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**Amino acids content in 'Tempranillo' must from three soil types over four vintages**

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### Table S1

Pedological parameters of the three soil types located in Uruñuela (La Rioja), Spain

<table>
<thead>
<tr>
<th>Soil Type</th>
<th>FH</th>
<th>TC</th>
<th>PP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effective depth (cm)</td>
<td>110 ± 1</td>
<td>71 ± 6</td>
<td>64 ± 2</td>
</tr>
<tr>
<td>Water availability (mm)</td>
<td>147 ± 9</td>
<td>56 ± 1</td>
<td>63 ± 5</td>
</tr>
</tbody>
</table>

**Topsoil (0 - 30 cm)**

<table>
<thead>
<tr>
<th>Textural class</th>
<th>Loam</th>
<th>Sandy loam</th>
<th>Loam</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>8.20 ± 0.25</td>
<td>8.30 ± 0.4</td>
<td>8.50 ± 0.10</td>
</tr>
<tr>
<td>K (ppm)</td>
<td>348 ± 62</td>
<td>244 ± 9</td>
<td>113 ± 53</td>
</tr>
<tr>
<td>Mg (ppm)</td>
<td>218 ± 9</td>
<td>94 ± 4</td>
<td>90 ± 13</td>
</tr>
<tr>
<td>Organic matter (% w/w)</td>
<td>1.10 ± 0.06</td>
<td>0.90 ± 0.17</td>
<td>1.10 ± 0.23</td>
</tr>
</tbody>
</table>

**Subsoil (deeper than 30 cm)**

<table>
<thead>
<tr>
<th>Textural class</th>
<th>Loam</th>
<th>Loam</th>
<th>Loam</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>8.5 ± 0.15</td>
<td>8.5 ± 0.10</td>
<td>8.5 ± 0.15</td>
</tr>
<tr>
<td>Coarse fragments (% v/v)</td>
<td>0.5 ± 0.25</td>
<td>55 ± 2.5</td>
<td>26 ± 4.0</td>
</tr>
<tr>
<td>Calcium carbonate (% w/w)</td>
<td>16.3 ± 3.0</td>
<td>60.5 ± 1.0</td>
<td>60.6 ± 2.3</td>
</tr>
<tr>
<td>Active limestone (% w/w)</td>
<td>6.9 ± 1.7</td>
<td>15.1 ± 0.6</td>
<td>15.0 ± 1.1</td>
</tr>
</tbody>
</table>

FH: **Fluventic Haploxererts**; TC: **Typic Calcixererts** and PP: **Petrocalcic Palexerolls**. Values are given with their standard deviation (n = 3).

### Table S2

Percentage of must N compounds variance attributable to soil, season and soil x season interaction

<table>
<thead>
<tr>
<th>Soil (%)</th>
<th>Season (%)</th>
<th>Soil x season (%)</th>
<th>Error (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pro</td>
<td>9.00 **</td>
<td>42.26 ***</td>
<td>41.12 ***</td>
</tr>
<tr>
<td>Arg</td>
<td>36.54 ***</td>
<td>32.47 ***</td>
<td>26.01 ***</td>
</tr>
<tr>
<td>GABA</td>
<td>29.61 ***</td>
<td>34.18 ***</td>
<td>33.22 ***</td>
</tr>
<tr>
<td>Gln</td>
<td>23.82 ***</td>
<td>33.58 ***</td>
<td>38.95 ***</td>
</tr>
<tr>
<td>Glu</td>
<td>13.76 ***</td>
<td>49.32 ***</td>
<td>30.67 ***</td>
</tr>
<tr>
<td>Ala</td>
<td>47.88 ***</td>
<td>24.88 ***</td>
<td>22.22 ***</td>
</tr>
<tr>
<td>His</td>
<td>22.03 ***</td>
<td>29.10 ***</td>
<td>43.11 ***</td>
</tr>
<tr>
<td>Trp</td>
<td>37.24 ***</td>
<td>46.81 ***</td>
<td>17.26 ***</td>
</tr>
<tr>
<td>Thr</td>
<td>49.65 ***</td>
<td>27.30 ***</td>
<td>19.96 ***</td>
</tr>
<tr>
<td>Ser</td>
<td>32.10 ***</td>
<td>17.42 ***</td>
<td>44.48 ***</td>
</tr>
<tr>
<td>Asp</td>
<td>25.71 ***</td>
<td>53.78 ***</td>
<td>10.15 **</td>
</tr>
<tr>
<td>Cys</td>
<td>17.72 ***</td>
<td>37.05 ***</td>
<td>38.62 ***</td>
</tr>
<tr>
<td>Phe</td>
<td>21.72 ***</td>
<td>36.03 ***</td>
<td>34.97 ***</td>
</tr>
<tr>
<td>Val</td>
<td>13.99 ***</td>
<td>39.52 ***</td>
<td>35.24 ***</td>
</tr>
<tr>
<td>Leu</td>
<td>13.16 ***</td>
<td>46.00 ***</td>
<td>30.92 ***</td>
</tr>
<tr>
<td>Tyr</td>
<td>39.63 ***</td>
<td>25.41 ***</td>
<td>30.14 ***</td>
</tr>
<tr>
<td>Asn</td>
<td>33.67 ***</td>
<td>32.10 ***</td>
<td>28.06 ***</td>
</tr>
<tr>
<td>Cit</td>
<td>39.86 ***</td>
<td>37.63 ***</td>
<td>14.58 ***</td>
</tr>
<tr>
<td>Gly</td>
<td>15.81 ***</td>
<td>22.79 ***</td>
<td>51.65 ***</td>
</tr>
<tr>
<td>Ile</td>
<td>12.65 *</td>
<td>30.18 **</td>
<td>22.46 ns</td>
</tr>
<tr>
<td>Met</td>
<td>28.32 ***</td>
<td>47.99 ***</td>
<td>21.58 ***</td>
</tr>
<tr>
<td>Lys</td>
<td>13.63 ***</td>
<td>39.74 ***</td>
<td>38.08 ***</td>
</tr>
<tr>
<td>Taa</td>
<td>30.42 ***</td>
<td>29.58 ***</td>
<td>36.56 ***</td>
</tr>
<tr>
<td>Taa without Pro</td>
<td>36.49 ***</td>
<td>28.24 ***</td>
<td>31.56 ***</td>
</tr>
<tr>
<td>YAN</td>
<td>27.89 ***</td>
<td>21.03 ***</td>
<td>43.42 ***</td>
</tr>
</tbody>
</table>

* p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; ns p > 0.05.

Taa = Total amino acids.

YAN = Yeast assimilable nitrogen.