## *Supplemental Data for:*

Baby T, Collins C, Tyerman SD and Gilliham M. 2016.
Salinity negatively affects pollen tube growth and fruit set in grapevines and is not mitigated by silicon.
Am J Enol Vitic 67:218-228. doi: 10.5344/ajev.2015.15004.

**Supplementary Table 1** Treatment nutrient solutions.[a]

| | Nutrient solution A Control | | Nutrient solution B + 1.5 mM $K_2SiO_3$ | | Nutrient solution C + 35 mM NaCl | | Nutrient solution D + 1.5 mM K2SiO3 + 35 mM NaCl | |
|---|---|---|---|---|---|---|---|---|
| **Ions** | **Concn** | **Activity*** | **Concn** | **Activity*** | **Concn** | **Activity*** | **Concn** | **Activity*** |
| $K^+$ | 3 | 2.64 | 2.98 | 2.6 | 3.32 | 2.67 | 3.28 | 2.6 |
| $Ca^{2+}$ | 3.8 | 1.38 | 3.9 | 1.36 | 4.4 | 1.3 | 4.6 | 1.3 |
| $Mg^{2+}$ | 0.6 | 0.36 | 0.6 | 0.34 | 0.78 | 0.32 | 0.71 | 0.29 |
| $NH_4^+$ | 0.5 | 0.44 | 0.5 | 0.44 | 0.5 | 0.41 | 0.5 | 0.4 |
| $Cl^-$ | 3.1 | 2.7 | 2.2 | 1.9 | 39.1 | 31.5 | 38.2 | 30.7 |
| $NO_3^-$ | 7 | 6.18 | 6.8 | 6 | 7.6 | 6.1 | 7.5 | 6.1 |
| $SO_4^{2-}$ | 0.613 | 0.3 | 1.41 | 0.7 | 0.799 | 0.28 | 1.53 | 0.55 |
| $H_2PO_4^-$ | 1 | 0.1 | 1 | 0.11 | 0.92 | 0.12 | 1 | 0.12 |
| $Na^+$ | 0.0862 | 0.076 | 0.0862 | 0.075 | 35.1 | 28.3 | 35.1 | 28.2 |
| $FeEDTA^-$ | 0.035 | 7.95µM | 0.035 | 8.5 µM | 0.052 | 7.6 µM | 0.053 | 7.6 µM |
| $*Mn^{2+}$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| $Zn^{2+}$ | 0.012 | 3.6 nM | 0.012 | 3.5 nM | 0.017 | 2.6 nM | 0.078 | 2.7 nM |
| $Cu^{2+}$ | 0.0012 | 1.1 pM | 0.0012 | 1.1 pM | 0.0018 | 0.98 pM | 0.0019 | 0.98 pM |
| B | 0.02 | 20 µM | 0.02 | 20 µM | 0.02 | 20 µM | 0.02 | 20 µM |
| $MoO_4^{2-}$ | 0.0001 | 38 nM | 0.0001 | 39 nM | 0.00012 | 39 nM | 0.00012 | 39 nM |
| $H_4SiO_4$ | 0 | 0 | 1.5 | 0.096 | 0 | 0 | 1.5 | 0.096 |

[a]The four treatments (nutrient solutions) consisted of **A** (control: modified Hoagland's solution); **B** (modified Hoagland's solution with 1.5 mM $K_2SiO_3$ added); **C** (modified Hoagland's solution with 35mM NaCl added); and **D** (modified Hoagland's solution with 35 mM NaCl and 1.5 mM $K_2SiO_3$ added. The pH of each nutrient solution was adjusted to 5.8 using either 1M NaOH or 1M $H_2SO_4$ solution. In each treatment solution, the activity of all nutrients except $Na^+$, $Cl^-$ and Si ($H_4SiO_4$) was adjusted to be similar to that of the modified half-strength Hoagland's solution as calculated using Visual Minteq, version 2.52. *All values are in mM unless stated otherwise. Preliminary experiments showed that high concentrations of Mn from the growing medium accumulated in leaves. Thus, no additional Mn was included in the nutrient solutions.

**Supplementary Table 2** Influence of silicon (Si) on grapevine physiology and growth.[a]

| | Si treatment | | | |
|---|---|---|---|---|
| **Parameters** | **– Si** | **+ Si** | ***P* value** | **LSD (5%)** |
| Shoot fresh weight (g) | 173 a | 162 a | 0.106 | ns |
| Root fresh weight (g) | 33 a | 26 b | 0.018 | 5.8 |
| Total leaf area (six leaves, $mm^2$) | 583 a | 583 a | 0.968 | ns |
| Stomatal conductance (mmol $H_2O/m^2/s$) | 315 a | 228 b | 0.042 | 83.8 |
| Transpiration rate (mmol $H_2O/m^2/s$) | 2.1 a | 1.7 b | 0.001 | 0.22 |
| Net C assimilation rate(µmol $CO_2/m^2/s$) | 8.5 a | 8.6 a | 0.792 | ns |
| Leaf water content (%) | 90 a | 91 b | 0.004 | 0.2 |
| Root water content (%) | 88 a | 88 a | 0.525 | ns |

[a]One-way ANOVA was performed, and significant differences between treatments were determined at $p < 0.05$. Different letters indicate significant differences between treatments. Values are means of 12 replicates. LSD, least significant difference between treatment means; ns, not significant; + Si, 1.5 mM Si added; – Si, no Si added.