agronomy

MDPI

Supplementary Materials

Table S1. SOM, total N and micronutrient concentrations in soil per cultivar and thesis in the three-year period (median, minimum, maximum, first (Q_1) and third (Q_3) quartile, N = 6).). Non-significant differences among theses are marked with "*n.s.*".

Cultivar	Variable	Thesis	Median	Min - Max	$Q_1 – Q_3$	Significance
Pinot blanc	SOM (g kg^{-1} d.w.)	INT	33	24 - 38	29 - 35	*n.s.*
		ORG1	32	29 - 39	30 - 38	
		ORG2	30	27 - 36	28 - 36	
	Total N (g kg^{-1} d.w.)	INT	1.3	1.0 - 1.6	1.3 - 1.5	*n.s.*
		ORG1	1.4	1.3 - 1.7	1.4 - 1.7	
		ORG2	1.4	1.3 - 1.6	1.4 - 1.5	
	Available Fe (mg kg^{-1} d.w.)	INT	17.0	15.6 - 17.8	15.9 - 17.7	*n.s.*
		ORG1	15.8	15.1 - 17.6	15.6 - 17.5	
		ORG2	18.1	14.9 - 21.0	16.0 - 21.0	
	Available Mn (mg kg^{-1} d.w.)	INT	8.1	6.2 - 10.1	8.0 - 9.5	*n.s.*
		ORG1	8.7	7.2 – 11.0	8.2 - 9.9	
		ORG2	8.0	6.1 - 10.7	6.9 - 8.6	
	Available Zn (mg kg^{-1} d.w.)	INT	9.1	7.4 - 9.7	9.0 - 9.7	*n.s.*
		ORG1	9.5	8.7 - 11.4	8.7 - 11.0	
		ORG2	12.4	5.1 - 21.1	5.4 - 20.9	
Rhine Riesling	SOM (g kg^{-1} d.w.)	INT	34	32 - 57	32 - 41	*n.s.*
		ORG1	39	33 - 42	36 - 42	
		ORG2	38	32 - 43	32 - 40	
	Total N (g kg^{-1} d.w.)	INT	1.6	1.4 - 2.7	1.5 - 1.8	*n.s.*
		ORG1	1.6	1.3 - 2.0	1.5 - 1.7	
		ORG2	1.7	1.3 - 1.8	1.5 - 1.8	
	Available Fe (mg kg^{-1} d.w.)	INT	14.4	10.5 - 21.6	10.6 - 17.9	*n.s.*
		ORG1	14.3	11.2 - 19.8	11.6 - 17.3	
		ORG2	15.4	13.1 - 16.4	15.1 - 15.6	
	Available Mn (mg kg^{-1} d.w.)	INT	7.0	6.1 - 9.4	6.4 - 8.0	*n.s.*
		ORG1	7.9	6.7 - 8.8	6.9 - 8.7	
		ORG2	7.5	6.6 - 9.0	6.6 - 8.3	
	Available Zn (mg kg^{-1} d.w.)	INT	13.0	9.2 - 17.3	11.2 - 15.0	*n.s.*
		ORG1	13.0	10.0 - 16.5	10.1 - 15.8	
		ORG2	13.7	10.8 - 18.8	10.8 - 15.9	

Table S2. Median concentrations of exchangeable K and Mg as meq/100 g of element and Mg/K ratio in soil of the three theses per cultivar.

Cultivar	Thesis	Exchangeable K (meq/100 g Mg)	Exchangeable Mg (meq/100 g Mg)	Mg/K
Pinot blanc	INT	0,60	1,98	3,3
Rhine Riesling		0,59	2,22	3,8
Pinot blanc	ORG1	0,57	2,18	3,8
Rhine Riesling		0,67	2,28	3,4
Pinot blanc	ORG2	0,42	2,23	5,3
Rhine Riesling		0,50	2,18	4,4

Table S3. K, malic acid, tartaric acid and titratable acidity in must per cultivar and thesis in the three-year period (median, minimum, maximum, first (Q_1) and third (Q_3) quartile, N = 30).

Cultivar	Variable	Thesis	Median	Min - Max	$Q_1 – Q_3$	Significance
Pinot blanc	K (g L^{-1})	INT	1.92	1.18 - 2.16	1.42 - 2.01	*n.s.*
		ORG1	1.72	1.23 - 2.14	1.41 - 1.96	
		ORG2	1.47	1.15 - 2.20	1.39 - 1.94	
	Malic acid (g L^{-1})	INT	2.37	1.67 - 3.63	1.97 - 2.65	*n.s.*
		ORG1	2.33	1.66 - 3.39	1.94 - 2.65	
		ORG2	2.18	1.41 - 2.94	1.97 - 2.37	
	Tartaric acid (g L^{-1})	INT	7.65	4.45 - 9.09	5.22 - 8.75	*n.s.*
		ORG1	6.36	4.51 - 9.19	4.92 - 8.63	
		ORG2	5.34	4.65 - 9.15	5.17 - 8.36	
	Tit_acidity (g L^{-1})	INT	5.65	3.70 - 6.80	4.30 - 6.00	*n.s.*
		ORG1	5.35	3.40 - 7.10	4.00 - 5.90	
		ORG2	4.80	3.60 - 6.40	4.10 - 5.70	
Rhine Riesling	K (g L^{-1})	INT	1.58	1.15 - 1.94	1.22 - 1.80	*n.s.*
		ORG1	1.33	1.09 - 1.91	1.19 - 1.74	
		ORG2	1.47	1.10 - 2.10	1.20 - 1.81	
	Malic acid (g L^{-1})	INT	2.20	1.81 - 3.35	1.97 - 2.88	*n.s.*
		ORG1	2.12	1.67 - 3.08	1.93 - 2.63	
		ORG2	2.32	1.71 - 3.37	2.02 - 2.98	
	Tartaric acid (g L^{-1})	INT	7.91	4.74 - 9.53	6.72 - 8.75	*n.s.*
		ORG1	7.54	5.38 - 9.20	5.90 - 8.87	
		ORG2	7.93	5.00 - 9.36	6.17 - 8.88	
	Tit_acidity (g L^{-1})	INT	6.20	5.50 - 8.30	5.90 - 6.70	*n.s.*
		ORG1	6.25	5.60 - 8.20	6.00 - 6.80	
		ORG2	6.55	5.40 - 8.40	6.10 - 6.80	

Table S4. Spearman correlation coefficients (ρ_S) between mineral N concentrations measured during vegetative cycle in Rhine Riesling before harvest and YAN. Red values represent the significant correlations ($P \leq 0.05$).

Timing of mineral N sampling	ρ_S
T1	0.07
T2	0.17
T3	0.58
T4	0.31
T5	0.14

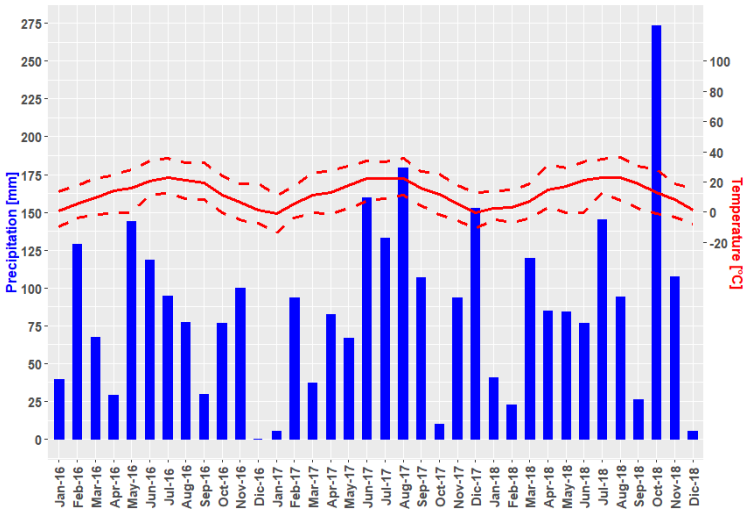

Figure S1. Meteorological data in three-year 2016-2018, acquired by Fondazione Mach weather station located in San Michele all'Adige (203 m a.l.s.). The bars represent the sum of monthly rainfall, the solid line shows the trend of the monthly average temperatures and the dotted lines the minimum and maximum temperatures for each month.