

Supplemental Data for:

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 Canopy Management and Enzyme Impacts on Merlot, Cabernet franc, and Cabernet Sauvignon.
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Supplemental Table 1 Concentrations of anthocyanins and phenols (mg/L) in Cabernet franc wines, 2006, in response to four canopy management and three enological treatments.

	Viticultural treatments ^a					Enological treatments			
	Control	CT	BLR	CT+BLR	Signif ^b	Control	ColorPro	Color X	Signif ^b
Phenols (mg/L)									
Gallic acid	18.12 b ^c	26.96 a	20.04 b	26.03 a	**	18.99 b	24.34 a	24.36 a	*
Catechin	22.47 b	28.64 a	27.72 a	27.32 a	**	22.03 b	28.29 a	28.38 a	***
Epicatechin	14.58 c	20.37 a	16.59 bc	18.55 ab	***	15.84 b	18.40 a	18.04 a	*
Caffeic acid	8.01	8.08	7.35	7.56	ns	7.52	7.92	7.82	ns
p-Coumaric acid	1.55	1.36	1.23	1.61	ns	1.73 a	1.39 b	1.24 b	*
Quercetin	0.19 c	0.37 a	0.29 b	0.37 a	****	0.24 b	0.31 a	0.35 a	**
Anthocyanins (mg/L)									
Delphinidin-3-monoglucoside	0.19 c	0.52 a	0.32 b	0.29 b	****	0.20 b	0.42 a	0.35 b	****
Cyanidin-3-monoglucoside	0.003 c	0.07 a	0.03 b	0.05 b	****	0.03 b	0.05 a	0.03 b	*
Petunidin-3-monoglucoside	0.28 c	1.23 a	0.64 b	0.66 b	****	0.43 b	0.87 a	0.76 a	****
Peonidin-3-monoglucoside	0.38 c	0.78 a	0.53 b	0.56 b	****	0.47 b	0.61 a	0.59 a	***
Malvidin-3-monoglucoside	14.75 c	23.37 a	21.37 ab	20.18 b	****	17.90 b	20.77 a	20.61 a	*
Total non-acetylated anthocyanins	15.603	25.97	22.59	21.74		19.03	22.72	22.34	
Acylated anthocyanins (mg/L)									
Delphinidin-3-O-acetylglucoside	0.33 b	0.42 a	0.42 a	0.45 a	***	0.38	0.40	0.43	ns
Cyanidin-3-O-acetylglucoside	0.23 d	0.55 a	0.37 c	0.43 b	****	0.34 b	0.43 a	0.41 a	*
Petunidin-3-O-acetylglucoside	0.21 c	0.49 b	0.50 b	0.78 a	****	0.35 b	0.59 a	0.52 a	**
Peonidin-3-O-acetylglucoside	0.87 c	1.65 a	1.24 b	1.31 b	****	1.13 b	1.33 a	1.32 ab	*
Malvidin-3-O-acetylglucoside	5.03 c	7.39 a	7.14 a	6.30 b	****	5.78 b	6.73 a	6.74 a	*
Delphinidin-3-O-coumarylglucoside	0.04 a	0.03 b	0.04 a	0.03 b	*	0.03 b	0.03 b	0.04 a	*
Cyanidin-3-O-coumarylglucoside	0.03 c	0.07 a	0.05 ab	0.04 bc	**	0.03 b	0.06 a	0.05 ab	*
Petunidin-3-O-coumarylglucoside	0.06 b	0.09 ab	0.11 a	0.08 b	*	0.06 b	0.09 a	0.09 a	*
Peonidin-3-O-coumarylglucoside	0	0	0	0	ns	0	0	0	ns
Malvidin-3-O-coumarylglucoside	1.30 b	2.13 a	2.14 a	1.64 b	****	1.44 b	1.93 a	1.96 a	**
Total acylated anthocyanins	8.10	12.81	12.07	11.07		9.55	11.60	11.56	

^aCT: cluster thinned; BLR: basal leaf removal; CT+BLR: cluster thin + basal leaf removal.

^b*, **, ***, ****, and ns indicate significance at $p \leq 0.05$, 0.01, 0.001, 0.0001, and not significant, respectively.

^cMeans followed by different letters are significant at $p \leq 0.05$, Duncan's multiple range test. Means boldfaced are significantly greater than the control, $p \leq 0.05$, and those boldfaced and underlined are significantly less than the control, $p \leq 0.05$, Dunnett's t-test.

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Supplemental Table 2 Concentrations of anthocyanins and phenols (mg/L) in Cabernet Sauvignon wines, 2006, in response to four canopy management and three enological treatments.

Compound	Viticultural treatments ^a					Enological treatments			
	Control	CT	BLR	CT+BLR	Signf ^b	Control	ColorPro	Color X	Signf ^b
Phenols (mg/L)									
Gallic acid	18.98 b ^c	18.76 ab	20.79 a	15.43 b	*	16.02 b	18.39 ab	21.06 a	*
Catechin	37.07 c	40.0 b	37.27 c	46.08 a	****	39.7 ab	39.20 b	41.41 a	*
Epicatechin	15.80 c	17.87 b	14.50 c	19.84 a	****	17.58 a	16.27 b	17.16 ab	*
Caffeic acid	7.51 ab	7.66 a	7.22 ab	7.04 b	*	7.53	7.11	7.43	ns
p-Coumaric acid	1.59	1.69	1.55	1.62	ns	2.04 a	<u>1.33 b</u>	<u>1.45 b</u>	****
Quercetin	0.83 b	1.08 a	0.92 ab	0.93 ab	*	0.93	0.93	0.96	ns
Anthocyanins (mg/L)									
Delphinidin-3-monoglucoside	0.31 b	0.37 ab	0.42 a	0.32 ab	*	0.31	0.39	0.36	ns
Cyanidin-3-monoglucoside	0.05 b	0.07 a	0.05 b	0.08 a	****	0.61	0.67	0.65	ns
Petunidin-3-monoglucoside	0.57 b	0.74 ab	0.78 a	0.62 ab	*	0.64	0.67	0.69	ns
Peonidin-3-monoglucoside	0.51 b	0.62 a	0.61 a	0.66 a	*	0.61	0.58	0.60	ns
Malvidin-3-monoglucoside	18.11 ab	16.54 bc	19.22 a	<u>14.56 c</u>	**	19.22 a	<u>15.68 b</u>	<u>16.42 b</u>	**
Total non-acylated anthocyanins	19.55	18.34	21.08	16.24		21.39	17.42	18.14	
Acylated anthocyanins (mg/L)									
Delphinidin-3-O-acetylglucoside	0.28 b	0.36 ab	0.44 a	0.31 b	**	0.32	0.37	0.36	ns
Cyanidin-3-O-acetylglucoside	0.34 b	0.47 a	0.38 b	0.45 a	****	0.40	0.39	0.43	ns
Petunidin-3-O-acetylglucoside	0.31 b	0.39 a	0.39 a	0.33 ab	*	0.35	0.35	0.36	ns
Peonidin-3-O-acetylglucoside	0.69	0.69	0.78	0.71	ns	0.80	0.66	0.68	ns
Malvidin-3-O-acetylglucoside	5.08 ab	4.58 bc	5.52 a	<u>4.06 c</u>	**	5.21	4.59	4.63	ns
Delphinidin-3-O-coumarylglucoside	0.06 a	0.07 a	0.05 ab	<u>0.03 b</u>	**	0.04 b	0.05 b	0.07 a	**
Cyanidin-3-O-coumarylglucoside	0.02	0.02	0.02	0.01	ns	0.02	0.02	0.02	ns
Petunidin-3-O-coumarylglucoside	0.04 b	0.06 a	0.05 b	0.04 b	**	0.04 b	0.04 b	0.06 a	**
Peonidin-3-O-coumarylglucoside	0.06	0.08	0.07	0.07	ns	0.06	0.08	0.08	ns
Malvidin-3-O-coumarylglucoside	0.59 b	0.51b	0.71 a	0.46 b	**	0.67 a	<u>0.53 b</u>	<u>0.50 b</u>	**
Total acylated anthocyanins	7.477	7.23	8.08	6.95		7.91	7.08	7.19	

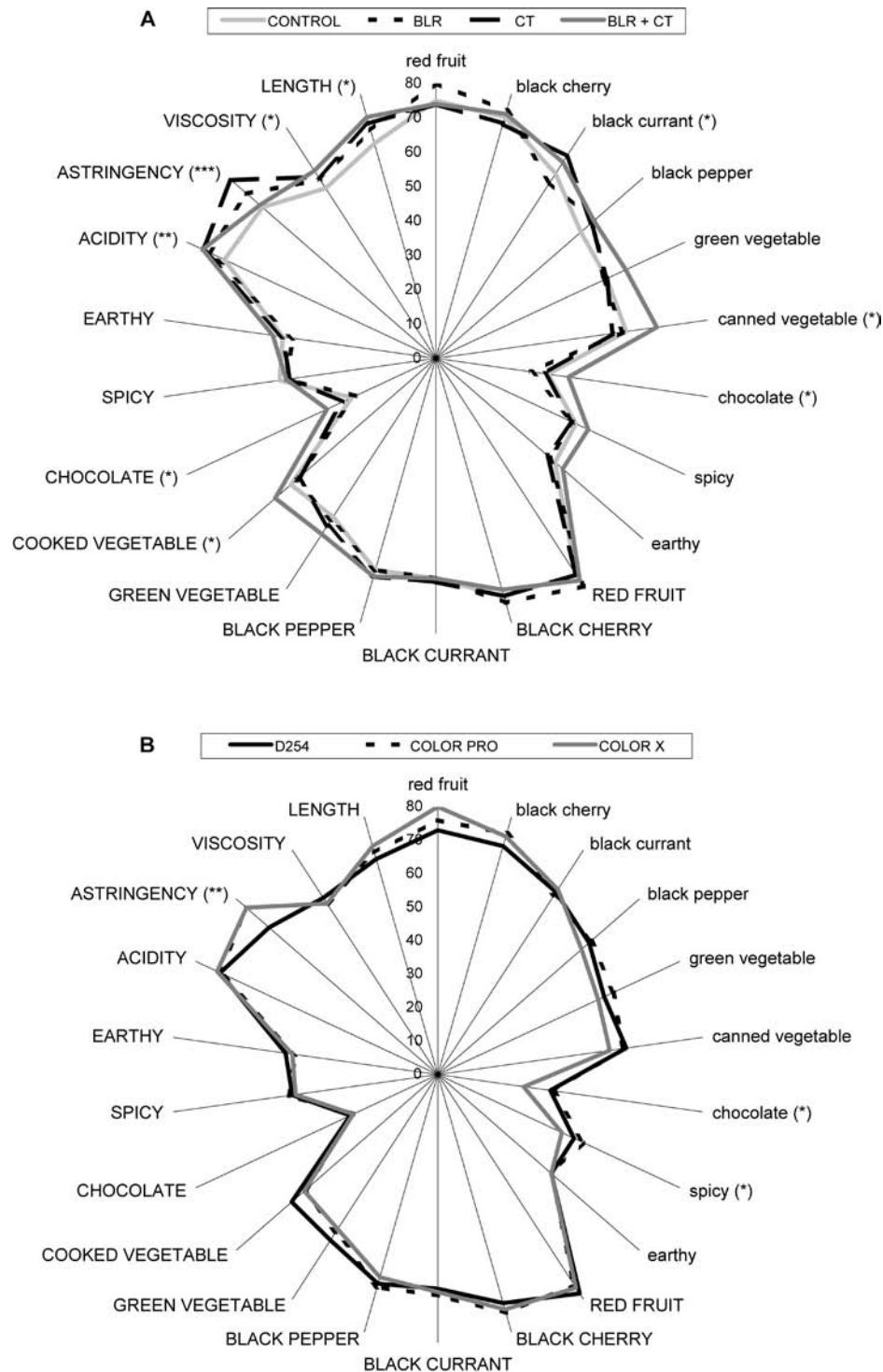
^aCT: cluster thinned; BLR: basal leaf removal; CT+BLR = cluster thin + basal leaf removal.

^b*, **, ***, ****, and ns indicate significance at $p \leq 0.05$, 0.01, 0.001, 0.0001, and not significant, respectively.

^cMeans followed by different letters are significant at $p < 0.05$, Duncan's multiple range test. Means boldfaced are significantly greater than the control, $p \leq 0.05$, and those boldfaced and underlined are significantly less than the control, $p \leq 0.05$, Dunnett's *t*-test.

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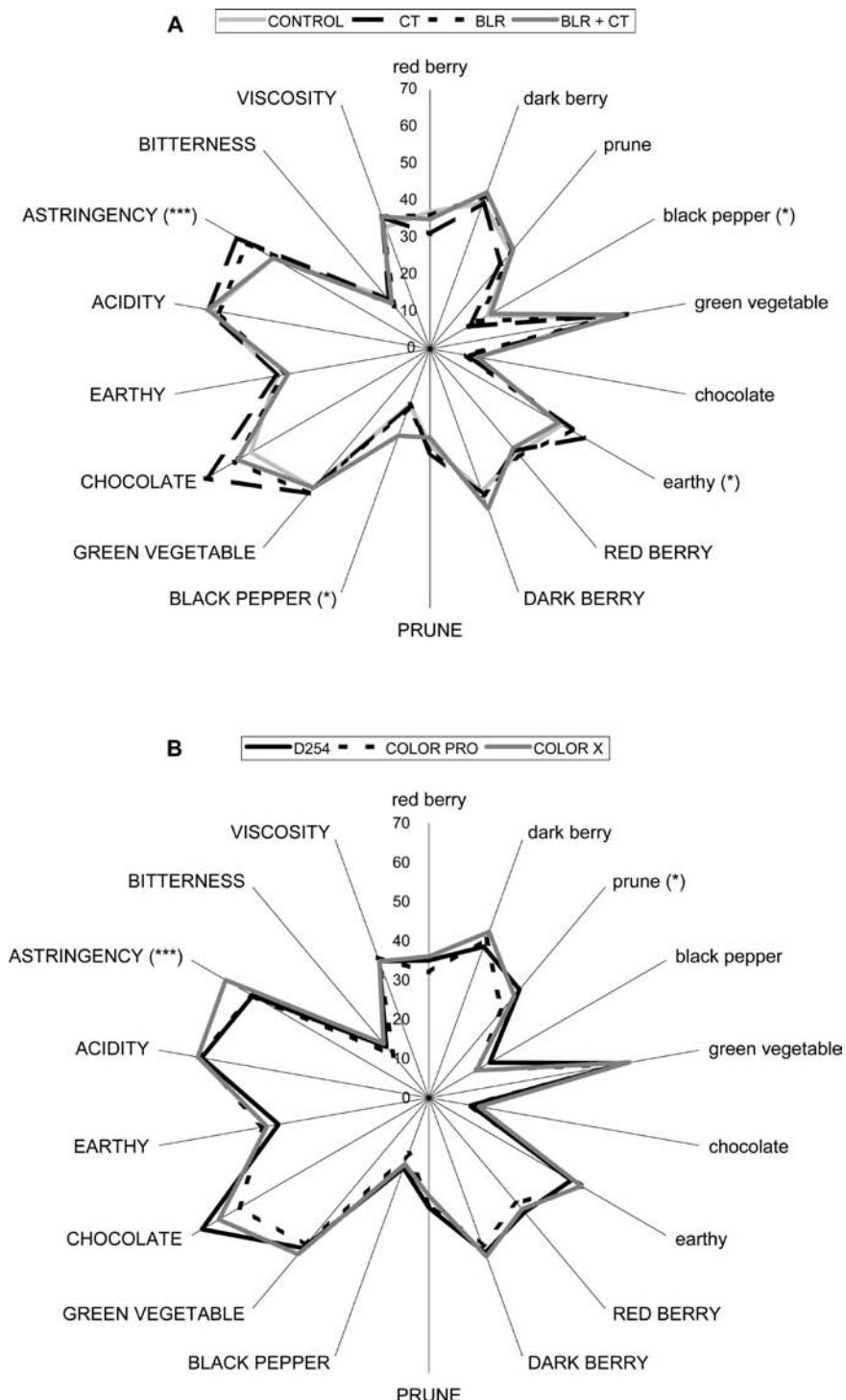
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Supplemental Figure 1 Sensory attributes of Cabernet franc wines, 2005, in response to (A) four canopy management treatments and (B) three enological treatments, Pillitteri Estate Winery, Niagara-on-the-Lake, ON. *, **, and *** indicate significance at $p \leq 0.05$, 0.01, and 0.001, respectively.

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Supplemental Figure 2 Sensory attributes of Cabernet Sauvignon wines, 2005, in response to (A) four canopy management treatments and (B) three enological treatments, Niagara-on-the-Lake, ON. * and *** indicate significance at $p \leq 0.05$ and 0.001 , respectively.