

TABLE S1. List of attributes and composition of standards for sensory descriptive analysis.

Term		Composition of reference standard
Dark fruit	S1	2/3 tsp of blackberry/wild blueberry jam (St Dalfour SAS, Chemin de Cazeaux, Marmande, France) + 1/3 black currant jam (Woolworths, Bella Vista, New South Wales, Australia)
Red fruit	S2	2 slightly mashed frozen strawberries + 2 slightly mashed frozen raspberries
Black cherry	S3	4 slightly mashed canned cherries (SPC Ardmona, Shepparton, Victoria, Australia)
Plum	S4	1 slightly mashed canned plum + 10 mL of plum juice (SPC Ardmona)
Floral	S5	5 μ L rosewater (Queen Fine Foods Pty Ltd.)
Black pepper	S6	1 tsp of black peppercorns (MasterFoods, Wyong, New South Wales, Australia)
Green olive	S7	3 'Sicilian' green olives (Sandhurst Fine Foods)
Menthol	S8	Half a crushed lozenge (Vicks, Greensboro, North Carolina, US)
Green pepper	S9	0.15 g green pepper slice
Tomato leaf	S10	4 tomato leaves
Taste/Mouthfeel		
Acidity	S11	1.5 g L ⁻¹ tartaric acid (Univar) dissolved in standard solution
Alcohol	S12	20 mL 68% v/v grape spirit (Tarac Technologies) in standard solution
Astringency	S13	100 mg L ⁻¹ quertannin (Laffort, Bordeaux, France) dissolved in standard solution

All standards were freshly prepared in standard tasting glasses (ISO 3591) with glass lids.

*In 50 mL 50:50 filtered water:base wine (Berri Estates, Glossop, South Australia).

TABLE S2. Average concentrations of Shiraz grape, juice and wine metabolites significantly different between H1 and H3 harvest date for at least one vintage.

Compounds/sample	SH H1 2014	SH H3 2014	SH H1 2015	SH H3 2015
Grape composition				
Amino acids (mg/kg)				
Asparagine	4.3 ± 1.2a	2.7 ± 1.1b	3.7 ± 1.4B	5.4 ± 3.1A
GABA	45.7 ± 11.8b	171.4 ± 22.8a	17.7 ± 9.7B	30.1 ± 17A
Glutamine	86.1 ± 9.3a	49.1 ± 6.1b	44.9 ± 14.7B	60.6 ± 24.2A
Isoleucine	20.4 ± 7.8b	30.2 ± 4.7a	15.2 ± 4.7B	19.3 ± 4.6A
Leucine	26.7 ± 11.1b	48.6 ± 9.1a	27.7 ± 11.3	33.7 ± 14.3
Methionine	5.5 ± 1.2b	9.5 ± 2.2a	9.5 ± 4.3	10.4 ± 3.2
Phenylalanine	30.8 ± 4.1b	38.4 ± 3.6a	18.2 ± 3.1	19.3 ± 3.3
Proline	412 ± 82b	795 ± 9 a	481 ± 145B	735 ± 173A
Tyrosine	31.4 ± 7.4b	53.3 ± 4.3a	21.8 ± 8.3	21.6 ± 8.1
Valine	39.3 ± 12.5b	68.4 ± 9.7a	35.3 ± 10.8B	47 ± 15.5A
Carbohydrates (g/kg)				
Glucose	107.4 ± 5.5b	130.9 ± 6.0a	113.2 ± 10.2	119.7 ± 10.9
Fructose	103.2 ± 3.2b	123.5 ± 5.4a	107.1 ± 5.6B	115 ± 6.8A
Organic acids (g/kg)				
Citric	0.19 ± 0.06b	0.28 ± 0.06a	0.31 ± 0.05	0.3 ± 0.05
Malic acid	2.03 ± 0.30	1.55 ± 0.46	2.26 ± 0.57A	1.80 ± 0.53B
Tartaric acid	8.26 ± 0.86b	10.2 ± 1.15a	7.58 ± 0.57B	8.08 ± 0.60A
Total aromatic compounds (peak area ratio normalised on sample weight)				
C6-compounds				
trans-2-hexenol	0.016 ± 0.003	0.013 ± 0.004	0.030 ± 0.017B	0.079 ± 0.074A
cis-3-hexenal	0.341 ± 0.008a	0.214 ± 0.027b	0.359 ± 0.079	0.315 ± 0.085
cis-3-hexenol	0.0052 ± 0.0012a	0.0018 ± 0.0007b	0.0033 ± 0.0017	0.0032 ± 0.003
heptanal	0.0189 ± 0.0015b	0.0246 ± 0.0053a	0.0339 ± 0.0062	0.0358 ± 0.0042
heptanol	0.0078 ± 0.0014b	0.0136 ± 0.0032a	0.117 ± 0.065 B	0.285 ± 0.262 A
hexanol	0.0163 ± 0.0043b	0.0274 ± 0.0048a	0.0086 ± 0.0026	0.0108 ± 0.0042
nonanal	0.0341 ± 0.0046b	0.0558 ± 0.0138a	0.0607 ± 0.0213	0.0723 ± 0.0216
t-2-heptenal	0.0497 ± 0.0116b	0.1830 ± 0.0722a	0.0774 ± 0.0202	0.0831 ± 0.0231
trans-2-hexenal	3.98 ± 0.13a	3.12 ± 0.22b	2.1 ± 0.29	2 ± 0.27
Terpenoids				
1,4-cineole	0.0033 ± 0.0008a	0.0018 ± 0.0011b	0.0069 ± 0.0019	0.0065 ± 0.0027
6-methyl-5-hepten-2-one	0.0130 ± 0.0015b	0.0279 ± 0.0076a	0.0175 ± 0.0069	0.0149 ± 0.0035
b-ionone	0.164 ± 0.034a	0.113 ± 0.036b	0.297 ± 0.065	0.260 ± 0.059
citronellol	0.0048 ± 0.0008a	0.0037 ± 0.0006b	0.0157 ± 0.0034	0.0141 ± 0.0022
linalool	0.0007 ± 0.0001b	0.0011 ± 0.0003a	0.0884 ± 0.0249	0.0780 ± 0.0143
trans-geraniol	0.0001 ± 0.0000b	0.0004 ± 0.0000a	0.0025 ± 0.0014	0.0028 ± 0.0017
trans-geranylacetone	0.0048 ± 0.0009	0.0074 ± 0.0037	0.0071 ± 0.0025A	0.0054 ± 0.0014B
Anthocyanins (mg/kg)				
Dephinidin-3-O-glu	79.4 ± 6.3a	62.6 ± 8.4b	66.3 ± 61.7	62.9 ± 59.4
Petunidin-3-O-glu	76.9 ± 6.2a	65.7 ± 10.5b	64.4 ± 49.2	63 ± 49
Malvidin-6-(6-Ocoumaryoyl)gluc	106 ± 5.2	108.3 ± 26.7	116.4 ± 38.5B	161.7 ± 24.6A
Peonidin-6-(6-Ocoumaryoyl)gluc	36.2 ± 1.5	33.4 ± 5.4	38.74 ± 20.9B	56.3 ± 7.8A
Carotenoids (mg/kg)				
Zeaxanthin	0.194 ± 0.028	0.178 ± 0.045	0.138 ± 0.027A	0.094 ± 0.019B
Neoxanthin	0.331 ± 0.024a	0.240 ± 0.038b	0.395 ± 0.071	0.361 ± 0.061
Chlorophyll b	1.87 ± 0.21a	1.42 ± 0.27b	2.25 ± 0.38A	1.96 ± 0.38B
Grape juice composition				
TSS (Brix)	23.1 ± 0.7b	26.9 ± 0.2a	22.8 ± 0.5B	24.6 ± 0.6A
NOPA (mg N/L)	122.3 ± 29.3b	172 ± 44.7a	86.2 ± 30.4B	99.1 ± 31.4A
YAN (mg N/L)	172.1 ± 43b	217 ± 49a	110.3 ± 37B	121.6 ± 34.9A
ratio NOPA/Ammonium	2.48 ± 0.16b	3.78 ± 0.61a	3.03 ± 0.80B	3.68 ± 0.9A
pH	3.61 ± 0.1b	4.23 ± 0.14a	3.65 ± 0.28B	3.88 ± 0.26A
TA (g/L)	5.75 ± 0.45a	3.37 ± 0.08b	4.38 ± 1.20A	3.51 ± 0.99B

▼ *Table S2 continues on the next page*

Compounds/sample	SH H1 2014	SH H3 2014	SH H1 2015	SH H3 2015
Wine composition				
Major compounds				
Lactic acid (g/L)	1.68 ± 0.32a	1.18 ± 0.28b	1.79 ± 0.41A	1.52 ± 0.43B
Glycerol (g/L)	9.29 ± 0.27b	10.60 ± 0.19a	9.26 ± 0.28B	9.94 ± 0.48A
Alcohol (%)	12.7 ± 0.27b	15.51 ± 0.25a	12.89 ± 0.53B	13.63 ± 0.51A
Colour parameter				
Total anthocyanins (mg/L)	524 ± 55	536 ± 35	409 ± 189	473 ± 192
Total phenolics (a.u)	31.5 ± 7.4	39 ± 6.8	30.8 ± 11.5	36.2 ± 11.9
Total Tannins (g/L)	0.88 ± 0.22a	1.11 ± 0.27a	0.56 ± 0.28B	0.78 ± 0.41A
Total red pigments (a.u)	26.2 ± 2.8	26.8 ± 1.8	20.5 ± 9.5	23.7 ± 9.6
Hue	0.53 ± 0.01b	0.62 ± 0.02a	0.60 ± 0.1	0.60 ± 0.08
Colour density (a.u)	9.55 ± 1.01	10.82 ± 0.93	6.67 ± 4.9	7.19 ± 4.04
Chemical age	0.18 ± 0.03b	0.26 ± 0.04a	0.20 ± 0.04A	0.21 ± 0.02A
SO2 resistant red pigment (a.u)	1.67 ± 0.18b	2.52 ± 0.22a	1.13 ± 0.53A	1.41 ± 0.68A
Degree of red pigment (a.u)	23.8 ± 1.6b	26.8 ± 1.8a	18.8 ± 6.3A	17.9 ± 5.1A
Tannins:Anthocyanins	1.67 ± 0.29a	2.06 ± 0.44a	1.37 ± 0.33B	1.59 ± 0.36A
Aromatic compounds (µg/L)				
C13 norisprenoids				
α-ionone (ng/L)	15 ± 3b	24 ± 5a	28 ± 5A	25 ± 5A
β-ionone (ng/L)	106 ± 22b	160 ± 23a	349 ± 55A	203 ± 24B
C6-alcohols				
Hexanol	2122 ± 277b	2754 ± 474a	2581 ± 302A	2055 ± 238B
Cis-3-hexenol	366 ± 70a	122 ± 20b	473 ± 143A	239 ± 57B
Trans-2-hexenol	25.6 ± 12a	12.3 ± 6.2b	18.8 ± 5.6A	14.3 ± 3.1A
Trans-3-hexenol	33.5 ± 5.4b	51.3 ± 9.7a	43.3 ± 6.4A	38.8 ± 7.2A
Lactone				
γ-nonalactone	6.5 ± 1.6b	16.4 ± 7.5a	9.3 ± 2A	9.5 ± 2.8A
Esters				
Ethyl dihydrocinnamate	0.71 ± 0.03a	0.28 ± 0.04b	0.54 ± 0.13A	0.46 ± 0.12B
Ethyl cinnamate	1.48 ± 0.1a	0.27 ± 0.07b	0.78 ± 0.27A	0.86 ± 0.4A
Ethyl butyrate ¹	189 ± 11b	257 ± 11a	194 ± 14b	229 ± 24a
Ethyl propanoate	137 ± 8b	170 ± 20a	180 ± 21B	213 ± 33A
Ethyl isobutyrate ²	98.9 ± 15a	86.7 ± 17b	91.5 ± 21A	73.4 ± 14.2B
Ethyl 2-methylbutyrate ²	13.7 ± 2.9a	14 ± 4.8a	13.5 ± 3.7A	12 ± 3.5A
Ethyl isovalerate ²	24.3 ± 4.7a	21.6 ± 4.9a	20.1 ± 5.6A	18.8 ± 3.3A
Ethyl leucate ²	61.8 ± 8.8a	43.5 ± 12b	58.2 ± 15A	48.4 ± 9.9B
Ethyl phenylacetate ²	1.89 ± 0.32a	2.15 ± 0.7a	2.81 ± 0.9A	2.56 ± 0.7A
Propyl acetate ³	25.7 ± 6.3b	46.6 ± 15a	45.4 ± 16.5B	75.6 ± 29A
Isobutyl acetate ³	52.7 ± 5.6b	64.3 ± 8.2a	63 ± 10.4A	65.9 ± 5.3A
Butyl acetate ³	2.05 ± 0.9b	5.3 ± 1.5a	1.15 ± 0.3B	2.24 ± 0.7A
Isoamyl acetate ³	1621 ± 154b	1928 ± 248a	1659 ± 343B	2317 ± 636A
Hexyl acetate ³	17.7 ± 1.4b	38.4 ± 4.3a	22.2 ± 6.1A	30 ± 14.5A
Cis-3-hexenyl acetate ³ (ng/L)	400 ± 300a	220 ± 40b	590 ± 200A	510 ± 210A
Phenylethyl acetate ³	112 ± 25b	175 ± 46a	110 ± 24B	183 ± 69A
Volatile Sulfur Compounds				
Dimethyl sulphide	3.65 ± 0.8b	14.3 ± 3.2a	7.1 ± 0.9B	11.4 ± 2.4A
Hydrogen sulfide	7.9 ± 4a	4.7 ± 0.8b	5.3 ± 2.3B	11.5 ± 4.1A
Methanethiol	2.8 ± 0.6a	3 ± 0.6a	4.2 ± 1B	6.7 ± 0.8A

All the wine colour parameters were included in the table irrespective of the level of significance. One way ANOVA was used to compare data between maturity stages for each vintage. Means followed by different letters in a row are significant at $p \leq 0.05$ (Fischer's LSD). Lower and upper case letters were used for 2014 and 2015 vintage respectively. ¹EEFAs; ²HAAs; ³EEBAs

TABLE S3. Average concentrations of Cabernet Sauvignon grape, juice and wine metabolites significantly different between H1 and H3 harvest date for at least one vintage.

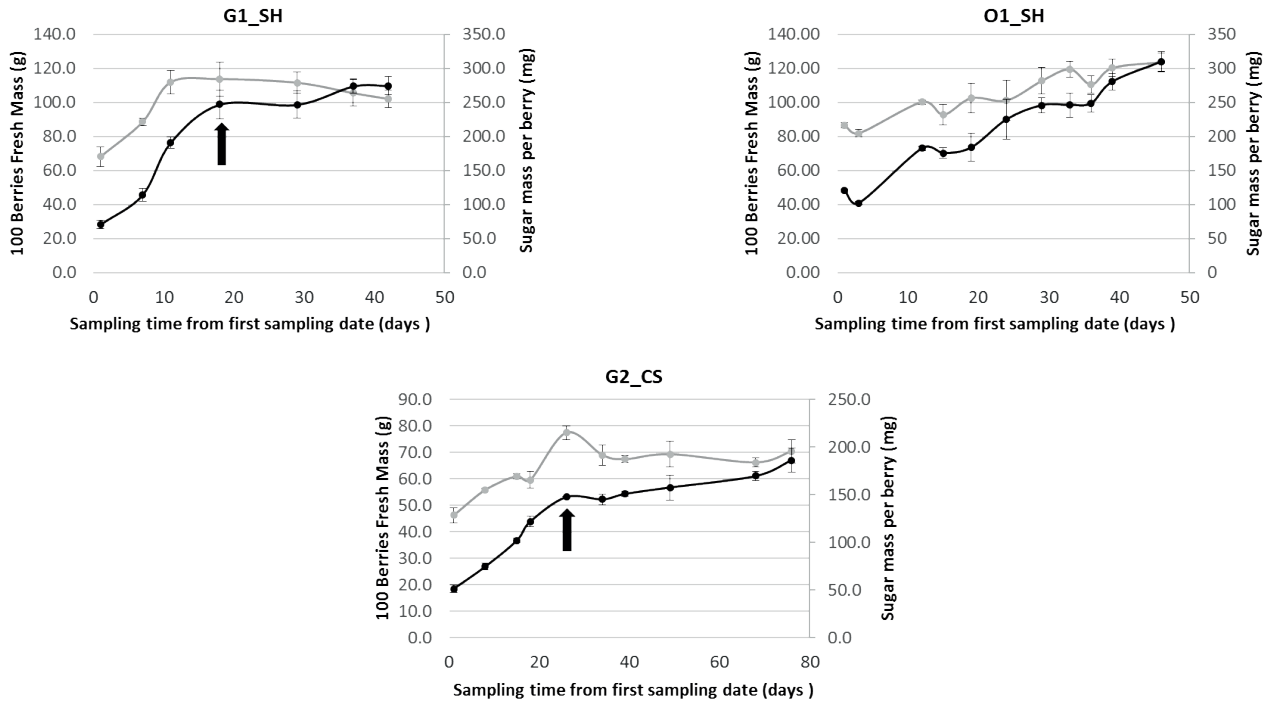
Compounds/wine	CS FF 2014	CS MF 2014	CS FF 2015	CS MF 2015
Grape composition				
Amino acids (mg/kg)				
Alanine	45.5 ± 0.9a	38 ± 4.4b	54.5 ± 35.1	25.4 ± 9.9
Arginine	174.6 ± 10.2a	132 ± 23.1b	189.6 ± 178.7	106.7 ± 97.5
Asparagine	3.4 ± 0.24a	2.14 ± 0.23b	2.71 ± 1.26	2.87 ± 1.35
Aspartic acid	38.8 ± 1.8a	22 ± 4.9b	34.4 ± 11.3	23.5 ± 15.1
Glutamine	80.7 ± 7.9a	26.8 ± 1.7b	42 ± 8.3	33.9 ± 23.5
Isoleucine	36.4 ± 1.2b	42.2 ± 3.1a	22.0 ± 5.1B	32.1 ± 3.5A
Leucine	48.1 ± 2.1b	57.4 ± 2.9a	29.3 ± 9.1	39.6 ± 8.9
Methionine	9.6 ± 0.1a	7.2 ± 0.3b	22.1 ± 7.1	28.1 ± 10
Proline	2241 ± 10b	3605 ± 101a	2597 ± 1278	3394 ± 1731
Tyrosine	59.5 ± 6.3a	44.7 ± 3.1b	21.6 ± 10.1	17 ± 7.7
Carbohydrates (mg/kg)				
Fructose	105.3 ± 1.9b	118.9 ± 1.8a	109.5 ± 9.1B	125.1 ± 8.0A
Organic acid (mg/kg)				
Malic acid	0.90 ± 0.03a	0.57 ± 0.21b	1.71 ± 0.77	1.35 ± 0.65
Total aromatic compounds (peak area ratio normalised on sample weight)				
C6-compounds				
cis-3-hexenol	0.007 ± 0.0008a	0.0038 ± 0.0009b	0.0013 ± 0.0002A	0.001 ± 0.0002B
t-2-heptenal	0.222 ± 0.084a	0.07 ± 0.017b	0.076 ± 0.013	0.075 ± 0.015
trans-2-hexenal	3.83 ± 0.3a	3.35 ± 0.1b	2.17 ± 0.33A	1.78 ± 0.18B
trans-2-hexenol	0.056 ± 0.004a	0.049 ± 0.002b	0.032 ± 0.009	0.037 ± 0.016
Terpenoids				
6-methyl-5-hepten-2-one	0.0254 ± 0.0027a	0.0175 ± 0.0025b	0.0147 ± 0.004	0.0149 ± 0.0043
b-damascenone	1.07 ± 0.05a	1.26 ± 0.11b	1.83 ± 0.26	2.2 ± 0.5
linalool	0.0003 ± 0.0000a	0.0002 ± 0.0000b	0.0245 ± 0.005	0.0324 ± 0.015
trans-geraniol	0.0005 ± 0.0001a	0.0002 ± 0.0000b	0.0007 ± 0.0002	0.0007 ± 0.0002
Carotenoids (mg/kg)				
Zeaxanthin	0.086 ± 0.031	0.102 ± 0.005	0.137 ± 0.027A	0.106 ± 0.020B
Chlorophylla	2.4 ± 1.2	2.22 ± 0.9	5.91 ± 1.86A	2.76 ± 0.53B
Anthocyanins (mg/kg)				
total phenolics per berry	0.397 ± 0.063b	0.467 ± 0.013a	0.44 ± 0.082	0.454 ± 0.096
Malvidin-3-O-glu	307 ± 8.5b	350 ± 20.2a	432.9 ± 188.8	485.1 ± 216
Malvidin-6-(6-Ocoumaryoyl)gluc	76.8 ± 2.7b	87.3 ± 3.1a	110.2 ± 20.8	145.2 ± 43.1
Grape juice composition				
TSS (Brix)	22.7 ± 0.31b	25.6 ± 0.1a	23.6 ± 0.8b	25.8 ± 0.5a
Ammonia (mg/L)	70 ± 2.6a	59 ± 1.7b	60.8 ± 9.7A	49.7 ± 20.8B
NOPA (mg N/L)	94 ± 0.1b	95.7 ± 0.6a	81.3 ± 38.0A	56.2 ± 22.5B
YAN (mg N/L)	151.8 ± 2.2a	144.3 ± 0.9b	131.7 ± 46A	97.3 ± 39.4B
ratio Aas/Am	1.34 ± 0.05b	1.62 ± 0.06a	1.28 ± 0.42A	1.14 ± 0.05B
TA (g/L)	3.1 ± 0.06	3.1 ± 0.06	5.3 ± 0.3A	4.4 ± 0.5B

▼ *Table S3 continues on the next page*

Wine composition				
Major compounds				
Lactic acid (g/L)	1.10 ± 0,05b	1.28 ± 0,10a	1.88 ± 0,73A	1.59 ± 0,73A
Glycerol (g/L)	8.55 ± 0,18b	10.52 ± 0,06a	8.99 ± 0,49B	10.46 ± 0,37A
Alcohol (%)	12.51 ± 0,15b	14.71 ± 0,29a	12.62 ± 1,23B	13.82 ± 0,94A
Acetic acid (g/L)	0.22 ± 0,004b	0.29 ± 0,04a	0.37 ± 0,19A	0.40 ± 0,16A
Colour parameter				
Total anthocyanins (mg/L)	454 ± 9b	520 ± 18a	541 ± 212A	584 ± 211A
Total phenolics (a.u)	29.4 ± 1.4b	39.6 ± 1.6a	38.1 ± 13.3A	42.5 ± 14.3A
Total Tannins (g/L)	1.06 ± 0.15b	1.52 ± 0.11a	0.79 ± 0.39A	1.06 ± 0,52A
Total red pigments (a.u)	22.7 ± 0.5b	26 ± 0.9a	27.1 ± 10.6A	29.2 ± 10.5A
Hue	0.68 ± 0.03a	0.67 ± 0.01a	0.60 ± 0,1A	0.65 ± 0,4A
Colour density (a.u)	7.22 ± 0.14b	10 ± 0.22a	8.58 ± 4.7A	10.02 ± 5.54A
Chemical age	0.28 ± 0.01b	0.36 ± 0.01a	0.23 ± 0,03B	0.29 ± 0,02A
SO2 resistant red pigment (a.u)	1.69 ± 0.08b	2.71 ± 0.08a	1.68 ± 0.67A	2.38 ± 1.04A
Degree of red pigment (a.u)	19 ± 0.4b	23 ± 0.4a	18.9 ± 4.7A	19.7 ± 5.7A
Tannins:Anthocyanins	2.32 ± 0.32b	2.93 ± 0.29a	1.42 ± 0.24A	1.74 ± 0.33A
Aromatic compounds (µg/L)				
C13-norisoprenoids				
α-ionone (ng/L)	43 ± 3a	48 ± 5a	44 ± 6A	58 ± 17A
β-ionone (ng/L)	112 ± 26a	95 ± 6a	173 ± 18A	165 ± 17A
C6-alcohols				
Hexanol	2391 ± 181b	2719 ± 84a	1766 ± 129A	1559 ± 166B
Cis-3-hexenol	31.4 ± 2.7a	38.3 ± 8.7a	75.4 ± 16A	35.3 ± 5.3B
Trans-2-hexenol	8.5 ± 0.8a	10.6 ± 0.5a	9.6 ± 3.9A	8.1 ± 3.1A
Trans-3-hexenol	79.2 ± 3a	65.4 ± 5.5b	61.5 ± 11A	46.4 ± 5B
Lactone				
γ-nonalactone	25.9 ± 4.1b	39.6 ± 2a	13.5 ± 2.3B	16.5 ± 1.9A
Esters				
Ethyl dihydrocinnamate	0.47 ± 0.04a	0.31 ± 0.02b	0.68 ± 0.11A	0.58 ± 0.14B
Ethyl cinnamate	1 ± 0.09a	1 ± 0.09a	2.24 ± 0.59A	2.11 ± 0.6A
Ethyl butyrate ¹	190 ± 4b	215 ± 7a	204 ± 33A	203 ± 24A
Ethyl propanoate	157 ± 12b	223 ± 26a	197 ± 22B	224 ± 32A
Ethyl isobutyrate ²	79 ± 6.7b	108 ± 12a	73 ± 8B	97 ± 7A
Ethyl 2-methylbutyrate ²	16.5 ± 1.2b	25.4 ± 1.4a	17.4 ± 2.4B	23.4 ± 2A
Ethyl isovalerate ²	24.1 ± 3.1b	38.5 ± 0.7a	22.2 ± 1.8B	28 ± 1.9A
Ethyl leucate ²	34.5 ± 2b	52 ± 1.7a	67.8 ± 8B	81.9 ± 15A
Ethyl phenylacetate ²	3 ± 0.03b	4.3 ± 0.4a	4.5 ± 0.3B	5.5 ± 0.3A
Propyl acetate ¹	37.2 ± 3.1a	29.3 ± 0.8b	49.6 ± 8.7A	59 ± 4.7A
Isobutyl acetate ¹	45.1 ± 2a	32.4 ± 1.9b	45.2 ± 4.6A	41.2 ± 2.1A
Butyl acetate ¹	2.5 ± 0.3a	2.2 ± 0.3a	1.5 ± 0.1B	2.0 ± 0.3A
Isoamyl acetate ¹	1191 ± 108A	937 ± 96B	1548 ± 728A	1358 ± 635A
Hexyl acetate ¹	10.5 ± 1.4a	7.4 ± 0.1b	14 ± 8.5A	8.6 ± 4.4A
Cis-3-hexenyl acetate ¹ (ng/L)	80 ± 30a	70 ± 40a	150 ± 50A	90 ± 10B
Phenylethyl acetate ¹	71.7 ± 8a	61.2 ± 7b	143 ± 71A	128 ± 68A
Volatile Sulfur Compounds				
Dimethyl sulfide	16.7 ± 0.8b	26.4 ± 0.2a	18.7 ± 8.2B	23 ± 9.2A
Hydrogen sulfide	6.8 ± 2.7a	1.9 ± 0.3b	7.9 ± 3.8A	6.2 ± 3A
Methanethiol	1.4 ± 0.1a	1.3 ± 0.2a	3.3 ± 1.6A	4.4 ± 0.4A

All the wine colour parameters were included in the table irrespective of the level of significance. One way ANOVA was used to compare data between maturity stages for each vintage. Means followed by different letters in a row are significant at $p \leq 0.05$ (Fischer's LSD). Lower and upper case letters were used for 2014 and 2015 vintage respectively. ¹EEFAs; ²HAAs; ³EEBAs

2014



2015

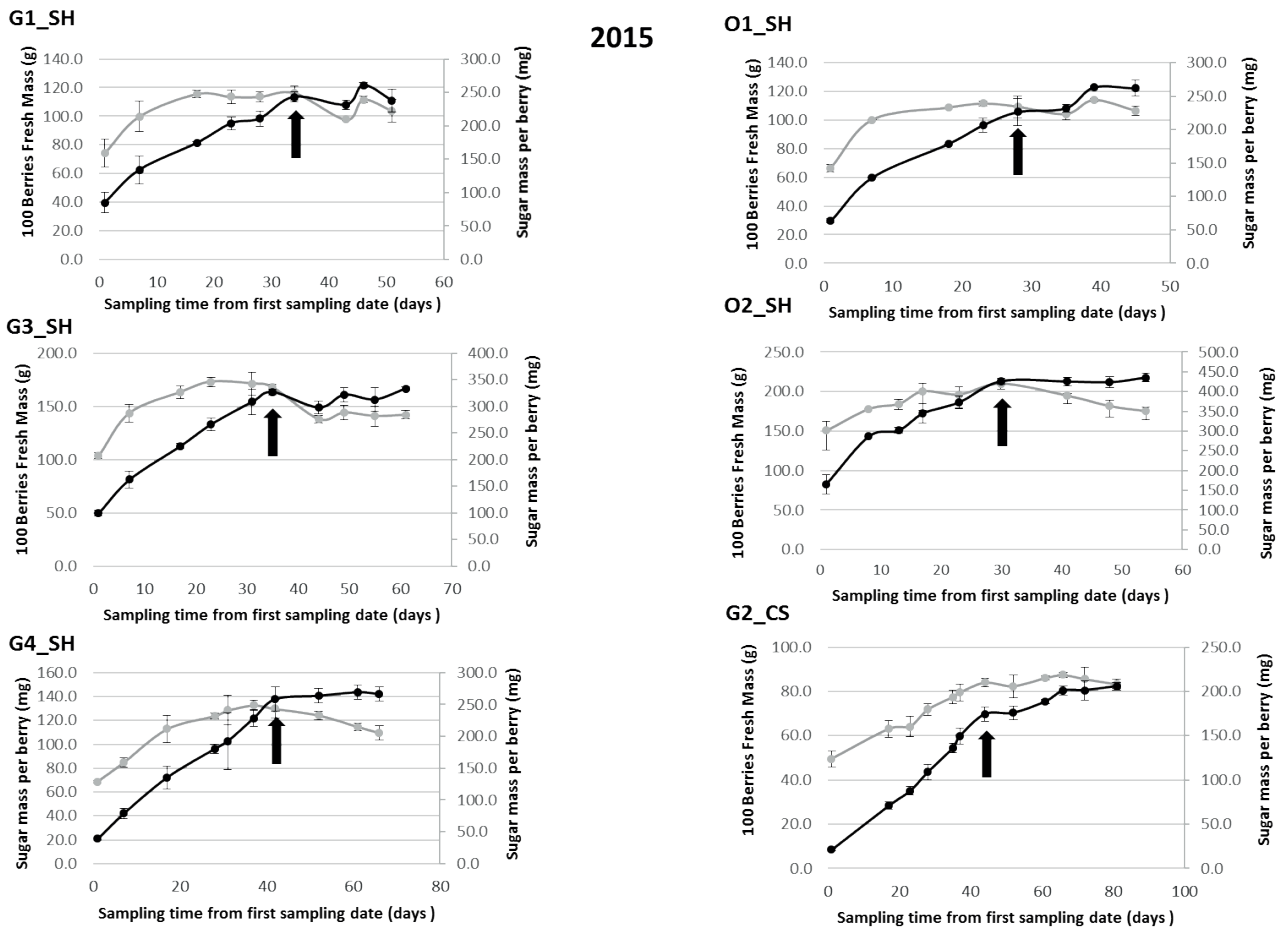


FIGURE S4. Berry fresh mass (grey) and sugar per berry (black) evolution for selected vineyards in Griffith and Orange. The black arrow indicates the date of plateau for sugar accumulation.