Climate change in UK wine production

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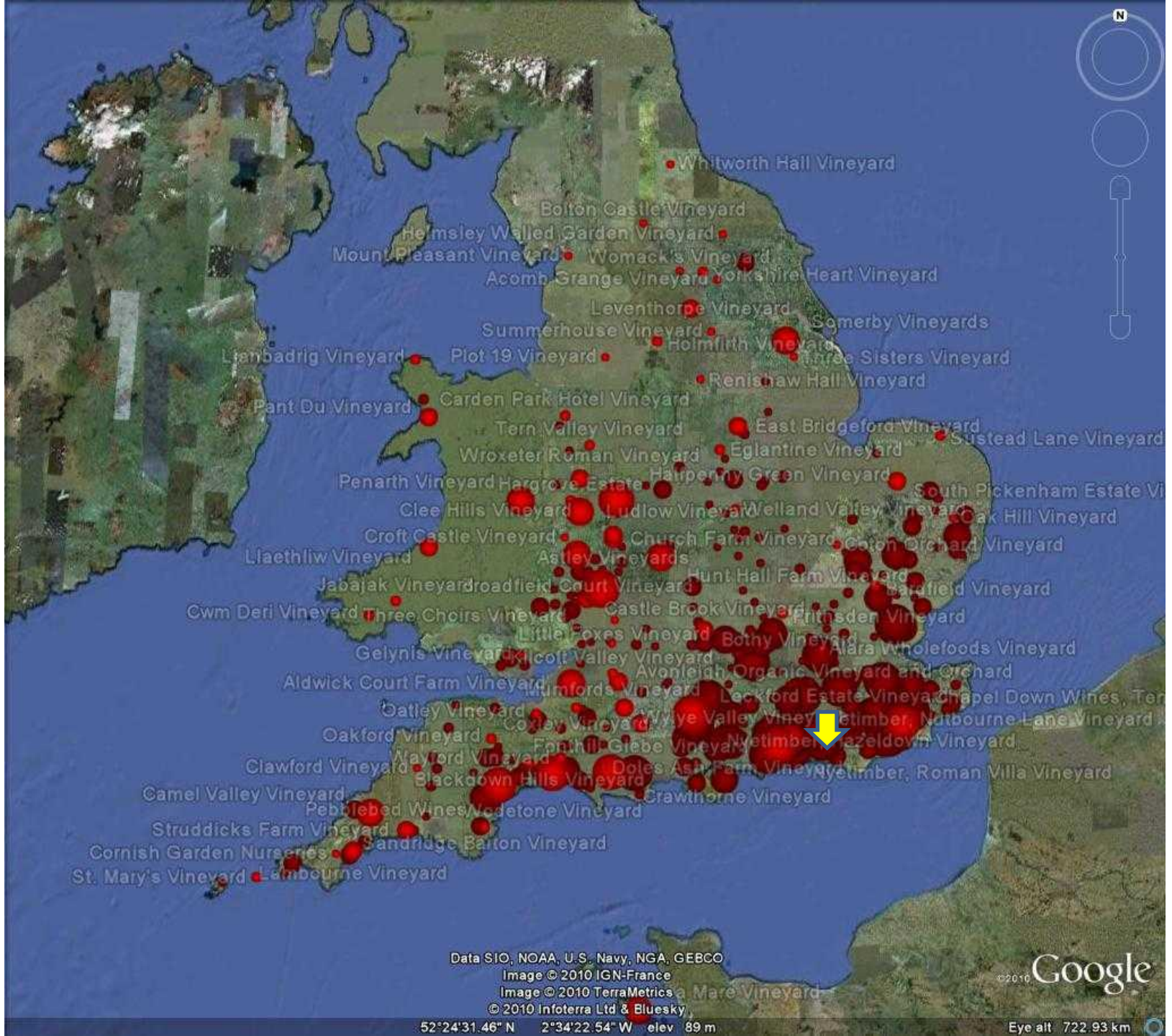
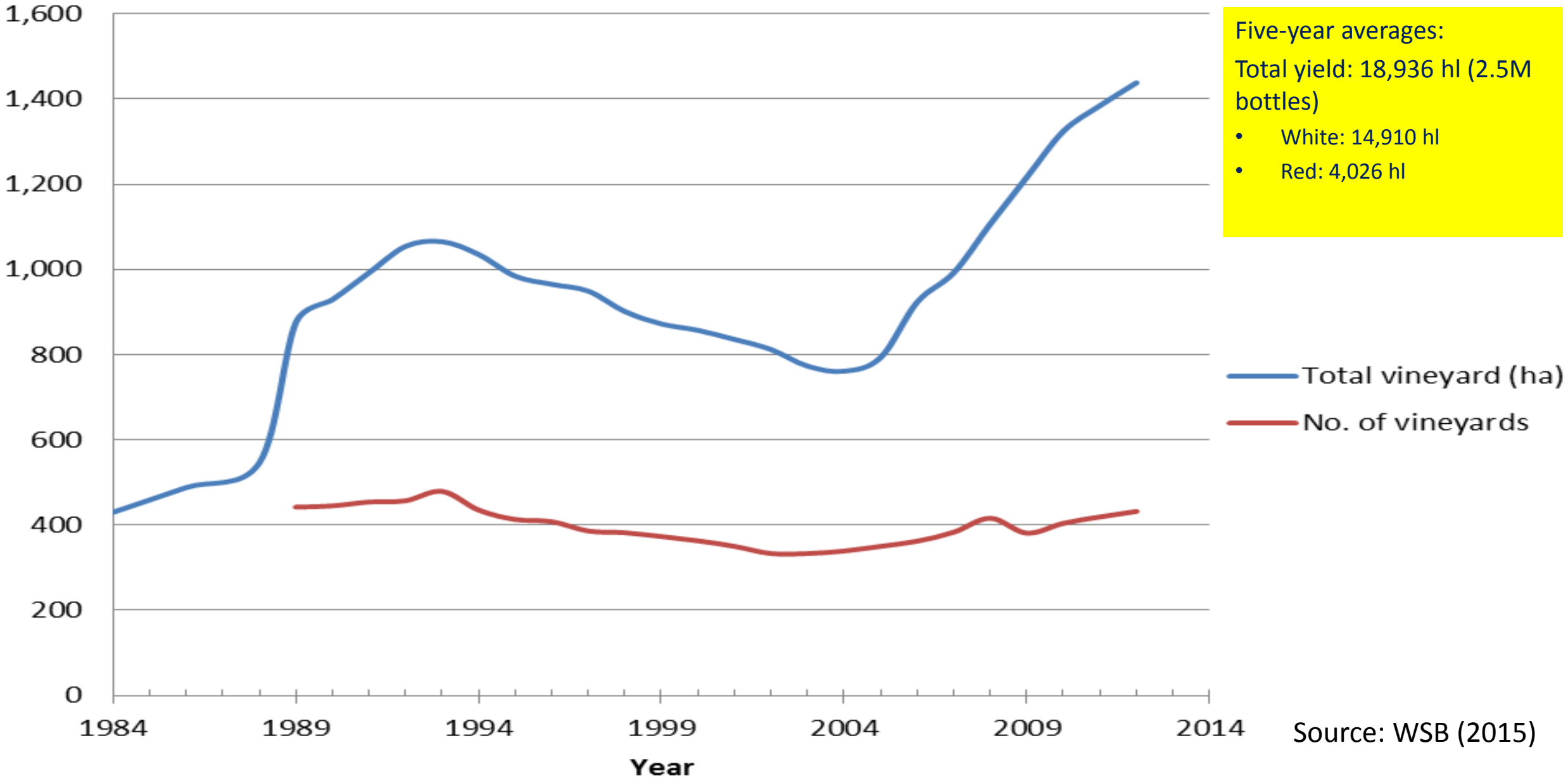
The UK centre for wine training, education and research

The vineyards of England and Wales



UK national vineyard statistics



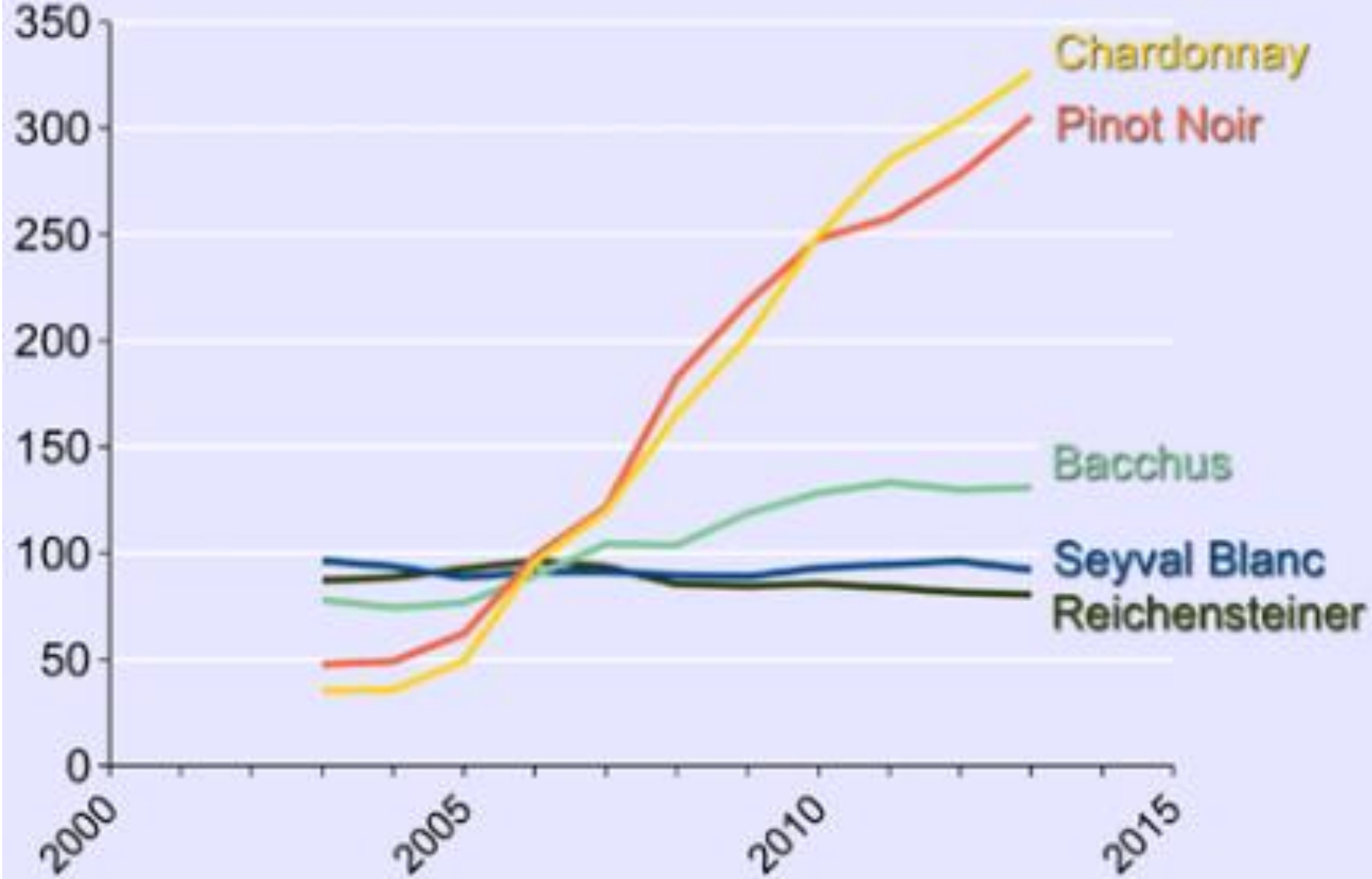
Five-year averages:

Total yield: 18,936 hl (2.5M bottles)

- White: 14,910 hl
- Red: 4,026 hl

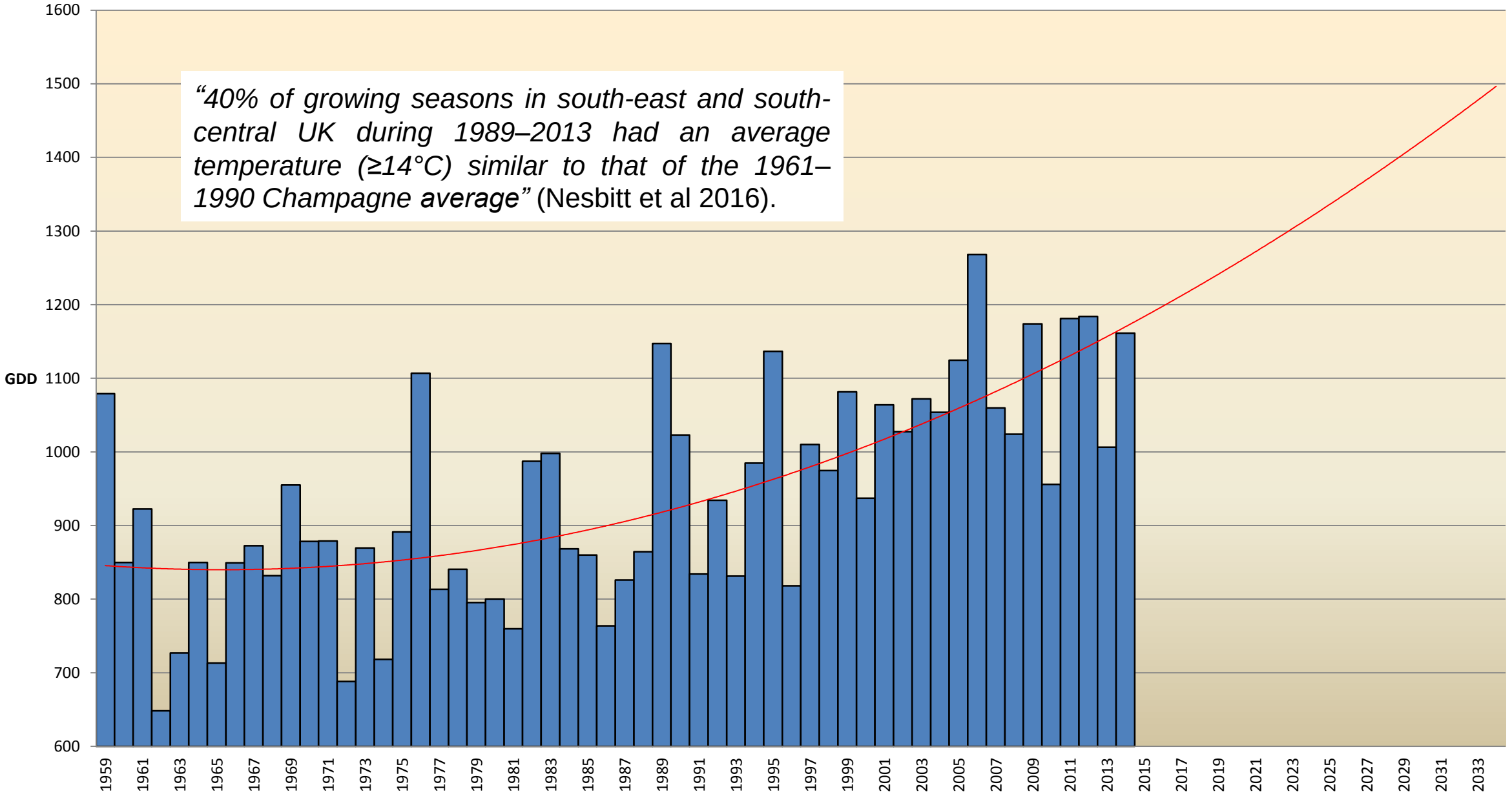
Source: WSB (2015)

England & Wales: Vineyard Area



Source: Food Standards Agency, pers. com., 31 Jan 2014

Winkler Index, Eastbourne (GDD)



Climatic variables and indices	1951-1980	1981-2010
Average annual temperature (°C)	10.55	11.33
Average growing season temperature (°C)	13.67	14.43
Annual precipitation (mm)	-	830
Precipitation during growing season (mm)	423	414
Length of growing season (days)	180	187
Hours of sunshine (h)	-	1720
Winkler index	836	976
Huglin index	1199	1370
Oenoclimate Aptitude Index	4195	4379
Cool night index	12.1	12.6

Maritime climate, with moderate temperatures, both in the summer and winter

Adaptation of Viticulture to Climate change :

High resolution study of viticultural adaptation and mitigation scenarios

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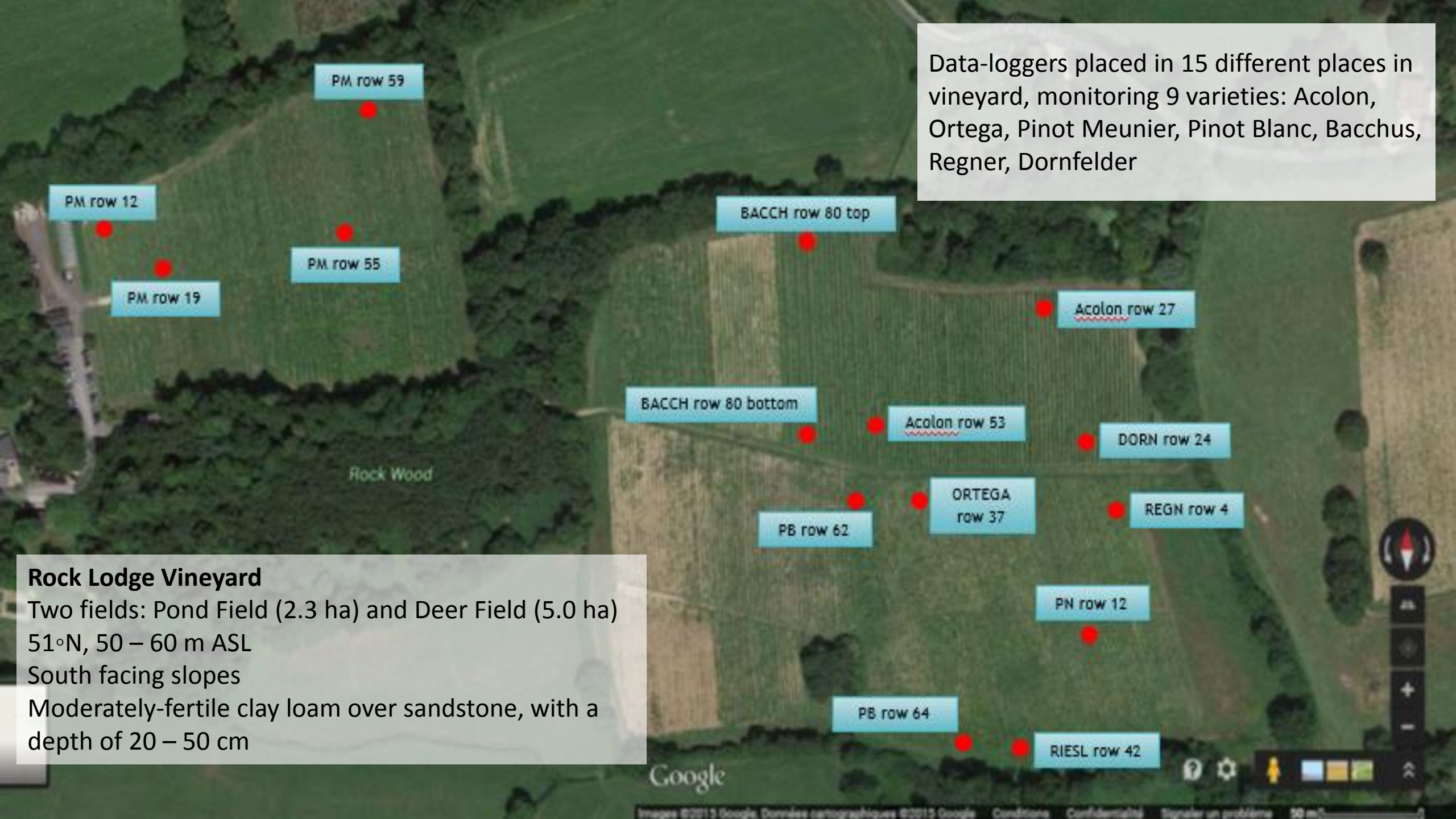


Data-loggers placed in 15 different places in vineyard, monitoring 9 varieties: Acolon, Ortega, Pinot Meunier, Pinot Blanc, Bacchus, Regner, Dornfelder

Rock Lodge Vineyard

Two fields: Pond Field (2.3 ha) and Deer Field (5.0 ha)

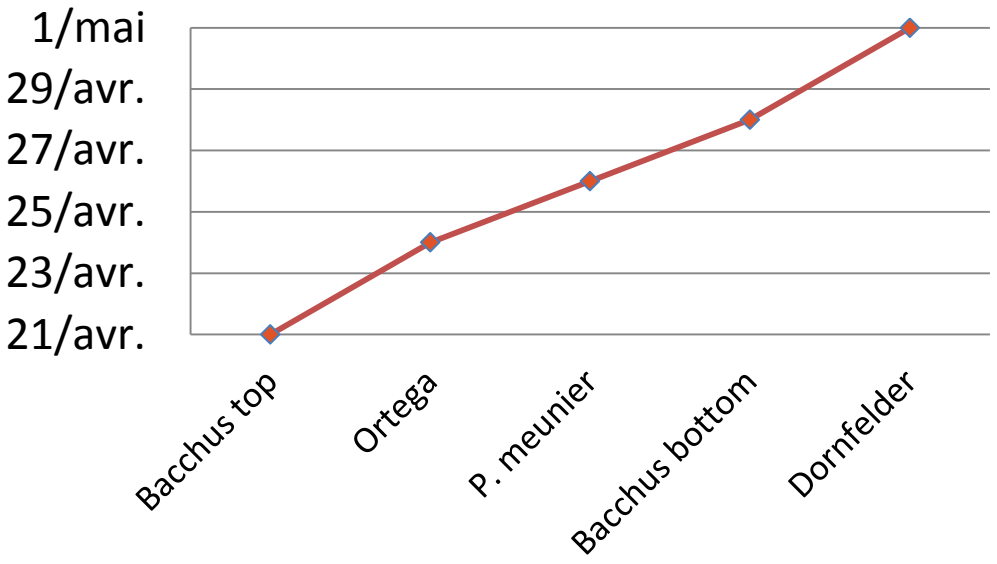
51◦N, 50 – 60 m ASL

South facing slopes

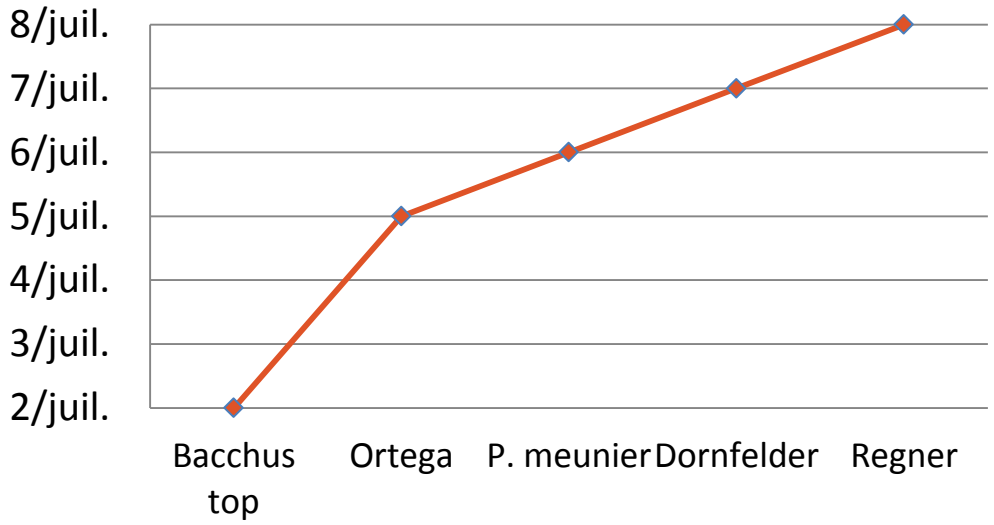
Moderately-fertile clay loam over sandstone, with a depth of 20 – 50 cm

Phenological observations

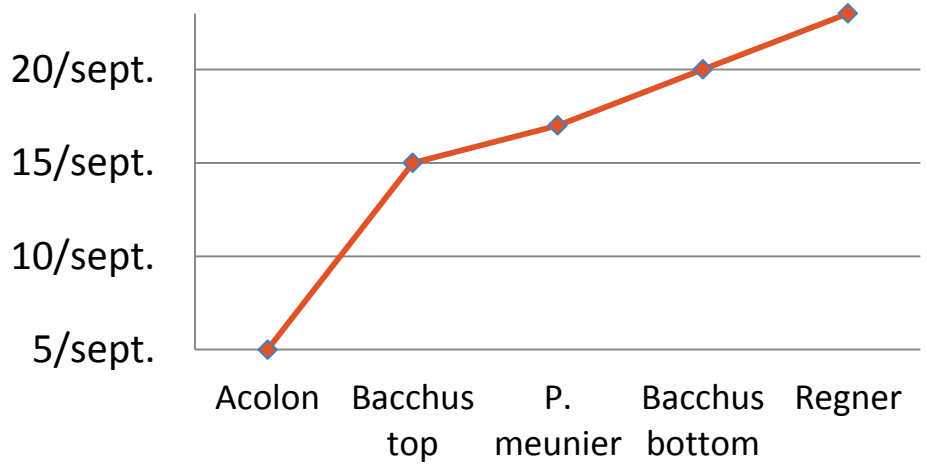
Budburst



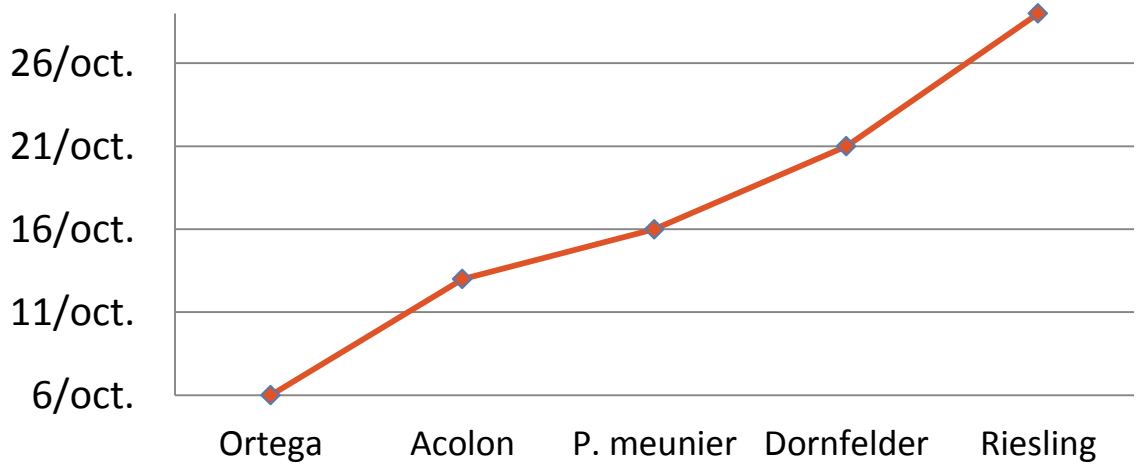
Flowering

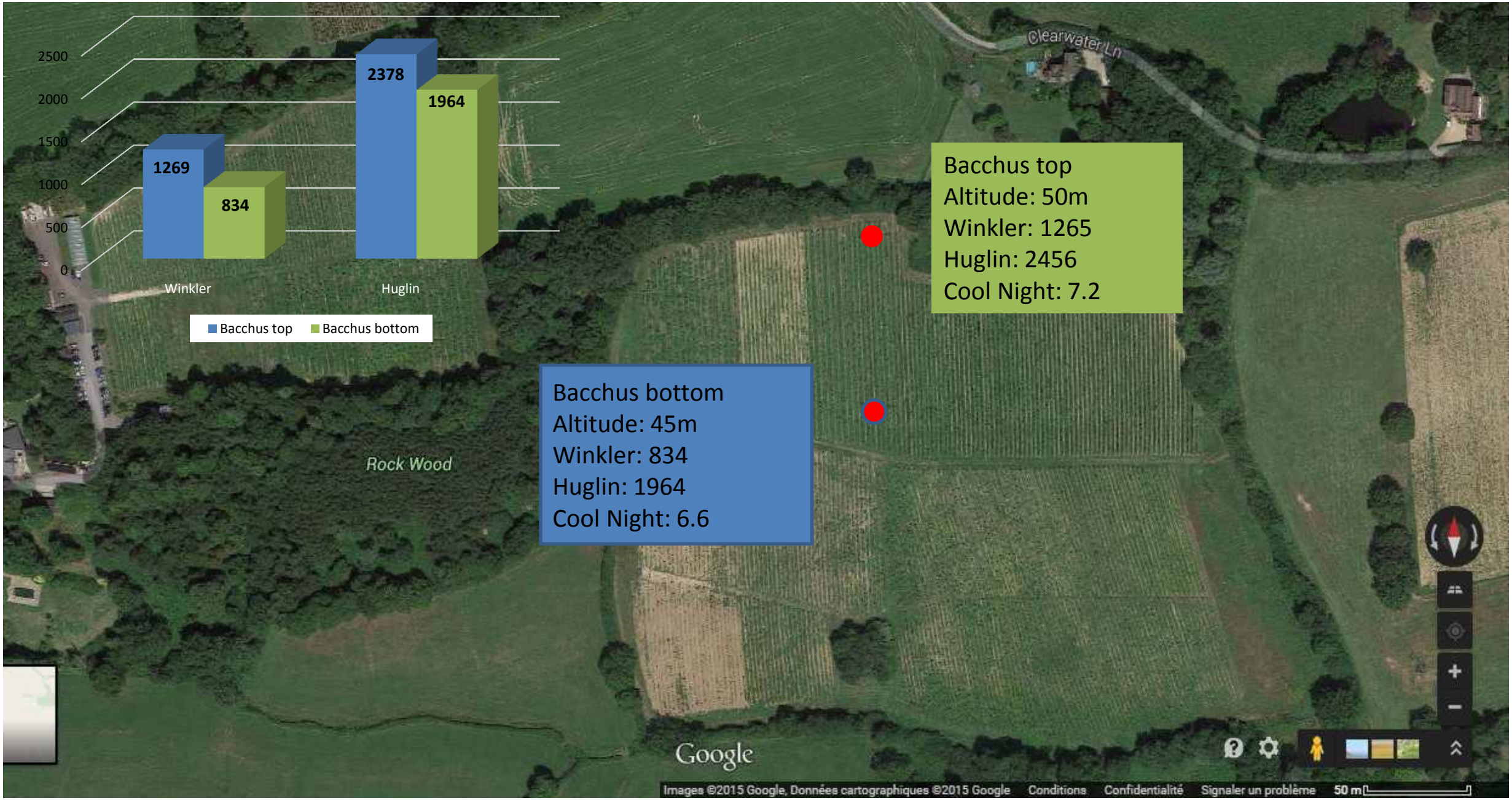


Veraison



Harvest




2500
2000
1500
1000
500
0
1269
834
2378
1964
Winkler
Huglin
Bacchus top
Bacchus bottom
Clearwater Ln
Rock Wood
Bacchus top
Altitude: 50m
Winkler: 1265
Huglin: 2456
Cool Night: 7.2
Bacchus bottom
Altitude: 45m
Winkler: 834
Huglin: 1964
Cool Night: 6.6
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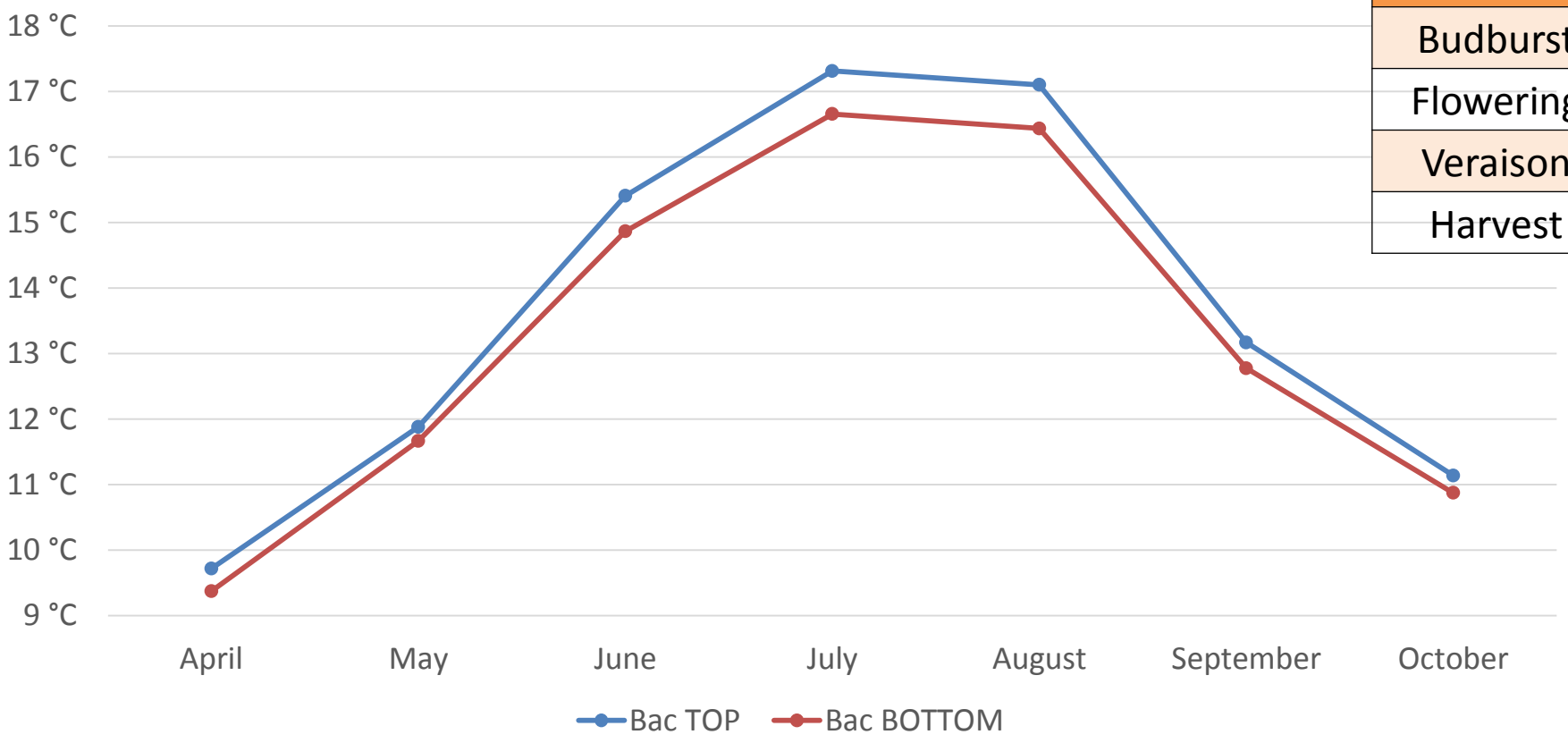
50 m

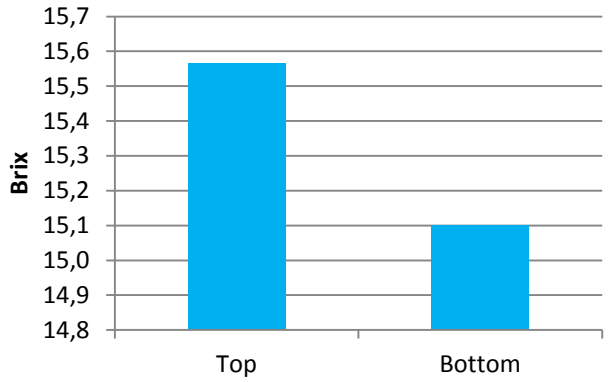
Average temperatures during growing season



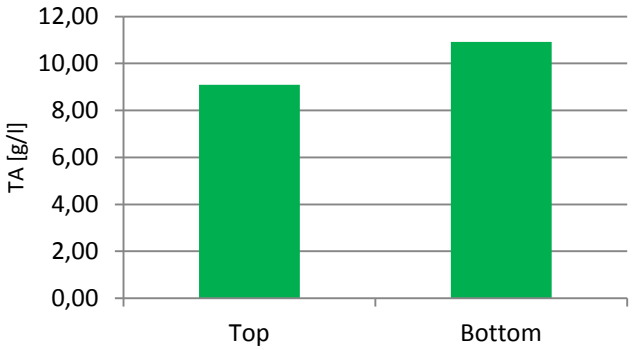
	TOP	BOTTOM
Budburst	21 Apr	28 Apr
Flowering	02 Jul	05 Jul
Veraison	15 Sep	20 Sep
Harvest	09 Oct	09 Oct

Bacchus – Berry analysis

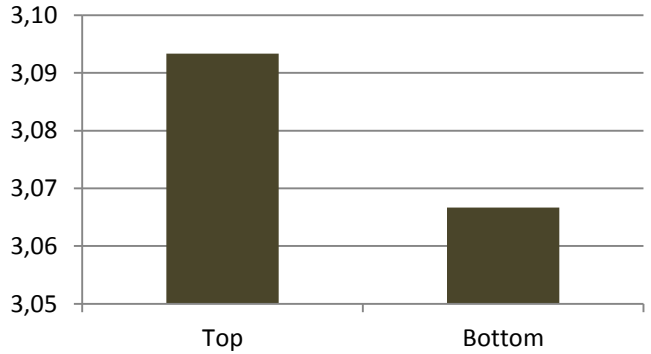
Sugar



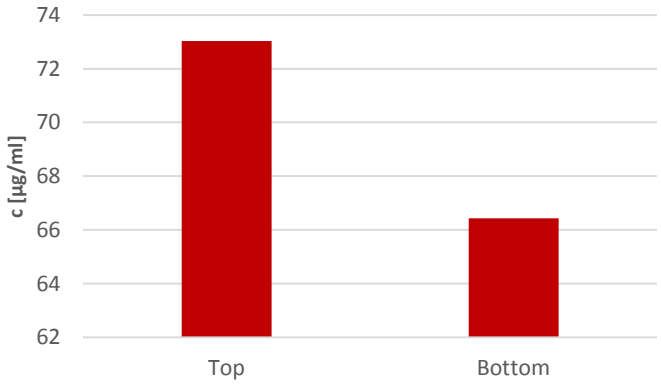
Acidity



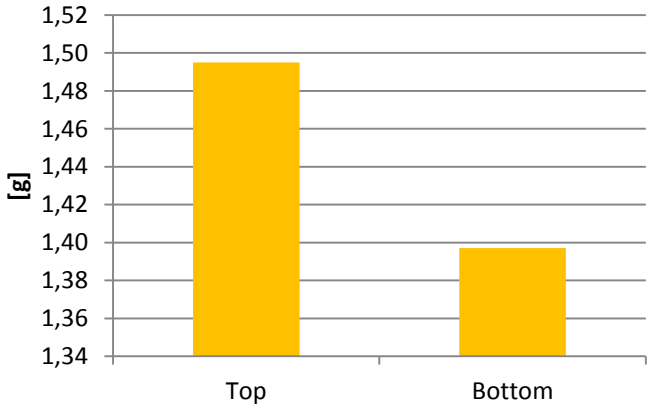
pH



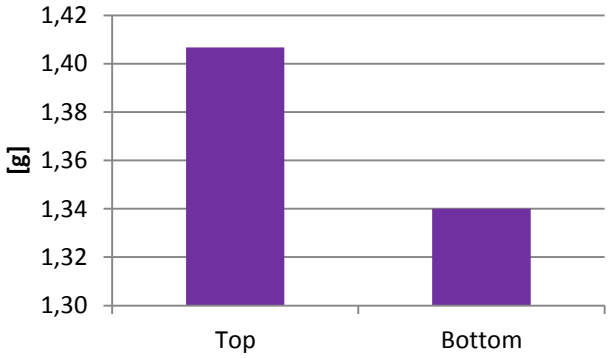
Proteins

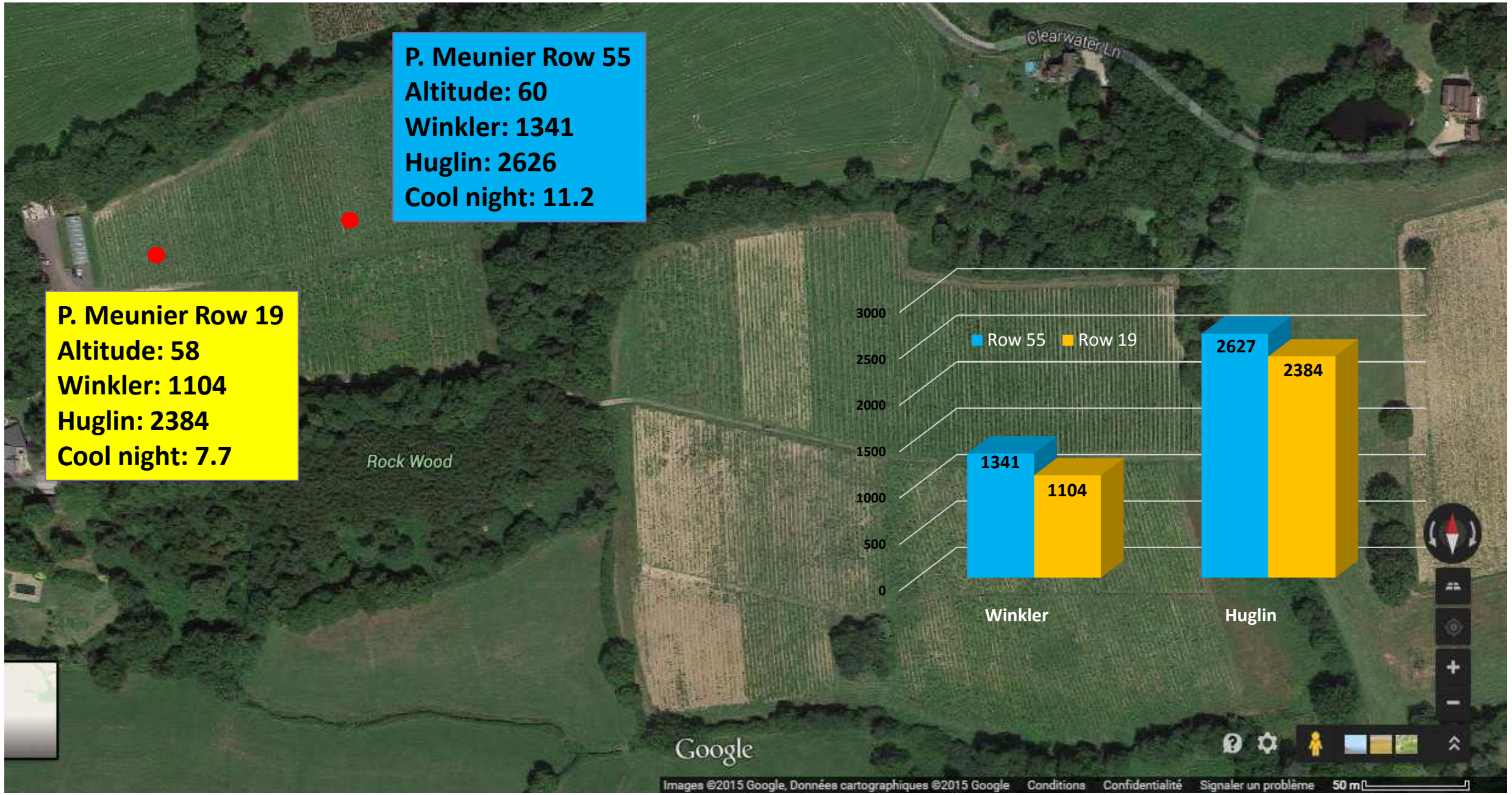


Weight of berry



Volume of berry




P. Meunier Row 55
Altitude: 60
Winkler: 1341
Huglin: 2626
Cool night: 11.2
P. Meunier Row 19
Altitude: 58
Winkler: 1104
Huglin: 2384
Cool night: 7.7
Clearwater Ln
Rock Wood
3000
2500
2000
1500
1000
500
0
Row 55
Row 19
1341
1104
2627
2384
Winkler
Huglin
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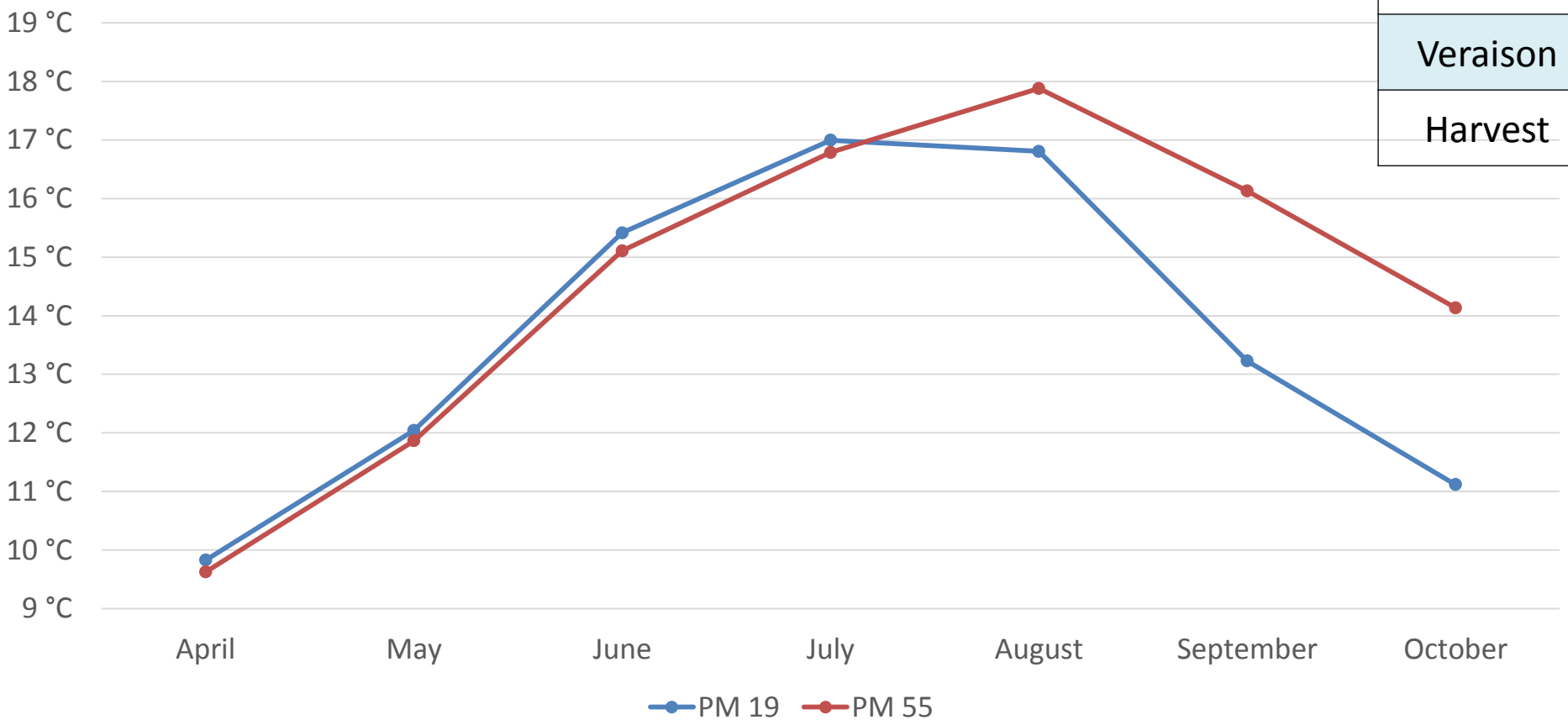
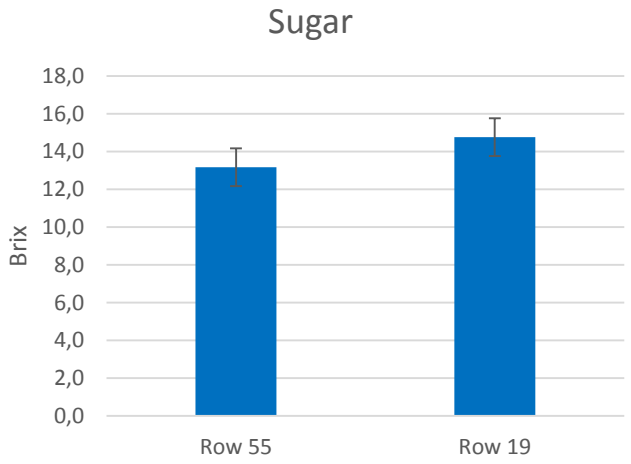
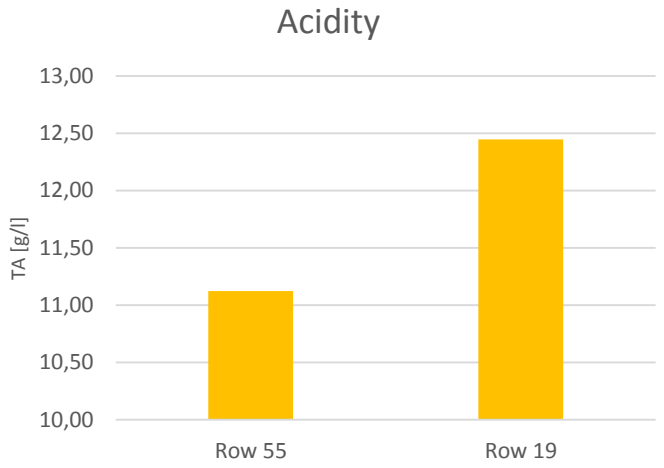
Average temperature during growing season

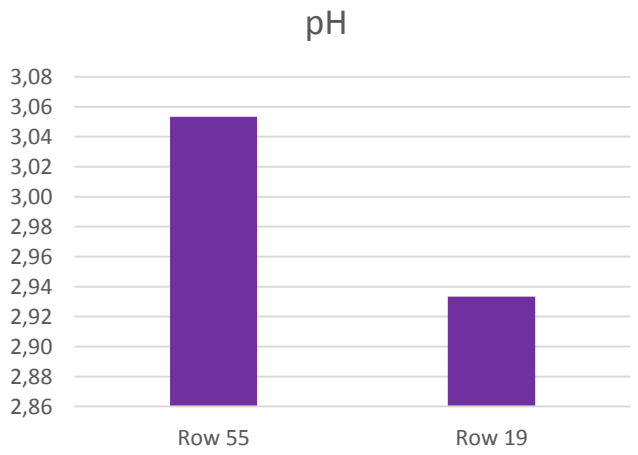
	Row 19	Row 55
Budburst	28 Apr	29 Apr
Flowering	06 Jul	08 Jul
Veraison	20 Sep	19 Sep
Harvest	16 Oct	16 Oct

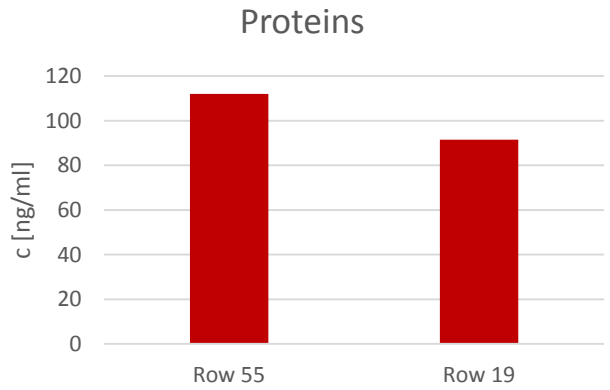


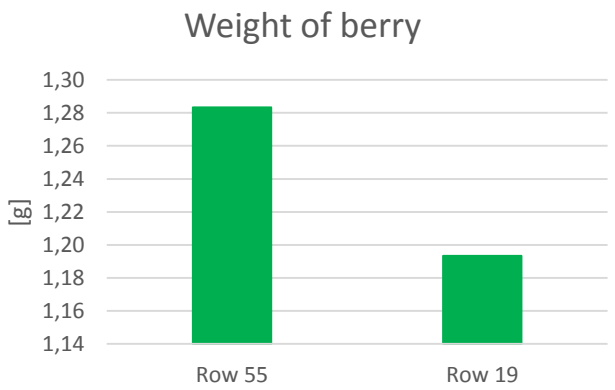
Pinot meunier – Berry analysis

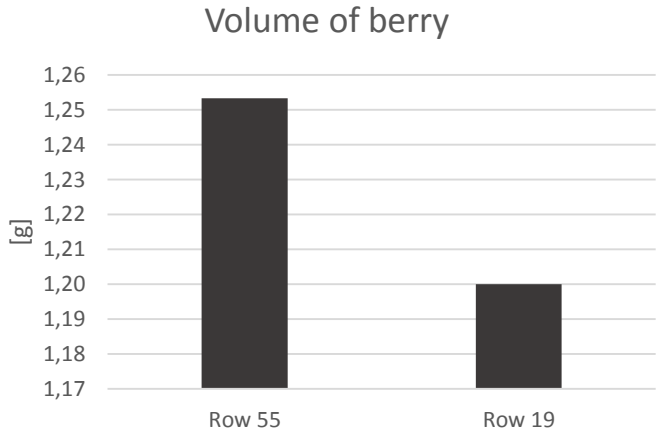


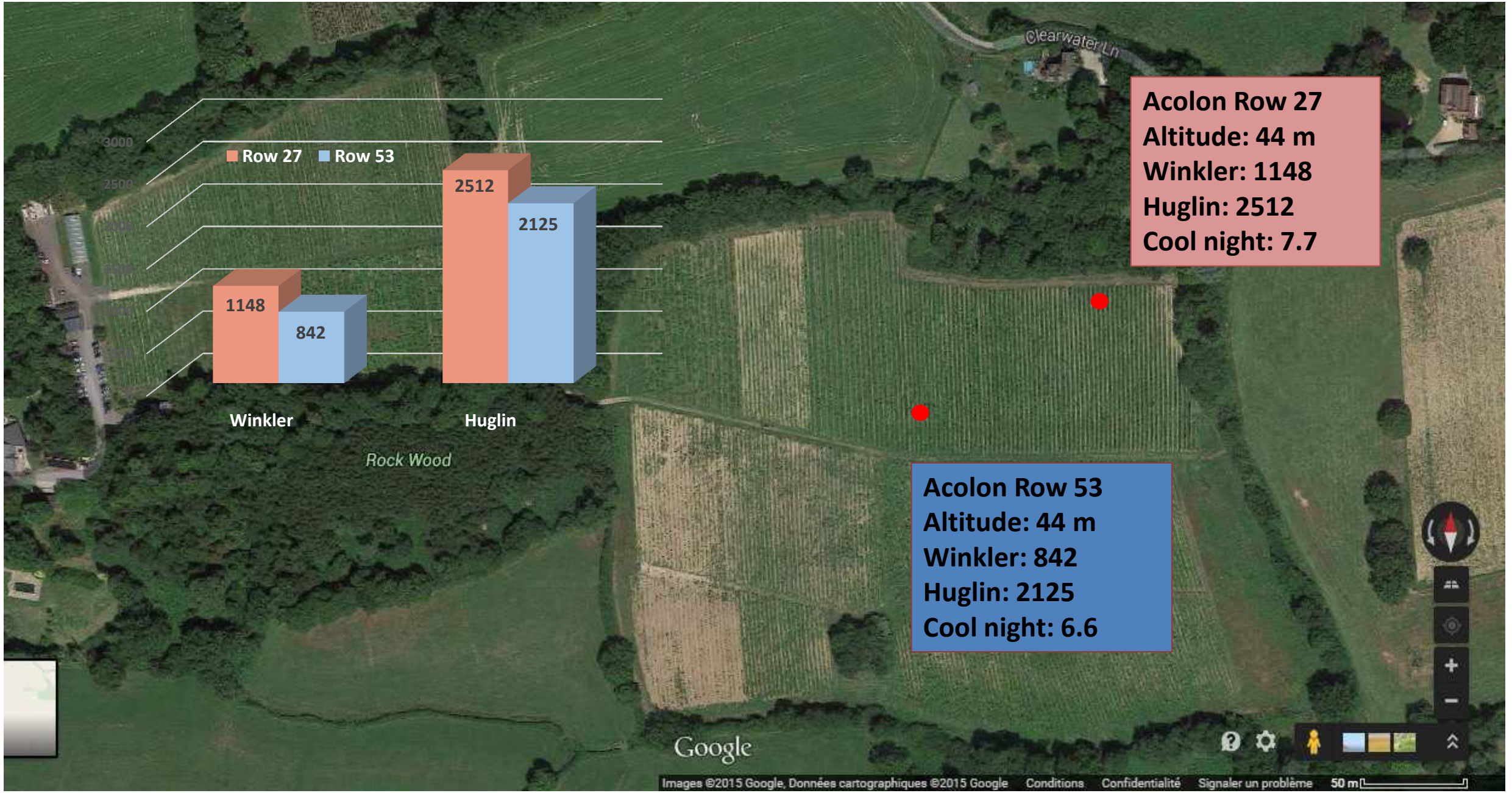











Clearwater Ln
Row 27
Row 53
3000
2500
2000
1500
1000
500
1148
842
2512
2125
Winkler
Huglin
Rock Wood
Acolon Row 27
Altitude: 44 m
Winkler: 1148
Huglin: 2512
Cool night: 7.7
Acolon Row 53
Altitude: 44 m
Winkler: 842
Huglin: 2125
Cool night: 6.6
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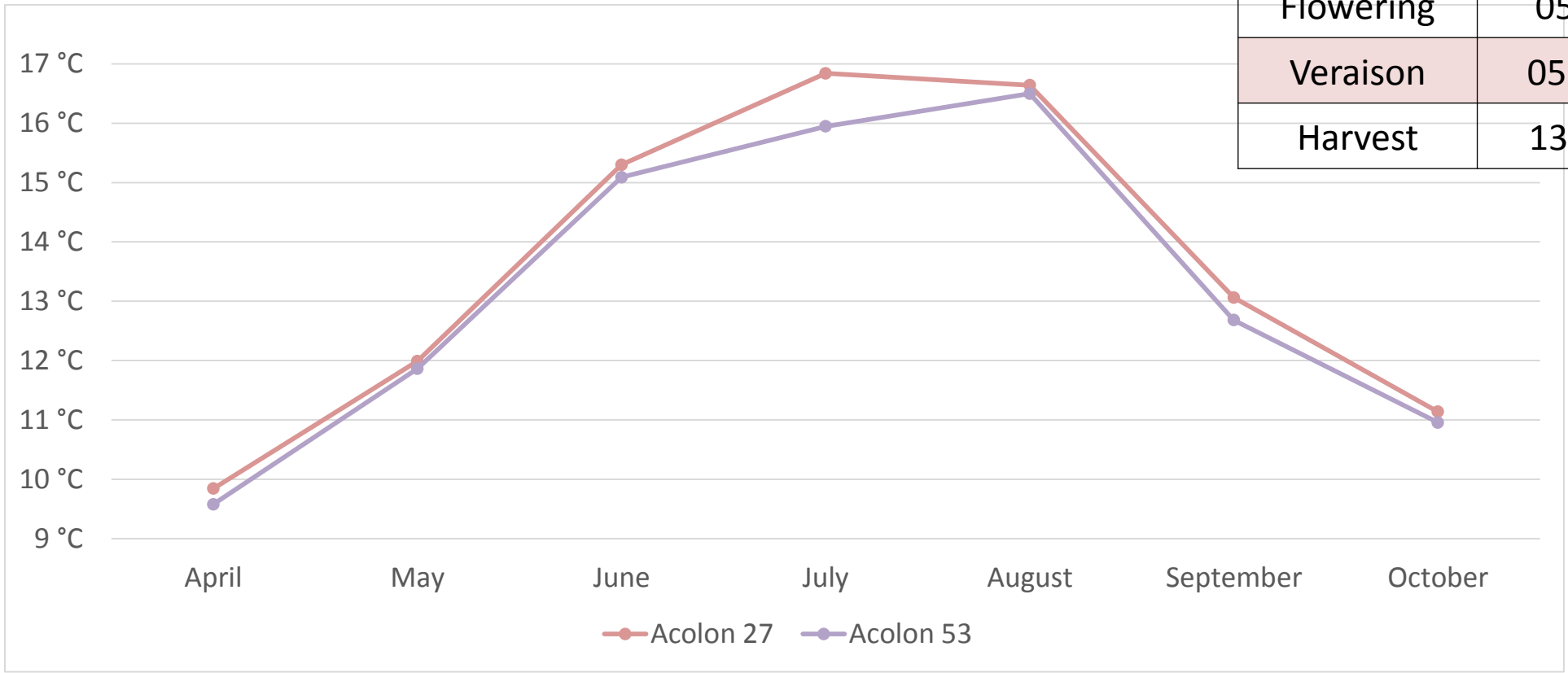
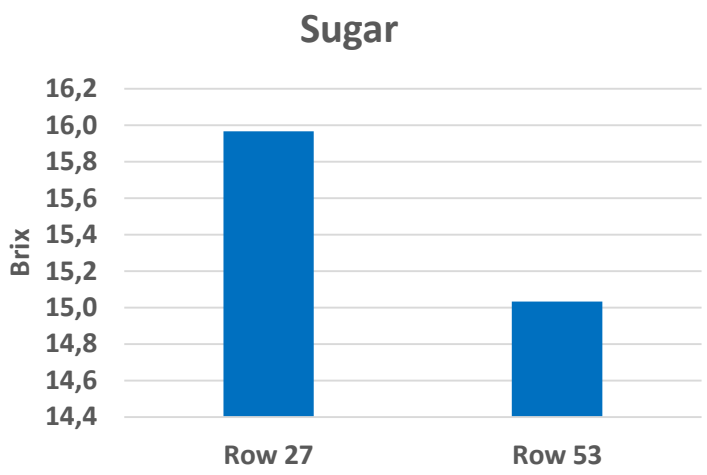
50 m

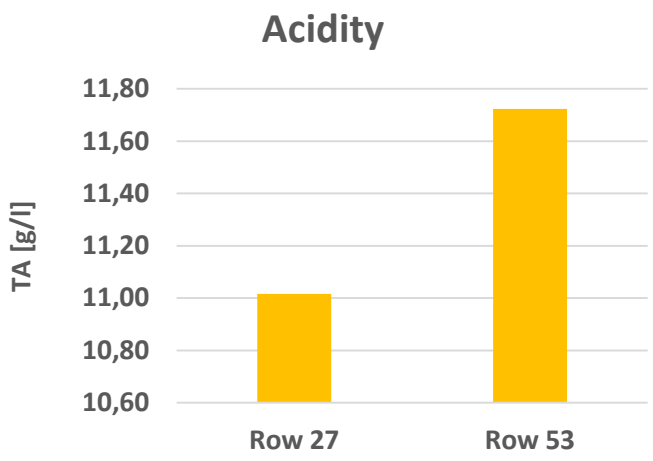
Average temperature during growing season

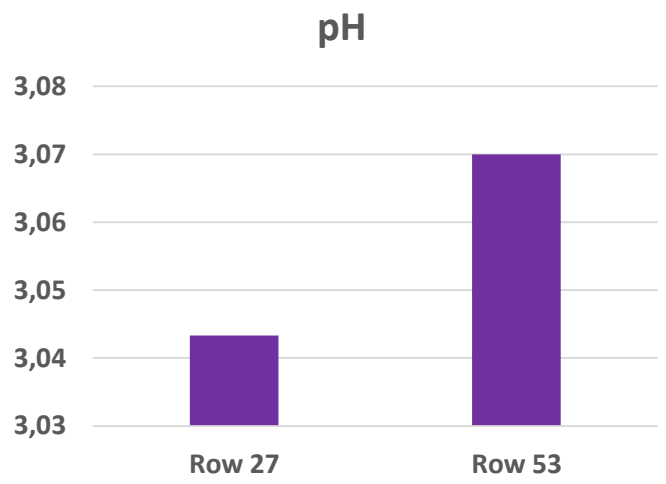
	Row 27	Row 53
Budburst	22 Apr	22 Apr
Flowering	05 Jul	07 Jul
Veraison	05 Sep	08 Sep
Harvest	13 Oct	13 Oct

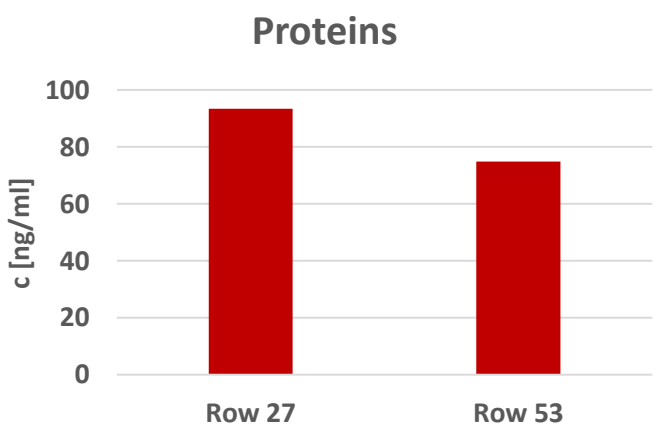


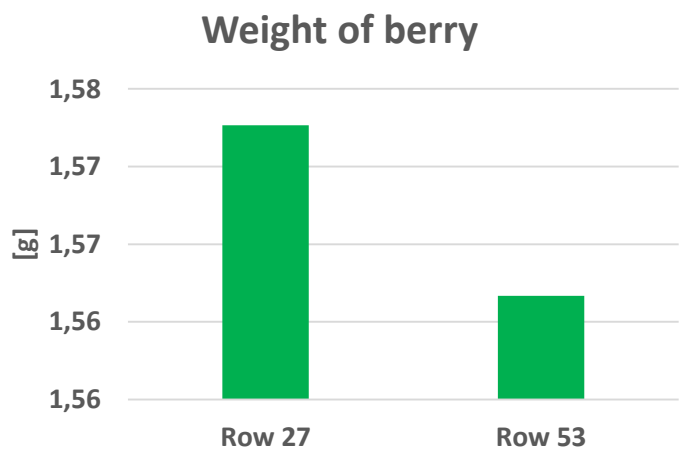
Acolon – Berry analysis

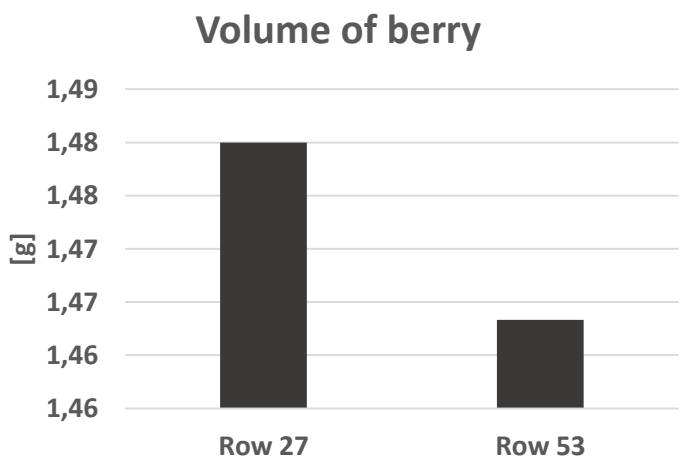












For more information…

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Thank you for your attention.

Nesbit, A., Kemp, B., Steele, C., Lovett, A., and Dorling, S., 2016 *Impact of recent climate change and weather variability on the viability of UK viticulture – combining weather and climate records with producers' perspectives*. Australian Journal ofGrape andWine Research

Tonietto, J., 2004: *A multicriteria climatic classification system for grape-growing regions worldwide*

Duchene, E., 2005: *Grapevine and climatic changes: a glance at the situation in Alsace*

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Plumpton College

9th International Cool Climate Wine Symposium

Brighton, UK

May 26 – 28, 2016

The programme

Time	Day 1 - Facing a challenging climate			Day 2 - Optimising fruit and wine quality			Day 3 - Cool climate wine styles		
9 ~ 10	Opening			Optimising cool-climate wine styles			Managing cool climate styles		
10 ~ 11	Emerging cool climate wine regions			Vineyard soils	The challenges involved in developing strong regional identities (1)	Developments in vineyard pest and disease management			
11 ~ 12	Emerging vineyard pest and diseases	New varieties for cool climate regions	Emerging markets and new consumers				Wine sensory evaluation	Oenotourism	Competitiveness of cool-climate regions in global wine markets
12 ~ 13				English still wine tasting					
13 ~ 14	Lunch/posters			Lunch/posters			Lunch/posters		
14 ~ 15	Managing climate-based variability			New technologies for optimising fruit quality and vineyard management.	Combatting Botrytis	Educating the wine industry	The challenges involved in developing strong regional identities (2)	Innovations in cool climate wine styles	Advances in sparkling wine production
15 ~ 16	Managing phenolics	Protected and semi-protected viticulture	New technological trends that impact the marketing of wine						
16 ~ 17				Achieving vine balance	Placing cool climate wines on the market	New research and applications in wine microbiology	Close		
17 ~ 18	English sparkling wine tasting								

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