

Table S1. Soil's elemental mineral composition.

	Sample	V1-2	V1-3	V1-4	V1-5	V2-1	V2-2	V2-3	V3-1	V3-2	V3-3	V4-1	V4-2	V4-3	V4-4	V5-1	V5-2	V5-3	V5-4	V6-1	V6-2	V6-3	V7-1	V7-2	V7-3
Limestone tot	g/kg	262	280	243	162	497	669	580	262	323	375	649	738	729	522	459	455	418	370	531	804	555	395	448	368
Active limestone	g/kg	10	27	25	<10	12	18	20	17	27	27	23	35	33	13	<10	12	12	10	<10	16	44	38	42	36
Organic matter	g/kg	20	14	12	12	22	3	6	21	6	13	29	17	13	23	34	29	24	16	45	14	27	9	7	3
P assimilable	mg/kg	48	15	18	50	67	7	20	19	8	12	53	35	38	40	66	48	55	41	77	25	47	16	8	10
K exchangeable	mg/kg	105	82	118	142	126	73	90	130	61	96	99	60	60	107	231	154	169	159	242	72	163	122	99	85
Mg exchangeable	mg/kg	401	415	424	557	400	222	438	348	340	353	353	333	345	355	542	579	625	748	463	249	562	272	280	350
Ag tot	mg/kg	0.12	0.15	0.19	0.13	0.1	0.02	0.04	0.06	0.04	0.04	0.05	0.03	0.03	0.08	0.14	0.11	0.13	0.12	0.08	0.02	0.05	0.04	0.02	0.02
Ba tot	mg/kg	106	133	117	125	89.9	41.5	85.6	111	86.5	98.6	46.4	42.7	40.6	89.8	119	119	136	143	78.8	36.7	76.2	101	99.6	101
Be	mg/kg	1.04	1.24	1.48	1.17	0.77	0.42	0.71	0.99	0.96	0.8	0.32	0.27	0.26	0.6	0.7	0.72	0.81	0.89	0.66	0.26	0.57	0.79	0.82	0.93
B	mg/kg	33.4	48.8	56	33.6	27.9	18.3	28.1	38.4	42.7	32.1	10	8.6	7.69	11.6	16.5	16.6	17.8	16.4	22.7	9.6	20	27.9	30.9	34
Ca tot	g/Kg	58.9	68.2	57	34	97.6	144	113	61.1	80.9	96	138	155	148	105	89.8	95.9	83.3	79.7	111	157	128	102	131	87
CSC	meq/100g	13.4	12.3	12.1	13.3	14.1	3.8	9.7	14	7.4	9	9.7	6.4	6.9	13.4	21.5	16.7	18.6	17	24.4	6	17.5	9.2	6.8	6.1
Ce tot	mg/kg	55.9	56.7	49.4	61.9	46.9	41.7	41.2	53.9	53.1	47.5	22.4	17.3	22.3	37.9	44.6	43.9	48.3	54.4	46.2	19.3	37.4	59.5	54.9	66
Fe assimilable	mg/kg	21.9	12.3	16.8	11.6	17.7	3.5	10.4	29.1	5.6	8.7	7.2	3.9	4.5	8.2	13.4	8.9	8.4	9.9	41.8	8.5	14.2	5.5	3.3	3.3
Fe tot	mg/kg	14	14.6	14.6	15.9	11.4	7.3	11	16	9.8	13.3	5.4	4.6	5.6	10.3	12.7	13.3	13.6	16.4	10.2	4.8	9.6	12.9	12	14
Ln tot	mg/kg	26.2	27	23.3	30.6	21.2	18.5	18.5	26.5	27	21	10.7	8.6	10.7	17.2	20.2	20.5	22.5	25.7	2.9	9	16.6	28.9	26.6	31.5
Mn assimilable	mg/kg	6.6	11.4	8.5	11.1	5.2	1.2	6.3	12.2	3.7	7.4	3.2	3.8	3.6	7	6.5	10.1	10.5	12.8	3.8	2.9	6.4	2.8	3.1	2.9
Mn	mg/kg	524	498	461	599	347	204	296	436	223	352	213	171	174	377	403	435	446	465	275	134	238	264	227	253
pH	KCl	7.4	7.5	7.6	7.5	7.4	8.2	7.8	7.5	7.9	7.7	7.7	8	8	7.7	7.3	7.4	7.4	7.4	7.2	7.9	7.5	7.7	7.8	7.9
Pb tot	mg/kg	56.6	40.3	33.1	39.5	19.4	2.8	7.9	24.9	25	17.7	11.7	6.8	6.6	19.7	32.6	16.8	17	16.5	25.4	4.1	18.2	11.5	7.2	9.5
Cu assimilable	mg/kg	157	12.3	12.2	15.8	321	1.4	16.2	95.3	3	27.1	91.7	6.9	16.4	131	265	12.3	12.5	8.8	362	2.2	4.3	152	4.5	11.9
Cu	mg/kg	458	36.1	29.9	44.4	517	5.7	32.5	172	14.2	60.7	146	16.6	32.7	216	459	39.4	40.6	32.6	581	6.8	14.3	220	12.4	22.6
Rb	mg/kg	51.1	62.2	71.5	61.2	45.6	18.6	39.3	49.9	41.6	41.3	9.7	17.1	17.5	35.6	48.2	47	52.9	56.3	41.1	15	34.4	40.2	41	44.2
Na tot	mg/kg	186	253	172	172	224	185	210	195	142	216	132	132	121	159	206	212	220	217	163	130	186	222	243	237
Sr tot	mg/kg	100	139	142	85.6	123	124	138	107	101	109	75.4	80.1	76	72.2	93.4	91.4	91.8	81.7	186	163	235	318	346	373
Zn assimilable	mg/kg	7.5	3.2	5	2.1	12	<0.5	1.1	6.5	1.4	2.3	5.4	0.8	1.3	9.8	16.1	2.9	3.2	2.3	22.6	0.9	1.6	2.3	<0.5	0.5
Zn	mg/kg	75.1	61	63	56.9	61.5	17.8	38	85.4	102.8	69.1	28.2	14.2	15.5	58.1	90	62.9	66	68.7	82.4	20	34.6	41.6	37.6	44.8
S tot	mg/Kg	0.20	0.20	0.19	0.13	0.22	0.15	0.16	0.18	0.18	0.17	0.16	0.12	0.13	0.17	0.23	0.19	0.18	0.16	0.31	0.18	0.24	0.19	0.20	0.18

Table S2. Wines' targeted chemical-oenological analysis on, mineral elements' concentration values.

	Vineyard						
	1	2	3	4	5	6	7
Silver (µg/l)	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01
Barium (µg/l)	66.8	55.1	28.3	28.6	33.1	25.9	24.8
Beryllium (µg/l)	0.02	0.34	0.27	0.16	0.18	0.21	0.18
Boron (mg/l)	5.43	4.84	4.9	4.37	4.86	4.3	5.2
Calcium (mg/l)	45.7	68.4	53.6	45.8	50.9	55.7	61.8
Cerium (µg/l)	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Iron (mg/l)	0.2	0.2	0.1	0.1	0.1	0.2	0.1
Lanthanum (µg/l)	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Manganese (mg/l)	1.12	0.53	0.47	0.56	0.53	0.45	1.33
Lead (µg/l)	<16	<16	<16	<16	<16	<16	<16
Potassium (g/l)	1.27	1.01	1.46	1.35	1.29	1.49	1.49
Copper (mg/l)	0.1	0.05	0.14	0.15	0.09	0.15	0.25
Rubidium (µg/l)	1.16	0.6	0.63	0.56	0.67	0.42	0.43
Sodium (mg/l)	11.6	17.2	16.3	18.9	18.1	16.4	19.6
Strontium (µg/l)	0.1	0.13	0.08	0.16	0.14	0.15	0.2
Zinc (mg/l)	0.5	0.43	0.45	0.45	0.45	0.46	0.81

Table S3. Amino acid amounts in grapes.

		Vineyard						
		V1	V2	V3	V4	V5	V6	V7
L-ALANINE	(mg/kg)	248.7	59.1	68.1	91.3	77.6	68.3	67.4
L-ARGININE	(mg/kg)	913	178.1	201.2	580	418.9	253.6	258.6
L-GLUTAMINE	(mg/kg)	579.8	155.1	201.2	322.5	195.3	153.8	145
L-METHIONINE	(mg/kg)	8.1	1	0.7	1	1	0.3	0.1
L-SERINE	(mg/kg)	109.1	51.4	50.8	69.9	57.8	46.8	48.7
L-THREONINE	(mg/kg)	232.5	57.9	52.7	99.4	93.3	57.1	56.5
L-TYROSINE	(mg/kg)	9.1	5.4	4.3	4.9	6	5.3	3.9

Table S4. Polyphenol amounts in grapes, must and wine.

		Substance	Vineyard						
			1	2	3	4	5	6	7
4-Vinylphenol (mg/l)		Wine	0.13	2.30	2.44	1.22	1.54	2.46	2.27
4-Vinyl Guaiacol (mg/l)		Wine	1.55	5.11	6.91	8.61	7.22	6.99	7.65
β-Phenylethyl (mg/l)		Wine	13.30	23.40	24.10	16.50	22.10	21.10	22.90
Rose oxide tot. (mg/l)		Wine	0.008	0.005	0.010	0.011	0.010	0.010	0.007
3-Mercaptohexanol (mg/l)		Wine	0.48	0.82	0.63	0.22	0.58	0.47	0.57
Citronellol (free-form) (mg/l)		Wine	0.08	0.05	0.08	0.13	0.12	0.11	0.10
Citronellol (bound-form) (mg/l)		Wine	0.03	0.04	0.04	0.03	0.02	0.04	0.03
Citronellol tot (free+bound) (mg/l)		Grape	0.11	0.12	0.14	0.17	0.14	0.19	0.15
		Must	0.13	0.10	0.13	0.16	0.15	0.15	0.15
		Wine	0.11	0.09	0.12	0.16	0.14	0.15	0.13
Geraniol (mg/l)		Grape	0.53	0.34	0.41	0.63	0.61	0.32	0.59
		Must	0.14	0.13	0.12	0.21	0.15	0.15	0.15
		Wine	0.60	0.21	0.40	1.50	1.10	0.57	0.60
	(mg/kg)	Grape	1609	3194	3296	1852	3969	3301	2278
Polyphenols tot.	(mg/l)	Must	94	196	221	206	196	205	206
		Wine	82	137	160	137	141	168	153

Table S5. Rubidium and Strontium in soils, grapes, musts and wines.

			Vineyard						
			1	2	3	4	5	6	7
Rubidium	mg/kg	Soil	61.50	34.50	44.27	19.98	51.10	30.17	41.80
	mg/kg	Grape	1.88	0.78	0.71	0.92	0.91	0.55	0.58
	µg/l	Must	1372	730	697	648	755	465	462
	µg/l	Wine	1.16	0.60	0.63	0.56	0.67	0.42	0.43
Strontium	mg/kg	Soil	116.65	128.33	105.67	75.93	89.58	194.67	345.67
	mg/kg	Grape	0.40	0.40	0.20	0.70	0.40	0.60	0.80
	µg/l	Must	108	127	72	151	134	152	189
	µg/l	Wine	0.10	0.13	0.08	0.16	0.14	0.15	0.20