

**Table 1S. Irrigation dates and water volume applied to irrigated vines during the three-year field experiment.**

2016		2017		2018	
Date	L.m <sup>-2</sup>	Date	L.m <sup>-2</sup>	Date	L.m <sup>-2</sup>
13 May	4.65	26 May	6.2	06 Jul	7.75
19 May	4.65	30 May	6.2	09 Jul	7.75
23 May	4.65	01 Jun	4.65	12 Jul	6.2
26 May	3.1	06 Jun	1.55	16 Jul	7.75
31 May	4.65	12 Jun	6.2	20 Jul	7.75
03 Jun	4.65	15 Jun	6.2	23 Jul	7.75
06 Jun	4.65	19 Jun	6.2	26 Jul	7.75
10 Jun	3.1	22 Jun	6.2	30 Jul	9.3
16 Jun	6.2	27 Jun	4.65	02 Aug	7.75
				04 Aug	7.75
22 Jun	6.2	30 Jun	6.2	07 Aug	6.2
				11 Aug	6.2
24 Jun	4.65	03 Jul	7.75	14 Aug	6.2
				18 Aug	4.65
28 Jun	6.2	06 Jul	7.75	25 Aug	4.65
				29 Aug	9.3
30 Jun	7.75	10 Jul	6.2	31 Aug	9.3
				01 Sep	7.75
04 Jul	7.75	14 Jul	7.75		
07 Jul	9.3	18 Jul	6.2		
11 Jul	7.75	21 Jul	6.2		
15 Jul	4.65	24 Jul	6.2		
18 Jul	9.3	28 Jul	7.75		
26 Jul	7.75	31 Jul	7.75		
29 Jul	7.75	04 Aug	7.75		
01 Aug	7.75	08 Aug	7.75		
02 Aug	7.75	11 Aug	7.75		
05 Aug	7.75	14 Aug	7.75		
09 Aug	9.3	18 Aug	4.65		
12 Aug	7.75	25 Aug	4.65		
17 Aug	9.3				
19 Aug	9.3				
22 Aug	7.75				
25 Aug	9.3				
28 Aug	4.65				
30 Aug	6.2				
01 Sep	6.2				

**Supplementary Table 2S. Effect tests of the Generalized Linear Model for the Water potential.** Overall Chi-square test of the model: P < 0.0001.

Source	DF	Chi-square	Prob > Chi-square
Symptomatic	1	0.6486956	0.4206
Year	2	6.8808916	0.0321*
Sampling	2	144.97259	<.0001*
Irrigated	1	26.897231	<.0001*
Irrigated*Symptomatic	1	0.516853	0.4722
Sampling*Symptomatic	2	0.6345812	0.7281
Sampling*Irrigated	2	19.330558	<.0001*
Year*Irrigated	2	0.9845182	0.6112

**Supplementary Table 3S. Effect tests of the Generalized Linear Model for the transpiration rate (E).** Overall Chi-square test of the model:  $P < 0.0001$ .

Source	DF	Chi-square	Prob > Chi-square
Symptomatic	1	3.8192729	0.0507
Year	2	41.449064	<.0001*
Sampling	2	92.730287	<.0001*
Irrigated	1	0.9428001	0.3316
Irrigated*Symptomatic	1	0.0519037	0.8198
Sampling*Symptomatic	2	0.0942891	0.9539
Sampling*Irrigated	2	6.7097034	0.0349*
Year*Symptomatic	2	1.2947364	0.5234

**Supplementary Table 4S. Effect tests of the Generalised Linear Model for the stomatal conductance (g<sub>s</sub>).** Overall Chi-square test of the model:  $P < 0.0001$ .

Source	DF	Chi-square	Prob > Chi-square
Symptomatic	1	1.6039859	0.2053
Year	2	13.897468	0.0010*
Sampling	2	36.215789	<.0001*
Irrigated	1	10.336014	0.0013*
Irrigated*Symptomatic	1	0.0033311	0.9540
Sampling*Symptomatic	2	0.5867309	0.7457
Sampling*Irrigated	2	0.877412	0.6449
Year*Symptomatic	2	1.4579617	0.4824

**Supplementary Table 5S. Effect tests of the Generalized Linear Model for the photosynthetic activity (A<sub>N</sub>).** Overall Chi-square test of the model:  $P < 0.0001$ .

Source	DF	Chi-square	Prob > Chi-square
Symptomatic	1	2.5176049	0.1126
Year	2	5.3894674	0.0676
Sampling	2	88.718992	<.0001*
Irrigated	1	7.7802364	0.0053*
Irrigated*Symptomatic	1	0.3333166	0.5637
Sampling*Symptomatic	2	0.1893141	0.9097
Sampling*Irrigated	2	3.6239068	0.1633
Year*Symptomatic	2	5.1145259	0.0775

**Supplementary Table 6S. List of variables included in the Principal Component Analysis, and partial contribution of each variable to the three first Principal components (Prin1, Prin2 and Prin3).**

<b>Variables</b>	<b>Prin1</b>	<b>Prin2</b>	<b>Prin3</b>
Foliar symptoms preH*	2.29294	2.42400	6.62573
Mean temperature Ver-H	9.38941	0.00118	0.41759
Mean Max temperature Ver-H	9.35349	0.27942	0.02141
Mean Min temperature Ver-H	5.10301	8.45985	4.50736
Mean RH Ver-H	7.94930	2.07173	3.39275
Cummulative rainfall Ver-H	4.98371	7.11299	7.90566
Mean temperature	3.54777	11.19397	6.68656
Mean Max temperature	6.93662	5.12095	2.17768
Mean Min temperature	7.63334	3.81059	1.37899
Cummulative rainfall	6.53255	4.42846	5.65588
Irrigation volume	0.72508	0.49458	16.95129
Efective water	5.60026	6.40911	0.67454
Number Heat days (> 30 °C)	9.16978	0.22591	1.06032
Number Heat days (> 35 °C)	6.52431	5.88402	2.67605
Number of Heat events	8.75004	0.81880	1.94948
Water potential ( $\Psi_{\text{mids}}$ ; Mpa) - preH	1.66148	10.60326	1.25428
Transpiration (E; mmol/m <sup>2</sup> s) - preH	2.94568	6.57154	7.87607
Stomatal conductance (gs; mol/m <sup>2</sup> s) - preH	0.74791	13.90068	9.94530
Photosynthetic rate - preH	0.15334	10.18897	18.84308

\* Sampling times and key phenological stages are abbreviated as: Ver = veraison; H = harvest; preH refers to sampling time one week before harvest

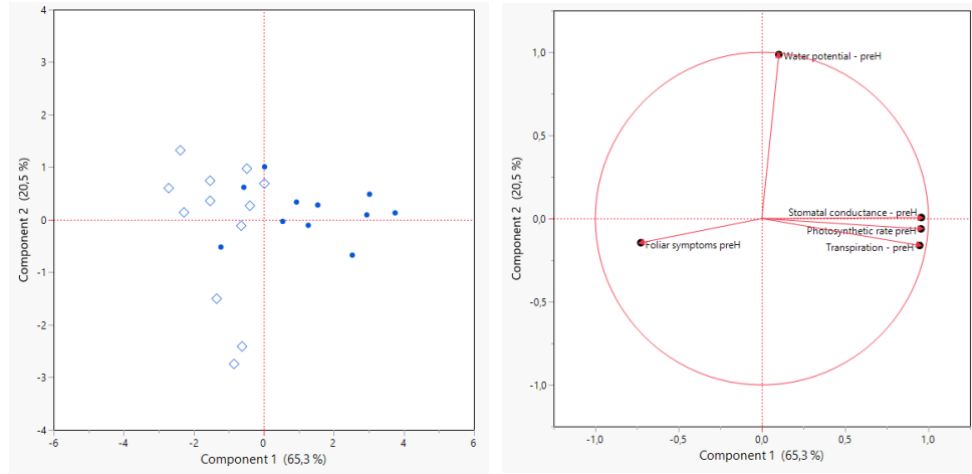
**Table 7S.** Relative gene expressions of 12 selected genes recorded by RT-qPCR in leaves of irrigated symptomatic (IS), non-irrigated asymptomatic (NA) or non-irrigated symptomatic (NS) grapevine (*Vitis vinifera* cv. Chardonnay) at flowering, pea-size stage and before harvest in 2017 and 2018. Values (mean of 3 technical replicates ± standard error) represent the expression level in reported condition relatively to the control; i.e., leaves from irrigated and asymptomatic plant (IA). The relative expressions are log2 transformed. Relative expression of a given gene was considered up- or down-regulated when the value of relative expression was > 1 or < -1 respectively compared to the control. Genes significantly down- or over-expressed compared to the control appear in light or dark grey respectively. Letters indicate significant differences at p < 0.05 by Kruskal-Wallis' test between the different conditions for one gene at a time.

Function	Genes	Irrigated Symptomatic (IS)	Non-irrigated Asymptomatic (NA)	Non-irrigated Symptomatic (NS)	Irrigated Symptomatic (IS)	Non-irrigated Asymptomatic (NA)	Non-irrigated Symptomatic (NS)
		<i>Flowering in 2017</i>			<i>Flowering in 2018</i>		
<i>Phenylpropanoid metabolism</i>	<i>CHI</i>	0.09 ± 0.27 a	0.64 ± 0.18 a	0.46 ± 0.20 a	-	-	-
	<i>STS</i>	0.81 ± 0.12 a	-0.73 ± 0.23 b	-0.17 ± 0.31 ab	-0.52 ± 0.16 a	-0.66 ± 0.26 a	-0.43 ± 0.21 a
<i>Defence proteins</i>	<i>Gluc</i>	0.39 ± 0.39 a	-0.23 ± 0.45 a	-0.40 ± 0.48 a	1.85 ± 0.65 a	0.44 ± 0.71 a	0.57 ± 0.54 a
	<i>PR6</i>	-0.14 ± 0.13 a	-0.24 ± 0.24 a	0.11 ± 0.42 a	0.77 ± 0.51 a	0.01 ± 0.17 a	-0.57 ± 0.32 a
<i>Stress tolerance</i>	<i>PIP2.2</i>	-0.22 ± 0.17 a	-0.29 ± 0.06 a	0.17 ± 0.18 a	0.07 ± 0.12 ab	-0.23 ± 0.18 a	0.27 ± 0.08 b
	<i>HSP70</i>	0.02 ± 0.34 a	-0.19 ± 0.20 a	0.24 ± 0.45 a	-	-	-
	<i>TIP1</i>	-0.18 ± 0.13 a	-0.34 ± 0.09 a	0.05 ± 0.18 a	-	-	-
<i>Detoxification</i>	<i>cyAPX</i>	-0.12 ± 0.15 a	0.01 ± 0.16 a	0.06 ± 0.11 a	0.21 ± 0.03 a	0.40 ± 0.06 a	0.04 ± 0.22 a
	<i>GST1</i>	1.19 ± 0.38 a	-0.42 ± 0.32 b	-0.04 ± 0.31 ab	-	-	-
<i>Signalling ABA</i>	<i>NCED1</i>	0.32 ± 0.13 a	-0.60 ± 0.32 a	-0.45 ± 0.28 a	-0.19 ± 0.21 a	-0.48 ± 0.10 a	-0.20 ± 0.15 a
<i>Photosynthesis</i>	<i>RbcL</i>	0.16 ± 0.53 a	0.55 ± 0.14 a	0.57 ± 0.42 a	-	-	-
	<i>SBP</i>	-0.18 ± 0.20 a	-0.08 ± 0.08 a	0.00 ± 0.16 a	-	-	-
		<i>Pea-sized in 2017</i>			<i>Pea-sized in 2018</i>		
<i>Phenylpropanoid metabolism</i>	<i>CHI</i>	-0.05 ± 0.16 a	0.42 ± 0.27 a	0.11 ± 0.20 a	-	-	-
	<i>STS</i>	-0.24 ± 0.21 a	-0.39 ± 0.31 a	-0.20 ± 0.44 a	0.02 ± 0.23 a	0.30 ± 0.35 a	0.07 ± 0.24 a
<i>Defence proteins</i>	<i>Gluc</i>	0.00 ± 0.28 a	-0.17 ± 0.34 a	-0.51 ± 0.71 a	0.66 ± 0.54 a	2.23 ± 0.62 a	0.46 ± 0.66 a
	<i>PR6</i>	0.63 ± 0.45 a	-0.05 ± 0.33 a	1.02 ± 0.29 a	-0.51 ± 1.13 a	1.38 ± 0.49 a	-0.87 ± 0.78 a
<i>Stress tolerance</i>	<i>PIP2.2</i>	0.10 ± 0.12 a	0.15 ± 0.23 a	-0.48 ± 0.11 a	0.06 ± 0.12 a	0.02 ± 0.19 a	-0.03 ± 0.10 a
	<i>HSP70</i>	0.55 ± 0.25 a	0.39 ± 0.21 a	-0.58 ± 0.30 b	-	-	-
	<i>TIP1</i>	0.02 ± 0.13 a	-0.28 ± 0.19 a	-0.54 ± 0.11 a	-	-	-
<i>Detoxification</i>	<i>cyAPX</i>	0.01 ± 0.23 a	-0.11 ± 0.21 a	-0.34 ± 0.26 a	-0.22 ± 0.29 a	0.30 ± 0.37 a	0.45 ± 0.21 a
	<i>GST1</i>	-0.05 ± 0.14 a	-0.45 ± 0.36 a	-0.01 ± 0.48 a	-	-	-

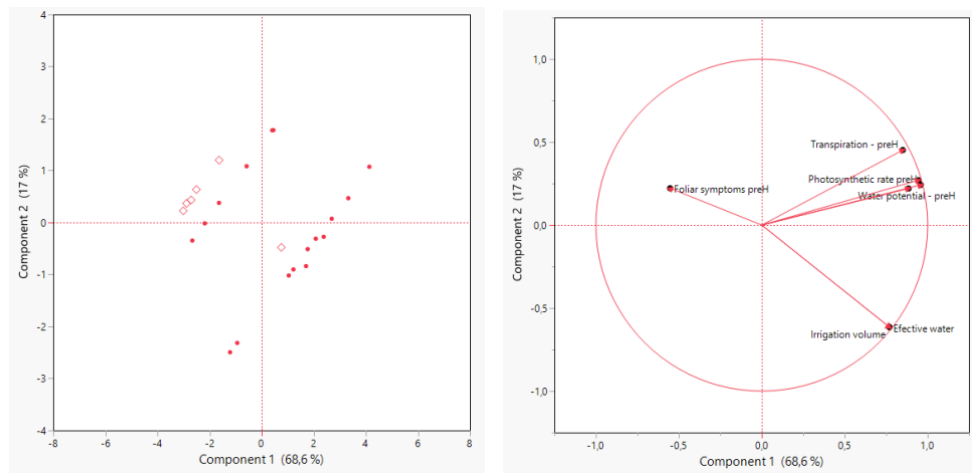
<i>Signalling ABA</i>	<i>NCED1</i>	0.31 ± 0.32 a	0.22 ± 0.21 a	0.48 ± 0.21 a	-0.18 ± 0.21 a	-0.29 ± 0.23 a	0.15 ± 0.16 a
	<i>Photosyntheses</i>	<i>RbcL</i>	-0.16 ± 0.23 a	0.03 ± 0.20 a	-0.01 ± 0.13 a	-	-
	<i>SBP</i>	0.30 ± 0.09 a	0.23 ± 0.18 a	0.13 ± 0.17 a	-	-	-
				<i>Before harvest in 2017</i>		<i>Before harvest in 2018</i>	
<i>Phenylpropanoid metabolism</i>	<i>CHI</i>	-0.25 ± 0.14 a	0.44 ± 0.05 b	-0.02 ± 0.21 ab	-	-	-
	<i>STS</i>	-0.23 ± 0.29 a	-0.28 ± 0.22 a	-0.38 ± 0.47 a	0.91 ± 0.36 a	-0.07 ± 0.38 a	0.43 ± 0.31 a
<i>Defence proteins</i>	<i>Gluc</i>	1.81 ± 0.50 ab	0.07 ± 0.27 a	2.43 ± 0.78 b	0.92 ± 0.19 a	0.29 ± 0.45 a	0.22 ± 0.51 a
	<i>PR6</i>	1.48 ± 0.68 ab	-0.31 ± 0.47 a	2.78 ± 0.52 b	0.34 ± 0.30 a	-0.53 ± 0.13 a	0.28 ± 0.51 a
<i>Stress tolerance</i>	<i>PIP2.2</i>	-0.19 ± 0.10 a	0.73 ± 0.18 b	0.55 ± 0.13 b	0.61 ± 0.09 a	0.43 ± 0.09 a	0.50 ± 0.18 a
	<i>HSP70</i>	-0.19 ± 0.21 a	0.53 ± 0.16 b	0.43 ± 0.19 ab	-	-	-
	<i>TIP1</i>	-0.20 ± 0.15 a	0.02 ± 0.17 a	-0.12 ± 0.13 a	-	-	-
<i>Detoxification</i>	<i>cyAPX</i>	0.19 ± 0.39 a	1.34 ± 0.29 a	1.42 ± 0.15 a	0.12 ± 0.16 a	1.32 ± 0.24 b	1.36 ± 0.17 b
	<i>GST1</i>	0.05 ± 0.29 a	-0.43 ± 0.25 a	-0.07 ± 0.36 a	-	-	-
<i>Signalling ABA</i>	<i>NCED1</i>	0.11 ± 0.39 a	0.30 ± 0.05 ab	0.90 ± 0.17 b	0.42 ± 0.13 ab	0.14 ± 0.23 a	1.17 ± 0.29 b
<i>Photosyntheses</i>	<i>RbcL</i>	-0.07 ± 0.12 a	0.24 ± 0.12 a	-0.51 ± 0.24 a	-	-	-
	<i>SBP</i>	0.01 ± 0.12 a	-0.08 ± 0.07 a	-0.44 ± 0.15 a	-	-	-

**Figure 1S. Principal component analysis of the physiological and epidemiological variables measured in each of the three experiment years: a) 2016, b) 2017 and c) 2018.** Analysis was performed on the results of all the variables in each studied plant in each year (n = 69). Diamond shapes represent symptomatic plants and dots represent asymptomatic plants.

**1SA)**



**1SB)**



**1SC)**

