Supplemental Data for:
Xi X, Zha Q, Yin X and Jiang A. 2023. Changes in sugar, anthocyanin, and ABA accumulation in response to cluster thinning and girdling in Jumeigui grape. Am J Enol Vitic 74:6. DOI: 10.5344/ajev.2022.22038

Supplemental Table 1 Primers used for the quantification of gene expression levels by qRT-PCR.

Gene name	Accession number	Forward (5'→3')	Reverse (5'→3')
CHS2	AB066275	GAAGATGGGAATGGCTGCTG	AAGGCACAGGGACACAAAAG
CHI1	X75963	CAGGCAACTCCATTCTTTTC	TTCTCTATCACTGCATTCCC
F3H1	X75965	CCAATCATAGCAGACTGTCC	TCAGAGGATACACGGTTGCC
F3H2	TC45490	CTGTGGTGAACTCCGACTGC	CAAATGTTATGGGCTCCTCC
F3'5'H	AB213606	AAACCGCTCAGACCAAAACC	ACTAAGCCACAGGAAACTAA
DFR	X75964	GAAACCTGTAGATGGCAGGA	GGCCAAATCAAACTACCAGA
LDOX	X75966	AGGGAAGGGAAAACAAGTAG	ACTCTTTGGGGATTGACTGG
UFGT	AF000372	GGGATGGTAATGGCTGTGG	ACATGGGTGGAGAGTGAGTT
OMT	FJ460168	GTTCAACTTCATGAGATGGA	GGAGAACTACCTCAACTACCA
antho-MATE	FJ264202	GCAAACAACAGAGAGGATGC	AGACCTCGACAATGATCTTAC
MYB5a	AY555190	GTGCAGCAGCCATCTAATGTG	GCAGCAGGTTCCCAGACAGT
MYB5b	AY899404	GGTGTTCTTTAATTTGGCTTCA	CACAACAACACAACCACATACA
MYBPA1	AM259485	CATGCACGTGCTCACCTT	CCGCACGTATCGCTATTATAAG
VlMYB1-3	AB427165	GGCTTCTGGAGAGGTGCTTA	CTGTGTTGGGAAAATCCCA
MYB4	EF113078	ACCGGACGTTACAACCATATC	TCCGTAACTGGGTTTTTCTCA
NCED1	AY337613	GAGACCCCAACTCTGGCAGG	AAGGTGCCGTGGAATCCATAG
NCED2	AY337614	AGTTCCATACGGGTTTCATGGG	CCATTTTCCAAATCCAGGGTGT
VvAIN		CCATCTCCATCCCATCGTAACC	GGCTATCCAAGTTTCCAACCAACC
NI	NM_001281047.1	TTGCAGCTAATGACCCAGGG	GCAGTCCACAGTCTTCTCCC
SS	BG273882.1	CCAGCCAACGTCATTAGCCT	CCATGACTTGTGGCCTTCCT
VvActin1	XM_002282480	CTTGCATCCCTCAGCACCTT	TCCTGTGGACAATGGATGGA
VvGAPDH	VIT_17s0000g10430	TTCCGTGTTCCTACTGTTG	CCTCTGACTCCTCCTTGAT

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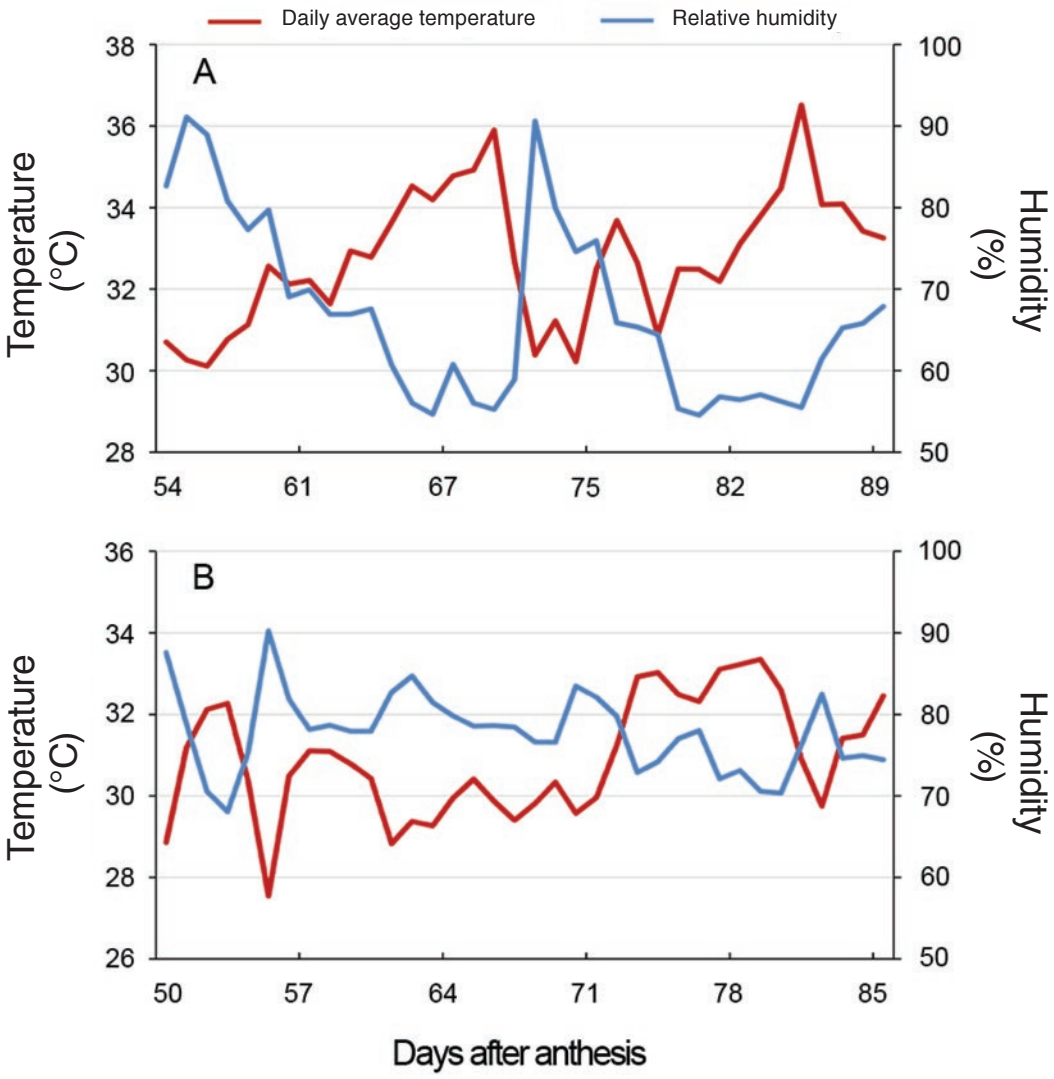
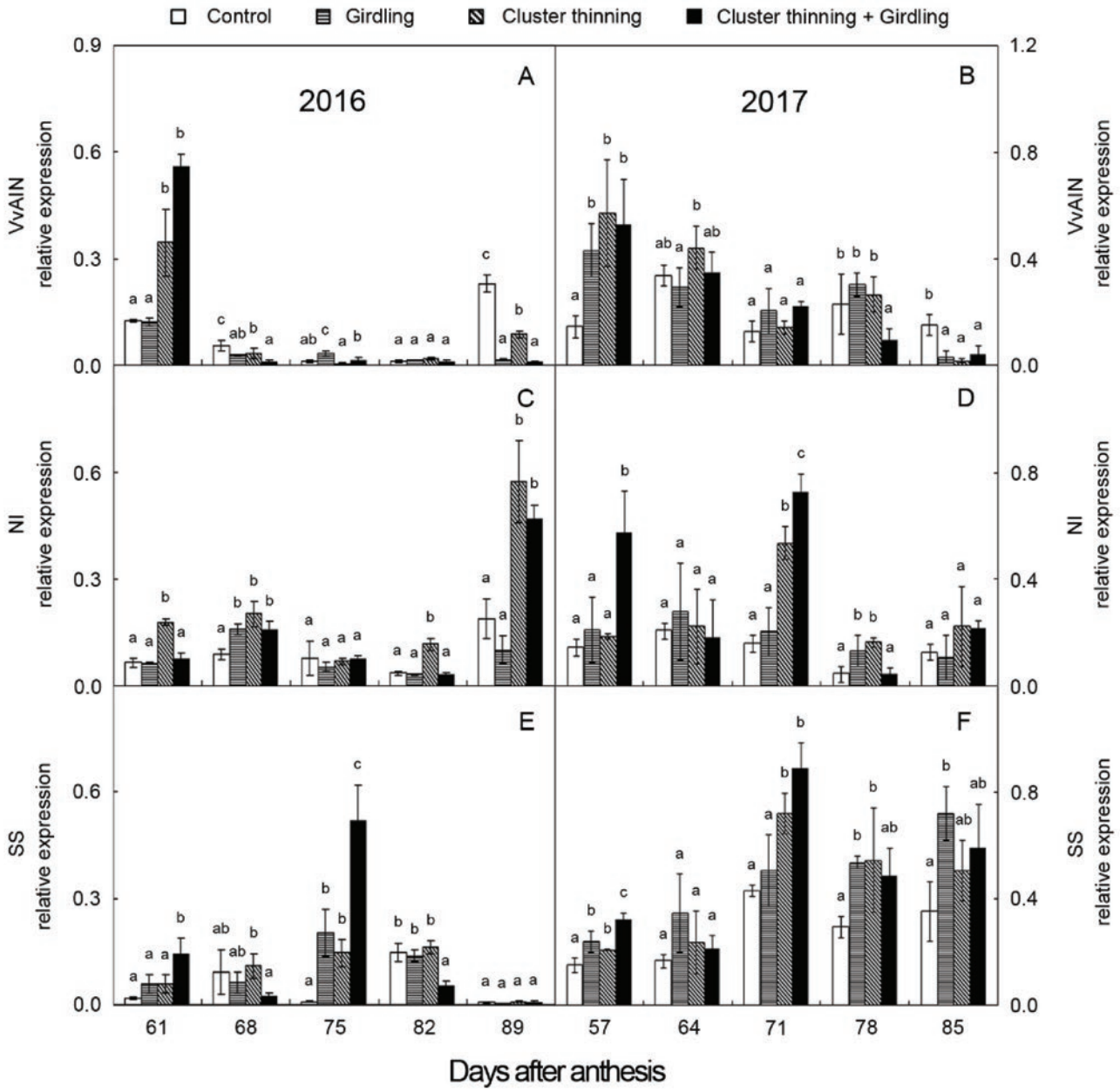
Supplemental Table 2 Effect of cluster thinning and girdling (separated or combined) on the anthocyanin profiles (expressed as mg/g fresh weight) at harvest in 2016 and 2017.

Number	Compounds	RT (min)	Year	CK	T1	T2	T3
1	Peonidin 3-*O*-glucoside-5-*O*-glucoside	16.44	2016	0.01 a[a]	0.01 a	0.02 b	0.03 c
			2017	0.02 a	0.03 a	0.04 b	0.11 c
2	Cyanidin-3-*O*-glucoside	19.16	2016	0.02 a	0.02 a	0.01 a	0.02 a
			2017	0.03 a	0.05 b	0.07 c	0.17 d
3	Peonidin-3-*O*-glucoside	21.13	2016	0.01 a	0.01 a	0.01 b	0.03 c
			2017	0.03 a	0.03 a	0.04 a	0.11 b
4	Malvidin-3-*O*-glucoside	23.99	2016	0.12 a	0.13 a	0.17 b	0.23 c
			2017	0.22 a	0.32 b	0.49 c	0.84 d
5	Delphinidin-3-*O*-acetylglucoside	25.34	2016	0.05 a	0.10 b	0.24 c	0.42 d
			2017	0.28 a	0.28 a	0.36 b	0.68 c
6	Cyanidin 3-*O*-glucoside-5-glucoside-p-coumarate	35.98	2016	0.02 a	0.02 a	0.01 a	0.02 a
			2017	0.02 a	0.02 a	0.03 b	0.05 c
7	Peonidin 3-*O*-glucoside-5-*O*-glucoside-caffeoate	36.67	2016	0.01 a	0.01 a	0.01 a	0.04 b
			2017	0.02 a	0.02 a	0.02 a	0.04 b
8	Delphinidin-3-*O*-coumarylglucoside	38.31	2016	0.01 a	0.01 a	0.01 b	0.02 c
			2017	0.01 a	0.02 a	0.02 a	0.04 b
9	Malvidin-3-*O*-acetylglucoside	38.70	2016	0.01 b	0.01 a	0.01 b	0.02 c
			2017	0.02 b	0.01 a	0.02 b	0.03 c
10	Peonidin-3-*O*-coumarylglucoside-5-*O*-glucoside	41.19	2016	0.02 c	0.01 a	0.01 a	0.01 b
			2017	0.01 a	0.01 a	0.02 b	0.04 c
11	Malvidin-3-*O*-coumarylglucoside-5-*O*-glucoside	41.92	2016	0.01 a	0.01 a	0.02 b	0.03 c
			2017	0.02 a	0.02 a	0.02 a	0.04 b
12	Cyanidin-3-*O*-coumarylglucoside	42.18	2016	0.01 a	0.01 a	0.02 b	0.04 c
			2017	0.03 b	0.02 a	0.02 a	0.05 c
13	Petunidin-3-*O*-coumarylglucoside	45.21	2016	0.03 a	0.03 a	0.08 b	0.14 c
			2017	0.08 a	0.09 a	0.13 b	0.24 c
14	Malvidin-3-*O*-caffeoylglucoside	45.63	2016	0.06 a	0.05 a	0.09 b	0.17 c
			2017	0.13 a	0.11 a	0.13 a	0.23 b

[a]Different letters within a row indicate statistically different values ($p < 0.05$) according to Duncan's multiple range test.

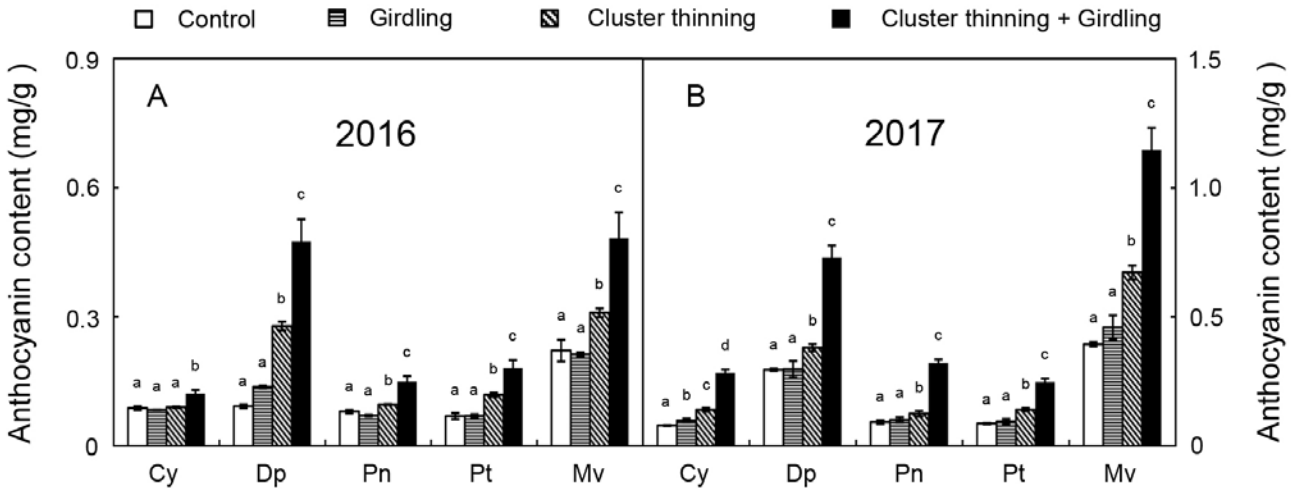


Supplemental Figure 1 Daily average temperature (°C) and relative humidity (%) within the greenhouse of experimental vineyard at Shanghai Academy of Agricultural Sciences (Shanghai, China) throughout the ripening periods in 2016 (**A**) and 2017 (**B**).



Supplemental Figure 2 Expression levels of genes involved in sugar accumulation under cluster thinning and girdling (separated or combined) in two consecutive seasons. (**A**, **B**) VvAIN; (**C**, **D**) NI; (**E**, **F**) SS. Data presented are means ± SE (n = 3). Different letters indicate significant differences among treatments at the same date using Duncan's multiple range test ($p < 0.05$).

Supplemental Figure 3 Comparison of skin coloration under cluster thinning and girdling (separated or combined) in 2017. (**A**) 57 DAA; (**B**) 71 DAA; (**C**) 85 DAA. CK, control; T1, girdling; T2, cluster thinning; T3, cluster thinning + girdling. The bar represents 1 cm.



Supplemental Figure 4 Effect of cluster thinning and girdling (separated or combined) on the concentration of five anthocyanin groups at harvest across two consecutive seasons. (**A**) 2016; (**B**) 2017. Cy, cyanidin derivatives; Dp, delphinidin derivatives; Mv, malvidin derivatives; Pn, peonidin derivatives; Pt, petunidin derivatives. Data presented are means ± SE (n = 3). Different letters indicate significant differences among treatments at the same date using Duncan's multiple range test ($p < 0.05$).