TABLE S1. Search terms applied to the Web of Science database to identify data sources.

Search number	Search terms	Number of publications retrieved
#1	TS = pheno* AND climat*	37,146
#2	TS = phenolog* AND climat*	13,079
#3	TS = phenolog* AND climat* AND grape*	470
#4	TS = phenolog* AND climat* AND vitis vinifera	238
#5	TS = phenolog* AND climat* AND vitis vinifera AND grape*	230
#6	TS = phenolog* AND climat* AND grape* AND trend*	105 (base)
#7	TS = phenolog* AND climat* AND vitis vinifera* AND trend*	43 (5 new)
#8	TS = phenolog* AND climat* AND grape* AND cultivar*	113 (92 new)
#9	TS = phenolog* AND climat* AND grape* AND variet*	164 (92 new)
#10	TS = phenolog* AND climat* AND grape* AND cultivar* AND trend	19 (subset – 0 new)
#11	TS = phenolog* AND climat* AND grape* AND variet* AND trend*	43 (subset – 0 new)
#12	TS = phenolog* AND climat* AND grape* AND (variet* OR cultivar*)	241
#13	TS = phenolog* AND climat* AND grape* AND temperature*	322
#14	TS = phenolog* AND climat* AND vitis vinifera* AND temperature*	159 (48 new)
#15	TS = phenolog* AND climat* AND grape* AND temperature* AND observ*	104 (41 new)
#16	TS = phenolog* AND climat* AND grape* AND trend* AND observ*	40
#17	TS = phenolog* AND climat* AND grape* AND time	198
#18	TS = phenolog* AND climat* AND grape* AND time AND vitis	111
#19	TS = phenolog* AND climat* AND grape* AND (variet* OR trend*)	57
#20	TS = phenolog* AND climat* AND grape* AND time* AND trend*	45

TS = Topic search. * allows other possibilities to be searched. For example, grape* = grape, grapevine, grapes (but also grapevine moth); pheno* = phenology, phenological, phenophase (but also phenolic, phenotyping); climat* = climate, climatic; variet* = variety, varieties, varietal. Searches were conducted 17–19 December 2020.

SUPPLEMENTARY DATA
Cameron, W., Petrie, P. R., Barlow, E. W. R., Howell, K., Jarvis, C., & Fuentes, S. (2021). A comparison of the effect of temperature on grapevine phenology between vineyards. *OENO One*, *55*(2).
https://doi.org/10.20870/oeno-one.2021.55.2.4599

TABLE S2. Summary of publications, vineyard locations and extracted data.

Paper Author	Vineyard	GPS coordinates and altitude given for vineyard/weather station (given in publication)	GPS coordinates and altitude for weather data used	Cultivar	Budburst	Flowering	Veraison	Maturity
Caffarra & Eccel, 2011	Cembra, Trentino, Italy	46.17˚N 11.22˚E 600 m asl	46.25˚N 11.25˚E 617 m asl	Chardonnay		Not specified	Not specified	
Van Leeuwen *et al.*, 2019 (Dûchene & Schneider, 2005)	Alsace, France	48.05˚N 7.32˚E 604 m asl	48.25˚N 7.25˚E 613 m asl	Riesling	50 % buds at stage C (Baggiolini) (Dûchene & Schneider, 2005)	50 % of open flowers (Dûchene & Schneider, 2005)	50 % of soft berries (Dûchene & Schneider, 2005)	Veraison plus 35 days—consistent with official opening date in Alsace area (Dûchene & Schneider, 2005)
Bock *et al.*, 2011	Franconia, Germany	49.83°N, 9.87°E and 49.77°N, 9.95°E. Vineyards 220–240 m asl	49.75˚N 9.75˚E 326 m asl	Müller-Thurgau, Riesling, Silvaner	Stage 9 BBCH	Stage 65 BBCH: 50 % flowerhoods fallen (stage 61 and 69 then averaged for second vineyard)	Stage 81 BBCH	Stage 89 BBCH and DOY 60˚Oe
Urhausen *et al.*, 2011	Upper Moselle, Luxembourg	A range along Moselle centred around 49.5˚N 6.37˚E ~220 m asl	49.25˚N 6.25˚E 200 m asl	Mixed white (averaged)	Not specified but taken from Institut viti-vinicole publication			
Stoll *et al.*, 2011	Geisenheim Germany	50˚N 8˚E 106 m asl	49.75˚N 8.25˚E 169 m asl	Riesling	Stage 9 BBCH▲	Stage 65 BBCH▲	Stage 81 BBCH▲	
Ramos *et al.*, 2015	Ribera del Duero, Spain	Weather stations range from 41.57–41.7˚N and 4.72 - 3.21˚W 723– 876 m asl	41.75˚N 4.75˚W (355.25E) 763 m asl and 41.75˚N 3.25˚W (356.75E) 994 asl. Data averaged	Tempranillo (averaged over all plots)	Stage C (Baggiolini)	Stage I (Baggiolini)	Stage M (Baggiolini)	
Martinez & Ramos., 2019	Haro, Rioja, Spain	RA1 465 & 450 m asl	42.75˚N 2.75˚W 600 m asl	Tempranillo		Stage H (Baggiolini)	Stage M (Baggiolini)	Date at which probable volumetric alcoholic degree (PVAD) = 13˚ reached
Jones *et al.*, 2000	Bordeaux, France	44.82˚N 0.68˚E 47 m asl (111 m asl google earth)	44.75˚N 0.75˚E 157 m asl	Cabernet Sauvignon Merlot (averaged between châteaux and variety)	Model ◆	50 % of plants are exhibiting the physiological response	50 % of plants exhibit the physiological response	Date harvest commences
Tomasi et al, 2011	Veneto, Italy	45.85˚N 12.26˚E 60 m asl	45.75˚N 12.25˚E 42 m asl	Range (average)	Stage D (Baggiolini)	Stage I (Baggiolini)	no stage letter designation (Baggiolini)	Recorded when berry sugar same after 2 measurements

Dalla Marta *et al.*, 2010	Tuscany, Italy	43.08˚N 11.77˚E 575 asl (Note coordinates given in publication appear to have E and N around the wrong way)	43.25˚N 11.75˚E 289asl	Sangiovese	Baggiolini but stage not specified. Baggiolini but stage not specified		Baggiolini but stage not specified	
De Rességuier *et al.*, 2020	St Emilion, France	44.92˚N 0.17˚W 34 m asl	44.75˚N 0.25˚W 81 m asl	Merlot	Not specified	Not specified	Not specified	Not specified
Martinez & Ramos., 2020	Alfaro, Rioja, Spain	RO 376 & 396 m asl	42.25N 1.75˚W 312 m asl	Tempranillo		Stage H (Baggiolini)	Stage M (Baggiolini)	Date at which PVAD = 13˚ reached
Cameron *et al.*, 2020	Milawa, Australia	36.45˚S 146.43˚E 161 m asl	36.45˚S 146.40˚E 158 m asl	Riesling	E-L 4	E-L 19	E-L 35	Day of Year Maturity 11 Bé
Cameron *et al.*, 2020	Heathcote, Australia	36.47˚S 144.78˚E 133 m asl	36.45˚S 144.75˚E 171 m asl	Shiraz	E-L 4	E-L 19	E-L 35	Day of Year Maturity 12 Bé
Ghantous *et al.*, 2018	West Bekaa, Lebanon	33.64˚N 35.72˚E 1020 m asl	33.75˚N 35.75˚E 1800 m asl	Cabernet Sauvignon	Not specified	Not specified		Not specified
Malheiro *et al.*, 2013	Lisbon, Portugal	Lisboa/Geofisico 38.7˚N 9.1˚W 80 m asl and Dois Portos 39.0˚N 9.2˚W 110 m asl	38.75˚N 9.25˚W 112 m asl	Aragonez, Castelão, Chasselas, Fernão Pires	50 % of plants had reached stage 7 BBCH	50 % of plants had reached stage 65 BBCH	50 % of plants had reached stage 81 BBCH	Stage 89 BBCH ~ 11.5 % alcohol. Similar level for all cultivars
Cameron *et al.*, 2020	Mystic Park, Australia	35.60˚S 143.76˚E 86 m asl	35.60˚S 143.75˚E 74 m asl	Tarrango	E-L 4	E-L 19	E-L 35	Day of Year Maturity 12 Bé

◆ Budburst dates were derived from a model which was the date when mean daily temperature exceeded 10 °C for 5 consecutive days, that was not followed by a series of five or more days with a mean temp lower than 10 °C or any other notable cold period.
▲The method used to obtain phenology data was not specified in the publication but obtained by emailing the corresponding author. Not specified: The method used to obtain the phenology data was not given by the authors. E-L, Eichorn-Lorenz

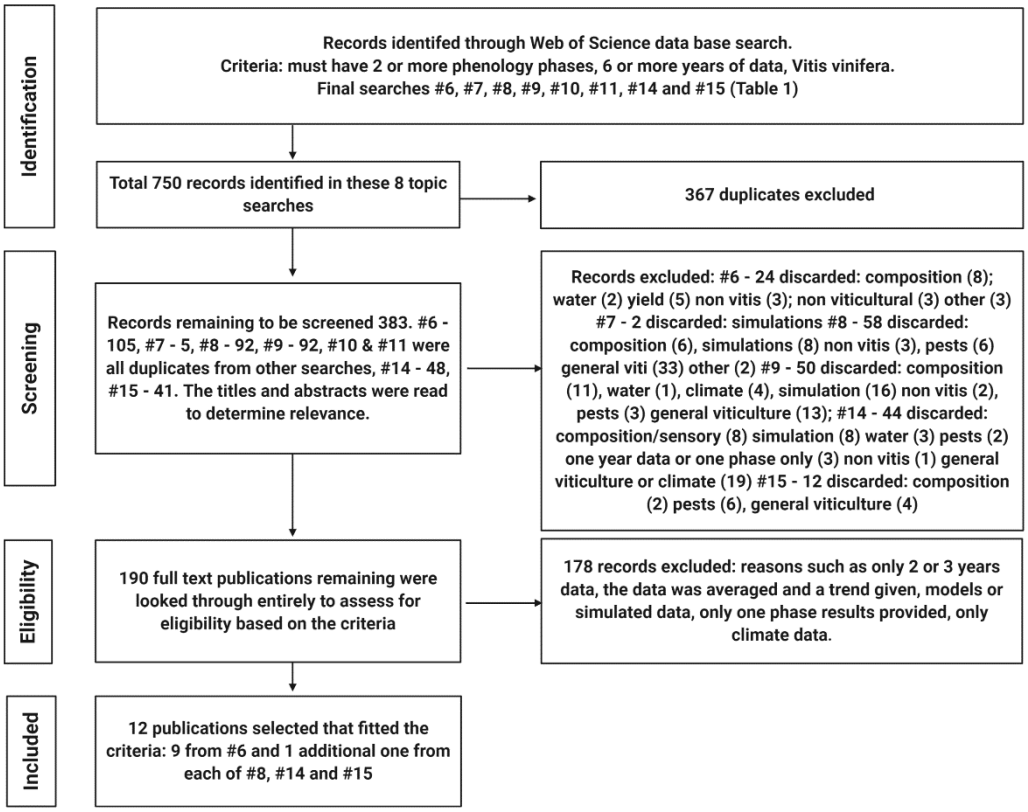


FIGURE S1. Process used to identify sources of data.

Figure created with BioRender.com

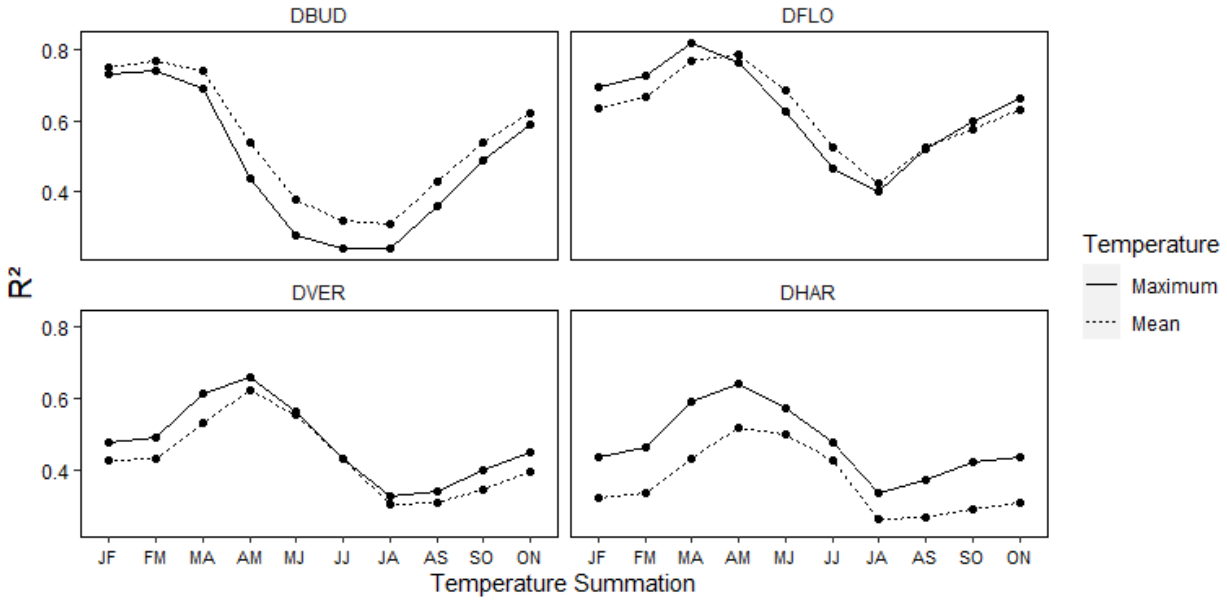


FIGURE S2. R^2 values for regression between each phenological stage DBUD, DFLO, DVER and DHAR and the 2-month temperature summations of daily mean or maximum temperatures for all vineyards.

JF is the temperature summation for January and February, FM for February and March and so on. This applies to the northern hemisphere vineyards. For the southern hemisphere vineyards, the equivalent months were JA: July and August and so on to AM: April and May. DBUD, day of year budburst; DFLO, day of year flowering; DVER, day of year veraison; DHAR, day of year harvest.

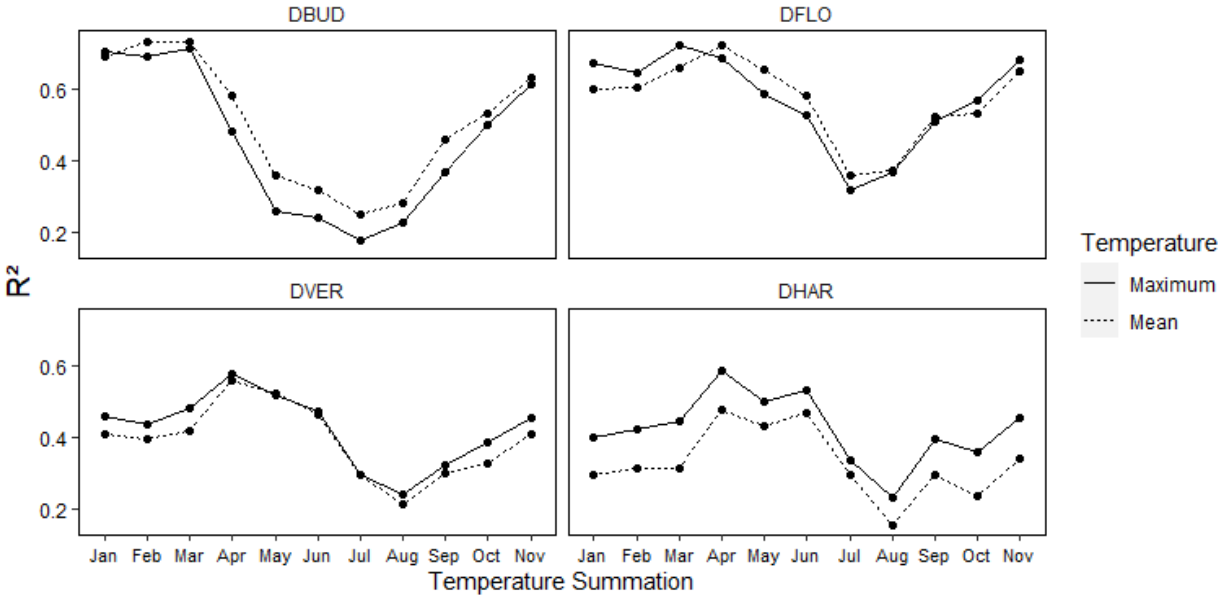


FIGURE S3. R^2 values for regression between each phenological stage DBUD, DFLO, DVER and DHAR and one month temperature summation of daily mean or maximum temperatures for all vineyards.

Jan, January: Feb, February and so on. This applies to the northern hemisphere vineyards. For the southern hemisphere vineyards, the equivalent months are Jul, July and Aug, August. DBUD, day of year budburst; DFLO, day of year flowering; DVER, day of year veraison; DHAR, day of year harvest.

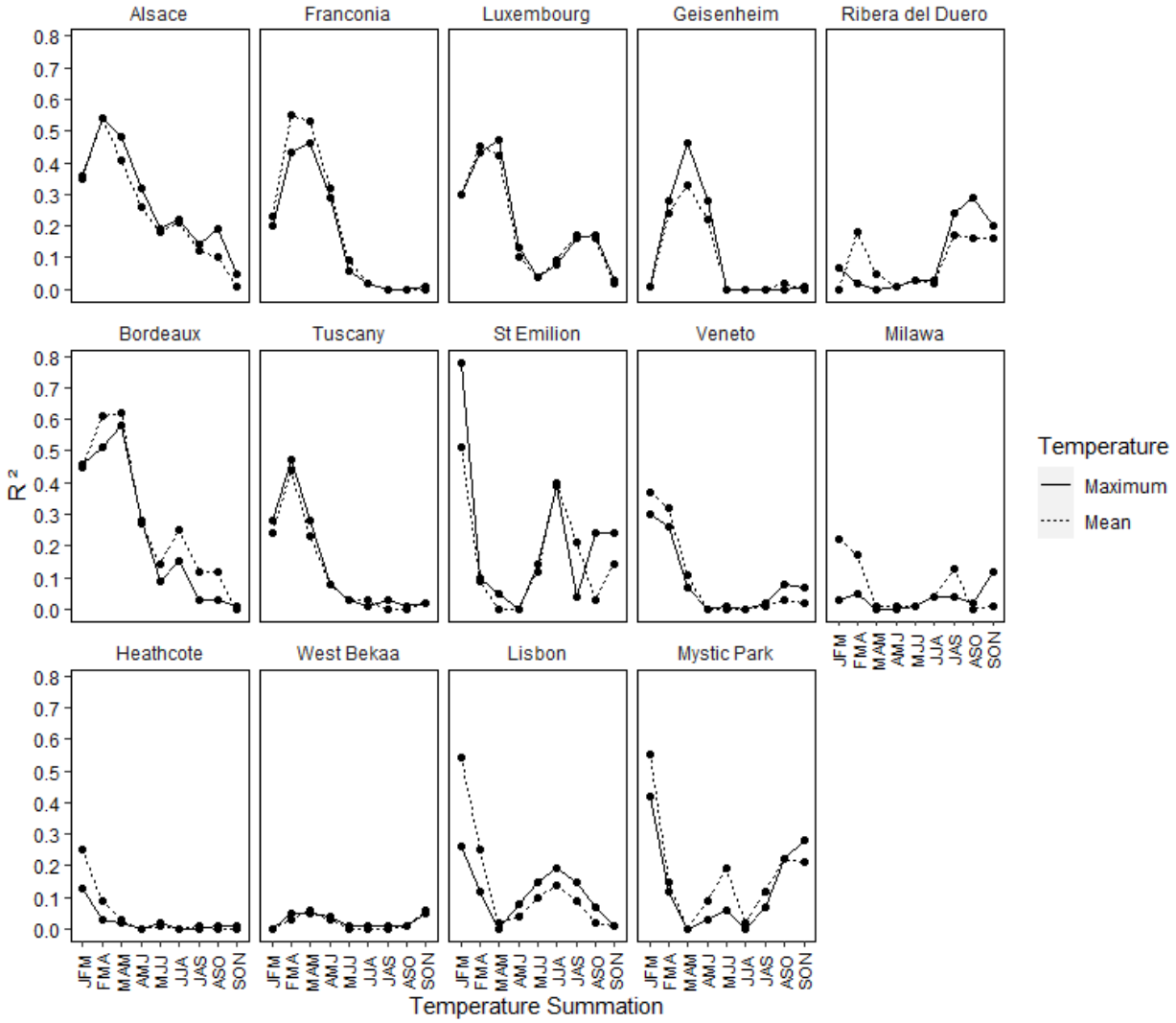


FIGURE S4. R^2 values for regression between the phenological stage DBUD and 3-month temperature summations using mean or maximum temperatures for each vineyard.

JFM, January, February, March; FMA, February, March, April and so on. This applies to the northern hemisphere vineyards. For the southern hemisphere vineyards, the equivalent months are July, August, September; August, September, October and so on. DBUD, day of year budburst from 1 January in northern hemisphere or 1 July in the southern hemisphere.

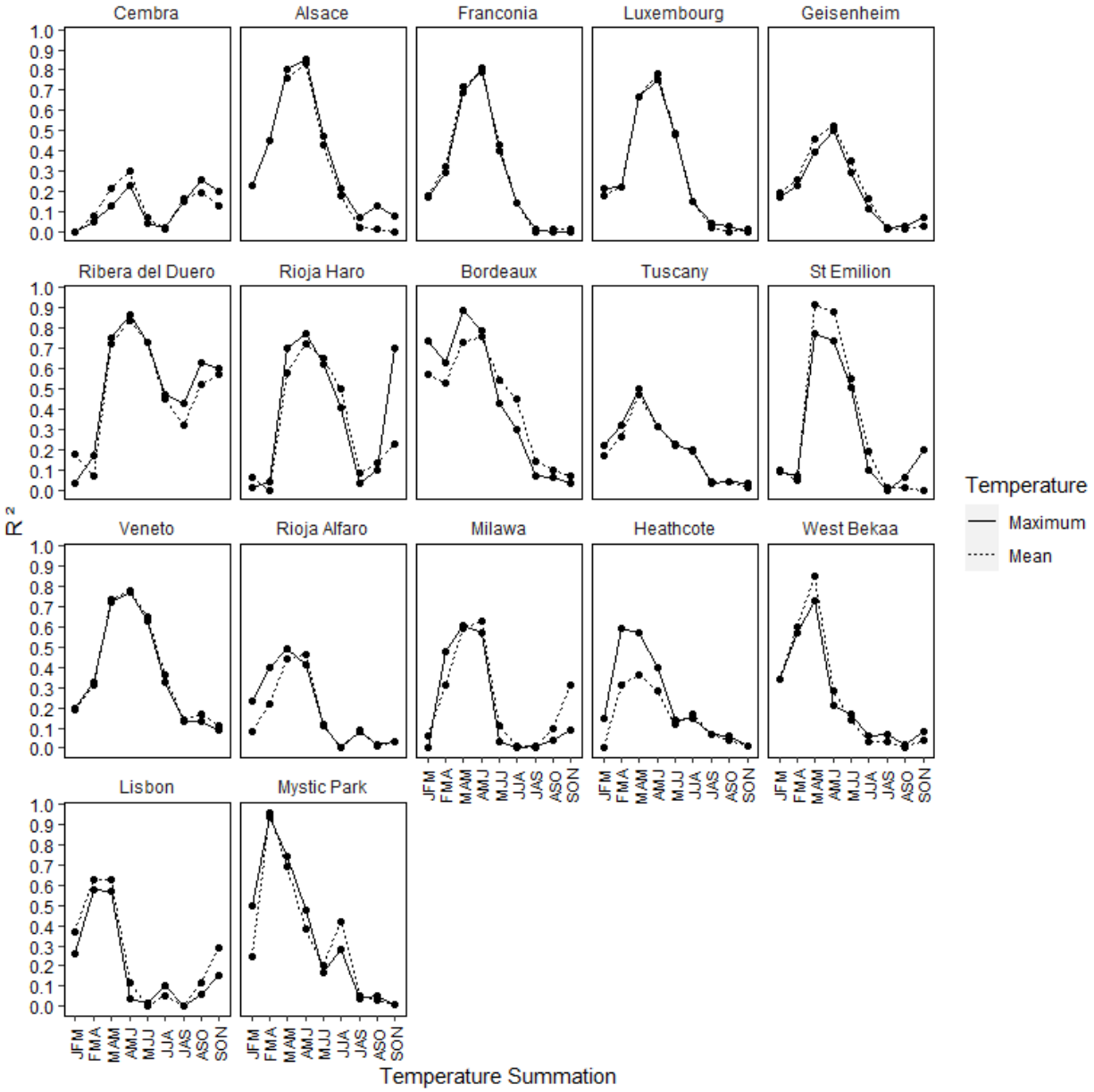


FIGURE S5. R^2 values for regression between the phenological stage DFLO and 3-month temperature summation using mean or maximum temperatures for each vineyard.

JFM, January, February, March; FMA, February, March, April and so on. This applies to the northern hemisphere vineyards. For the southern hemisphere vineyards, the equivalent months are July, August, September; August, September, October and so on. DFLO, day of year flowering from 1st January in northern hemisphere or 1 July in the southern hemisphere.

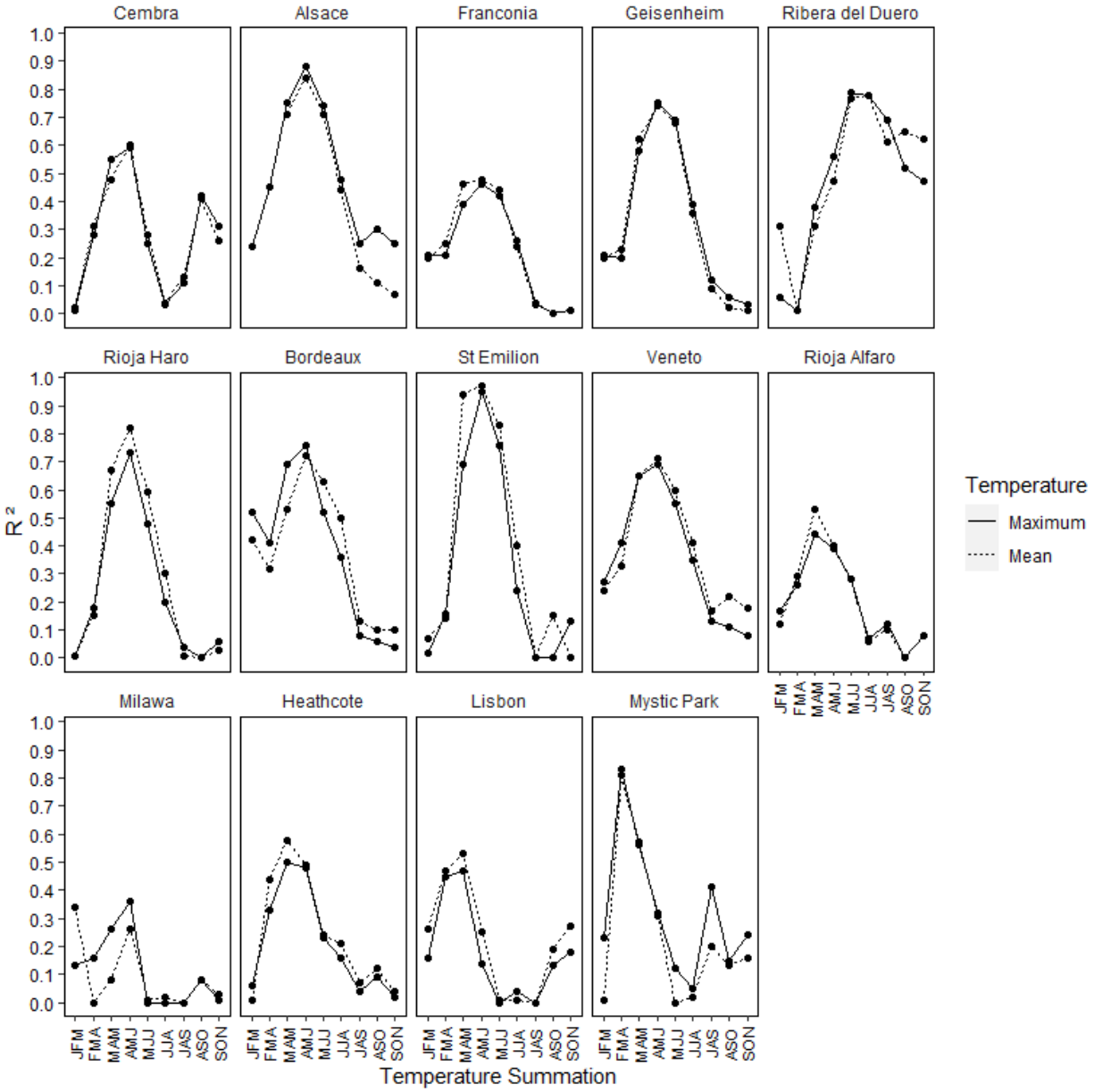


FIGURE S6. R^2 values for regression between the phenological stage DVER and 3-month temperature summation using mean or maximum temperatures for each vineyard.

JFM, January, February, March; FMA, February, March, April and so on. This applies to the northern hemisphere vineyards. For the southern hemisphere vineyards, the equivalent months are July, August, September; August, September, October and so on. DVER, day of year veraison from 1st January in northern hemisphere or 1 July in the southern hemisphere.

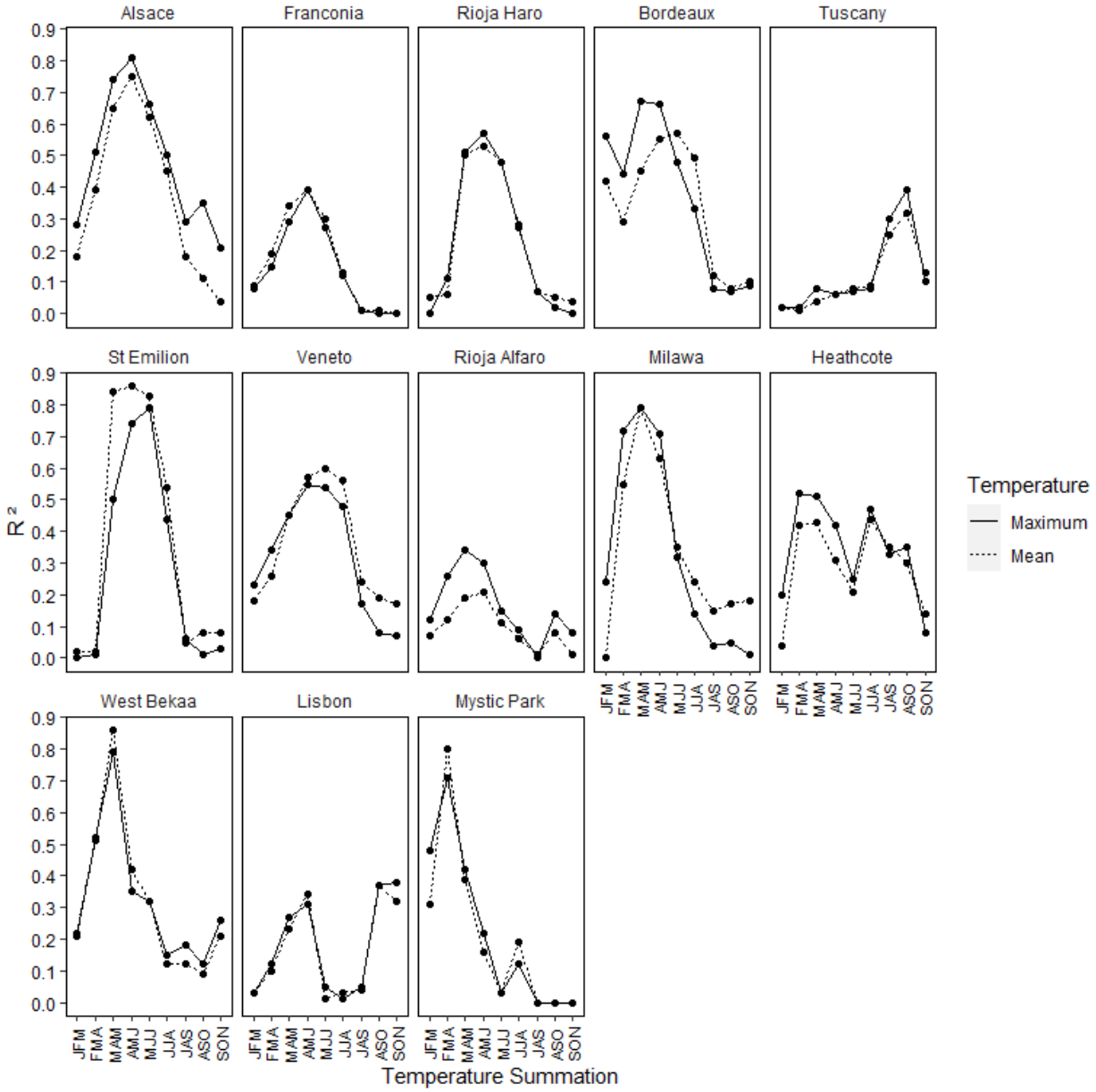


FIGURE S7. R^2 values for regression between the phenological stage DHAR and 3-month temperature summation using mean or maximum temperatures for each vineyard.

JFM, January, February, March; FMA, February, March, April and so on. This applies to the northern hemisphere vineyards.
For the southern hemisphere vineyards, the equivalent months are July, August, September; August, September, October and so on.
DHAR, day of year harvest from 1 January in northern hemisphere or 1 July in the southern hemisphere.

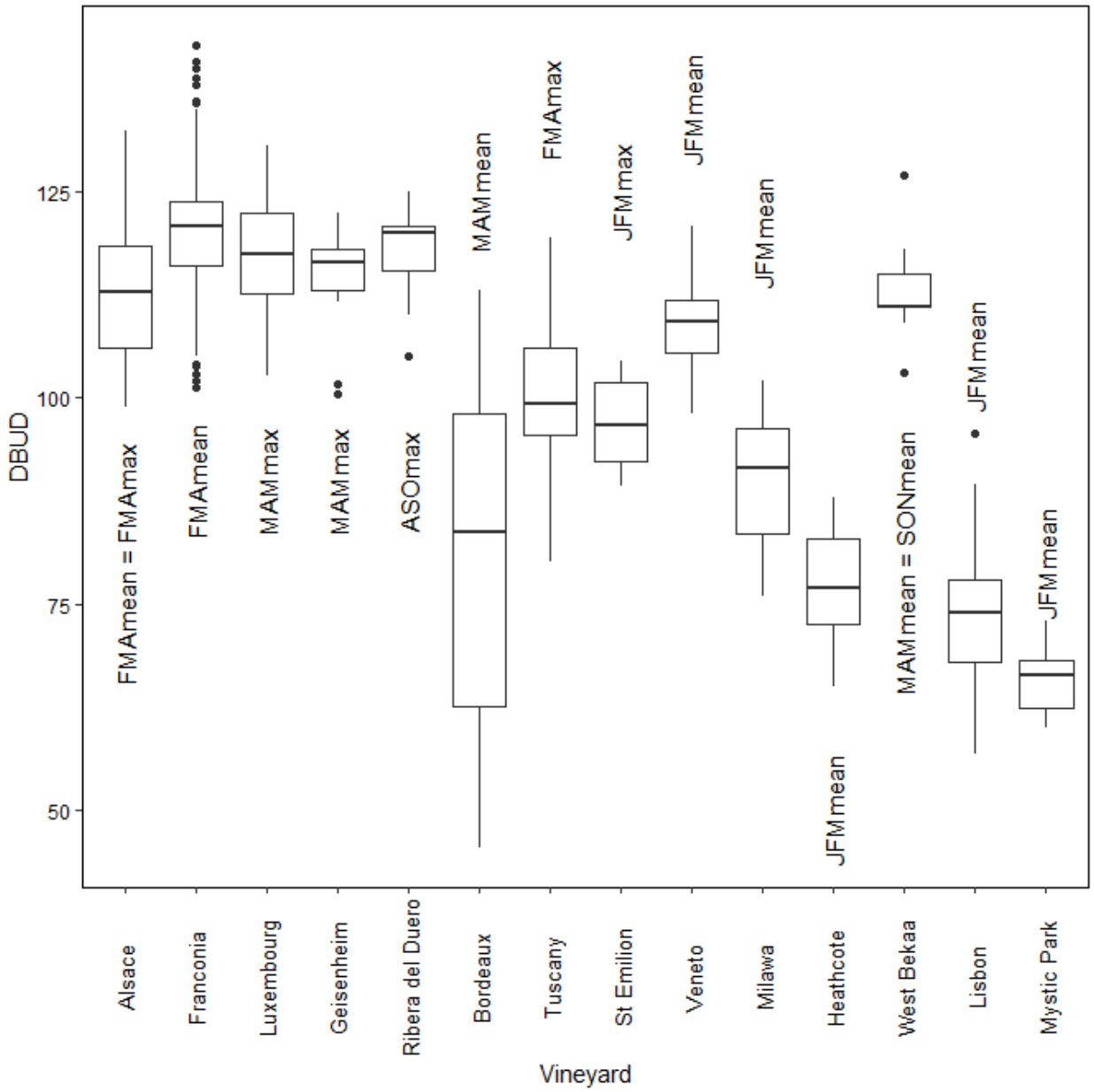


FIGURE S8. Timing of DDUB at each vineyard.

DBUD was the day of the year of budburst from the 1st January (northern hemisphere) or 1st July (southern hemisphere). The text shows the best 3-month temperature summation (i.e., highest R^2 value) for DBUD at that vineyard. ASO, August, September, October; FMA, February, March, April; MAM, March April, May; JFM, January, February, March; SON, September, October, November. Max, Maximum.

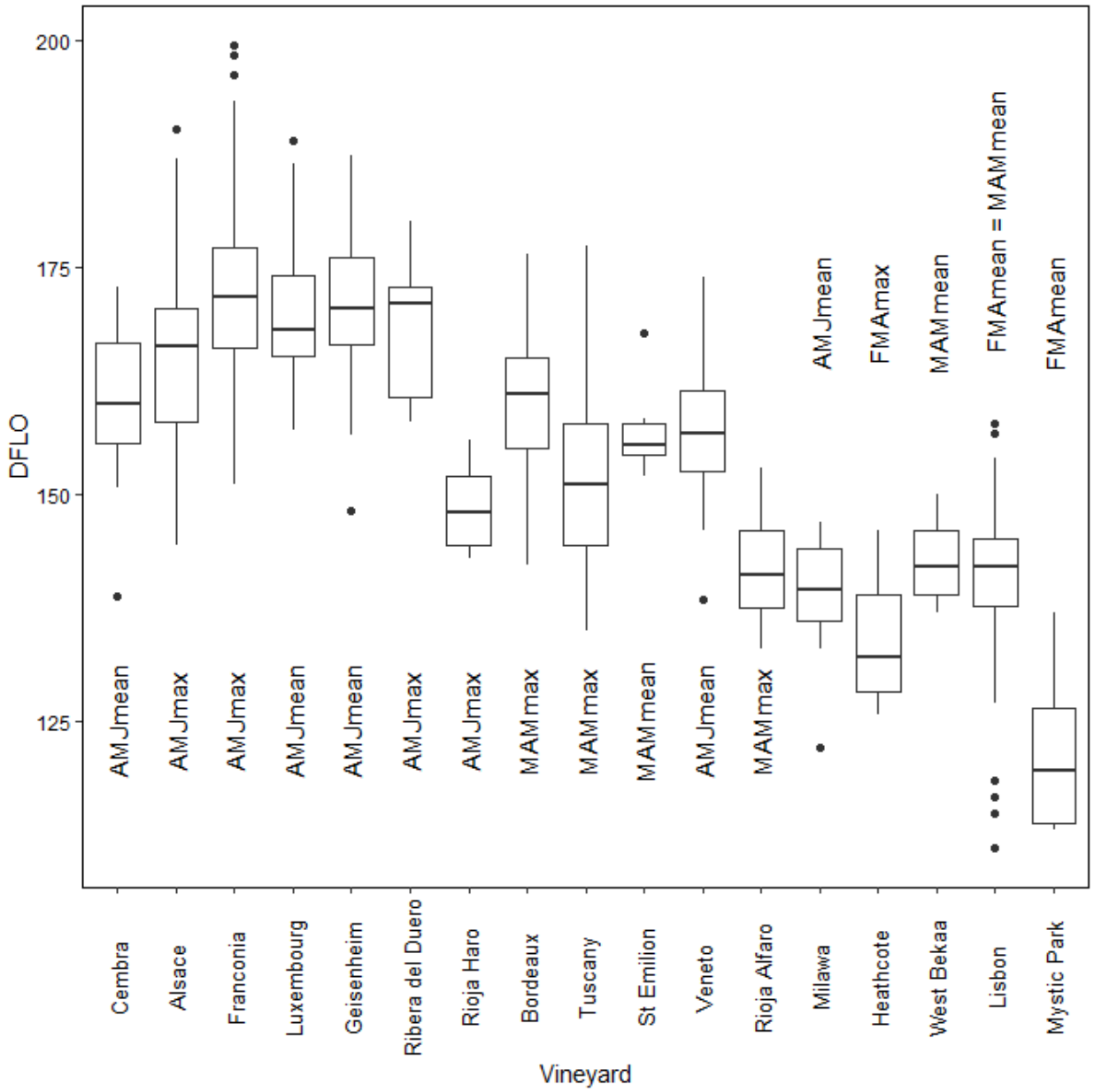


FIGURE S9. Timing of DFLO at each vineyard.

DFLO was the day of the year of flowering from the 1st January (northern hemisphere) or 1st July (southern hemisphere). The text shows the best 3-month temperature summation (i.e., highest R^2 value) for DFLO at that vineyard. AMJ, April, May, June; ASO, August, September, October; FMA, February, March, April; MAM, March April, May. Max, Maximum.

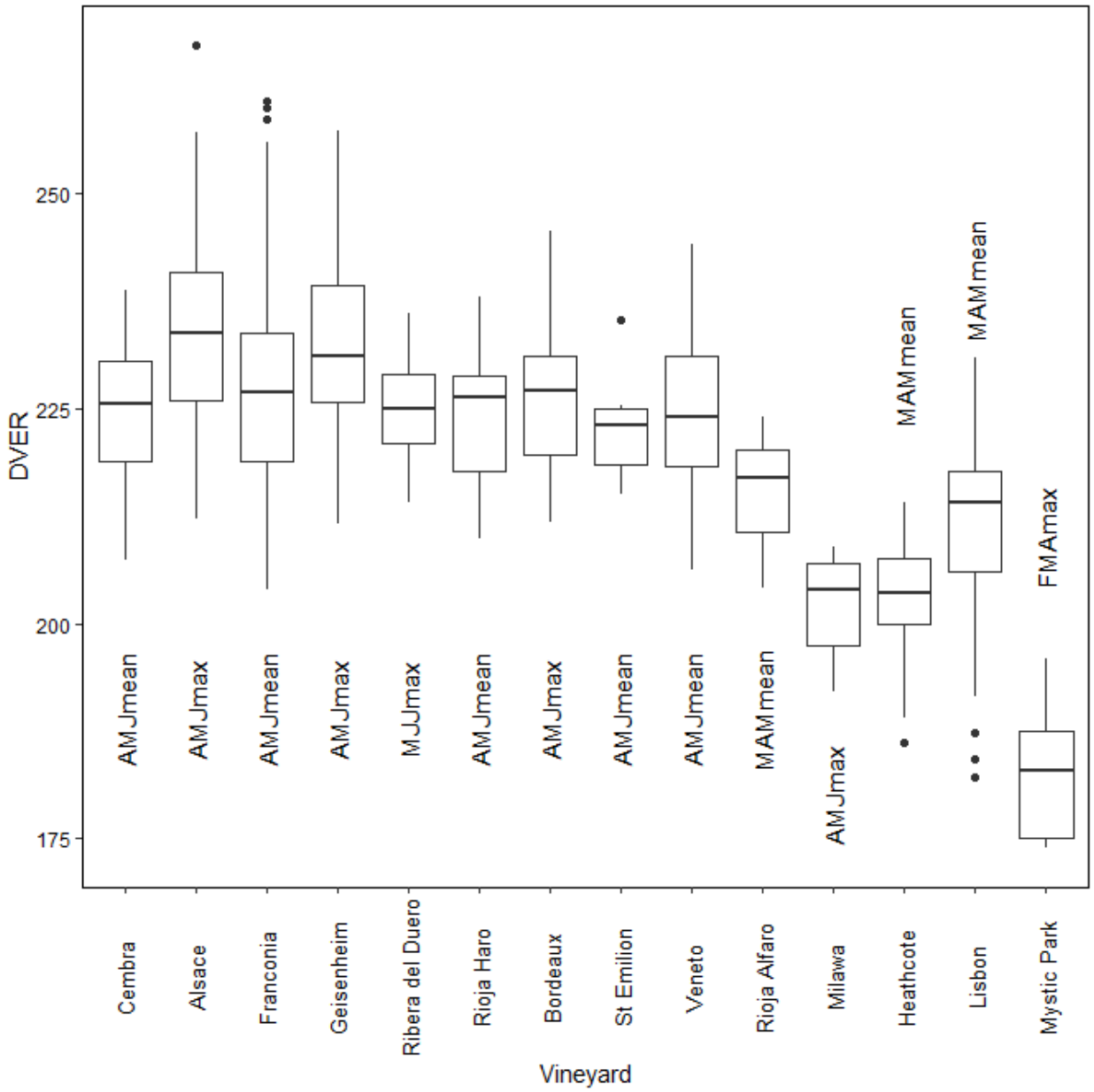


FIGURE S10. Timing of DVER at each vineyard.

DVER was the day of the year of veraison from the 1st January (northern hemisphere) or 1st July (southern hemisphere). The text shows the best 3-month temperature summation (i.e., highest R^2 value) for DVER at that vineyard. AMJ, April, May, June; FMA, February, March, April; MAM, March April, May; MJJ, May, June, July. Max, Maximum.

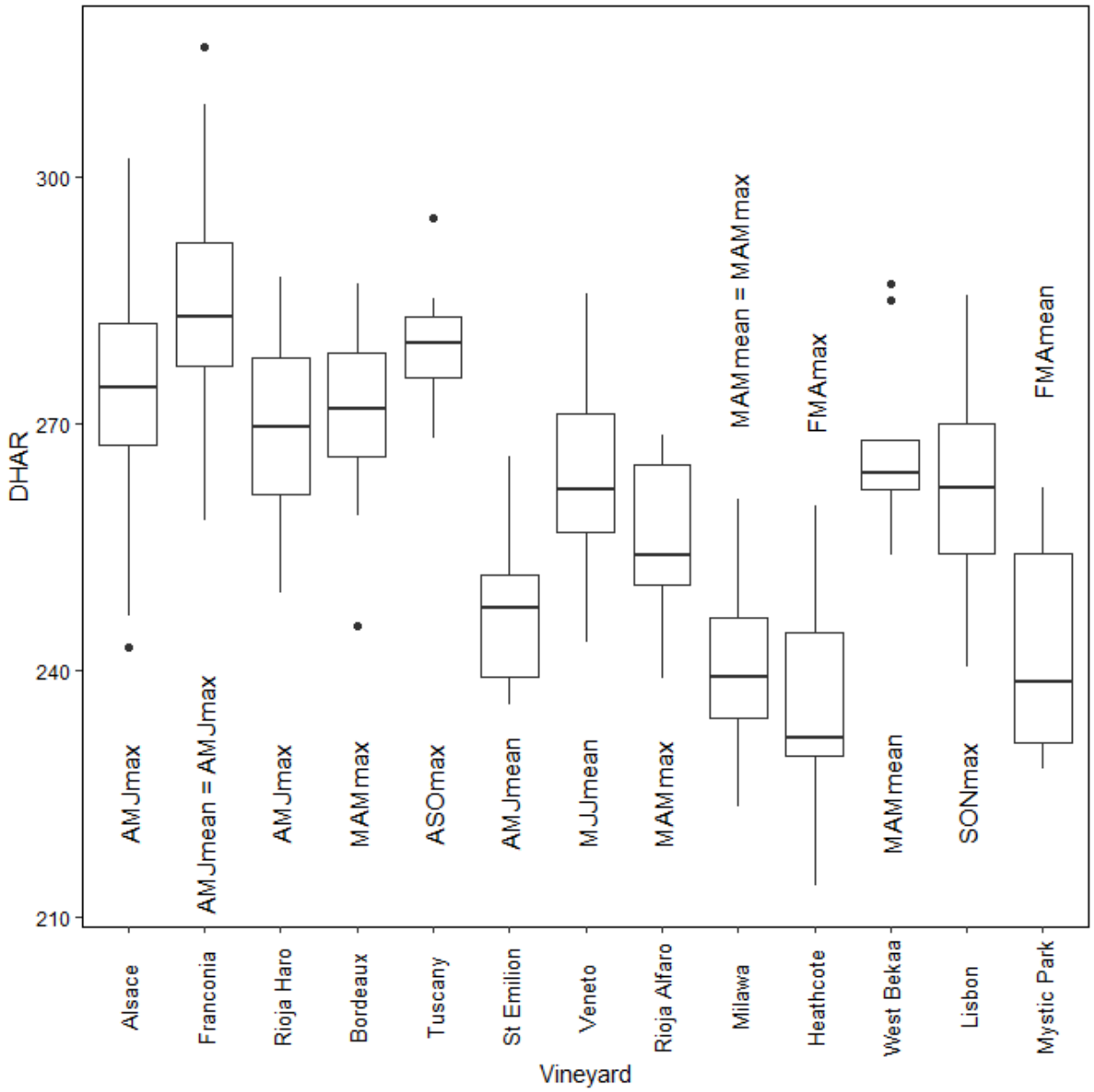


FIGURE S11. Timing of DHAR at each vineyard.

DHAR was the day of the year of harvest from the 1st January (northern hemisphere) or 1st July (southern hemisphere). The text shows the best 3-month temperature summation (i.e., highest R^2 value) found for DHAR at that vineyard. AMJ, April, May, June; ASO, August, September, October; FMA, February, March, April; MAM, March April, May; MJJ, May, June, July; SON, September, October, November. Max, Maximum.