


SUPPLEMENTARY DATA

Wilson, A., Dizy, M., Dominguez, D., de Rosas, M. I., Baldo, Y., Garcia, L., Gargantini, R., Deis, L., & Martinez, L. (2024). Overhead spray water treatment as a mitigation strategy to alleviate vine stress and safeguard grape quality during heatwaves. *OENO One*, 58(2). <https://doi.org/10.20870/oeno-one.2024.58.2.7847>

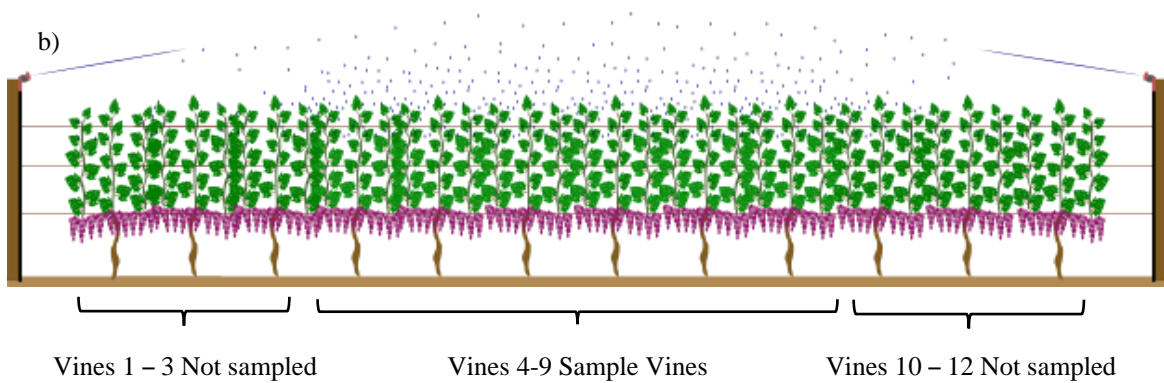
Supplementary data

Rows 								
9	8	7	6	5	4	3	2	1
ML	ML	BO	BO	ML	SY	BO	ML	SY
ML	SY	ML	ML	SY	BO	ML	SY	BO
BO	BO	SY	SY	BO	ML	SY	BO	ML
ML	ML	BO	BO	ML	SY	BO	ML	SY
ML	SY	ML	ML	SY	BO	ML	SY	BO
SY	BO	SY	SY	BO	ML	SY	BO	ML
ML	ML	BO	BO	ML	SY	BO	ML	SY
ML	SY	ML	ML	SY	BO	ML	SY	BO
BO	BO	SY	SY	BO	ML	SY	BO	ML
ML	ML	BO	BO	ML	SY	BO	ML	SY
ML	SY	ML	ML	SY	BO	ML	SY	ML
SY	BO	SY	SY	ML	ML	SY	ML	ML

SUPPLEMENTARY FIGURE 1. Experimental design. Treated vines receiving full coverage from jets (rows: 1, 7 and 8: blue), Control vines (rows: 3 and 5: red), Borders (rows: 2, 4, 6 and 9). Location of jet nozzles (yellow).

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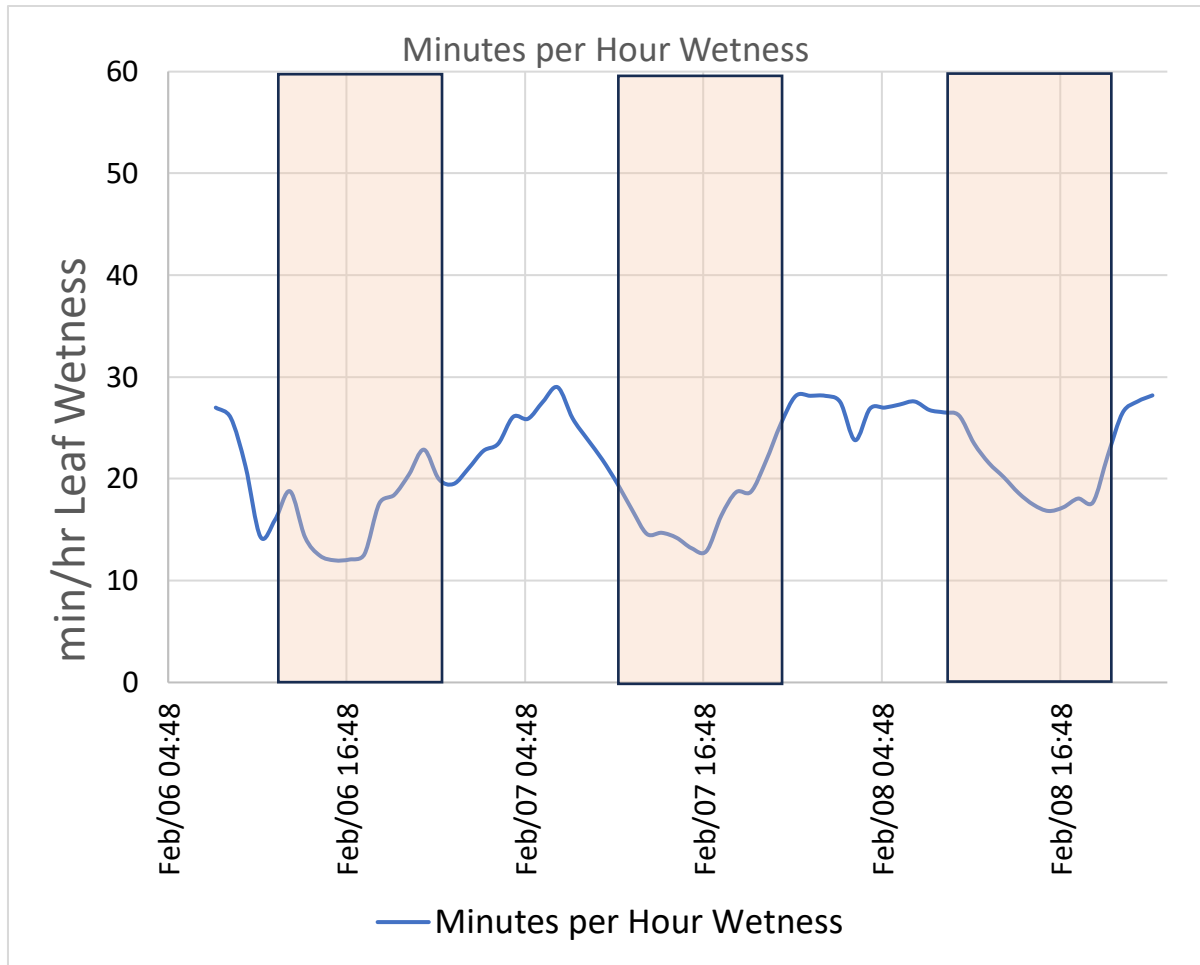
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SUPPLEMENTARY FIGURE 2. a) Image of jet nozzle during treatment application of a targeted pulse of water droplets; b) Sideview schematic of treatment application. The first and the last three vines of each Trt row were not sampled.

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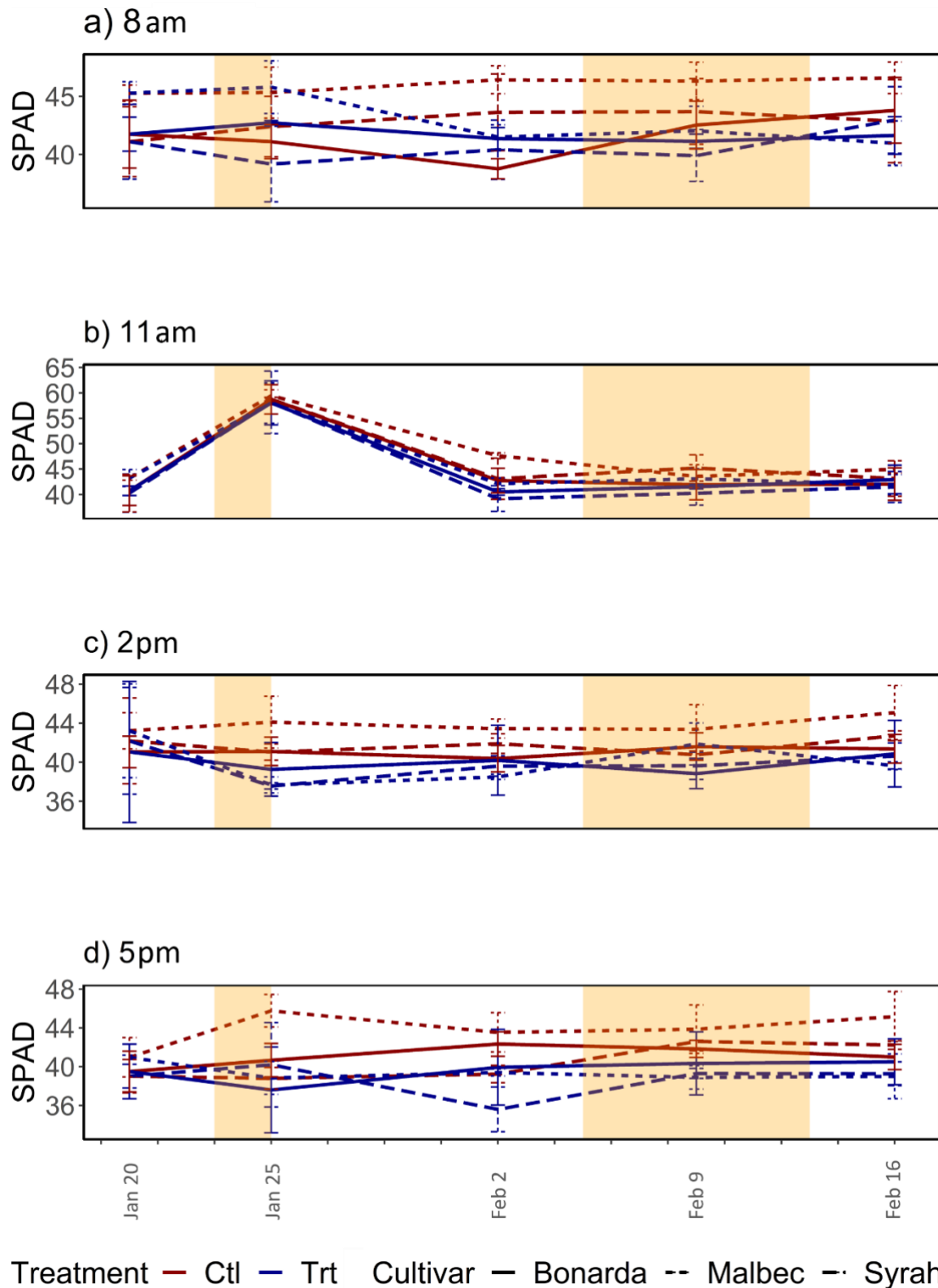
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SUPPLEMENTARY FIGURE 3. Leaf wetness sensor showing minutes per hour wetness during HW2 from February 6 to Feb 8, 2023. Blue line indicates min of hr that leaf wetness sensor detected residual water; light orange shaded areas = treatment application occurring.

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SUPPLEMENTARY FIGURE 4. Chlorophyll Content at each time point (8 AM, 11 AM, 2 PM, 5 PM) for physiological sample points from S1 to S5 for cultivars Bonarda, Malbec and Syrah. Heatwave days are represented by light orange blocks. Treated (Trt) vines (blue), Control (Ctl) vines (red); Data points are means \pm SE (n = 3). No significant differences identified between Trt and Ctl for any cultivar.

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SUPPLEMENTARY TABLE 1. Stem Water Potential from S2 to S5.

Treatment	S2		S3		S4		S5	
Trt	-10.6	b	-11.0		-12.4	a	-13.1	a
Ctr	-9.86	a	-10.6		-13.4	b	-16.3	b
<i>p-value</i>	0.0158	*	0.08	NS	0.0001	***	0.0001	***
Cultivar								
Syrah	-10.4		-11.0		-12.8		-14.9	
Malbec	-10.4		-11.0		-12.9		-14.5	
Bonarda	-11.0		-11.3		-13.0		-14.5	
<i>p-value</i>	0.1379	NS	0.411	NS	0.706	NS	0.22	NS
Treatment x Cultivar								
Ctr*Bonarda	-10.8	ab	-11.3		-13.5	c	-16.3	b
Trt*Bonarda	-11.3	b	-11.2		-12.5	ab	-13.1	a
Ctr*Malbec	-9.6	a	-11.2		-13.2	bc	-16.1	b
Trt*Malbec	-11.3	b	-10.9		-12.6	abc	-12.9	a
Ctr*Syrah	-10.4	ab	-11.3		-13.4	bc	-16.6	b
Trt*Syrah	-10.5	ab	-10.7		-12.2	a	-13.3	a
<i>p-value</i>	0.068	*	0.603	NS	0.006	**	0.000	***

Values are expressed as average (n=3). Different letters within the same column indicate significant differences among Treatments (Trt and Ctl), Cultivars (Syrah, Malbec and Bonarda) and Treatment x Cultivar interaction. Tukey test $p \leq 0.05$ (*), $p \leq 0.01$ (**), $p \leq 0.001$ (***), and 'NS' indicates not significant.

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SUPPLEMENTARY TABLE 2. F_v/F_m measured in the morning (am) and afternoon (pm) during S2, S3 and S5.

Treatment	F _v /F _m am			F _v /F _m pm								
	S2	S3	S5	S2	S3	S5						
Trt	0.700	0.808	0.749	0.660	0.787	0.780						
Ctr	0.745	0.812	0.807	0.709	0.775	0.701						
<i>p-value</i>	0.405	NS	0.745	NS	0.101	NS	0.204	NS				
Cultivar												
Syrah	0.740	0.818	0.788	0.665	0.786	0.757	ab					
Malbec	0.733	0.820	0.773	0.685	0.797	0.658	a					
Bonarda	0.696	0.803	0.802	0.704	0.800	0.868	b					
<i>p-value</i>	0.764	NS	0.415	NS	0.6995	NS	0.734	NS	0.263	NS	0.0410	*
Cultivar x Treatment												
Ctr*Bonarda	0.748	0.789	0.775	0.687	0.782	0.775						
Trt*Bonarda	0.644	0.773	0.723	0.721	0.791	0.738						
Ctr*Malbec	0.739	0.793	0.752	0.727	0.773	0.391						
Trt*Malbec	0.726	0.805	0.686	0.750	0.795	0.702						
Ctr*Syrah	0.748	0.800	0.764	0.821	0.770	0.663						
Trt*Syrah	0.731	0.793	0.706	0.723	0.775	0.628						
<i>p-value</i>	0.729	NS	0.611	NS	0.978	NS	0.368	NS	0.587	NS	0.825	NS

Values are expressed as average (n=3). Different letters within the same column indicate significant differences among Treatments (Trt and Ctl), Cultivars (Syrah, Malbec and Bonarda) and Treatment x Cultivar interaction. Tukey test $p \leq 0.05$ (*) and 'NS' indicates not significant.

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SUPPLEMENTARY TABLE 3. Performance Index measured on S2, S3 and S5.

Treatment	PI am						PI pm					
	S2	S3	S5	S2	S3	S5	S2	S3	S5	S2	S3	S5
Trt	2.26	3.12	1.34	1.62	3.45	0.97						
Ctr	2.73	3.09	2.59	2.16	3.02	0.71						
<i>p-value</i>	0.691	NS	0.96	NS	0.085	NS	0.453	NS	0.282	NS	0.310	NS
Cultivar												
Syrah	2.61	3.25	1.75	2.12	2.77	0.84						
Malbec	2.20	3.47	1.67	1.97	3.61	0.63						
Bonarda	2.67	2.60	2.47	1.59	3.33	1.06						
<i>p-value</i>	0.939	NS	0.596	NS	0.573	NS	0.816	NS	0.230	NS	0.383	NS
Cultivar x Treatment												
Ctr*Bonarda	3.82	3.12	3.35	1.44	3.00	1.04						
Trt*Bonarda	1.52	2.07	1.59	1.73	3.67	1.07						
Ctr*Malbec	2.24	3.27	2.01	2.37	3.27	0.18						
Trt*Malbec	2.17	3.67	1.32	1.57	3.95	1.08						
Ctr*Syrah	2.14	2.87	2.41	2.67	2.79	0.92						
Trt*Syrah	3.08	3.63	1.10	1.57	2.74	0.76						
<i>p-value</i>	0.526	NS	0.563	NS	0.810	NS	0.703	NS	0.684	NS	0.208	NS

Values are expressed as average (n=3). Different letters within the same column indicate significant differences among Treatments (Trt and Ctl), Cultivars (Syrah, Malbec and Bonarda) and Treatment x Cultivar interaction. Tukey test $p \leq 0.05$ (*), $p \leq 0.01$ (**), $p \leq 0.001$ (***), and 'NS' indicates not significant.