Supplemental Data for:
Schreiner RP and Osborne J. 2020. Potassium requirements for Pinot noir grapevines.
Am J Enol Vitic 71:33-43. doi: 10.5344/ajev.2019.19043.

Supplemental Table 1 Vine phenology, weather, and potassium (K) inputs for Pinot noir grapevines grown in microplots at varying rates of K supply from 2012 to 2015. GDD, growing degree days.

Year/growth stage	GDD > 10°C	Mean daily temp (°C)	Rainfall (mm)	Mean daily RH (%)	Solar radiation (MJ/m^2)	K applied (kg/ha)[a]
2012						
Budbreak – bloom (24 April – 26 June)	312	13.5	141	75	1356	30.9
Bloom – veraison (27 June – 30 Aug)	613	19.2	15	69	1563	41.5
Veraison – harvest (31 Aug – 8 Oct)	312	16.8	8	59	743	15.7
Season Total (24 April – 8 Oct)	1237		164		3662	88.1
2013						
Budbreak – bloom (26 April – 10 June)	273	14.7	59	71	1055	27.2
Bloom – veraison (11 June – 12 Aug)	597	19.2	37	66	1607	41.5
Veraison – harvest (13 Aug – 26 Sept)	417	19.1	90	73	758	12.3
Season Total (26 April – 26 Sept)	1287		186		3420	81.0
2014						
Budbreak – bloom (16 April – 9 June)	289	13.7	124	74	1195	28.9
Bloom – veraison (10 June – 12 Aug)	641	19.8	28	66	1566	43.9
Veraison – harvest (13 Aug – 16 Sept)	376	20.4	4	58	760	12.3
Season Total (16 April – 16 Sept)	1306		156		3521	85.1
2015						
Budbreak – bloom (11 April – 7 June)	301	13.3	54	76	1181	26.4
Bloom – veraison (8 June – 5 Aug)	653	20.7	0	57	1645	39.5
Veraison – harvest (6 Aug – 14 Sept)	391	19.4	16	62	873	13.7
Season Total (11 April – 14 Sept)	1345		70		3699	79.6

[a]K additions equate to the 100% K (Control) treatment.

Supplemental Table 2 Soil water content averaged over the growing season within each potassium (K) supply treatment for Pinot noir grapevines grown in microplots from 2012 to 2015. Data are means and standard errors of the mean for each year. ANOVA, analysis of variance.

	Soil water content (% volumetric)			
K Supply	**2012**	**2013**	**2014**	**2015**
100%	18.2 (0.2)	18.9 (0.2)	19.0 (0.3)	18.6 (0.3) ab
50%	17.9 (0.2)	18.7 (0.3)	18.7 (0.4)	18.1 (0.2) b
20%	18.5 (0.2)	19.2 (0.3)	19.6 (0.4)	19.0 (0.2) a
no K	17.8 (0.3)	19.0 (0.2)	18.8 (0.3)	18.7 (0.2) ab
ANOVA signif. level[a]	0.404	0.391	0.227	0.038
n	316	284	252	216

[a]Main effect of K supply treatment. The interaction between growth stage and K supply was also not significant ($p > 0.10$ in all years).

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Supplemental Table 3 Nutrient concentrations in leaf blades at veraison of Pinot noir grapevines grown in microplots with varying rates of potassium (K) supply from 2012 to 2015. Data are means for the main effect of K supply in all years (n = 16) or for the interactive effect of year × K supply (n = 4). DW, dry weight; ANOVA, analysis of variance.

	Nutrient concentration in leaf blades at veraison									
	g/kg DW					mg/kg DW				
Effect / Treatment	**N**	**P**	**Ca**	**Mg**	**S**	**Fe**	**Mn**	**B**	**Zn**	**Cu**
K Supply:										
100% K	22.3	1.63 b[a]	21.4	4.3 b	1.9 a	165	227 b	47 c	17	5 b
50% K	21.9	1.59 b	21.9	4.4 b	1.9 a	178	291 a	54 bc	17	5 b
20% K	21.6	1.61 b	22.3	4.9 ab	1.8 b	164	278 a	60 b	16	5 b
No K	22.1	1.82 a	21.3	5.4 a	1.8 b	163	233 b	86 a	16	6 a
ANOVA signif. level (*p*)	0.245	0.002	0.092	<0.001	0.002	0.369	<0.001	<0.001	0.234	0.008
Year × K Supply:										
2012 – 100% K	20.6	1.55 b	18.6	3.5 f	1.6	190	209 c	40 h	19	5 ab
2012 – 50% K	20.5	1.50 b	18.1	3.4 f	1.6	223	206 c	39 h	20	5 ab
2012 – 20% K	20.4	1.50 b	18.4	3.5 f	1.5	202	215 c	42 gh	20	5 ab
2012 – no K	20.5	1.52 b	18.2	3.4 f	1.6	214	181 c	41 gh	20	5 ab
2013 – 100% K	22.2	1.76 b	21.1	4.2 ef	1.9	127	222 c	50 efg	18	5 ab
2013 – 50% K	22.1	1.70 b	23.0	4.8 de	2.0	129	225 c	61 de	16	6 a
2013 – 20% K	21.8	1.83 b	22.8	5.0 cde	1.8	114	215 c	60 de	17	5 ab
2013 – no K	22.0	1.62 b	21.7	5.6 abc	1.7	98	188 c	68 cd	15	5 ab
2014 – 100% K	23.9	1.65 b	23.5	4.9 cde	2.1	161	267 bc	46 fgh	15	5 ab
2014 – 50% K	22.9	1.62 b	22.7	4.8 de	2.0	166	357 a	52 ef	17	5 ab
2014 – 20% K	22.7	1.58 b	24.8	5.8 abc	1.9	170	358 a	61 de	14	6 a
2014 – no K	22.8	1.63 b	23.4	6.2 ab	1.8	154	333 ab	92 b	14	6 a
2015 – 100% K	22.5	1.57 b	22.4	4.6 de	2.1	181	208 c	53 ef	14	4 b
2015 – 50% K	22.0	1.53 b	23.4	4.8 de	2.1	197	378 a	66 cd	15	4 b
2015 – 20% K	21.7	1.54 b	23.2	5.4 bcd	1.9	170	325 ab	77 bc	14	4 b
2015 – no K	22.9	2.41 a	21.9	6.5 a	2.1	185	230 c	145 a	14	6 a
ANOVA signif. level (*p*)	0.793	<0.001	0.145	<0.001	0.186	0.832	<0.001	<0.001	0.586	<0.001

[a]Means followed by the same letter within an effect do not differ based on Tukey's honest significant difference at 95% confidence.

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Supplemental Table 4 Must nutrient concentrations of Pinot noir grapevines grown in microplots with varying rates of potassium (K) supply from 2012 to 2015. Data are means for the main effect of K supply in all years (n = 16) or for the interactive effect of year × K supply (n = 4). YAN, yeast assimilable nitrogen; ANOVA, analysis of variance.

	Nutrient concentration in must (mg/L)									
Effect / treatment	**YAN-N**	**P**	**Ca**	**Mg**	**S**	**Fe**	**Mn**	**B**	**Zn**	**Cu**
K supply:										
100% K	202 a[a]	127 a	50	66 a	52 a	1.0	1.2	5.7 a	0.5	0.6
50% K	184 b	109 b	49	60 b	48 b	0.8	1.3	5.6 a	0.5	0.5
20% K	169 b	96 c	50	57 bc	44 c	0.7	1.3	5.4 a	0.5	0.5
No K	181 b	94 c	47	55 c	44 c	0.7	1.2	4.1 b	0.5	0.5
ANOVA signif. level (*p*)	<0.001	<0.001	0.306	<0.001	<0.001	0.056	0.078	<0.001	0.462	0.262
Year × K supply:										
2012 – 100% K	226 a	133 a	48	69 abc	48 abcde	0.8	0.7	5.1 bc	0.4	0.4
2012 – 50% K	216 a	127 abc	50	65 abc	49 abcd	1.0	0.7	5.2 bc	0.4	0.4
2012 – 20% K	195 abc	119 abcd	49	65 abc	47 abcde	0.9	0.7	5.2 bc	0.4	0.4
2012 – no K	213 a	129 ab	51	73 ab	48 abcde	0.9	0.8	5.4 abc	0.4	0.4
2013 – 100% K	189 abc	110 abcde	45	78 a	49 abcd	1.4	1.4	5.5 abc	0.5	0.9
2013 – 50% K	197 abc	104 cdef	46	73 ab	52 abc	1.3	1.4	5.9 ab	0.5	0.8
2013 – 20% K	188 abc	86 efg	45	69 abc	46 bcde	1.1	1.3	5.7 abc	0.4	0.8
2013 – no K	185 abc	77 fg	43	65 abc	48 abcde	1.3	1.2	5.7 abc	0.7	0.8
2014 – 100% K	202 ab	132 a	63	63 bcd	57 a	0.9	0.8	6.2 a	0.7	0.4
2014 – 50% K	154 cd	105 bcde	59	59 cd	47 abcde	0.4	0.9	6.0 ab	0.6	0.3
2014 – 20% K	132 d	87 efg	62	51 def	42 cde	0.3	1.0	6.0 ab	0.7	0.3
2014 – no K	159 cd	73 g	54	45 ef	38 e	0.3	0.8	3.3 d	0.5	0.4
2015 – 100% K	192 abc	133 a	45	56 cde	55 ab	1.0	2.0	6.2 a	0.5	0.7
2015 – 50% K	167 bcd	99 def	41	44 ef	43 cde	0.5	2.1	5.3 abc	0.4	0.5
2015 – 20% K	163 bcd	91 efg	42	41 f	40 de	0.6	2.1	4.9 c	0.3	0.6
2015 – no K	167 bcd	99 def	40	38 f	43 cde	0.4	2.0	1.9 e	0.3	0.5
ANOVA signif. level (*p*)	0.031	<0.001	0.415	0.002	0.001	0.168	0.100	<0.001	0.124	0.087

[a]Means followed by the same letter within an effect do not differ based on Tukey's honest significant difference at 95% confidence.