

Supplemental Data for:

Dunlevy, J.D., K.L. Soole, M.V. Perkins, E.L. Nicholson, S.M. Maffei, and P.K. Boss. 2013.

Determining the methoxypyrazine biosynthesis variables affected by light exposure and crop level in Cabernet Sauvignon.

Am. J. Enol. Vitic. 64:450-458. doi: 10.5344/ajev.2013.13070.

Supplemental Table 1 Growth parameters of Cabernet Sauvignon grape berries subjected to different box regimes to exclude sunlight during development. Asterisks indicate significant differences of the mean values of boxed samples from the mean values of control samples as determined with Student's *t* test (* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$). When there are more than two treatments, means that differed significantly ($p < 0.05$) using one-way ANOVA followed by Duncan's post-hoc test are denoted by a different letter. All values are represented as the mean \pm standard error.

Weeks postflowering	Control	Box	PreBox (preveraison)	PostBox (postveraison)
Berry wt (mg)				
2	74 \pm 14	73 \pm 4		
4	206 \pm 38	229 \pm 8		
6	279 \pm 51	293 \pm 16		
8	361 \pm 66 **	288 \pm 11 **		
10	542 \pm 99	534 \pm 28	521 \pm 28	561 \pm 32
12	674 \pm 123	643 \pm 21	602 \pm 23	677 \pm 39
14	724 \pm 132	695 \pm 25	683 \pm 30	766 \pm 40
Soluble solids (Brix)				
2	7.34 \pm 0.17	7.27 \pm 0.14		
4	6.76 \pm 0.10	6.50 \pm 0.11		
6	6.31 \pm 0.07 ***	5.51 \pm 0.07 ***		
8	6.71 \pm 0.07	6.87 \pm 0.08		
10	12.98 \pm 0.40	13.46 \pm 0.44	14.00 \pm 0.45	12.38 \pm 0.57
12	20.33 \pm 0.22 a	18.57 \pm 0.32 b	19.30 \pm 0.49 b	18.68 \pm 0.36 b
14	21.89 \pm 0.20 b	20.85 \pm 0.26 c	24.79 \pm 0.18 a	20.65 \pm 0.39 c

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Supplemental Table 2 IBMP concentrations, *VvOMT3* expression, and IBHP concentrations of Cabernet Sauvignon grape berries subjected to different box regimes to exclude sunlight during development. Asterisks indicate significant differences of the mean values of boxed samples from the mean values of control samples as determined with Student's *t* test (* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$). When there are more than two treatments, means that differed significantly ($p < 0.05$) using one-way ANOVA followed by Duncan's post-hoc test are denoted by a different letter. All values are represented as the mean \pm standard error.

Weeks postflowering	Control	Box	PreBox (preveraison)	PostBox (postveraison)
IBMP (pg/g)				
2	0	0		
4	36.0 \pm 1.8	85.7 \pm 8.0 **		
6	98.9 \pm 15.2	200.7 \pm 5.6 **		
8	119.9 \pm 8.0	339.7 \pm 29.6 ***		
10	72.9 \pm 14.4 b	189.8 \pm 10.5 a	175.5 \pm 5.7 a	82.8 \pm 6.1 b
12	22.5 \pm 3.2 a	83.6 \pm 14.0 a	52.2 \pm 6.4 b	39.4 \pm 5.2 bc
14	0 c	33.6 \pm 6.0 a	27.8 \pm 1.4 a	16.7 \pm 0.9 b
<i>VvOMT3</i> (copy number)				
2	570 \pm 18	570 \pm 16		
4	4650 \pm 163	7490 \pm 196 ***		
6	4714 \pm 262	7979 \pm 209 **		
8	266 \pm 17	401 \pm 16 **		
10	105 \pm 4 b	80 \pm 1 c	120 \pm 4 a	104 \pm 3 b
12	130 \pm 16	113 \pm 10	102 \pm 12	87 \pm 5
14	126 \pm 24	123 \pm 9	108 \pm 2	113 \pm 5
IBHP (ng/g)				
2	1.8 \pm 0.6	3.6 \pm 0.5		
4	3.1 \pm 1.0	5.9 \pm 1.0		
6	3.6 \pm 0.9	7.4 \pm 2.5		
8	3.7 \pm 0.9	10.3 \pm 1.4 *		
10	2.1 \pm 0.1 b	5.2 \pm 0.3 a	2.7 \pm 0.7 b	2.4 \pm 0.1 b
12	0.8 \pm 0.4 b	1.7 \pm 0.4 a	0.9 \pm 0.1 b	0.9 \pm 0.1 b
14	0.8 \pm 0.2	1.0 \pm 0.3	0.4 \pm 0.1	0.7 \pm 0.1

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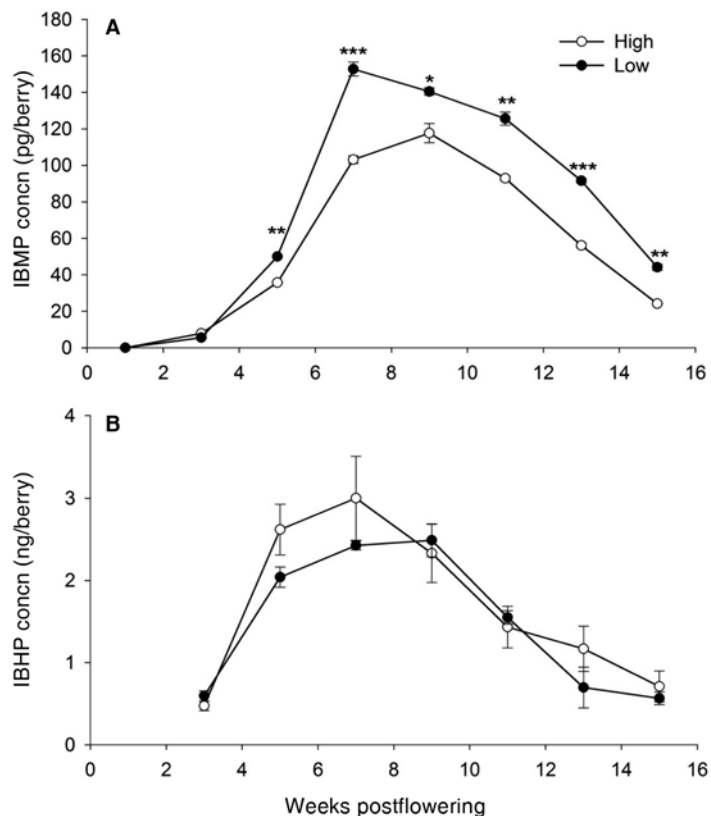
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Supplemental Figure 1 Photographs of representative vines from the crop level study with either a low crop level (A) or high crop level (B). Photographs were taken at 12 weeks postflowering.



Supplemental Figure 2 IBMP (A) and IBHP (B) concentrations during the development of Cabernet Sauvignon grape berries on vines with either high or low crop loads expressed on a per berry basis. Asterisks indicate significant differences of the mean values of high yield from the mean values of low yield samples as determined by the Student's *t* test (* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$).