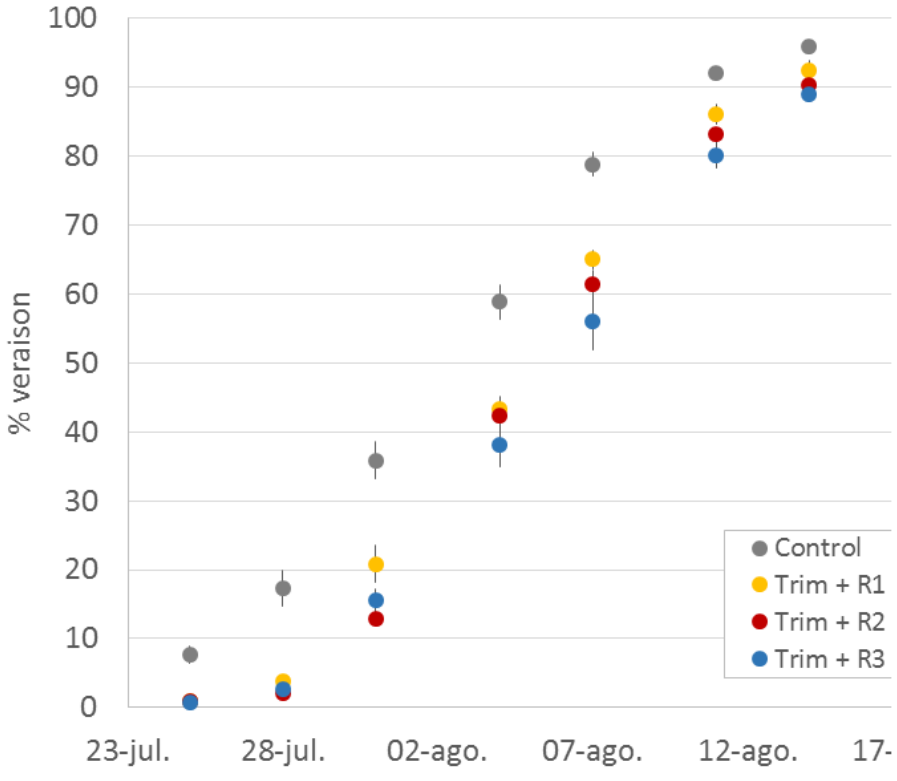
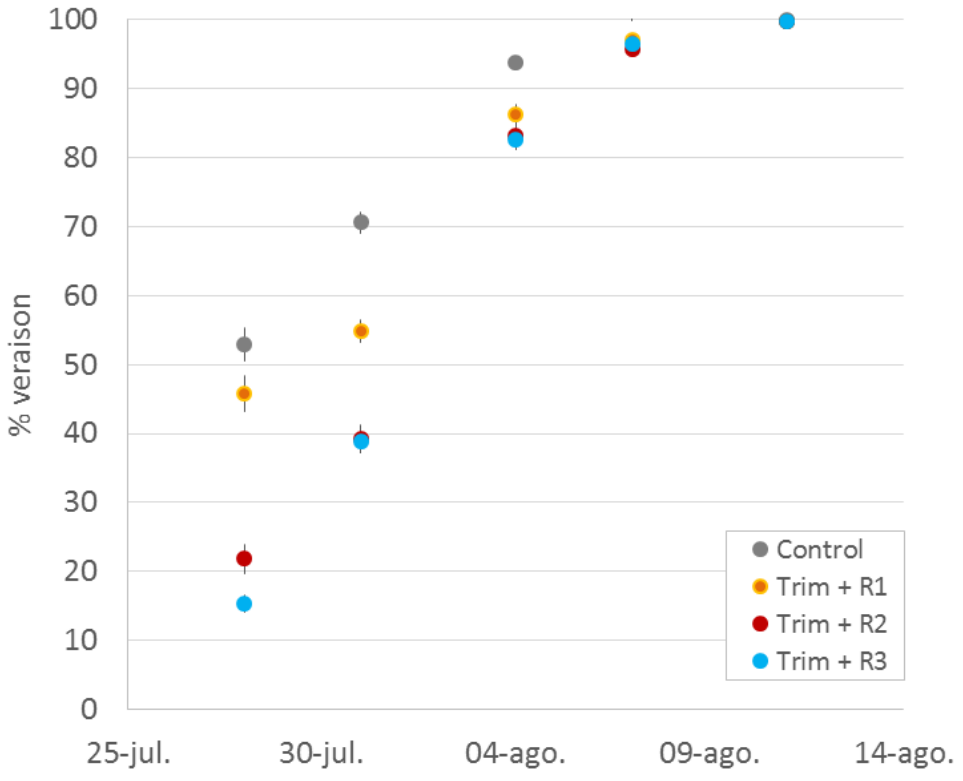
Veraison

2014



2015



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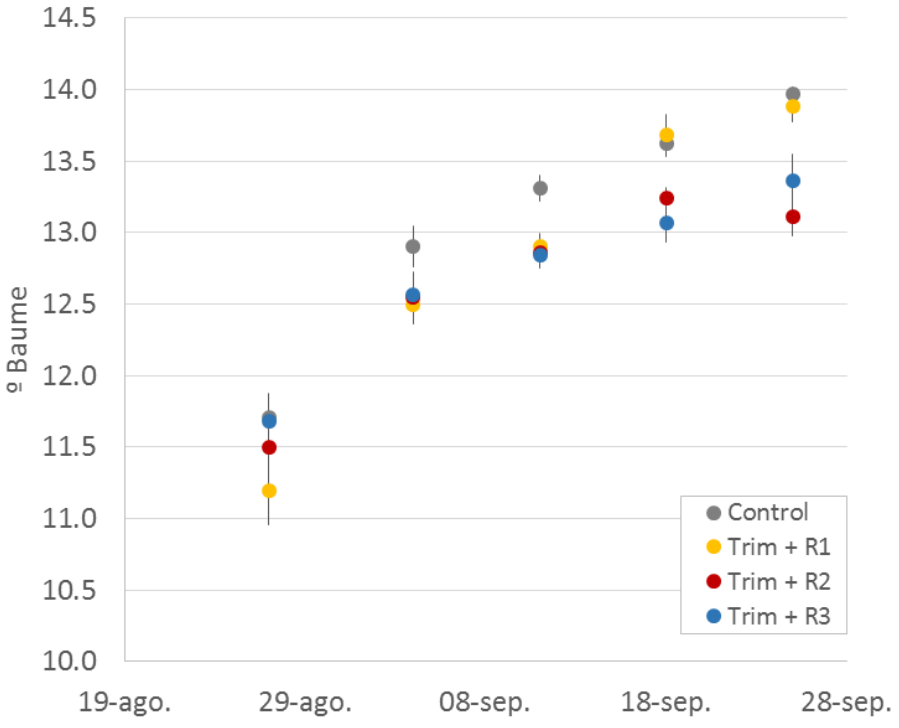
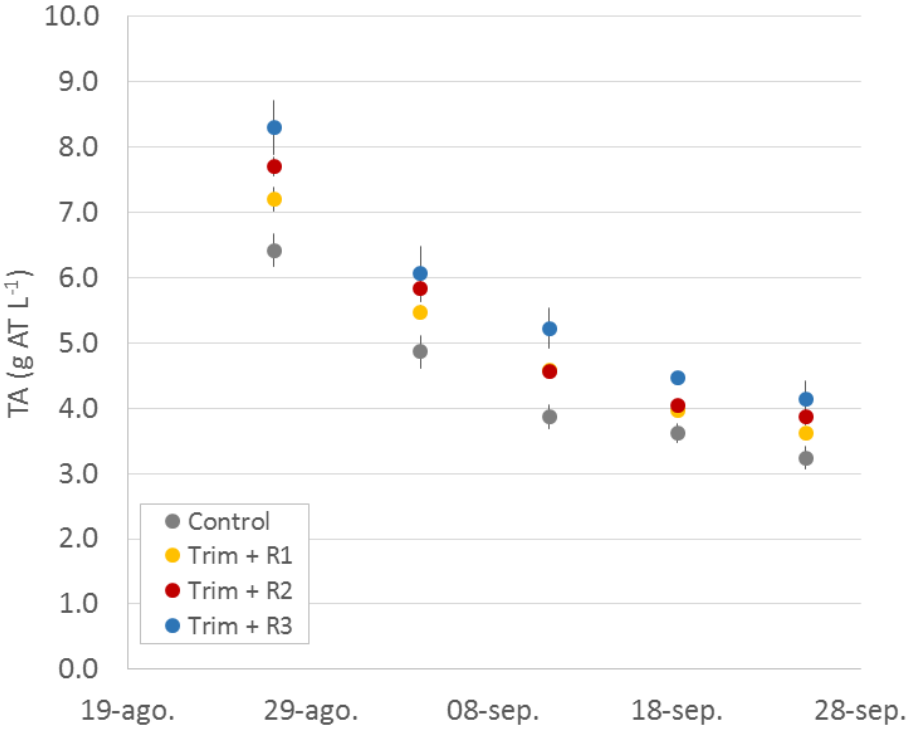
Ripening 2014

TSS



Total acidity



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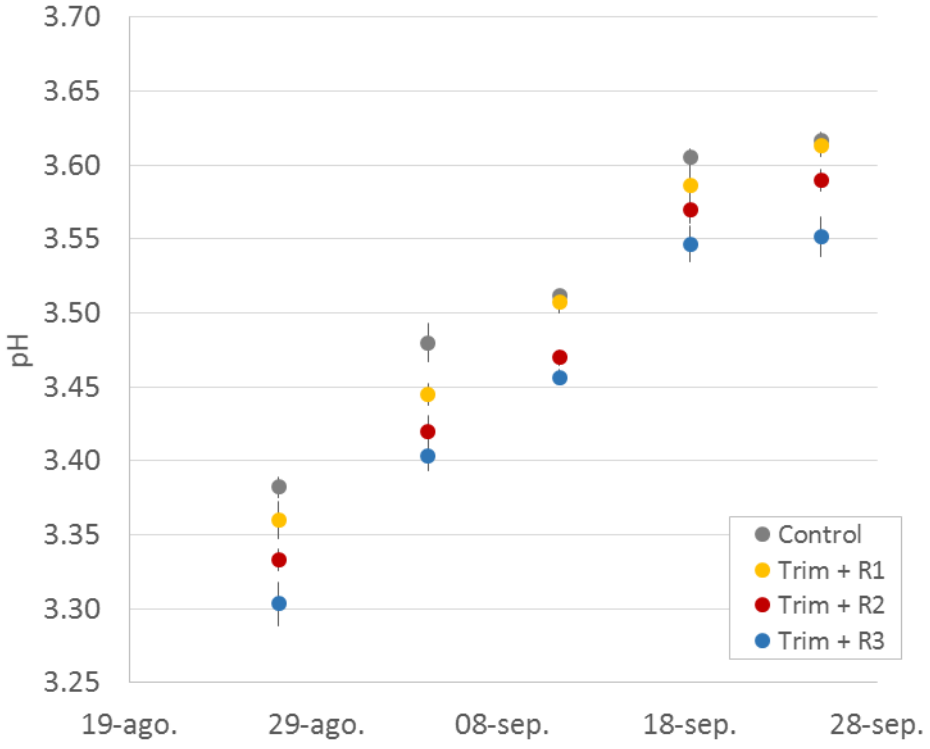
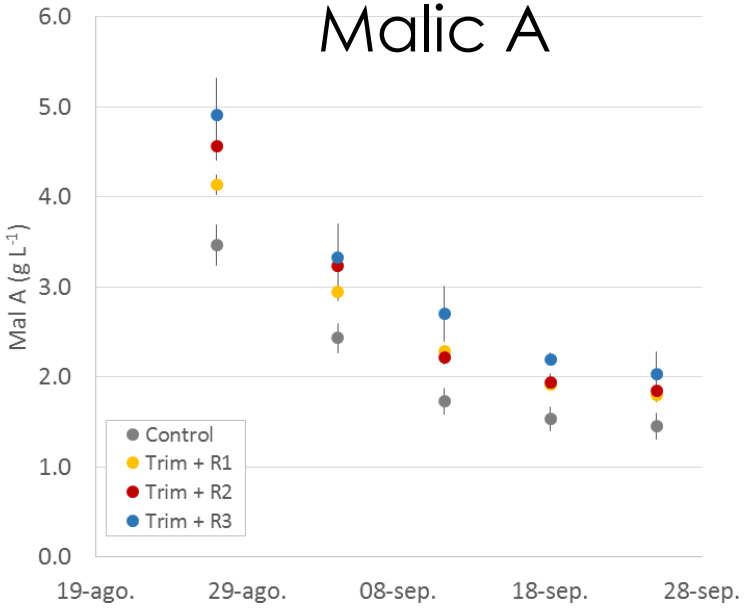
Ripening 2014

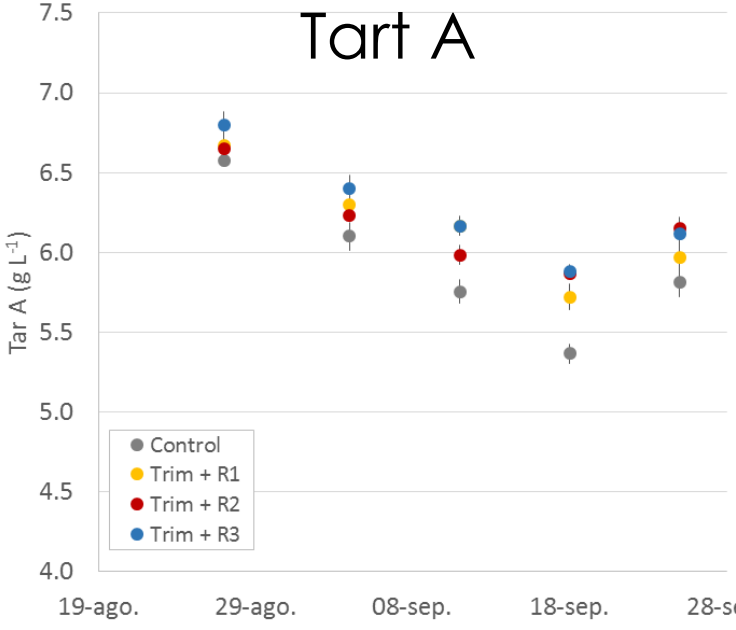
pH



Malic A



Tart A



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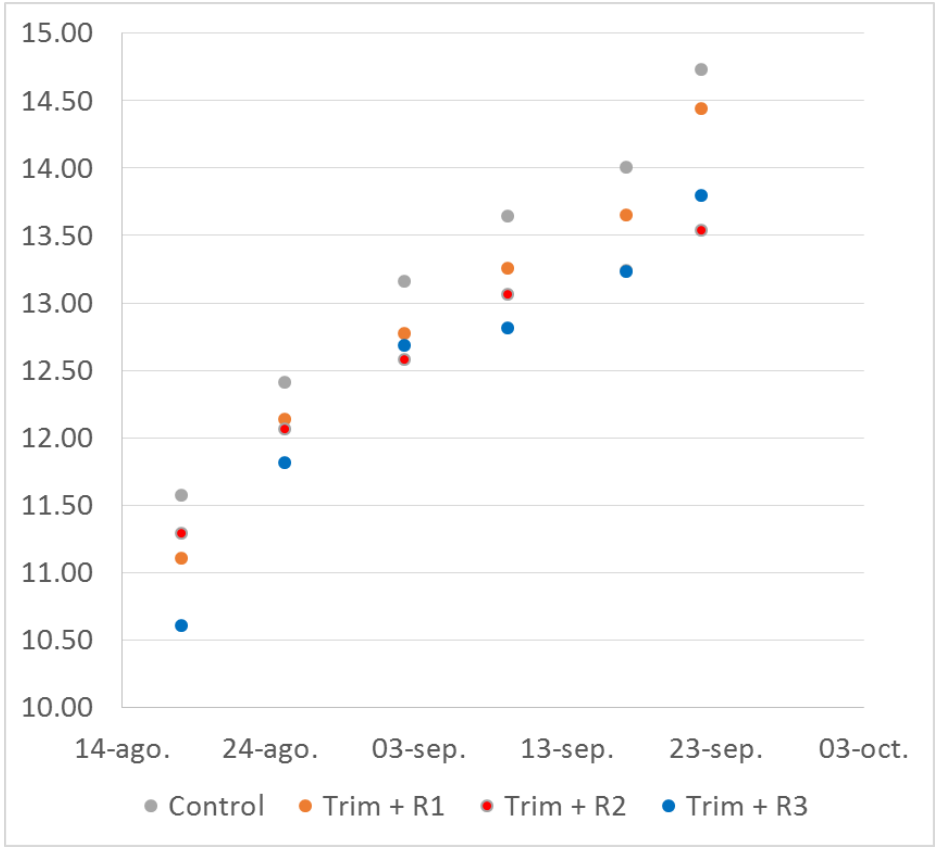
Ripening 2015

TSS



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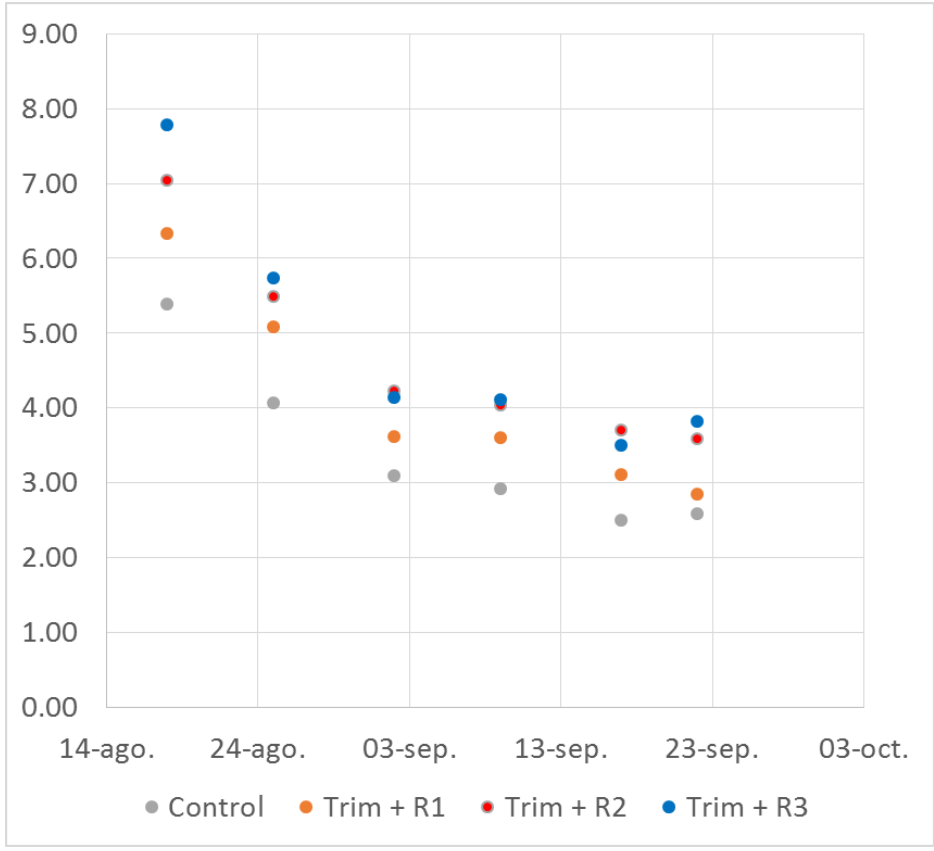

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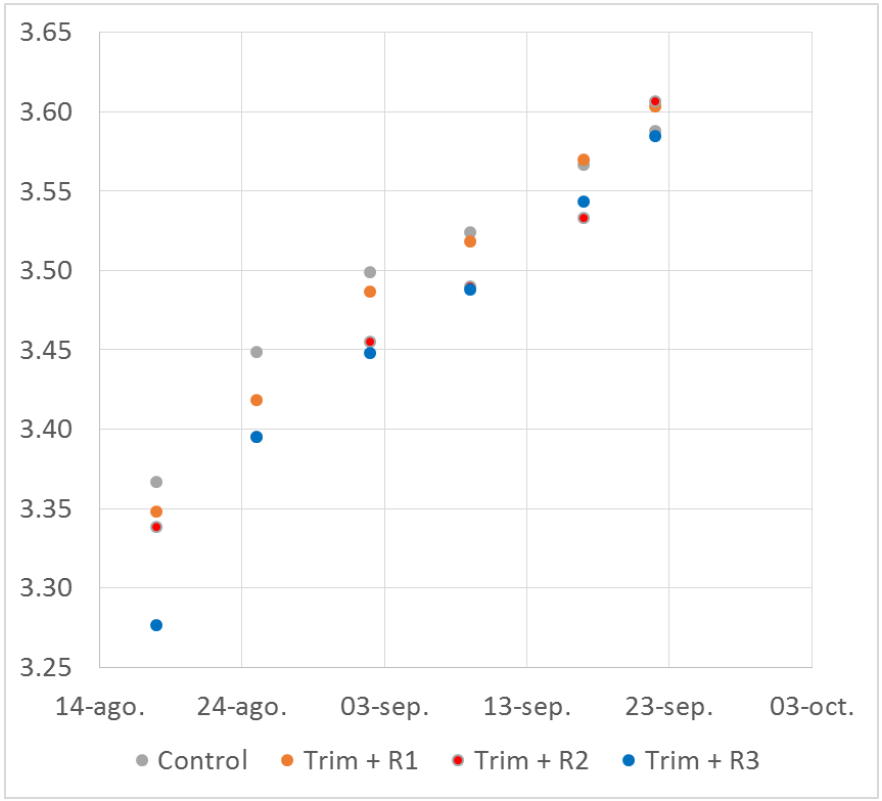
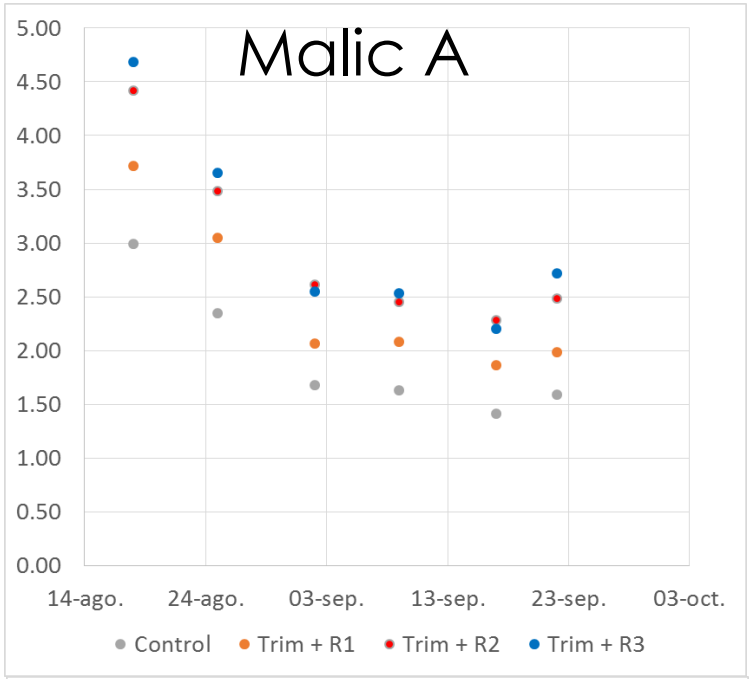
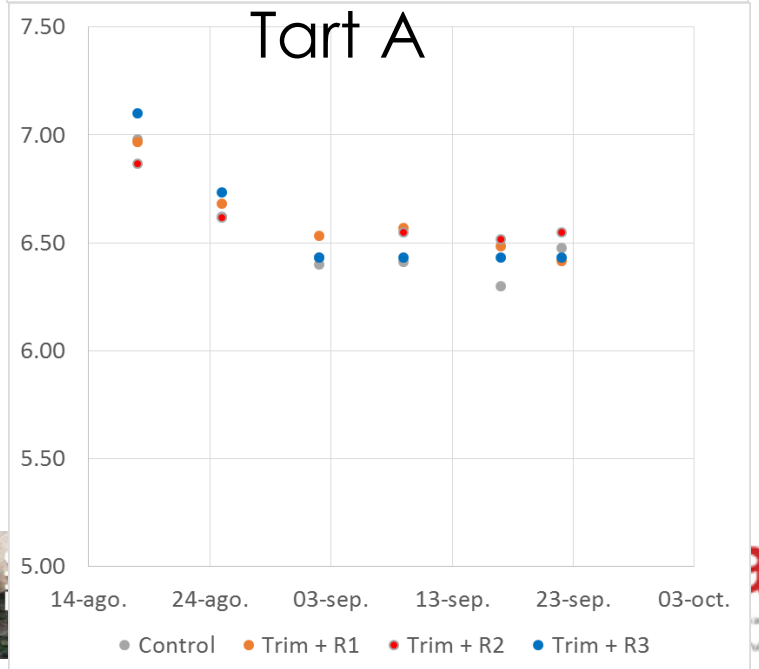
Ripening 2015

pH







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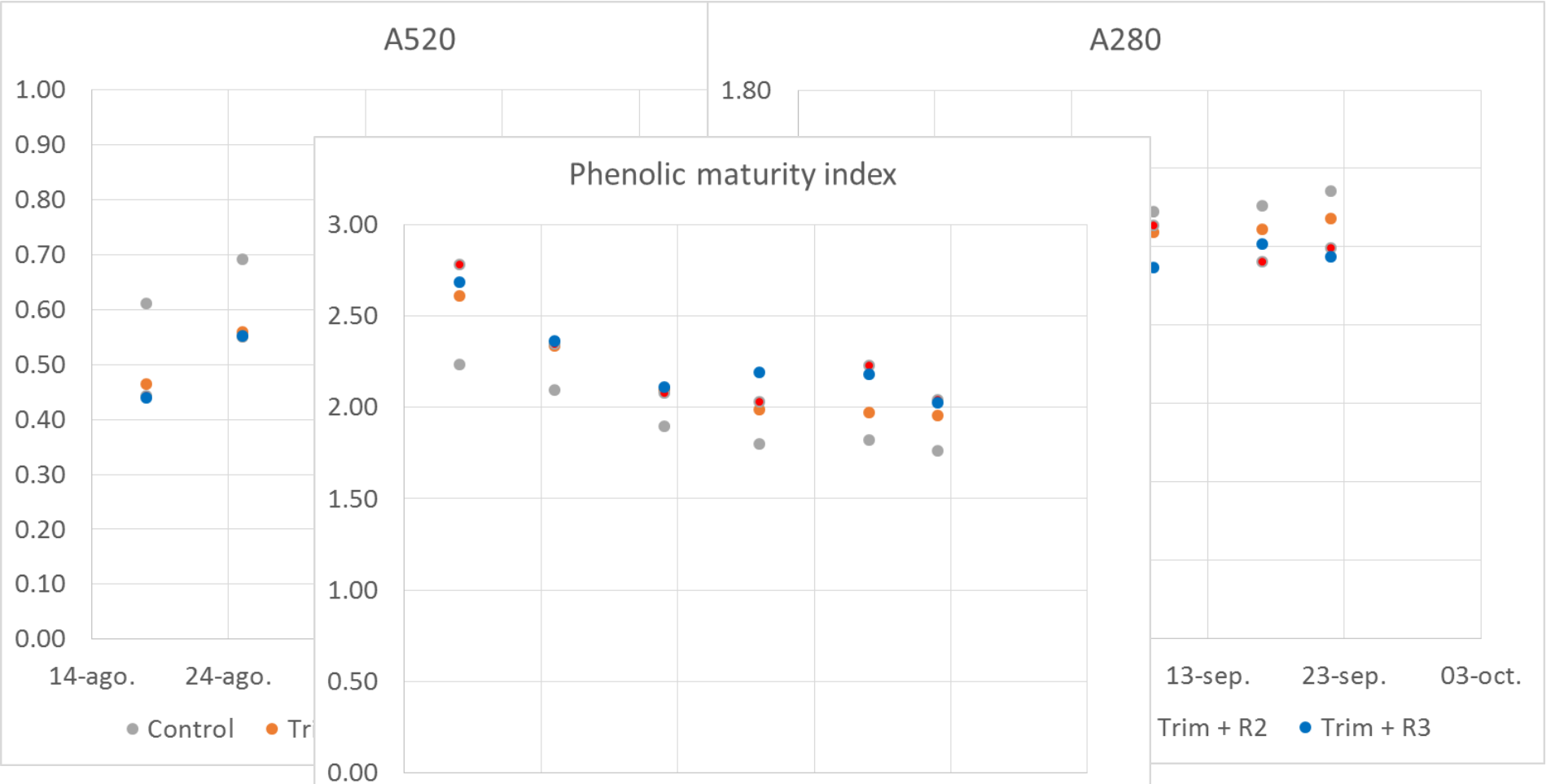
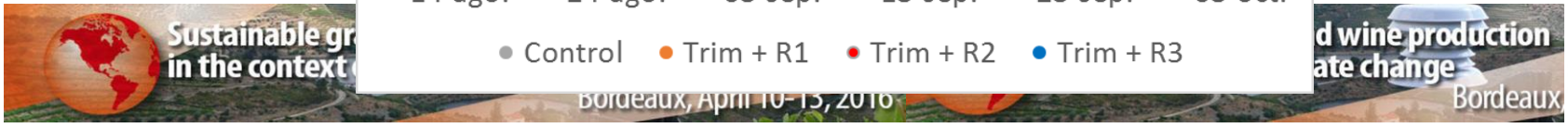
Anthocyanins and phenolics

2015





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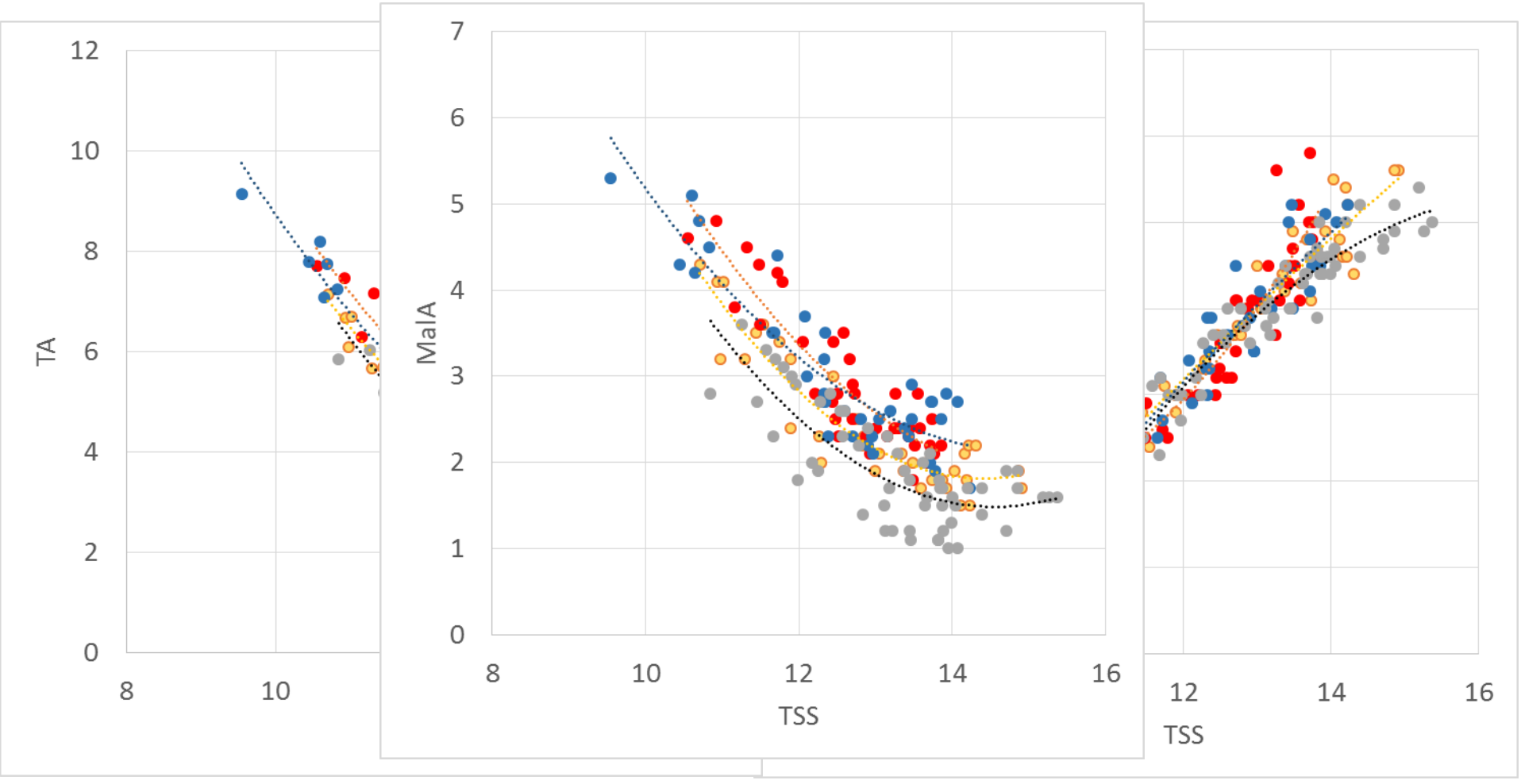
What's going on?

2015



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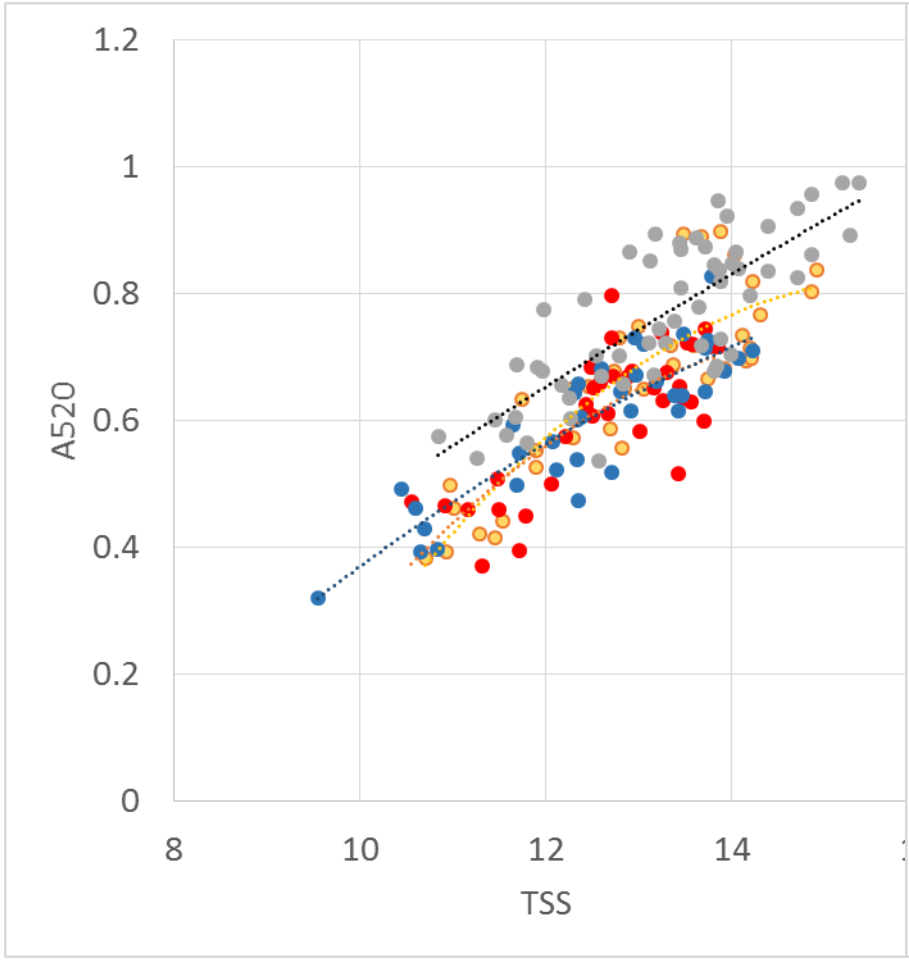
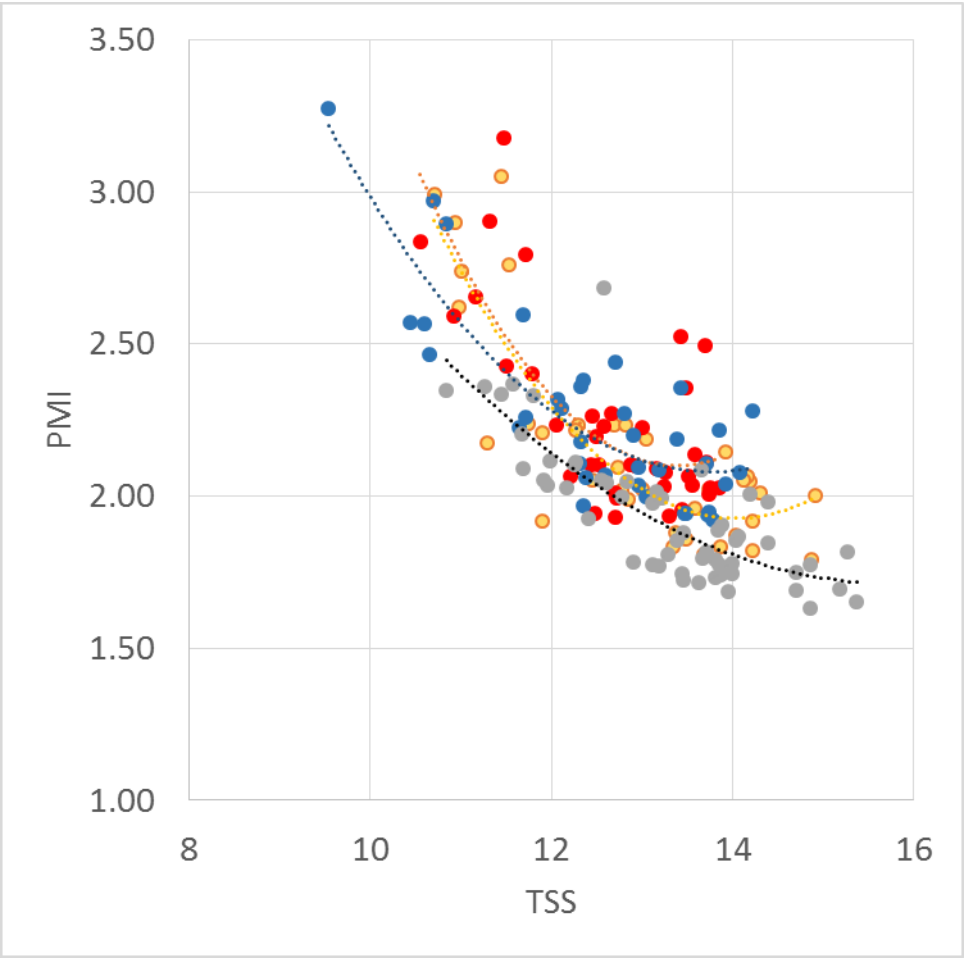
What's going on?

2015





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2015

What's going on?

+ We managed to delay ripening for 7-10 days

+ The delay in ripening implied additionally higher acidity

+ The delay in ripening did not result in improved anthocyanin synthesis (rather on the contrary)

+ We still need to understand the implications of the delay on wine quality, since ripening will end at cooler conditions

An experiement at winery scale
(10,000 L tanks)
will be perfromed this year

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