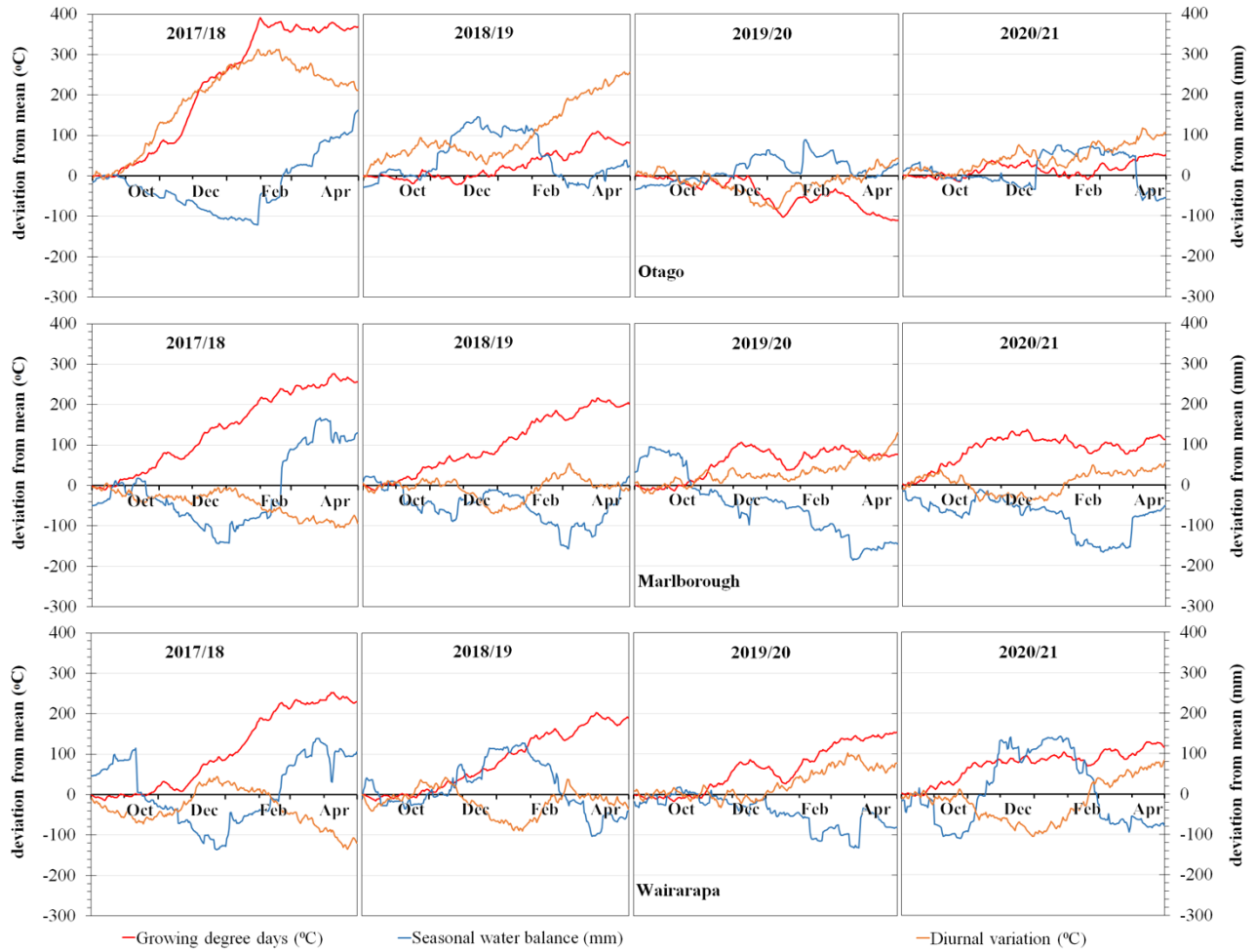


## Supplementary Information



**SUPPLEMENTARY FIGURE S1.** Seasonal deviations from Long term average (LTA) of Growing degree days (GDD), Seasonal water balance (SWB) and Diurnal variation (DV) in four September to April growing seasons from 2017/18 to 2020/21 in Otago (top), Marlborough (centre) and Wairarapa (bottom), New Zealand.

**SUPPLEMENTARY DATA**

Martin, D., Lindsay, M., Kilmartin, P., Dias Araujo, L., Rutan, T., Yvon, M., Stuart, L., Grab, F., Moore, T., Scofield, C., Schurmann, M., & Grose, C. (2022). TERCLIM - Grape berry size is a key factor in determining New Zealand Pinot noir wine composition. *OENO One*, 56(2). <https://doi.org/10.20870/oeno-one.2022.56.2.5436>

**SUPPLEMENTARY TABLE S1.** Harvest dates and accumulated growing degree days (base 10 °C) for the period from budburst to harvest for the New Zealand Pinot noir Ideal Vine study network for vintages 2018 to 2021. Vineyard details are described in Table 1.

Vineyard	Harvest date				Growing Degree Days (10°C)			
	2018	2019	2020	2021	2018	2019	2020	2021
OA	04-03-18	02-04-19	31-03-20	02-04-21	1,198	1,102	896	1,056
OB	14-03-18	08-04-19	16-04-20	08-04-21	1,173	1,075	943	1,082
OC	08-03-18	18-03-19	31-03-20	24-03-21	1,162	998	928	1,004
OD	17-03-18	08-04-19	09-04-20	09-04-21	1,176	1,071	933	1,084
MA	16-03-18	12-03-19	23-03-20	08-03-21	1,103	1,028	1,007	1,114
MB	29-03-18	12-03-19	22-03-20	11-03-21	1,298	1,158	1,122	1,135
MC	25-03-18	22-03-19	27-03-20	18-03-21	1,132	1,091	1,007	1,174
MD	31-03-18	15-03-19	27-03-20	30-03-21	1,297	1,167	1,136	1,234
WA	16-03-18	19-03-19	16-03-20	n/a	1,185	1,169	1,116	n/a
WB	16-03-18	19-03-19	21-03-20	25-03-21	1,184	1,170	1,135	1,142
WC	26-03-18	n/a	n/a	07-04-21	1,203	n/a	n/a	1,220
WD	n/a	10-04-19	03-04-20	29-03-21	n/a	1,211	1,180	1,174

**SUPPLEMENTARY TABLE S2.** Statistics and target specification ranges for grape berry weight and basic berry composition parameters of the New Zealand Pinot noir Ideal Vine study network in 2018, 2019, 2020 and 2021. The Upper and Lower ranges of the specification are equal to the mean  $\pm$  1.25SD.

Year		Berry mass (g)	TSS (°Brix)	TA (g/L H <sub>2</sub> T)	pH	OD <sub>280</sub> (AU)	OD <sub>520</sub> (AU)
2018	Mean	1.3	22.5	7.2	3.33	1.34	0.21
	Max.	1.7	24.6	9.2	3.67	2.11	0.33
	Min.	0.9	19.6	4.9	3.14	0.74	0.15
	Median	1.3	22.4	7.1	3.31	1.39	0.21
	SD	0.2	1.0	0.9	0.12	0.33	0.04
	Upper	1.5	23.8	8.3	3.48	1.76	0.26
	Lower	1.0	21.2	6.1	3.18	0.93	0.16
	N	60	60	60	60	60	60
2019	Mean	0.9	22.4	8.0	3.29	1.98	0.74
	Max.	1.2	24.8	10.3	3.62	2.55	1.30
	Min.	0.6	19.3	5.6	3.09	1.33	0.47
	Median	0.9	22.3	7.9	3.27	1.98	0.73
	SD	0.1	1.3	0.9	0.12	0.24	0.13
	Upper	1.0	24.0	9.1	3.43	2.28	0.90
	Lower	0.7	20.8	6.8	3.14	1.67	0.57
	N	70	70	70	70	70	70
2020	Mean	0.9	21.7	8.2	3.34	1.93	0.50
	Max.	1.3	25.4	11.4	3.87	2.43	0.63
	Min.	0.5	15.8	6.3	2.98	1.42	0.28
	Median	0.9	22.2	8.2	3.28	1.92	0.52
	SD	0.2	2.3	1.1	0.25	0.25	0.10
	Upper	1.1	24.6	9.6	3.65	2.24	0.62
	Lower	0.7	18.9	6.9	3.02	1.62	0.37
	N	30	30	30	30	30	30
2021	Mean	1.0	23.3	7.4	3.29	1.42	0.44
	Max.	1.4	25.8	10.1	3.75	2.16	0.67
	Min.	0.7	18.9	5.4	2.94	0.54	0.21
	Median	1.0	23.4	7.6	3.29	1.49	0.44
	SD	0.2	1.2	1.0	0.16	0.40	0.11
	Upper	1.2	24.8	8.7	3.48	1.92	0.58
	Lower	0.8	21.7	6.1	3.10	0.92	0.30
	N	70	70	70	70	70	70

Abbreviations: TSS = Total Soluble Solids; TA = Titratable Acidity; H<sub>2</sub>T = Tartaric Acid; AU = Absorbance Units; OD280 = Optical Density @ 280 nm; OD520 = Optical Density @ 520 nm.

SUPPLEMENTARY DATA

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**SUPPLEMENTARY TABLE S3.**

Summary of variable names, units, abbreviated names and Groups used the MFA analyses for the vine and berry (Full) dataset and the vine, berry, juice and wine (Wine subset) dataset of the New Zealand Pinot noir Ideal Vine study network in 2018, 2019, 2020 and 2021.

Variable Name	Variable Units	MFA short ID	MFA Variable Group (Full Dataset)	MFA Variable Group (Wine subset)
Region			Classification field	Classification field
Vineyard			Classification field	Classification field
Vine			Classification field	Classification field
Vintage			Classification field	Classification field
Vine yield category			Classification field	Classification field
Berry size category			Classification field	Classification field
Yield per vine	(kg)	YV	yield	yield
Yield per m	(kg/m)	YM		yield
Yield per m <sup>2</sup>	(kg/m <sup>2</sup> )	YM2		yield
Cluster number		CNo	yield	yield
Cluster weight	(g)	CWT	yield	yield
Berry weight	(g)	BWT	berry weight	berry weight
Berry TSS	(°Brix)	FTSS	maturity	maturity
Berry pH		FpH	acidity	acidity
Berry TA	(g/L H <sub>2</sub> T)	FTAR	acidity	acidity
Berry OD280	(AU)	F280	polyphenols	polyphenols
Berry OD320	(AU)	F320	polyphenols	polyphenols
Berry OD520	(AU)	F520	colour	colour
Juice total soluble solids	(°Brix)	JTSS		maturity
Juice pH		JpH		acidity
Juice titratable acidity	(g/L H <sub>2</sub> T)	JTA		acidity
Juice primary amino acids	(g/L)	JRS		YAN
Juice malic acid	(g/L)	JMA		acidity
Juice tartaric acid	(g/L)	JTA		acidity
Juice ammonium	(mg/L N)	JNH4		YAN
Juice calcium	(mg/L)	JCa		cations
Juice magnesium	(mg/L)	JMg		cations
Juice potassium	(mg/L)	JK		cations
Juice alanine	(µmol/L)	ALA		YAN
Juice arginine	(µmol/L)	ARG		YAN
Juice aspartic acid	(µmol/L)	ASP		YAN
Juice glutamic acid	(µmol/L)	GLU		YAN
Juice serine	(µmol/L)	SER		YAN
Juice threonine	(µmol/L)	THR		YAN
Juice tyrosine	(µmol/L)	TYR		YAN
Marc:wine ratio		M:W		berry weight
Wine alcohol	(% v/v)	ALC		maturity
Wine pH		WpH		acidity
Wine titratable acidity	(g/L H <sub>2</sub> T)	WTA		acidity
Wine residual sugar	(g/L)	WRS		maturity
Wine colour density	(AU)	CD		colour
Wine hue		HUE		colour
Wine methyl cellulose precip	(g/L EPG)	MCPT		polyphenols
Wine monomeric anthocyanin	(mg/L M <sub>3</sub> G)	MANT		colour
Wine total anthocyanins	(mg/L M <sub>3</sub> G)	TANT		colour
Wine total phenolics		WTP		polyphenols
δ <sup>13</sup> CPDB	(‰)	13C		berry weight
Gallic acid	(mg/L)	GA		phenolic acids
Catechin	(mg/L)	CAT		polyphenols
Epicatechin	(mg/L)	EPC		polyphenols
Trans-caftaric acid	(mg/L CAE)	TCA		phenolic acids
Trans-coutaric acid	(mg/L CAE)	TCO		phenolic acids
Caffeic acid	(mg/L)	CFA		polyphenols
Resveratrol	(mg/L)	RVT		polyphenols
∑ Quercetin-G	(mg/L RUT)	QGL		polyphenols
Malvidin 3-glucoside	(mg/L)	M3G		colour
Polymeric Anthocyanins	(mg/L M <sub>3</sub> G)	PANT		colour
Total Shoot number		SNO		leaf area
Shoot number > 5mm		S>5		leaf area
Shoot number < 5mm		S<5		leaf area
Blind buds		BB		leaf area
% Leaf in fruit zone	(%)	%FL		leaf area
% Vine canopy	(%)	%VL		leaf area
Leaf Area per vine	(cm <sup>2</sup> )	LAV		leaf area
Leaf Area per m	(cm <sup>2</sup> )	LAM		leaf area
Leaf area:fruit weight		LA:FW		yield