Supplementary materials

Table S1. Basic chemical composition of grapes utilized for wines evaluated in panel one and two.

Grape Code	Vineyard AVA	Harvest date	Brix	pH	*TA (g/L)
		Panel 1			
OFV6	Oakville	October 17th, 2017	24.60 ± 0.26	3.60 ± 0.04	4.29 ± 0.12
OFV9	Oakville	October 17th, 2017	25.00 ± 0.17	3.67 ± 0.01	4.60 ± 0.19
Unsmoked	Oakville	October 7th, 2017	24.27 ± 0.15	3.86 ± 0.04	4.18 ± 0.05
		Panel 2			
AV	Alexander Valley	October 18th, 2017	27.28 ± 0.10	3.82 ± 0.02	3.88 ± 0.04
ST	Stag's Leap District	October 23rd, 2017	24.73 ± 0.21	4.18 ± 0.09	3.60 ± 0.48
S_Control	Oakville	October 17th, 2017	23.97 ± 0.12	3.70 ± 0.01	4.05 ± 0.03
NS_Control	Oakville	October 7th, 2017	γ22.90 ± 0.01	3.51 ± 0.03	4.80 ± 0.04

*TA = tartaric acid; γGrapes were chaptalized to 25˚Brix prior to fermentation.

Table S2. Air quality index (AQI) and particulate matter (PM) for the periods during which grapes at each site were exposed to prior to harvest.

Grape Code	Vineyard AVA	Fire	Smoke exposure period	AQI range	2.5 µm PM (ug/m3)
		Panel 1			
OFV6	Oakville	Tubbs fire (Central LNU Complex)	October 7-17th, 2017	50 - 200	12 – 150.4
OFV9	Oakville	Tubbs fire (Central LNU Complex)	October 7-17th, 2017	50 - 200	12 – 150.4
Unsmoked	Oakville		October 7th, 2017	<50	<12
		Panel 2			
AV	Alexander Valley	Atlas fire (Southern LNU Complex)	October 10-18th, 2017	50 -200	12 – 150.4
ST	Stag's Leap District	Atlas fire (Southern LNU Complex)	October 9-23rd, 2017	50 -300	12 – 250.4
S_Control	Oakville	Tubbs fire (Central LNU Complex)	October 7-17th, 2017	50 - 200	12 – 150.4
NS_Control	Oakville		October 7th, 2017	<50	<12

Table S3. Free volatile phenol profiles (n = 6, $\alpha \leq 0.05$). All concentrations are in μg/L.

Wine	Guaiacol	Creosol	o-Cresol	4-Ethylguaiacol	p-Cresol	m-Cresol	4-Ethylphenol	Syringol	4-Methylsyringol
				Panel 2					
AV_25	5.0 a	0.6 c	3.5 b	0.3 bcd	2.4 b	4.7 c	0.9 b	60.2 ab	1.5 b
AV_20	5.3 a	0.6 b	3.8 a	0.3 bc	2.9 a	5.3 a	1.2 a	56.8 b	1.6 b
AV_15	5.0 a	0.6 b	3.7 a	0.3 b	3.0 a	5.6 a	1.3 a	50.9 c	1.6 b
AV_10	4.5 b	0.6 b	3.2 b	0.3 b	1.5 d	4.0 b	1.0 b	31.4 d	2.0 a
ST_C	4.4 b	0.3 d	2.0 d	0.2 cd	1.7 d	2.4 de	0.6 c	62.2 a	1.1 c
ST_E+T	5.3 a	0.3 de	2.0 d	0.2 d	2.0 c	2.0 e	0.6 c	57.3 b	1.2 c
S_Control	3.1 c	0.9a	2.5 c	0.4 a	0.9 e	2.5 d	0.6 c	50.3 c	2.0 a
NS_Control	2.0 d	0.2 e	1.4 e	0.2 e	0.8 e	0.7 f	0.2 d	49.7 c	0.5 d

Significance indicated when letters following values are different within a column for either free or total volatile phenols. No significant difference between fermentation replicates or bottle replicates, thus means displayed.

Table S4. Bound volatile phenol profiles (n = 6, $\alpha \leq 0.05$). All concentrations are in μg/L.

Wine	Guaiacol	Creosol	o-Cresol	4-Ethylguaiacol	p-Cresol	m-Cresol	4-Ethylphenol	Syringol	4-Methylsyringol
				Panel 2					
AV_25	2.7 a	0.3 ab	0.1 ab	ND c	1.1 b	ND b	1.2 bcd	35.1 a	14.1 a
AV_20	2.3ab	0.3 b	0.1 b	ND c	1.1 b	ND b	1.0 cd	35.1 a	14.3 a
AV_15	2.7 a	0.4 a	0.1 ab	0.0 bc	1.4 ab	0.1 ab	2.0 a	36.2 a	14.4 a
AV_10	2.3 ab	0.3 ab	0.3 ab	0.1 ab	2.0 a	ND b	1.9 ab	33.8 a	12.6 b
ST_C	1.6 cd	0.2 bc	0.1 ab	0.1 abc	0.9 b	ND b	1.2 bcd	ND b	7.3 c
ST_E+T	2.1 bc	0.3 ab	0.3 ab	0.1 bc	1.3 b	ND b	0.7 d	ND b	7.2c
S_Control	1.2 d	0.2 bc	0.4 a	0.2 a	1.2 b	0.1 ab	1.6 abc	ND b	6.0 d
NS_Control	0.6 e	0.1 c	0.2 ab	0.1 abc	1.4 ab	0.3 a	1.3 abcd	ND b	5.9 d

Significance indicated when letters following values are different within a column for either free or total volatile phenols. No significant difference between fermentation replicates or bottle replicates, thus means displayed. ND = not detected.

Table S5. Panel one sensory attributes used for descriptive analysis and corresponding reference standards.

Aroma	Reference Standards
alcohol	20 mL ethanol (151 proof Everclear, Luxco) + 30 mL base wine
strawberry	1 thawed strawberry cut into pieces (Full circle market organic whole strawberries)
dark fruit	3 crushed Signature Kitchen dark sweet, pitted cherries + 1 Signature Select blackberry + 4 Signature Select blueberries + 10 mL Ribena blackcurrant juice + 10 mL base wine
red cherry	3 chopped Signature Kitchen dark sweet, pitted cherries + 5 mL Signature Select Maraschino cherries juice + 1 teaspoon Signature Kitchens cherry preserves
citrus	2 drops citrus essence (Bell Flavors & Fragrances, Inc. natural citrus flavor #123.9065) + 3 g of chopped orange (flesh, no zest) +20 mL base wine
fig/dried fruit	2 crushed Trader Joe's black mission dried figs + 10 mL base wine
mineral	5 rocks + 20 mL of tap water
spices	1 pinch McCormick ground nutmeg + mini pinch McCormick ground clove + 50 mL base wine
black pepper	1/8 tsp McCormick pure ground black pepper + 10 mL base wine
floral	3 drops Carlo rose water + 4 drops Sadaf orange blossom water + 1 drops Bigallet violet syrup+ 50mL of base wine
wood	5g Nobile American oak chips + 0.1g cedar wood chips (PTCLTRAPS Drawer Essentials America red cedar sachet natural clothing deodorizer) + 0.2 g wood shavings + 0.1 g pencil shavings + 20 mL base wine
moldy/dusty	10 g Crayola Air-Dry clay + 20 mL tap water + 2 g of ripped cardboard
vanilla	4 drops Madecasse pure vanilla extract + 20mL base wine
vinegar	1/2 tsp Signature Kitchens distilled white vinegar + 20mL base wine
leather	leather shoelace (all of it)
green	fresh cut grass from lawn + 5 g chopped bell pepper + pinch McCormick celery salt + 10 mL tap water
soil/earthy	1/2 Tbsp Miracle Gro potting soil + 10mL tap water
herbs (Provence)	1/8 tsp McCormick Gourmet herbs de Provence + 20mL base wine
honey	1 Tbsp of Signature Kitchens clover honey
petrol	0.4 mL Kingsford odorless charcoal lighter + 50mL base wine
menthol	10 mL Vick's Nyquil cold & flu syrup + 3 drops eucalyptus water (1 drop euc oil in 50 mL water, Nature's Alchemy Eucalyptus Essential Oil) + 30 mL base wine
smoke	4 drops Colgin liquid smoke + 20mL base wine
anise	1/8 tsp of McCormick anis seeds
ashy (aftertaste)	2 g of burnt Lazzari mesquite smoking chips + 5mL water + 0.5g cigarette ash (1 Marlboro)
hot	350 mL/L ethanol (151 proof Everclear, Luxco) in water
viscous	3 g/L of Carboxymethyl Cellulose (CMC, Sigma-Aldrich) in water
astringent	5 g/L of alum (McCormick) in water

sour	3 g/L L-(+)-tartaric acid (Fisher Scientific) in water
bitter	3 g/L caffein (Sigma-Aldrich) in water
sweet	15 g/L sucrose (C&H pure cane sugar) in water

Notes: Franzia chillable red wine was used as base wine.

Table S6. Correlation matrix for DA of panel one (Critical value r Pearson = 0.468; n=18; 2-tailed; α=0.05).

Variables	Fig/dried fruit	Mineral	Honey	Petrol	Ashy aftertaste	Sweet	Hot	Astringent	Viscous
Fig/dried fruit	**1**								
Mineral	-0.368	**1**							
Honey	0.723	-0.235	**1**						
Petrol	-0.334	0.117	-0.148	**1**					
Ashy aftertaste	-0.673	0.485	-0.443	0.185	**1**				
Sweet	0.366	-0.413	0.496	0.278	-0.600	**1**			
Hot	-0.311	-0.114	-0.293	0.218	0.579	-0.328	**1**		
Astringent	-0.555	0.281	-0.569	0.336	0.710	-0.476	0.476	**1**	
Viscous	0.656	-0.430	0.758	0.061	-0.677	0.755	-0.281	-0.707	**1**

Notes: Green indicates a significant positive correlation whereas red indicates a significant negative correlation.

Table S7. Panel 2 sensory attributes used for descriptive analysis and corresponding reference standards.

Aroma	Reference Standards
alcohol	30 mL Borski vodka + 30 mL base wine
strawberry	1 thawed strawberry cut into pieces (Full circle market organic whole strawberries)
dark fruit	1 crushed Signature Kitchen dark sweet, pitted cherry + 1 Oregon Specialty fruit red tart cherry + 1 Signature Select blackberry + 5 Signature Select blueberries + 1g fresh plum + 15mL Ribena blackcurrant juice + 15mL base wine
vanilla	1 Tbsp of Snack Pack sugar free vanilla pudding + 20 mL base wine
raspberry	3 crushed Signature Select raspberries + 10 mL of base wine
citrus	1/2 tsp St Dalfour fruit spread orange marmalade + 1sq" fresh orange peel + 0.5sq" fresh lime peel + 50mL base wine
red apple	10 g fresh Golden delicious apple chopped + 10 mL Martinelli's apple cider
green	3 g chopped fresh green bell pepper + 20 mL base wine
mineral	3 big rocks and 10 small rocks + 5mL of tap water
spices	1 small pinch blend (equal parts ground: McCormick ground cinnamon + McCormick ground all spice + McCormick ground clove + McCormick ground nutmeg + McCormick ground ginger) + 30mL base wine
pepper	1/8 tsp McCormick ground black pepper + 1 small pinch McCormick ground white pepper + 30mL base wine
floral	3 drops Carlo rose water + 2 drops Sadaf orange blossom water + 1 drop Bigallet violet syrup + 10mL The Republic of Tea hibiscus tea + 30 mL of base wine
oak/wood	2 g Nobile Fresh oak chips + 0.2 g cedar wood chips (PTCLTRAPS Drawer Essentials America red cedar sachet natural clothing deodorizer) + 0.5 g wood shavings + 20mL base wine
ash (aftertaste)	2 g of burnt Lazzari mesquite smoking chips + 5mL water + 0.5g cigarette ash (1 Marlboro)
pipe tobacco	1 g Stave-aged Virginia 35 ribbon pipe tobacco
smoky	4 drop Colgin liquid smoke + 20 mL base wine
leather	leather shoelace (all of it)
pineapple	5 g fresh pineapple chopped
raisins/prune	15 mL Sunsweet prune juice + 10 Sun-maid California sun-dried smashed raisins + 10 mL base wine
earthy	1/2 Tbsp fresh soil + 10mL tap water
vinegar	1/4 tsp Signature Kitchens distilled white vinegar + 25 mL base wine
hot	325 mL/L ethanol (151 proof Everclear, Luxco) in water
viscous	3 g/L of Carboxymethyl Cellulose (CMC, Sigma-Aldrich) in water
astringent	5 g/L of alum (McCormick) in water
sour	1 g/L L-(+)-tartaric acid (Fisher Scientific) in water
bitter	1 g/L caffein (Sigma-Aldrich) in water
sweet	15 g/L sucrose (C&H pure cane sugar) in water

Notes*: Franzia chillable red wine was used as base wine.*

Table S8. Significant attributes with significant wine × judge interaction and their F-value after applying a pseudo-mixed model for panel two.

SIGNIFICANT ATTRIBUTE	F-VALUE AFTER PSEUDO-MIXED MODEL[1]
STRAWBERRY	1.55851919
DARK FRUIT	2.68232707
SPICES	1.42301731
LEATHER	1.65828321
EARTHY	1.55634269
ASH (AFTERTASTE)	1.30510675
SOUR	1.25659272
SWEET	1.29216204
ASTRINGENT	11.5400184
VISCOUS	1.54855244

[1] *=F for 15 and 165 at 5% is between 1.85 and 1.59*

Table S9. Correlation matrix for DA of panel two (Critical value r Pearson = 0.497; n=16; 2-tailed; α=0.05).

Variables	Dark fruit	Vanilla	Green	Smoky	Raisins/prune	Hot	Astringent	Leather
Dark fruit	**1**							
Vanilla	0.197	**1**						
Green	-0.614	-0.589	**1**					
Smoky	-0.284	-0.320	0.029	**1**				
Raisins/prune	0.872	0.499	-0.694	-0.377	**1**			
Hot	0.137	-0.079	0.321	-0.669	0.162	**1**		
Astringent	0.230	-0.003	-0.168	-0.574	0.178	0.454	**1**	
Leather	-0.630	-0.636	0.436	0.493	-0.777	-0.284	0.003	**1**

Notes: Green indicates a significant positive correlation whereas red indicates a significant negative correlation.

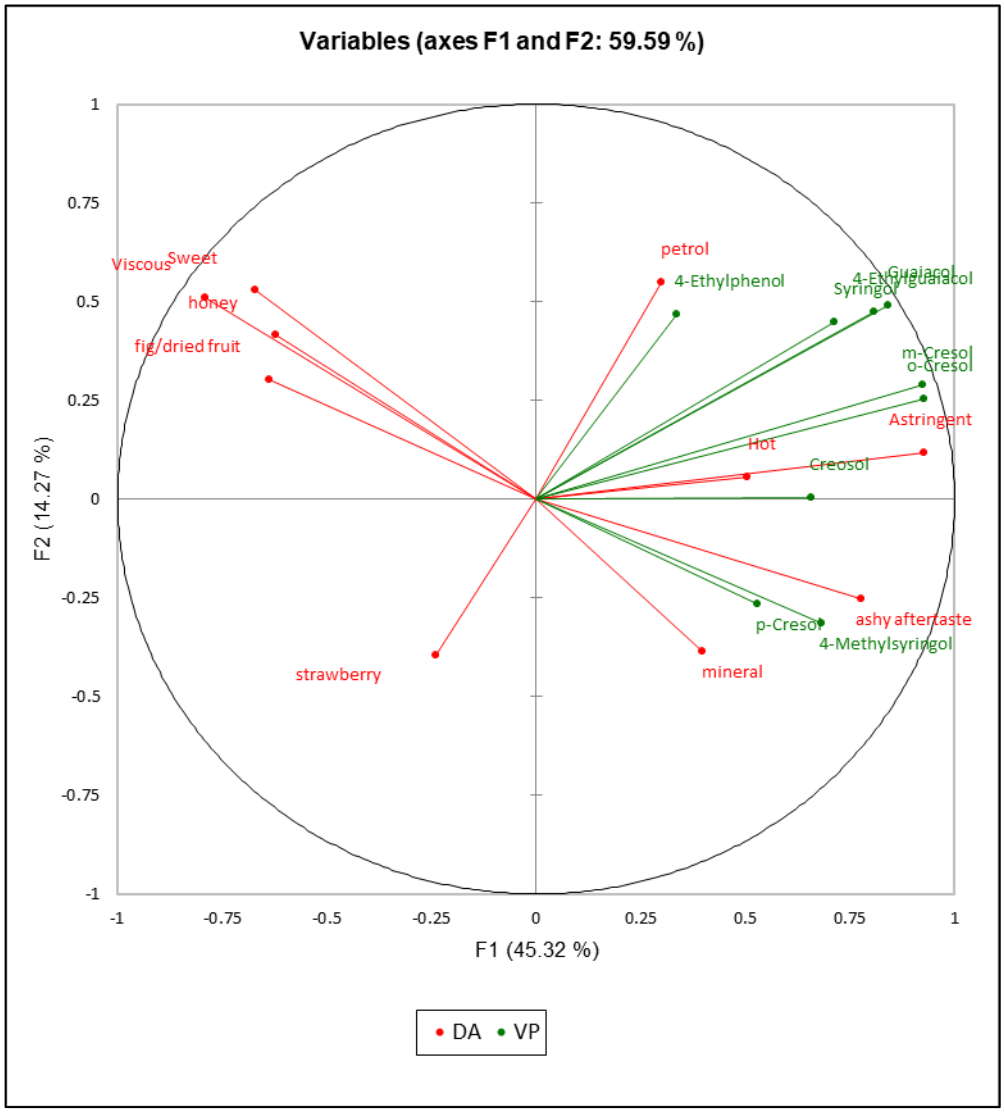

Figure S1. MFA map of panel one wines' VP composition and significant sensory attributes.

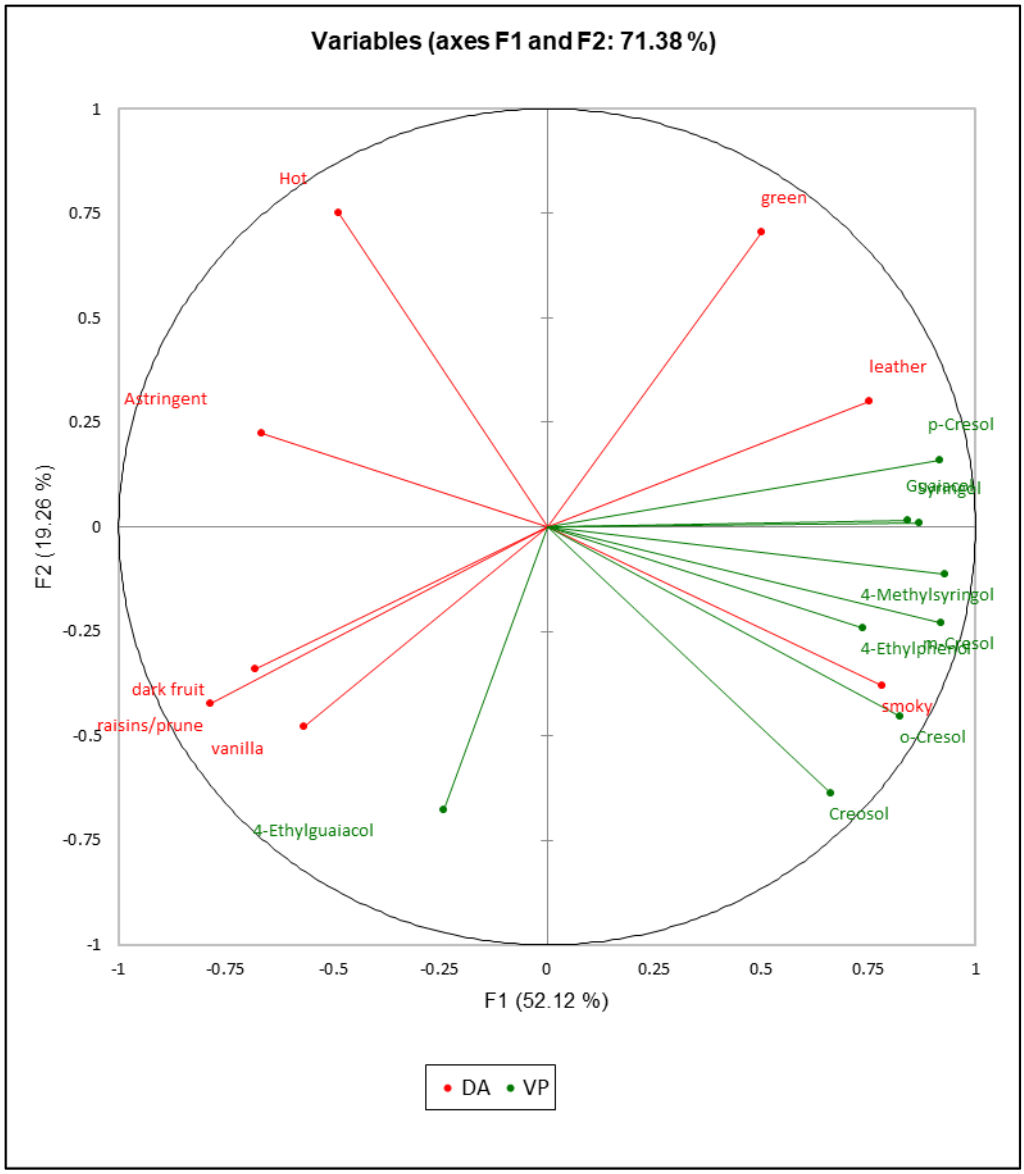

Figure S2. MFA map of panel two wines' VP composition and significant sensory attributes.